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NH Eurobuilding Hotel, Madrid Main Conference:

26th & 27th May 2004 Trading Summit: 25th May 2004 Workshop Sessions: 25th & 28th May 2004

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### 10th Annual Meeting

# Global Derivatives 2004 & Risk Management 2004

### **Cutting-Edge Innovations In Derivatives** Pricing, Hedging, Trading & Portfolio Management

**Investment & Commercial Banks, Fund Managers, Hedge Funds & Institutional Investors** 

Don't Miss Presentations From These Renowned Global Financial Minds



Peter Carr Head of Quantitative **BLOOMBERG** 



John Hull. Professor of Derivatives & Risk Management UNIVERSITY **OF TORONTO** 



Riccardo Rebonato Head of Group Market Risk ROYAL BANK OF SCOTLAND



**Emanuel Derman**, Professor of Finance
COLUMBIA UNIVERSITY



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Professor of Economics YALE UNIVERSITY



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### **Expert Insights From These Leading Derivatives Practitioners**



Global Head of Credit Trading
DEUTSCHE BANK



Andrew Harmstone, Head of European Derivatives & **Quantitative** Research
LEHMAN BROTHERS



Rick Shypit, Executive Director MORGAN



Martin St-Pierre, Global Head of Structured Credit Derivatives Trading
BEAR STEARNS



Head of Quantitative



MERRILL LYNCH



Global Head of Fixed Income Research &



Professor of Finance & MIT SLOAN



### Don't Miss Cutting-Edge Insights From Over 100 Leading **Global Academics And Derivatives Practitioners Including:**

- Andrew Matytsin, Principal, RENAISSANCE TECHNOLOGIES
- Steve Ross, Professor of Finance & Economics, MIT SLOAN
- John Zhao, Senior Trader, CLINTON GROUP
- Olivier Ledoit, Hd of Statistical Arbitrage, Global Equity Proprietary Trading Group, CREDIT SUISSE FIRST BOSTON
- Mark Broadie, Prof. of Business, COLUMBIA GRADUATE SCHOOL OF BUSINESS
- Espen Haug, Proprietary Derivatives Trader, JPMORGAN CHASE
- Joaquim de-Lima, Global Hd of Equity Derivatives Research, HSBC
- Marcus Overhaus, MD, Global Hd of Quantitative Research, DEUTSCHE BANK
- Lorenzo Bergomi, Hd of Derivatives Research, SOCIETE GENERALE Reza Hadizad, Fund Manager, Global Equity Arbitrage Fund, PIONEER ALTERNATIVE INVESTMENTS

Larry Abele, MD, Quantitative Strategies & Portfolio Engineering,

- Greg Merchant, MD, Hd of European Derivatives Analytics, DEUTSCHE BANK
- Javier Martin-Artajo, Global Hd of Credit Derivatives Trading & Hd of Quantitative Research, DRESDNER KLEINWORT WASSERSTEIN
- Dilip Madan, Finance Prof., UNIVERSITY OF MARYLAND
- David Modest, MD, Chief Risk Officer, AZIMUTH TRUST Philipp Schönbucher, Assistant Prof., ETH ZURICH
- Frances Cowell, Hd of Derivatives Risk Management,
- MORLEY FUND MANAGEMENT Rick Shypit, Executive Director, MORGAN STANLEY
- Eric Reiner, MD, Group Market Risk, UBS
- David Modest, MD & Chief Risk Officer, AZIMUTH TRUST Stéphane Kourganoff, Global Hd. Fixed Income Derivatives Trading,
- CDC IXIS CAPITAL MARKETS
- Jesper Andreasen, Hd of Product Development, NORDEA MARKETS Ed Dunne, MD, WILLOWBRIDGE ASSOCIATES

### **A NEW Dual-Streamed Trading Strategies Summit Examining:**

'Quantitative, Relative Value, & Proprietary Trading Strategies For Hedge Funds, Investment Banks And Asset Managers'



### Don't Miss Four Intensive Masterclass Sessions With Leading Industry Gurus

**New Volatility and Correlation** Models for Financial Risk Assessment and Derivatives Pricing Led by Robert Engle, NYU Stern School Of Business

**DEUTSCHE ASSET MANAGEMENT** 

**Recent Developments In The** Valuation Of Credit Derivatives Led by Professor John Hull, University of Toronto

**Advanced Explorations Into** Interest Rate Derivatives Led By: Leif Andersen, Bank of America Jesper Andreasen, Nordea Markets Mark Broadie, Columbia Graduate School of Business Pricing, Hedging & Trading The Latest Volatility Products Led By: Steven Heston University of Maryland





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### TUESDAY 25TH MAY 2004 PRE-CONFERENCE SUMMIT DAY ONE

	GLOBAL DERIVATIVES TRADING SUMMIT The Latest Innovations In Quantitative, Relative Value, & Proprietary Trading Strategies For Hedge Funds, Investment Banks, And Asset Managers				
08.30	Registration	& Coffee			
08.45	Chairman's Oper	ning Welcome			
09.00	Brand New Hedge Fund Trading Research On The Nonlinear, Option-Liked Performance Of Hedge Fund Strategies: An Empirical Characterization Bill Fung, Co-CEO, PI ASSET MANAGEMENT & Visiting Professor, LONDON BUSINESS SCHOOL				
09.40	Proprietary Trading Ar Andrew Matytsin, Principal, RE				
10.20	Morning	Coffee			
	ADVANCED CREDIT TRADING	HEDGE FUND TRADING STRATEGIES			
10.45	Hedging Correlation Swaps Rajeev Misra, DEUTSCHE BANK	Exploring The Sources Of Alpha And Risk In Alternatives Investing David Modest, AZIMUTH TRUST			
11.25	In Search Of Correlation: Evaluating The Latest Research On Modelling, Distribution And Correlation In CDO Equity Peter Rappoport, JP MORGAN	Trimming Fat Tails: Using Risk Arbitrage And Equity Derivatives To Enhance Portfolio Returns Reza Hadizad, PIONEER ALTERNATIVE INVESTMENTS			
12.05	Lui	nch			
	VOLATILITY TRADING				
13.30	Successfully Trading, Pricing & Hedging Volatility And Variance Swaps Nathaniel Newlin, LAUREL RIDGE ASSET MANAGEMENT	Examining The Sharpe Ratio And Sortino Ratio As Successful Measures Of Investment Quality And Identifying The Optimum Method Of Measuring Investment Performance David Harding, WINTON CAPITAL MANAGEMENT			
14.10	Assessing Volatility Arbitrage As A Key Successful Strategy Robert Hanna, MAKO INVESTMENT MANAGERS	Evaluating The Heterogenous Derivatives Contract Versus The Modern Political Environment Edward Dunne, WILLOWBIRDGE ASSOCIATES			
14.50	Honey, I Shrunk The Sample Covariance Matrix! : Innovations In Measuring Correlations To Increase The Sharpe Ratio Of Trading Strategies With Large Numbers Of Stocks Olivier Ledoit, CREDIT SUISSE FIRST BOSTON	Identifying Optimal Strategies For Hedging Credit In A Volatility Driven Convertible Arbitrage Space Andrew Pernambuco, ALEXANDRA INVESTMENT MANAGEMENT			
15.30	Afternoo	on Tea			
15.50	Innovations In Optimizing Quantitative Trading: Are Intraday Options The Next Big Innovation In Derivatives Trading? Richard Olsen, OLSEN LTD	How To Construct Fund-Of-Funds Portfolios And Structured Products Using A Robust Quantitative Framework Bernard Lee, IMPERIAL COLLEGE LONDON			
16.00	New Research: Filtered Return Processes, Asset Allocation and Derivative Investment Dilip Madan UNIVERSITY OF MARYLAND	How To Screen Single Hedge Funds Based On Statistical Techniques That Go Beyond Linear Regression And Correlation Youngju Lee, AILLIANZ HEDGE FUND PARTNERS			
16.40	SPECIAL	Understanding Managed Futures And The Value Of Divergent Trading Mark Rzeczynski, JW HENRY			



17.20

"This Is The Must Attend Event - Global **Derivatives Showcases** The Latest Cuttingedge Research & Thinking From The Leaders In Global Finance"

19.00

End Of Summit

John Hull, Professor of Derivatives & Risk Management UNIVERSITY OF TORONTO

### WEDNESDAY 26TH MAY 2004 MAIN CONFERENCE DAY TWO

IVIAIN CONFERENCE DAY TWO								
08.00	Registration & Coffee							
08.30	Chairman's Opening Welcome:  The New Financial Order: Risk In The 21st Century  SPECIAL							
08:40	Robert Shiller, Professor of Economics, YALE UNIVERSITY  GLOBAL DERIVATIVES 2004 HALL OF FAME ROUNDTABLE Robert Engle, Professor of Finance, NYU STERN SCHOOL OF BUSINESS John Hull, Professor of Derivatives & Risk Management, UNIVERSITY OF TORONTO Nassim Taleb, Founder, EMPIRICA CAPITAL Robert Shiller, Professor of Economics, YALE UNIVERSITY							
10.00	Steve Ross, Professor of Finance & Economics, MIT SLOAN SCHOOL OF MANAGEMENT  TALKING TRADING PANEL Rajeev Misra, Global Head of Credit Trading, DEUTSCHE BANK Lawrence Barwick, Head of Global Proprietary Trading, BANK OF AMERICA Bill Fung, Co-CEO, PI ASSET MANAGEMENT & Visiting Professor, LONDON BUSINESS SCHOOL							
10.40	_		ives & Risk Management 2004 Technol					
	Stream A GLOBAL DERIVATIVES 2004 TRADER FORUM	Stream B THE LATEST INNOVATIONS IN CREDIT RISK MODELLING	Stream C HEDGE FUND TRADING STRATEGIES	Stream D ADVANCED EQUITY DERIVATIVES PRICING & HEDGING				
11.00	TRADER ROUNDTABLE Examining Key Strategies For Trading Exotic Derivatives Under Tight Risk Constraints Javier Martin-Artajo, DRKW Nasir Afaf, ING Stephane Kourganoff, CDC IXIS Dariush Mirfendereski, BARCLAYS CAPITAL	Valuing CDO Tranches Without Monte Carlo Simulation John Hull, UNIVERSITY OF TORONTO	Compensation And Risk Control: The Impact Of Compensation Incentives On Risk Taking Behaviour Steve ROSS, MIT SLOAN SCHOOL OF MANAGEMENT	Modelling Stock Price Dynamics In The Presence O Default: Calibration & Convertible Bond Pricing Linking Equity & Credit Markets Rick Shypit, MORGAN STANLEY				
11.35	INNOVATIONS IN INTEREST RATE TRADING  Overcoming The Practical Modelling Challenges To Accurately Pricing & Trading Inflation-Linked Swaps Alex Puaca, AFA DART	OF TORONTO  SPECIAL EN	Talking Volatility Trading In Today's Dynamic Marketplace: Examining New Products And New Horizons Pav Sethi, JD CAPITAL MANAGEMENT	Valuing & Hedging Volatility Derivatives Jim Gatheral, MERRILL LYNCH				
12.10	Inflation Derivatives: Pricing And Hedging In A Fast- Expanding Market Dariush Mirfendereski, BARCLAYS CAPITAL	Hedging When Perfect Replication Is Not Possible: Evaluating The Hedging Performance Of Complex Credit Derivatives Models In Practice Riccardo Rebonato, ROYAL BANK OF SCOTLAND	Assessing The Latest Innovations In Pricing Mortgage Backed Securities & The Key Hedging Implications Nazir Dossani, FREDDIE MAC	The Characteristic Curve Approach to Arbitrage-Free Time Interpolation of Volatili Eric Reiner, UBS				
12.45	Lunch & Op		& Risk Management 2004 Technology	Exchange				
14.15	Assessing The Latest Practical Methods For Reducing Trading Costs And Implementing Best Execution Strategies For Enhanced Client Benefit Harish Neelakandan, FX CONCEPTS	Examining Fast Monte Carlo Methods For Accurate Estimation Of Tail Probabilities And Risk Measures For Portfolio Credit Risk Paul Glasserman, COLUMBIA GRADUATE SCHOOL OF BUSINESS	Negative Probabilities And Other Non- Conventional Ideas Applied In Finance Espen Haug, JP MORGAN CHASE	Hedging With Options In Th Presence Of Jumps And Stochastic Volatility Peter Carr, BLOOMBERG LP				
TRAD VOLATI	VOLATILITY TRADING	Evaluating Advanced Pricing &	Panel Discussion Exploring Successful Quantitative	Implementing A Jump-Diffusi				
14.50	New Advances In Volatility Trading: Designing & Implementing A Fast Three Factor Model For Enhanced Modelling Of Correlation Products Silverio Foresi, GOLDMAN SACHS ASSET MANAGEMENT	Hedging Of Single and Portrolios Of CDO Tranches David Li, CITIGROUP David Shelton, CITIGROUP	Strategies For Arbitraging Volatility Against Volatility & Determining Whether There Is A Perfect Hedge Espen Haug, JP MORGAN CHASE John Zhao, CLINTON GROUP Joe Zou, GOLDMAN SACHS	Model For Exotic Equity Products Jesper Andreasen, NORDEA MARKETS				
15.25	Examining The Practical Challenges Of Volatility Trading In Commodities: Assessing Peculiarities Of Option Pricing And Hedging In Petroleum Markets Ilia Bouchouev, KOCH SUPPLY & TRADING	Variance Reduction For Prices And Greeks Of Basket Default Swaps And Synthetic CDOs In The Li Model Mark Joshi, ROYAL BANK OF SCOTLAND	PRODUCT INNOVATIONS & MODELLING  New Work On Modelling FX/IR Hybrids Phil Hunt, WESTLB	Calibration And Comparison Stochastic Volatility And Oth Advanced Volatility Models Curt Randall, SCICOMP Jim Gatheral, MERRILL LYNCH Vladimir Lucic, TD SECURITI				
16.00	Afternoon Tea  Market-Making Versus Relative	& Opportunity To Visit The Derivative Examining Archimedean Copulas	ves & Risk Management 2004 Technology PRODUCT PANEL:	Examining Two Sided				
16.20	Value Trading: How Much Do We Let A Model Tell Us? Mike De Vegvar, UBS	And Čontagion In Credit Portfolios Javier Martin-Artajo, DRKW	Risk Managing Innovative Financial Products Chair: Dongning Qu. ABBEY Frances Cowell, MORLEY FUND MANAGEMENT Andrew Brogden, ABBEY Joe Zou, GOLDMAN SACHS	Barrier/Exit Problems With Jumps Alan Lewis, OPTIONCITY.NET				
	VOLATILITY MODELLING	OPTIMUM PORTFOLIO MANAGEMENT USING DERIVATIVES	Innovations In High-End Numerical Techniques For The	Exploring The Latest Practic Techniques For Pricing The Forward Skew In Cliquet				
16.55	Understanding Volatility As An Asset Class Andrew Harmstone, LEHMAN BROTHERS	A Quantitative Approach To Detect Market Abuses: The Surveillance Automatic Integrated System (Sais) Marcello Minenna, CONSOB	Pricing Of Derivative And Structured Financial Instruments Andreas Binder, MATHCONSULT	Options & Determining The Optimal Hedging Strategy				
17:30	The Econometrics Of Non-Gaussian Stochastic Volatility Models Alireza Javaheri, RBC CAPITAL MARKETS	Evaluating The Use Of Derivatives In Trading & Investment Portfolios: Can Investors Implement Responsible Derivative Programs That Suit And Protect Their Investments Larry Abele, DEUTSCHE ASSET MANAGEMENT Robert Fortheringham, OMERS Frances Cowell, MORLEY FUND MANAGEMENT	Examining The Optimal Use Of Market Models In Practical Hedging Stephen Dodds, BARCLAYS CAPITAL	Talking Exotics: Examining New Innovations Pricing (& Mis-pricing), Hedging, & Trading The Lat Generation Of Exotic Equit Derivative Products Andrew Harmstone, LEHMAN BROTHERS David Samuel, RBOS Lorenzo Bergomi, SG				
18.05	Champagne Round Tables  These are a chance to discuss the latest issues with leading experts over a glass of champagne Space is limited, so please sign up at the Registration desk from Morning Coffee							

Gala Cocktail Party

### THURSDAY 27TH MAY 2004 MAIN CONFERENCE DAY THREE

	White och Exerce But Times							
08.30	Coffee & Opportunity To Visit The Derivatives & Risk Management 2004 Technology Exchange							
09.00	Chairman's Opening Welcome  Ouantitative Finance: How We Got Here Where We're Going							
09.10	Quantitative Finance: How We Got Here, Where We're Going Emanuel Derman, Professor, COLUMBIA UNIVERSITY							
09.45	On The Cognitive Aspects Of The Preference For Negative Skewness  Nassim Taleb, Founder, EMPIRICA CAPITAL							
10.20	Global Derivatives Financial Minds Panel  Exploring Trends & Developments In Volatility & Correlation Emanuel Derman, Professor, COLUMBIA UNIVERSITY Jim Gatheral, Head Of Quantitative Analysis, MERRILL LYNCH Riccardo Rebonato, Head Of Group Market Risk ROYAL BANK OF SCOTLAND Peter Carr, Head Of Quantitative Research, Bloomberg LP & Director Of Math Finance, COURANT INSTITUTE NYU Greg Merchant, Managing Director, Head of European Derivatives Analytics, DEUTSCHE BANK							
11.00	Morning Coffee		ives & Risk Management 2004 Techn	ology Exchange				
	Stream A INNOVATIONS IN VOLATILITY TRADING	Stream B ENHANCED PRICING & HEDGING & TRADING CREDIT DERIVATIVES & CDOs	Stream C HYBRID MODELLING & PRICING INNOVATIONS	Stream D THE LATEST INNOVATIONS IN INTEREST RATE MODELLING				
11.30	Option Valuation With Conditional Skewness Steven Heston UNIVERSITY OF MARYLAND	Overcoming The Challenges Of Calibrating & Fitting The Smile For More Accurate Pricing Of Exotic Hybrid Equity-Credit Products Marcus Overhaus, DEUTSCHE BANK	Reusing Interest Rate Models For Better & Faster Hybrid Pricing Tom Hyer, UBS	Mathematical, Empirical And Practical Issues With Volatility Modelling Marek Musiela, BNP PARIBAS				
12.35	Measuring The Value Of Dynamic Correlations For Asset Allocation Robert Engle NYU STERN SCHOOL OF BUSINESS	Modelling Default Contagion And Hedging Basket And Portfolio Credit Derivatives Philipp Schönbucher, ETH ZURICH	Linked Bond Successfully Synthesising A Euro Inflation Using a Combination Of Credit & Inflation-Linked Derivatives Rashid Zuberi, DEUTSCHE BANK	New RESEARCH  New Empirical And  Computational Results In  The Relative Importance Of  Jumps In Returns, In Stochastic  Volatility And In Volatility  Mark Broadle  COLUMBIA GRADUATE  SCHOOL OF BUSINESS				
13.10	Lunch & O	Opportunity To Visit The Derivatives	& Risk Management 2004 Technolog	y Exchange				
14.30	Assessing How The Current Generation Of Exotic Models Combine With Trading Reality Nick Nassuphis, CREDIT SUISSE FIRST BOSTON	Evaluating The Benefits & Limitations Of Using Monte Carlo Simulation To Measure & Manage Risk Exposure In CDO Of CDOs & Determining The Future Modelling Challenges David Beaglehole, DOS DEUTSCHE BANK	Theory And Calibration Of Lognormal Swap Market Models And Smile-Consistent Generalisations Stefano Galluccio, BNP PARIBAS	Evaluating An Interest Rate Modelling Framework in Discrete Rolling Spot Measure Alexandre Antonov NUMERIX				
15.05	Pricing Options On Realized Volatility And Variance – Evaluating A New Pricing / Hedging Methodology Zhenyu Duanmu, MERRILL LYNCH	Examining Key Strategies For The Optimum Valuation Of Synthetic CDOs And Successfully Hedging The Positions Martin St-Pierre, BEAR STEARNS	Explorations Into The Co- Movement Of Rates & Equities Piotr Karasinski, CITIGROUP	Examining An Effective Volatility Technique For Stochastic Volatility BGM Philippe Balland MERRILL LYNCH				
15.40	Afternoon Tea	& Opportunity To Visit The Derivati	ves & Risk Management 2004 Techno	ology Exchange				
	INNOVATIONS IN VOLATILITY PRICING & MODELLING	RICING & MODELLING  In Accurately Estimating Correlations & Volatilities Of New Work On  Credit Spreads For The  Assessing The Suitability Of						
16.00	Pricing Options On Realised Variants Dilip Madan UNIVERSITY OF			The 'Numéraire Alignment' Optimisation Of BGM Model Emmanuel Fruchard, SUMMIT SYSTEMS				
				Innovations BRAND NE RESEARC				
16.35	Understanding And Implementing Volatility And Correlation Arbitrages Bruno Dupire, BLOOMBERG LP	Variance Minimization Versus Spread pv01 Ali Hirsa, MORGAN STANLEY	Developing A Consistent Approach For Handling The Forward Smile Chrif Yousiffi, DRKW	In Using The Framework Of Stochastic Volatility, Local Volatility And Correlation Structures As Powerful Tools In The Analysis Of Compound Options And Financial Product Innovations Ken Yan, NOMURA				
17.05	Assessing Volatility Model Robustness Paul Wilmott, WILMOTT ASSOCIATES & Erwin Simons ING BANK	Accurately Estimating Credit Spreads From Option Prices	The Latest Innovations In Pricing & Hedging Cliquets, Forward Starts & Other Exotic Equity Derivatives	International Models For Interest Rates And Foreign Exchange: A General Framework For The Unification Of Interest Rate Dynamics And Stochastic Volatility Modelling Lane Hughston, KINGS COLLEGE LONDON				
17.40	Evaluating The Different Modelling Approaches For Pricing The Skew Of Corridor Products And The Latest Techniques For Successfully Managing Forward Volatility  Simulation Of CDOs And CDO2s Volkan Kurtas, UNIOA ALTERNATIVE INVESTMENTS & William Morokoff, MOODYS KMV		Assessing The Latest Models for Accurately Calculating And Valuing Dividend Risk In Structured Equity Products	Examining The Markov Functional Model Under Smile Dongning Qu, ABBEY				
			ice Ends					

"A uniquely comprehensive event - the best of its kind in Europe"
Peter Carr, Bloomberg

### TUESDAY 25TH MAY 2004 PRE-CONFERENCE WORKSHOP

09.00

17.00

# RECENT DEVELOPMENTS IN THE VALUATION OF CREDIT DERIVATIVES

Led By John Hull University of Toronto see p4

### FRIDAY 28TH MAY 2004 POST-CONFERENCE WORKSHOP

### NEW VOLATILITY AND CORRELATION MODELS FOR FINANCIAL RISK 09.00 ASSESSMENT AND DERIVATIVES **PRICING** Led By 17.00 Robert Engle **NYU Stern School of Business INTEREST RATE DERIVATIVES:** ADVANCED EXPLORATIONS INTO 09 00 MODELS THAT WORK AT WORK Led By Leif Andersen, Bank of America 17.00 Jesper Andreasen, Nordea Markets Mark Broadie, Columbia Graduate School of Business see p5 Advanced Theoretical Methods & **Practical Innovations For** 09.00 PRICING, HEDGING & TRADING THE LATEST VOLATILITY PRODUCTS Led By 17.00 **Steven Heston** University of Maryland

### Global Derivatives & Risk Management 2004 Advisory Board

The advisory board provided insightful feedback, comments and advice in the 2004 programme development

- Peter Carr, Head of Quantitative Research, BLOOMBERG
- John Hull, Professor of Derivatives & Risk Management, UNIVERSITY OF TORONTO
- Riccardo Rebonato, Head of Group Market Risk, ROYAL BANK OF SCOTLAND
- Emanuel Derman, Professor of Finance, COLUMBIA UNIVERSITY
- Nassim Taleb, Founder, EMPIRICA CAPITAL
- Jim Gatheral, Head of Quantitative Analysis, MERRILL LYNCH
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  INVERSITY OF MARYLAND.
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- Marco Avellaneda, Professor of Mathematics,
   COURANT INSTITUTE & Head Volatility Arbitrage Strategies,
   CAPITAL FUND MANAGEMENT

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# Recent Developments In The Valuation Of Credit Derivatives



Led by:

### **Professor John Hull, University of Toronto**

#### **Seminar Outline**

This seminar focuses on the recent innovations in the pricing of credit derivatives. It covers credit default swaps, copula models, methods for valuing Nth-to-default swaps, synthetic CDOs, and CDS options. John Hull is well known for his applied research and his clear presentational style. His popular book "Options, Futures, and Other Derivatives," is now in its fifth edition.

### **Understanding Credit Default Swaps**

- Understanding how Credit default swaps work
- Exploring Variations of the standard deal
- Evaluating Valuation and recovery rate assumptions
- Examining the key alternative approaches to estimating default probabilities
- Risk-neutral vs real world probabilities

### Reviewing The Modelling Of Default Correlation

- Alternative ways of measuring default correlation
- Examining the relationship between correlation measures
- Survival time distributions
- Exploring the use of copulas
- Assessing Factor models and how to use them
- The generalized multifactor copula model

### New Research On kth to Default CDSs and CDOs

- How to value 1st, 2nd,...., Nth to default deals
- Implementing the factor-based copula model without Monte Carlo simulation

- Determining the probability distribution of the kth to default.
- How to successfully value CDO tranches
- Assessing Cash CDOs vs synthetic CDOs

### **New Research In Options**

- Exploring Options on an individual CDS
- Understanding alternative structures
- Conditioning on survival in the analysis
- Analysing Extensions to options on baskets

### Further Thoughts...

- Estimating risk-neutral credit rating transitions to value rating-dependent derivatives
- Do CDS spreads lead ratings?
- Using option volatilities to imply default probabilities

#### **About Your Masterclass Leader**

John Hull is the Maple Financial Group Professor of Derivatives and Risk Management in the Joseph L. Rotman School of Management at the University of Toronto. He is an internationally recognized authority on derivatives. Recently his research has focused on interest rate options, credit risk, and market risk. He was, with Alan White, one of the winners of the Nikko-LOR research competition for his work on the Hull-White interest rate model. He has acted as consultant to many North American, Japanese, and European financial institutions. He has written two books: Options, Futures, and Other Derivatives, which is in its fourth edition and Introduction to Futures and Options Markets, which is in its third edition. Both books have been translated into several languages and are widely used in trading rooms throughout the world. Professor Hull is the founder and current director of the Bonham Center for Finance at the Rotman School. He has won many teaching awards and was voted Financial Engineer of the Year by the International Association of Financial Engineers in 1999.

Friday 2004

### New Volatility And Correlation Models For Financial Risk Assessment And Derivatives Pricing



Led by:

### **Professor Robert Engle, NYU Stern School of Business**

### **Seminar Outline**

This workshop introduces and develops the latest volatility and correlation models. The workshop will open with the Nobel lecture on the ARCH model and then proceeds to introduce the Dynamic Conditional Correlation or DCC model. In addition, applications to risk management, asset allocation and default correlations will be presented. These applications will feature the advantages of daily updating for long horizon risks.

### **Evaluating Risk and Volatility: Econometric Models and Financial Practice**

- A Review of Stockholm, December 2003
- Introduction to ARCH Models
- Applications to Risk Management and Options Pricing

### **A NEW Model of Correlations: DCC**

- Exploring The Family of DCC Models
- Some Empirical Estimates of Global Equity and Bond Correlations

■ Introducing & Reviewing A New Model

### **Examining Tail Dependence Properties of DCC**

- Understanding The Credit Risk Problem
- Importance of Tail Dependence for Risk Measurement
- Providing Empirical Support

### Assessing Monte Carlo Performance and Econometric Estimation

- Evaluating Software & Understanding Its Role
- Assessing The True Performance Results

#### **Asset Allocation**

- Using Asset Allocation as a Test
- Implementing Tests And Evaluating Performance

### **About Your Workshop Leader**

Professor Robert F. Engle was awarded the 2003 Nobel Prize in Economic Science. Since 2000 he has held the Michael Armellino Professorship in the Management of Financial Services at the New York University Stern School of Business. Engle is an expert in time series analysis with a long-time interest in the analysis of financial markets. His research has produced such innovative statistical methods as ARCH, for which he was awarded the Nobel Prize, and cointegration, a collaboration with Professor Granger that was also cited in the prize. Further important econometric innovations include Band Spectrum Regression, common features, Autoregressive Conditional Duration (ACD), Conditional Autoregressive Value at Risk (CAViaR), and most recently Dynamic Conditional Correlation (DCC). Engle received the prize for his research on the concept of autoregressive conditional heteroskedasticity (ARCH). He developed this method for statistical modeling of time-varying volatility and demonstrated that these techniques accurately capture the properties of many time series. His ARCH models have become indispensable tools not only for researchers, but also for analysts of financial markets, who use them in asset pricing and in evaluating portfolio risk. Engle has published more than 100 academic papers and three books. His interest in financial econometrics covers equities, interest rates, exchange rates and options. Currently he is developing methods to analyze large systems of assets, real time volatility, market microstructure, and extreme market movements.

### **Interest Rate Derivatives: Advanced Explorations Into Models That Work At Work**

Leif Andersen, Global Co-Head GCIB Quantitative Research, Bank of America Jesper Andreasen, Head of Product Development, Nordea Markets Mark Broadie, Professor of Business, Columbia Graduate School of Business

### **Implementation And Calibration Of Short-Rate Models**

- Examining basic notation
- Evaluating Classes of short-rate models; existence of reconstitution formulas
- Throw away those trees: finite difference implementations
- Forward backward and forward-from-backward induction Calibration to forward curve and volatility structure
- Extensions to multiple factors; ADI scheme

### **Examining Libor Market Models**

- Assessing the basic Libor market model; swap and spot measures
- Cap and swaption pricing formulas Understanding Skew extensions
- Introduction to stochastic volatility extensions
- Successful strategies for correlation and volatility calibration

### Assessing Monte Carlo Simulation Of Interest **Rate Models**

Understanding the basics

### About Your Workshop Leaders **Leif Anderesen** Leif holds MSc's in Electrical and Mechanical

Lett noiss Mose's in Electrical and Mechanical Engineering for Technical University of Denmark; an MBA from University of California at Berkeley; and a PhD in Finance from Aarhus Business School. He is currently global co-head of the quantitative research group at Banc of America Securities. Before this, Leif spent 9 years at General Re Financial Products, developing and implementing pricing models for derivatives in a variety of financial markets. derivatives in a variety of financial markets

#### Discretization of LM model

- Discretization schemes for non-linear SDEs
- Simulation of stochastic volatility models
- Exploring variance reduction techniques

### **Pricing Bermudan Swaptions And Other Callables In LM Models**

- Evaluating different techniques for doing American options in by Monte Carlo
- Practical upper and lower bound techniques Confidence intervals
- Good exercise strategies for Bermudan swaptions; carry considerations
- Exploring some numerical examples

### **Implementing Stochastic Volatility Models for European Interest Rate Options**

Using stochastic volatility to explain the smile in interest rate options markets

Mark Broadie

numerical methods, and credit derivatives. In 2001

Jesper received Risk Magazine's Quant of the Year award. Jesper holds a PhD in Mathematical Finance from Aarhus University, Denmark.

Mark Broadie
Mark Broadie is a professor at the Graduate School of
Business at Columbia University. He received a B.S.
from Cornell University and Ph.D. from Stanford
University. His research focuses on problems in the
pricing of derivative securities, risk management, and

- Explorations into empirical evidence
- Deciding which stochastic volatility model to choose
- Practical numerical implementation

Jesper Andreasen heads the Product Development Team at Nordea Markets in Copenhagen. The team is

responsible for development and implementation of all derivatives models with in Nordea, covering the areas of interest rates, credit, equities, foreign exchange, and hybrid derivatives. Prior to this, Jesper

has held positions in the quantitative research departments of General Re Financial Products and Bank of America in London. Jesper's research interest include yield curve models, volatility smiles.

Jesper Andreasen

- The pricing and hedging of CMS options and swaps
- Spread and quanto options

### **Markov Yield Curve Models For Exotic Interest Rate Products**

- Why Markov yield curve models when you have the multi
- Fact and fiction on factor dependence of exotic interest rate products
- Which Markov yield curve models?
- The Cheyette model and its numerical implementation
- Calibration and consistency with the LMM: Auto correlation and mean reversion
- Pricing Bermudan options and other exotic interest rate products
- Evaluating Stochastic volatility yield curve models

### **Exploring Some Tips And Tricks Of The Trade**

- Estimating pathwise risk measures and other tricks for accurate risk
- Recursions for Bermudan swaptions and other exotics
- Hedging: Static, dynamic, and mean reversion
- LM models: using Markovian projections as control variates

portfolio optimization. Much of his research focuses on the design and analysis of efficient Monte Carlo methods for pricing and risk management. Professor Broadie is editor-in-chief of the Journal of Computational Finance and serves as associate editor

for Mathematical Finance, Operations Research, and Computational Management Science. He has given seminars and courses worldwide and has done extensive consulting for financial firms. Previously he was a vice president at Lehman Brothers in their fixed-income research group.

### **Advanced Theoretical Methods And** The Practical Innovations For

### **Pricing, Hedging & Trading** The Latest Generation Of Volatility Products



Don't miss out on this unique opportunity to benefit from the expert insights of one of the most renowned experts in the field of volatility modelling and estimation.

The programme has been specifically designed to fully equip you with the very latest theoretical thinking and state-of-the-art practical techniques for option valuation and hedging.

This full-day course covers all aspects of the critical pricing models, from the conceptual framework to practical implementation, and from fundamental methods to the most recent advances

NB - Practical spreadsheet exercises will form a key part of the course and delegates will require a laptop with Excel (including Solvers) installed.

### **Examining The Key Criteria Of Stochastic Volatility Models**

- Displaced Diffusion
- Constant Elasticity of Variance
  - Heston 1993
  - Hull and White
- Jump Models
- Exploring The Application To Affine Models Of Interest Rates
- Implementing A Solution By Characteristic Functions (Fourier Inversion)
- Overcoming The Obstacles To Simple Numerical Integration Some Neat Tricks
- Option Valuation With Bubbles

### **Practical Spreadsheet Analysis Session**

Using characteristic functions (Fourier inversion) to calculate option values for a jump model and for a simple 1-factor Vasicek

### Innovations In Volatility Estimation & Filtering

This session will address a particularly pressing issue for quants namely how to estimate continuous-model parameters from

- Exploring The Key Features Of GARCH Models
- Practical Option Valuation With A GARCH Model The Latest Model Estimation Techniques
- How To Calibrate Parameters To Fit Prices
- Using Discrete Data To Get Continuous-Time Parameters
- Practical Option Hedging Techniques
- Simple Valuation Of Variance Swaps With GARCH

### **Practical Spreadsheet Analysis Session**

Estimation of standard GARCH and an asymmetric GARCH on a spreadsheet. Converting the discrete GARCH parameters to continuous parameters.

### **Successfully Hedging Volatility Risk**

- The Risk Premium of Volatility
- Understanding Why Implied Volatility Can Be a Bad Measure of Relative Value
- Understanding The Application To Variance Swaps

### **Practical Spreadsheet Analysis Session**

Valuation of a variance swap. Using GARCH models to predict future variance and then add up predicted variance over the life of the swap.

### **About Your Seminar Leader**

A globally renowned figure in financial mathematics, Steven Heston joined University of Maryland in 2002 as an Assistant Professor. Prior to this he was a vice-president in the Quantitative Equities Group at Goldman Sachs. He has also held teaching positions at several American Universities. He is best known for his work in the area of volatility modelling. He was recently in the Risk Magazine 50 "Hall of Fame" members for contribution to risk management.

### PRE-CONFERENCE TRADING STRATEGIES SUM

#### **TRADING SUMMIT - DAY 1**

08.30 Registration & Coffee

### Hedge Fund Research

- On The Nonlinear, Option-Liked
  Performance Of Hedge Fund
  Strategies: An Empirical Characterization

  Hedge fund performance is driven by three key variables the strategies used, the markets to which they are applied and the choice of leverage.

  Extending the arciting opults
- Extending the existing resultsProposing a unifying scheme
- Integration of these option-replication models to hedge fund risk factors.

### Bill Fung, Co-CEO, PI ASSET MANAGEMENT & Visiting Professor, LONDON BUSINESS SCHOOL

Bristing Foresaston.

Bill Fung (Visiting Research Professor) has a PhD in Mathematics from the University of London, and a PhD in Finance from the University of Manchester. Prior to joining Finance from the University of Manchester. Prior to joining the investment banking profession in 1985 with Lehman Brothers, he taught finance for several years in both the United Kingdom and the United States. Bill moved to the investing side of the industry in 1991 and co-founded a hedge fund. During early 1994, he left the hedge fund partnership and founded a consulting firm specializing in the risk management of hedge fund portfolios advising high net worth families, international private banks, foundations, and major insurance companies. In 1997, Bill co-founded PI Asset Management, LLC with Ivy Asset Management, LLC He also serves on the board of financial services companies and is currently Chairman of the Board of Directors of the Maple currently Chairman of the Board of Directors of the Maple Financial Group, Canada.

#### 09.40 Proprietary Trading And Market Liquidity

- The role of hedge fund strategies in liquidity formation
   Valuing liquidity relative to traditional asset types
- Advantages and shortcomings of various market structures
- from the perspective of a proprietary trader

  Examining how liquidity affects the trading and risk management of derivatives positions

### **RENAISSANCE TECHNOLOGIES**

During his work in finance, Andrew Matytsin has been involved in building models for equity derivatives, credit risk, market making and quantitative proprietary trading. He is currently a principal at Renaissance, one of the largest model-driven hedge fund managers, where he focuses on developing computerized

Morning Coffee

### **ADVANCED CREDIT TRADING STREAM**

### **Hedging Correlation Swaps**

**DEUTSCHE BANK** 

Rajeev is the Head of Integrated Credit Trading (ICT), in Global Markets. ICT includes the Global Credit Derivatives and the Global Corporate Bond Trading businesses. Prior to Deutsche Bank, Rajeev worked at Merrill Lynch for seven years as a Bank, Rageev Worked at Merritt (Jorn for Seven Years as a Managing Director responsible for derivatives marketing in Europe and in interest rate swaps trading. Rajeev holds a BS in Mechanical Engineering and a MS in Computer Science from the University of Pennsylvania, Philadelphia. He also holds an MBA from the Sloan School of Management, MIT.

In Search Of Correlation: Evaluating The Latest Research On Modelling, Distribution And Correlation In CDO Equity

Peter Rappoport, Head of Qu JP MORGAN



"A First Rate **Event With** First Rate Minds - The

**Best Gathering In Quantitative** Finance"

Nassim Taleb, **Empirica Capital**  12.05 **LUNCH** 

### **VOLATILITY TRADING**

# Successfully Trading, Pricing & Hedging Volatility And Variance Swaps ■ Stock Variance Swaps : Hedge liquidity vs. Swap Pricing

- ; Contract considerations; Margin calculations

  Index Variance: Spreading volatility; Dispersion
- Volatility Indices: Vol Futures vs. Variance Swaps; Differences in exposure; Surface Arbitrage
  Nathaniel Newlin, Partner,

### LAUREL RIDGE ASSET MANAGEMENT

Nathaniel Newlin is currently a partner of Laurel Ridge Asset Management. Prior to joining Laurel Ridge, Mr. Newlin was a Managing Director for Bank of America. His responsibilities included proprietary dispersion strategies and Index volatility trading in the Equity Financial Products Group. Previously, at JP Morgan, Mr. Newlin managed all US Index Trading for Equity Derivatives, was a senior trader in the Commodities Derivatives Group, and worked in the FX Options Group. He has a degree in Economics with honours from Harvard. Laurel Ridge is a multi-strategy market neutral fund that specialises in volatility trading, convertible bond trading, and event-driven trading.

### Assessing Volatility Arbitrage As A Key Successful Strategy

- Dispersion
- Inter-market spreads
- Call/put relationships
   Inter-month realtionships
- Historical/implied volatility analysis using Garch techniques

### MAKO INVESTMENT MANAGERS

Robert Hanna has over 20 years experience in the area of fund management. Prior to his appointment as the senior investment manager at Mako Investment Manager, he spent two years with Merrill Lynch, Pierce, Fenner and Smith [in New York] where he was responsible for sales of both domestic and international equity finance. Prior to that he spent seven years with Merrill Lynch International [in London]. From 1993 - 2000 Mr Hanna was head of marketing for the international equity finance group. He also provided in depth "start up" services to various new hedge funds. Mr. Hanna was previously a senior trader with the ECU Group plc were he managed a volatility-trading

### Honey, I Shrunk The Sample Covariance Matrix: Innovations In Measuring Correlations To Increase The Sharpe Ratio Of Trading Strategies With Large Numbers Of Stocks

- The covariance matrix is essential for maximizing the Sharpe ratio of your portfolio
- If there are many assets, the sample covariance matrix is full of error
- You can reduce this error by shrinking all covariances towards the average covariance
- The key question is how intensely to shrink we reveal the optimal formula
- Bottom line: a free method to boost your Sharpe ratio

  Olivier Ledoit, Head of Statistical Arbitrage Equity

#### CREDIT SUISSE FIRST BOSTON

CREDIT SUISSE FIRST BOSTON
After receiving his PhD from the Massachusetts Institute of
Technology, Olivier Ledoit took the position of Finance
Professor at the University of California Los Angeles. His
research spans the fields of Finance, Statistics, and Economics,
and has been published by the top academic journal in each of
these three fields. He is currently Head of Statistical Arbitrage in
the Environment of the County of Carlo States. the Equity Proprietary Trading Group of Credit Suisse First Boston, based in London.

#### **AFTERNOON TEA**

### **Innovations In Optimising Quantitative** Trading: Are Intraday Options The Next Big Innovation In Derivatives Trading?

- Analysis of share of intraday trading in spot and derivatives markets
- Boxoption a new type of digital option
- How to trade boxoptionsSystems architecture of boxoption trading platform
- How is volatility computed for intra-day options
- Pros and cons of intraday options

■ Pros and cons of intraday options
Richard Olsean, CEO,
Olsen Associates
Dr. Richard Olsen is the Chief Executive Officer of Olsen Ltd
and OANDA Corp. In 1985, Dr. Olsen founded Olsen Ltd. In
2001, Dr. Olsen and his team published a book with the title
'Introduction to High Frequency Finance' at Academic Press
providing an overview of their pioneering work. Olsen Ltd is an
advisor to currency hedge fund following a quantitative
statistical trading style. OANDA Corp operates a currency
trading platform offering continuous interest rate payments with
a execution capability for transactions as small as 1 USD at a
spread of 2 basis points.

### New Research: Filtered Return Processes, Asset Allocation and Derivative Investment

Multiple Priors and Asset Pricing

A primer on Hidden Markov Model Filtering

- Variance Gamma Chain Filtering
- Results on long horizon returns
- Results on Asset Allocation and Derivative Investment

UNIVERSITY OF MARYLAND
Dilip Madan is Professor of Finance at the Robert H. Smith School of Business. He specialises in Mathematical Finance. He also serves as a consultant to Morgan Stanley, Bloomberg and the FDIC. He is a founding member and President of the Bachelier Finance Society and Co-Editor of Mathematical Finance. Recent contributions have appeared in Mathematical Finance, Finance and Stochastics, Quantitative Finance, among other Journals.

### HEDGE FUND TRADING STRATEGIES STREAM

### Exploring The Sources Of Alpha And Risk In Alternatives Investing

- Strategy allocationManager Selection
- Portfolio Construction
- Risk Management

# AUTH TRUST COMPANY dest's extension land

AZIMUIH IN LOSI COMPANY
Mr. Modes's extensive knowledge and experience in the hedge
fund world includes the creation and management of trading
groups at Morgan Stanley and Long-Term Capital Management
(LTCM). As a Managing Director at Morgan Stanley, Mr.
Modest created and oversaw the capital structure arbitrage
group as well as a long/short equity proprietary trading group.
As a Partner at LTCM, Mr. Modest was responsible for building
the Grow's reliable to the structure of the control of the co the firm's relative value equity business including convertible, single-stock options, warrant arbitrage, and quantitative long/short equity strategies. He was also actively involved in the tongs and equity antages. It was used untirely invoice in the firm's financial technology management and in mentoring strategists focused on both fixed income and equity. He has contributed publications to numerous academic finance journals and made significant contributions in empirical finance and derivative pricing. Mr. Modest has also taught at the Stanford Business School and is currently a Visiting Lecturer at the Sloan School of Management at M.I.T. Mr. Modest holds S.B. and Ph.D. degrees in economics from the Massachusetts Institute of

### Trimming Fat Tails: Using Risk Arbitrage And Equity Derivatives To Enhance Portfolio

- Utilising complex payoff structures as a means to improve
- Systematic use of derivatives to enhance portfolio returns in risk arbitrage.

  Reza Hadizad, Pr

REZO HOGIZOG, Principal Fund Manager,
PIONEER ALTERNATIVE INVESTMENTS

Dr Reza Hadizad has 14 years experience in financial markets.
He is the principal fund manager in the field of risk arbitrage.
Prior to joining Pioneer Alternative Investments in 2000, Reza was a Senior Proprietary Trader at Paribas, responsible for setting up and running the special situations equity trading desk. In 1995 he joined HSBC Investment Bank where he was the senior executive in Arbitrage Trading. Prior to HSBC he was Head of Analytics at Natwest Markets and Quant /Project Manager at SBC O'Connor.

### 12.05 **LUNCH**

### Examining The Sharpe Ratio And Sortino Ratio As Successful Measures Of Investment Quality And Identifying The Optimum Method Of Measuring Investment Performance

- Return, timescale, compound rate.
- Risk, volatility, other ways of looking at risk.
   Sharpe ratio, advantages, disadvantages.
- Sortino ration, advantages, disadvantages.
- Omega, advantages, disadvantages.
   Qualitative factors & Common sense!

David Harding, Managing Director, Winton Capital Management David Harding is the founder and majority shareholder of David Harding is the founder and majority shareholder of Winton Capital Management. David graduated from Cambridge in 1982 with a 1st class Honours degree in Natural Sciences specialising in theoretical physics before developing his career in the City as a market analyst. In 1987 he co-founded Adam, Harding and Lueck (AHL), which developed over a period of years into one of the world's leading futures trading firms. In 1994 David sold his holding in AHL to E D & F Man but remained at Man until 1996 leading a business unit, Man Quantitative Research which was devoted to the development of statistical trading systems. In 1997 David founded Winton Capital Management. Capital Management.

### Evaluating The Heterogenous Derivatives Contract Versus The Modern Political **Environment**

- The coming scrutiny of derivatives not exchange traded unless certifiable
- The black box is out

WILLOWBRIDGE ASSOCIATES

### Identifying Optimal Strategies For Hedging Credit In A Volatility Driven Convertible **Arbitrage Space**

- The convertible arbitrage space
- The role of volatility
- The role of credit
- Methods of hedging credit in a volatility driven space

### ■ What's missing in this picture? Andrew Pernambuco, Principal, ALEXANDRA INVESTMENT MANAGEMENT

Andrew Pernambuco joined Alexandra Investment Management in May 2001 as a Principal, and leads the firm's structured product and business development initiatives. He was formerly Head of US Equity Derivatives Sales and Marketing at KBC Financial Products, a wholly owned subsidiary of KBC Bank (formerly Kredietbank) the second largest Belgian financial institution. There he was responsible for providing equity finance and structured product solutions to hedge funds, money managers, insurance companies and corporations in the United States. Andrew has 15 years of experience in the area of Equity Derivatives, Arbitrage and Financial Advisory. Prior to joining KBC, he was for 8 years, the Head of North and South American Equity Derivatives Sales and Marketing at Société Générale in New York

#### **AFTERNOON TEA**

### **How To Construct Fund-Of-Funds Portfolios** And Structured Products Using A Robust Quantitative Framework

- Alternative Sharpe Ratio Adjusting for Stochastic Term and Tail Risk
- Aggregation from Positional Information
- Pricing and Risk Management of Structured Products

### Bernard Lee, Researcher, CENTRE FOR QUANTITATIVE RESEARCH, IMPERIAL COLLEGE LONDON

Bernard Lee is Researcher at the Centre for Quantitative Finance at Imperial College, University of London, and Co-Founder of Hedge Fund Solution Com. Until recently, he was Principal and Head of Quantitative Research at Allianz, Hedge Fund Partners. He remains Bernard has been active in the field of quantitative finance. Bernard is known by the industry to be one of the chief architects of the Panorama Asset Management module

# How to Screen Single Hedge Funds Based on Statistical Techniques That Go Beyond Linear Regression and Correlation

- Statistical Properties of "Good" Hedge Funds
- Ouantitative Classification Criteria
- Dependency on Market versus Simple Correlation to Market
- Draw-Down Risk Modelling

### Youngju Lee, Vice President Quantitative ReALLIANZ HEDGE FUND PARTNERS

HALIANZ HEUDE FUND PARKINERS.

Youngju Lee is Vice President of Quantitative Research at Allianz
Hedge Fund Partners, a San Francisco-based hedge fund of fund
investment management firm. Prior to joining Allianz, she worked at
Henry Capital Management, an options trading hedge fund where
was responsible for quantitative research. In addition, she has
extensive experience in teaching finance and statistics. Youngju
received a Masters and Doctorate degree in Statistics from the
University of Pitthurph or well as a Masters degree in Financial University of Pittsburgh as well as a Masters degree in Financial Engineering from the University of California, Berkeley. She is an actuary by training and holds the Financial Risk Manager designation. Her current research includes measures of hedge fund performance, style allocation, and default risk.

### Understanding Managed Futures And The Value Of Divergent Trading

- Why do large price dislocations occur in an uncertain world?
   Why trend-following works as "fast and frugal" decision-
- Why is managed futures more than just being long volatility? ■ Why do managed futures programs give you a non-correlated return?

### Mark Rzepczynski, President & Chief Investment Office

JW HENRY
Dr. Mark S. Rzepczynski is the President and Chief Investment Officer
of JWH and a member of the JWH Investment Policy Committee. Dr.
Rzepczynski is also a principal of Westport Capital Management
Corporation, Global Capital Management Limited and JWH
Investment Management, Inc., all affiliates of JWH. Currently he
serves as a member of the board of the Futures Industry Association.
Before joining JWH in May 1998, he was Vice President and Director
for the July 1998. Before joining JWH in May 1998, he was Vice President and Director of taxable credit and quantitative research in the fixed income division of Fidelity Management and Research from May 1995 to April 1998, where he oversaw credit and quantitative research recommendations for all Fidelity taxable fixed income funds. From April 1993 to April 1995, he was a Portfolio Manager and Director of Research for CSI Asset Management, Inc., a Rice-income money management subsidiary of Prudential Insurance. Dr. Repezynski has a BA (Cum 1994) to the Properties of the Properties o Laude) Honors in Economics from Loyola University of Chicago, and an AM and PhD in Economics from Brown University.

### 17 20 END OF SUMMIT



"I Always Look Forward To **Attending Global Derivatives To Hear The** Latest In Research And Talk To The People That Do It."

Emanuel Derman, Columbia University

#### **MAIN CONFERENCE DAY 2**

- Registration & Coffee
- Chairman's Openina Welcome 08.30
- The New Financial Order: 08.40 Risk In The 21st Century



### YALE UNIVERSITY

Robert J. Shiller has written about financial markets, behavioural economics, macroeconomics, real estate, statistical methods and public attitudes, opinions and moral judgements regarding markets. His book "Irrational Exuberance" (Princeton University Press, 2000, Broadway Books 2001) is an analysis and explication of the stock market boom since 1982. It won the Commonfund prize 2000 and was a New York Times non-fiction bestseller. Professor Shiller is co-founder of Case Shiller Weiss, Inc in Cambridge, Mass., and economics research and information firm, and a co-founder of Macro Securities Research LLC in Cambridge which promotes securitization of unusual risks.

#### **GLOBAL DERIVATIVES 2004** HALL OF FAME ROUNDTABLE





# NYU STERN SCHOOL OF

Professor Robert F. Engle was awarded the

2003 Nobel Prize in Economic Science. Since 2000 he has held the Michael Armellino Professorship in the Management of Financial Services at the New York University Stern School of Business. Engle is an expert in time York University Stern School of Business. Engle is an expert in time series analysis with a long-time interest in the analysis of financial markets. His research has produced such innovative statistical methods as ARCH, for which he was awarded the Nobel Prize, and cointegration, a collaboration with Professor Granger that was also cited in the prize. Further important econometric innovations include Band Spectrum Regression, common features, Autoregressive Conditional Duration (ACD), Conditional Autoregressive Value at 18th (CANaf), and most researchy Dumanie Canditional Carelation Conditional Duration (ACD), Conditional Autoregressive Value at Risk (CAVIAB), and most recently Dynamic Conditional Correlation (DCC). Engle received the prize for his research on the concept of autoregressive conditional heteroskedasticity (ARCH). He developed this method for statistical modeling of time-varying volatility and demonstrated that these techniques accurately capture the properties of many time series. His ARCH models have become indispensable tools not only for researchers, but also for analysts of immerial markets who use them in asset pricing and in evaluation. financial markets, who use them in asset pricing and in evaluating portfolio risk. Currently he is developing methods to analyze large systems of assets, real time volatility, market microstructure, and extreme market movements.

### John Hull,

Professor of Derivatives & Risk Management,
UNIVERSITY OF TORONTO
John Hull is the Maple Financial Group
Professor of Derivatives and Risk Management
in the Joseph L. Rotman School of Management
at the University of Toronto and Director of the
Bonham Center for Finance, He is an internationally recognized

Bonham Center for Finance. He is an internationally recognized authority on derivatives and has many publications in that area. Recently his research has been concerned with credit risk, executive stock options, volatility surfaces, market risk, and interest rate derivatives. He was, with Alan White, one of the winners of the Nikko-LOR research competition for his work on the Hull-White interest rate model. He has written two books "Options, Futures, and Other Derivatives" (now in its fifth edition) and "Fundamentals of Futures and Options Markets" (now in its fourth edition). Both books (published by Prentice Hall) have been translated into several languages and are widely used in trading rooms throughout the world. He has won many teachingawards, including University of world. He has won many teachingawards, including University of Toronto's prestigious Northrop Frye award, and was voted Financial Engineer of the Year in 1999 by the International Association of Financial Engineers.



### Nassim Taleb. **EMPIRICA CAPITAL**

Nassim Nicholas Taleb works at the intersection of theory and practice. He started his career as a trader (including the Chicago pits) and subsequently became involved in the unique combination of applied research and trading. He is the founder of

communator of uptime research and rudaing. The is ne foundate of Empirica LLC a volatility research laboratory and trading operation in New York. He is also adjunct Professor of Mathematics in Finance at the Courant Institute of Mathematical Sciences of New of York at the Courant Institute of Mathematical Sciences of New of York University, Table held trading positions with major derivative houses (CSFB, UBS, Paribas, Bankers Trust among others) and worked independently on the floor of the Chicago exchanges. His education includes an MBA from Wharton and a PhD from University Paris-Dauphine. He was inducted into the Derivatives Strategy Hall of Fame in 2001. Taleb is the author of Dynamic Hedging (Wiley 1997), and Fooled by Randomness (Texere 2001). Fooled by Randomness has been published in 14 languages, and has been the subject of 18 floresynapers articles tracking 40 million peachers subject to 18 floresynapers articles tracking 40 million peachers subject of 130 newspapers articles reaching 40 million readers something unprecedented for a finance book.



Robert Shiller, YALE UNIVERSITY see above for biographical details

### MIT SLOAN SCHOOL OF

Stephen A. Ross is a co-founder of Roll and Ross Asset Management Corporation (Roll and Ross), a principal of IV Capital, Ltd. (IVC), and the Franco Modigliani Professor of Finance and Economics at MIT. While he has worked on a variety of topics in economics and finance, he is probably best known for having invented the Arbitrage Pricing Theory and the Theory of Agency, and as the codiscoverer of risk neutral pricing and Ineory of agency, and as the coatscoverer of riss, neutral pricing and of the binomial model for pricing derivatives. Roll and Ross is one of the leading quantitative financial management firms in the world, and it is the leading firm applying the APT (Arbitrage Pricing Theory) invented by Ross and developed in collaboration with the other cofounder of the firm, Professor Richard Roll of UCLA.

#### **TALKING TRADING PANEL**

DEUTSCHE BANK

**TRADING** PANEL

Rajeev is the Head of Integrated Credit Trading (ICT), in Global Markets, ICT includes the Global Credit Derivatives and the Global Corporate Bond Trading businesses. Rajeev joined Deutsche Bank in 1997 as a Managing Director and Head of Structured Credit Sales. Prior to Deutsche Bank, Rajeev worked at Merrill Lynch for seven Prior to Deutsche bank, Rafeev worked at Merriu Lynch for seven years (New York and London), as a Managing Director responsible for derivatives marketing in Europe and in interest rate swaps trading, Rajeev holds a BS in Mechanical Engineering and a MS in Computer Science from the University of Pennsylvania, Philadelphia. He also holds an MBA from the Sloan School of Management, MIT.

### Lawrence Barwick.

**BANK OF AMERICA** 

Lawrence Barwick is the founder of systematic trading strategies at Bank of America. Lawrence has been using automated investment techniques for over 10 years. He is currently responsible for a substantial part of the global banking group's strategic risk positioning in world-wide capital markers. Portfolios include Foreign positioning in word-wate capital matters. To opinions include For Exchange, Interest Rate and Bond Futures and Emerging Market Currencies. Strategies employed cover a wide variety of styles including long-term trend-following, econometric analysis, short-term opportunistic positioning and high frequency trading.

# Bill Fung, Co-CEO. PI ASSET MANAGEMENT & Visiting Professor, LONDON BUSINESS SCHOOL

See page 6 for biographical details

**MORNING COFFEE & OPPORTUNITY TO VISIT** THE DERIVATIVES & RISK MANAGEMENT 2004 TECHNOLOGY EXCHANGE

#### STREAM A - GLOBAL DERIVATIVES 2004 **TRADER FORUM**

### Trader Roundtable: Examining Key Strategies For Trading Exotic Derivatives Under Tight Risk

Stéphane Kourganoff, Global Head of Fixed In CDC IXIS CAPITAL MARKETS

Stéphane Kourganoff is Global Head of Fixed Income Derivatives Trading and Financial Analytics for CDC IXIS CAPITAL MARKETS (Paris/London/New Yorl/Tokyo). He joined CDC back in 1990 where he founded the derivatives trading department. His responsibilities progressively grew to encompass swaps trading, options, complex options, fraud credit derivative hybrids, as well as derivatives Models and systems js and creati aervative nyorias, as wet as aervatives motest and system. for all locations within CDCICM. In his former life, between 1984 and 1990, Stéphane Kourganoft worked for Credit Lyonnais first in Fixed Income origination and then as head of derivatives marketing (Paris). He is a graduate from IEP Paris, specialized in Tax and Finance, 1984.

### Nasir Afaf, Head of Currency Options Trading,

Nosir Aidi, Heda of Currency Options trading,
ING BANK NV

Nasir Afaf joined ING in 2000 as an exotic options trader and became
head of currency options trading in Oct 2002. Nasir writes all his own
models/risk systems called VolPro which he uses at ING. Prior to his
current role, Nasir was a quant working on Global options in the Fixed
Income and Leverage Funds team at CSFB. Nasir was also an Theome and Levening F unds team CSTB : And West was used in Emerging markets FX options trader At Deutsche bank responsible for all eastern Europe and South African books and when at Refco Capital Markets he helped set up the multi asset OTC derivatives desk.

Javier Martin-Artajo, Global Head of Credit Derivatives DRKW

See page 8 for biographical details

Dariush Mirfendereski, Director Derivatives Trading, **BARCLAYS CAPITAL** 

See below for biographical details

### INNOVATIONS IN INTEREST RATE TRADING

Overcoming The Practical Modelling Challenges To Accurately Pricing & Trading Inflation-Linked Swaps

**AFA DART** 

AFA DAR.

Alex originally set the company up with Intercaptial some 15 years ago. With nearly 20 years direct involvement in the markets. Alex is experienced in all aspects of derivatives – from model building, through trading to risk management. Currently his research interests are volatility skews and their inclusion in N-factor models, and high

# Inflation Derivatives: Pricing And Hedging In A Fast-Expanding Market ■ Four Pricing approaches for 4 Levels of Market Development

- Bootstrapping a forward index/inflation curve FX Analogy Method
- Short-end of the Index curve Practical hedging approaches

# Future Trends Dariush Mirfendereski, Director Derivatives Trading, BARCLAYS CAPITAL

Dariush Mirfendereski is the senior inflation derivatives trader at Barclays Capital. Based in London, he has been responsible at Barclays Capital. Based in London, he has been responsible for trading all UK and European inflation swaps and options since 1998. Dariush has also been involved in setting-up Barclays' efforts in developing the new market for US CPI swaps in 2003. Prior to joining Barclays, Dariush worked from 1993-1996 in San Francisco at EQECAT, a risk consultancy specializing in catastrophe risk assessment for insurance and reinsurance companies, where he was responsible for the modelling of the risk simulation and insurance pricing models. modelling of the risk-simulation and insurance pricing models.

# LUNCH & OPPORTUNITY TO VISIT THE DERIVATIVES & RISK MANAGEMENT 2004 TECHNOLOGY EXCHANGE

### **Assessing The Latest Practical Methods For** Reducing Trading Costs And Implementing Best Execution Strategies For Enhanced Client Benefit

- Relationship Based Develop Trust with Counterparties
   For Options, Pricing often tends to improve on side-
- known business
- Where possible, execute spreads lower risk means better
- pricing
  "Interbank-like" execution exchange deltas to simplify
- dealers' lives and manage your own spot risk

  The best prices come from dealers who "know their customer"

■ The best prices come from dealers who 'know their customer'

■ Dealers often show axes – can substantially improve pricing
Harish Neelakandan, Portfolio Manager & Head of
Options Trading, FX CONCEPTS

Mr. Neelakandan joined FX Concepts in 2001 to set up their
options trading operation. Prior to this he was Senior Trader in
the Options Group at Caxton Associates LLC, a New York-based
hedge fund, where he ran a proprietary portfolio of currency and
equity index options. He has also served as Vice President at
Merrill Lynch and Company where he managed plain vanilla and
exotic option portfolios. Mr. Neelakandan holds am Ms. in
Management from the MIT Sloan School of Management and an
M.S. in Computer Science from the University of South Carolina.

### INNOVATIONS IN VOLATILITY TRADING

New Advances In Volatility Trading: Designing & Implementing A Fast Three Factor Model For Enhanced Modelling Of **Correlation Products** 

### Silverio Foresi, Senior Portfolio Manager, GOLDMAN SACHS ASSET MANAGEMENT

Silverio is a senior portfolio manager in the quantitative strategies group at Goldman Sachs where he is responsible for the volatility strategies and co-responsible for the fixed income relative-value strategies of the group's hedge fund. Before joining GS in April 1999, Silverio headed for two years the research efforts in Emerging Markets Fixed Income Derivatives at Salomon, developing credit models for trading of default-linked products. linked products.

# Examining The Practical Challenges Of Volatility Trading In Commodities: Assessing Peculiarities Of Option Pricing And Hedging In Petroleum Markets

- Implied distributions, "sticky" models and volatility skews.
- Average price options as an industry benchmark.
   Spread options as a bridge to other commodities and
- locations
- New instruments: volatility swaps.

### Ilia Bouchouev, Global Head of Energy Derivatives, KOCH SUPPLY & TRADING LP

llia joined Koch Industries in 1996 as a quantitative analyst and a derivatives trader. He became the global head of energy derivatives for Koch Supply & Trading LP in 2000, and leads the team that is currently among the most active market makers and volatility traders in petroleum markets. He has also introduced a number of new financial instruments to the oil market.

# AFTERNOON TEA & OPPORTUNITY TO VISIT THE DERIVATIVES & RISK MANAGEMENT 2004 TECHNOLOGY EXCHANGE

### Market-Making Versus Relative Value Trading: How Much Do We Let A Model Tell

- Variance swaps: flow product or exotic option?
- Why the more exotic options often trade at the wrong price: real-world examples
- Hidden risks: what are the real hedging costs of exotic options, and can they be quantified?

### Mike de Vegvar,

ve Director Equity Derivatives Trading

Mike deVegvar is an Executive Director at UBS and is muse avegars is an Executive Director at OSS and as responsible for trading exotic equity derivatives and structured products in London. Prior to joining UBS, Mike traded interest rate derivatives at Bankers Trust and First Chicago. He holds BS and MS degrees in Electrical Engineering from MIT and an MBA from the Wharton School of Business.

### **VOLATILITY MODELLING**

#### **Understanding Volatility As An Asset Class**

- Stock index volatility can it diversify portfolio risk Is volatility predictable?
- What is the correlation of volatility with stock/ bond returns
- Is it possible to "invest" in volatility?

### Andrew Harmstone, Head of European Der Quantitative Research, LEHMAN BROTHERS

Prior to his current role, Andrew spent 15 years working with derivatives-based quantitative products on the asset managem side with Credit Suisse Asset Management and JP Morgan Investment Management. He served as Contributor to the Presidential Task Force on Market Mechanisms commissioned by President Reagan to study the 1987 Market Break. He has served on the board of the Futures Industry Institute and the New York Options and Futures Society.

### The Econometrics Of Non-Gaussian

- Stochastic Volatility Models

  Estimation of the Likelihood Function for Non-Gaussian Stochastic Volatility Models

  Special case of Poisson Jumps and Variance Gamma-based
- The Choice of the Optimization methodology
- Comparison between Classical and Bayesian Methods Bias, Efficiency and Consistency of the Estimators
- Analysis of the Likelihood Sensitivities with respect to various Parameters
- Comparison between the Statistical and Risk-Neutral Distributions

Distributions
Application to Trading Strategies in Derivatives
Alireza Javaheri, Quantitative Analyst Global Equity
Derivatives, RBC CAPITAL MARKETS
Alireza Javaheri is a Quantitative Analyst with RBC Capital
Markets. Prior to joining RBC Capital Markets he worked for
Goldman Sachs and Lehman Brothers. He completed an M.Sc.
from Massachusetts Institute of Technology in EE in 1994. CFA
Chater-holder since 2000. Completing a Thesis on Stochastic
Volatility and Particle Filtering at "Ecole des Mines de Paris".

#### STREAM B - THE LATEST INNOVATIONS IN CREDIT RISK MODELLING

### Valuing CDO Tranches Without Monte Carlo Simulation

■ Generalized Copulas

- Factor Models
   Calculating the probability distribution of the time of the
- Valuing an Nth to default CDS analytically
- Valuing tranches of cash CDOs and synthetic CDOs analytically
- Numerical results
   Impact of correlation, default probabilities, number of factors, etc

John Hull, Professor of Derivative
UNIVERSITY OF TORONTO

See page 7 for biographical details

### Hedging When Perfect Replication Is Not Possible: Evaluating The Hedging Performance Of Complex Credit Derivatives Models In Practice ■ Testing the models: where are the dangers?

- A consistent methodology to assess the validity of derivatives models
- How bad is the absence of spread volatility in the Li model? The impact of different copulae
- Residual risk after calibration to the same market inputs
- The impact of uncertain recovery for different complex derivatives

derivatives

Riccardo Rebonato, Head of Group Market Risk,

ROYAL BANK OF SCOTLAND

Dr Riccardo Rebonato is Head of Group Market Risk,

ROYAL BANK OF SCOTLAND

Dr Riccardo Rebonato is Head of Group Market Risk, including

Quantitative Research Centre. He is also a Visiting Lecturer at

Oxford University for the Mathematical Finance Diploma and

Visiting Fellow at the Applied Mathematical Perioderic Risk Wisting Fellow at the Applied Mathematical Department of Oxford

University. Prior to joining RBSG, he was, at the same time, Head of

the Complex Derivatives Trading Desk and of the Complex

Derivatives Research Group at Barclays Capital. Before that he was

a Research Fellow in Physics at Corpus Christi College, Oxford, UK.

He is the author of the books 'Interest-Rate Option Models' (1996). He

has published several papers on finance (interest-rate option models,

computational techniques) in academic journals, and is on the

editorial board of several journals. editorial board of several journals.

### LUNCH & OPPORTUNITY TO VISIT THE DERIVATIVES & RISK MANAGEMENT 2004 TECHNOLOGY EXCHANGE

# Examining Fast Monte Carlo Methods For Accurate Estimation Of Tail Probabilities And Risk Measures For Portfolio Credit Risk

- Difficulties in estimating probabilities of large losses
   using importance sampling to accelerate simulation of
- Combining importance sampling with factor models of
- dependence between obligors

  Accurate estimation of tail probabilities and risk measures

### for large credit portfolios Paul Glasserman,

COLUMBIA GRADUATE SCHOOL OF BUSINESS Paul Glasserman is the Jack R. Anderson Professor of Risk Management at Columbia Business School. His research addresses modeling and computational problems in risk

management and derivative securities. He is author of the book "Monte Carlo Methods in Financial Engineering", published by Springer in 2003.

### Evaluating Advanced Pricing & Hedging Of Single And Portfolios Of CDO Tranches

- Single tranche: basic structures and variations
- Quick algorithm for pricing and risk calculation
   Risk mesurements and cash flow analysis

Hedging against default
 Hedging against spread movement
 David Li, Head of Credit Derivatives Rese

David X. Li is currently a director and New York head of the Glob David X. Li is currently a director and New York head of the Global Credit Derivative Research at Cligroup where he leads the model development and client research activities to support Global Credit Derivative Trading business. He has worked for The RiskMetrics Group where he initiated and developed the first commercial CDO model, CDO Manager. David is widely accredited for introducing the copula function into credit portfolio modelling as well as for writing the first paper on credit curve construction.

#### David Shelton, VP Credit Derivatives Research, CITIGROUP

Within Credit Research David's main interests are pricing and hedging of CDOs and correlation products. For 5 years prior to Citigroup David worked at Merrill Lynch and Natwest Global Financial Markets on FX, hybrid FX interest rate and Credit products. David has a DPhil in Theoretical Physics from the University of Oxford.

### **Variance Reduction For Prices And Greeks** Of Basket Default Swaps And Synthetic CDOs In The Li Model

- The Li Model
- Importance sampling for baskets
- Elliptic copulas
- Importance sampling for synthetic CDOs
   Likelihood ratio method

### ■ Pathwise method for discontinuous payoffs MARK JOSHI, Head of Model Evaluation, ROYAL BANK OF SCOTLAND

Mark Joshi is Head of Model Evaluation, Quantitative Research Centre, Group Market Risk, Royal Bank of Scotland. He is responsible for researching derivative pricing, assessing model risk, doing model validation, and consulting on quantitative issues across the group. Mark has recently published the books "The Concepts".

# AFTERNOON TEA & OPPORTUNITY TO VISIT THE DERIVATIVES & RISK MANAGEMENT 2004 TECHNOLOGY EXCHANGE

#### **Examining Archimedean Copulas And Contagion In Credit Portfolios**

- Towards a dynamic credit model
   Relationship between intensity models and frailties
- Archimedean copulas and frailties
- A frailty approach
- New developments in dynamic credit modelling
   Javier Martin-Artajo, Global Head of Credit

Derivatives Trading & Quantitative Research,
DRESDNER KLEINWORT WASSERSTEIN
Javier is currently Global Head of Credit Derivatives Trading at
Drkw. Previously he was Head of EM Credit Derivatives at
Lehman Brothers. Javier worked in the proprietary trading group
at Nomura Securities where he was VP Head of EM Derivatives.
He was awarded Global Finance Magazine Top 100 Emerging
Markets superstar. Derivatives superstar list.

### **OPTIMUM PORTFOLIO MANAGEMENT USING DERIVATIVES**

### A Quantitative Approach To Detect Market Abuses: The Surveillance Automatic Integrated System (Sais)

- Review of the literature and supervisory experience on the effects of insider trading and market manipulation.
- The Market Abuse Detection procedure.
  The tripwires definition: the volumes of trading in the security; the returns on the security; the static market concentration; the dynamic market concentration.
- The calibration procedure of the tripwires: the theorem of convergence; the convergence of an AR process to a diffusion process; passage from discrete to continuous time and definition of parameters.

time and definition of parameters.
■ The alert generation process
■ The algorithm for reading the alerts

Marcello Minenna, Enforcement Officer, CONSOB

Marcello Minenna is an enforcement officer of CONSOB (the Italian Securities and Exchange Commission) in charge of analysing and developing quantitative models for surveillance. He has taught Mathematical Models for Finance in several Italian University as contract Professor. He presently teaches Financial Mathematics at University of Milano Bicocca.

Evaluating The Use Of Derivatives In Trading & Investment Portfolios: Can Investors Implement Responsible Derivative Programs That Suit And Protect Their Investments

Quantitative Strategies & Portfolio Engineering,
DEUTSCHE ASSET MANAGEMENT
Larry Abele joined Deutsche Asset Management in 2000 after 6
years of experience as a research principal for Barclay's Global
mestars' Advanced Strategies Research Group on the global asset
allocation (GAA) team and as a research associate responsible for GAA and currency allocation decisions at First Quadrant Corp.

Investo

Robert Fotheringham, Vice President Derivative & Quantitative Investments. OMERS

### MAIN CONFERENCE DAY TWO

Robert M. Fotheringham currently serves as the Vice President. Derivative and Quantitative Investments, with the Ontario Municipal Employees Retirement System. Robert's responsibilities include the design, application and trading of synthetic and index linked securities. aesign, appucation and ratang of symmetic and thates times unsea securities. He is responsible for the active management of ally diversified, global portfolio of derivative instruments and quantitative based cash securities. The notional value of the derivative portfolio under his management currently exceeds \$8.0 billion. Quantitative based cash assets exceed \$4.0 billion. Robert sits as a senior member of OMERS Investment Management Committee, and Global Asset Allocation Committee, where he assists in the development of the Fund's asset allocation strategies and risk management initiatives.

### Frances Cowell, Head of Derivatives Risk Management MORLEY FUND MANAGEMENT

Frances has worked in the investment management industry since 1983. Since then she has managed domestic and international equity and fixed interest portfolios, and asset allocation. In 1998 she moved to the UK nuters proposs, and assertant and the provider of portfolio risk management systems, and in 2002 took up duties as Interim Head of Portfolio Risk at Morley Fund Management. She now works in the Portfolio Risk team, specialising in risk management for derivatives and hedge funds.

### **STREAM C - HEDGE FUND TRADING STRATEGIES**

- **Compensation And Risk Control: The Impact** Of Compensation Incentives On Risk Taking Behaviour
  - Options and Incentives: Examples
  - How options influence behavior
  - Example: Since increased volatility raises option values it follows that options induce agents and employees to seek out

  - The above example is wrong!The three basic impacts of incentive schedules on behavior necessary and sufficient conditions: shift, magnification (delta), and convexity
  - The duality of risk aversion and riskiness

MIT SLOAN SCHOOL OF MANAGEMENT See page 7 for biographical details

# Talking Volatility Trading In Today's Dynamic Marketplace: Examining New Products And New Horizons

- Use of variance swaps
- Correlation products and trades

### J. D CAPITAL MANAGEMENT

Pav Sethi is an equity derivatives portfolio manager with J.D. Capital Mangement. He was previously an equity derivatves trader with Morgan Stanley in London. Mr. Sethi received a bachelors degree in chemistry from Cornell University and a masters in mathematics from the University of Chicago

#### **Assessing The Latest Innovations In Pricing** MBS & The Key Hedging Implications

mas a the Key Hedging Implications
Nazir Dossani, Senior VP, Investments, FREDDIE MAC
In his current role Nazir Dossani is responsible for formulating and
implementing the corporation's interest-rate risk management
strategies. He also is responsible for fixed-income research and
financial engineering, with a focus on developing risk measurement,
valuation and hedging tools. This responsibility includes development
of prepayment, interest-rate and portfolio optimization analytics.

■ The Property of the

### LUNCH & OPPORTUNITY TO VISIT THE DERIVATIVES & RISK MANAGEMENT 2004 TECHNOLOGY EXCHANGE

### **Negative Probabilities And Other Non-**

- Conventional Ideas Applied In Finance

  Negative volatility used for option valuation
- Why are we so negative to negative probabilities?Interpreting negative probabilities in finance.
- Negative probabilities more useful than you would think?
   From Black-Holes to Black-Scholes

### How Einstein would have run a Hedge Fund Espen Haug, Proprietary Derivatives Trader, JP MORGAN

Espen Haug is currently working as a proprietary derivatives trader for J.P. Morgan New York. Prior to joining J.P. Morgan he worked for several years as a senior option trader for Paloma Partners and Amaranth Advisors, a market neutral hedge fund based in USA. He has developed systems and tools for options and interest rate derivatives for the Chase Manhattan Bank Derivatives Research and Trading Group (Europe).

### 14.50 Hedge Fund Strategies Panel Discussion

Talking Volatility Trading: Exploring
Successful Quantitative Strategies For
Arbitraging Volatility Against Volatility &
Determining Whether There Is A Perfect Hedge Espen Haug, P.

### See above for biographical details

John Zhao, Senior Trader CLINTON GROUP
John Zhao is a senior trader in charge of systematic trading in
global bond arbitrage at the Clinton Group The Instruments that he
trades include G-T government bonds, swaps, options and other
derivatives. Prior to his current role he spent six years as a fixedincome derivatives market maker at First Union National Bank where he traded all swaps and options products.

Joe Zou, VP Volatility Proprietary Trading Group
GOLDMAN SACHS

### **PRODUCT INNOVATIONS & MODELLING**

#### New Work On Modelling FX/IR Hybrids

- When does the FX smile dominate?When does interest rate volatility dominate?
- Ad-hoc corrections and their effect on prices and hedges
- Do we need high dimensional models?

Phil Hunt is currently Head of Product Development at WestLB. where his responsibilities cover interest rate, FX and credit derivatives. Phil has been in the financial markets since 1992, previously holding positions at NatWest Markets and ABN-Amro.

# AFTERNOON TEA & OPPORTUNITY TO VISIT THE DERIVATIVES & RISK MANAGEMENT 2004 TECHNOLOGY EXCHANGE

#### **Global Derivatives Product Panel: Risk Managing Innovative Financial Products**

Cnair: Dongning Qu, Head of Q ABBEY NATIONAL

See page 11 for biographical details

### **Andrew Brogden,** Head of Equity Derivatives Trading, **ABBEY NATIONAL**

Andrew is Head of Equity Derivatives Trading, Abbey National Financial Products. He has nearly ten years experience trading and modelling exotic equity derivatives, convertible bonds, house price index derivatives and derivatives on fund performance. Previously, Andrew was a quant in HSBC's Specialised Derivatives Group.

### Frances Cowell, Head of Derivatives MORLEY FUND MANAGEMENT

See page 8 for biographical details

Joe Zou, VP Vo lity Proprietary Trading Grou **GOLDMAN SACHS** 

See above for biographical details

### Innovations In High-End Numerical Techniques For The Pricing Of Derivative And Structured Financial Instruments

In order to avoid technological traps when pricing derivative instruments, you need:

- a sound mathematical formulation of the problem
- model parameters obtained from market data in a stable and robust way
- advanced numerical techniques which have been proven in

more general PDE frameworks

Andreas Binder, CEO. MATHCONSULT

Andreas Binder is CEO of MathConsult GmbH and CEO of the Andreas Binder is CEO of MathiConsult GmbH and CEO of the Industrial Mathematics Competence Center. In his professional career. Andreas has been working on continuous casting and hot rolling of steel, on modelling and simulation of the blast furnace process, on extrusion processes, but of course also on the pricing of convertible bonds and on complex fixed income instruments. Andreas is a member of the advisory board of the Austrian Mathematical society. He has published numerous publications on nonlinear mechanics, inverse problems in diffusion equations, computational finance.

# Examining The Optimal Use Of Market Models In Practical Hedging Efficient Calibration & Restricted Dimension Implementations

- Hedging & Risk-Management Implications & Objective

### Stephen Dodds,

#### tive Analytics Group,

BARCLAYS CAPITAL
Stephen started his career on the exotic interest rate derivatives desk. In addition to his continuing responsibilities on the interest rate side, he is now responsible for derivatives analytics in other asset classes. His areas of interest include practical implementation of market models for a wide range of exotics, and their optimal use in hedging.

### STREAM D - ADVANCED EQUITY DERIVATIVES PRICING & HEDGING

# Modelling Stock Price Dynamics In The Presence Of Default: Calibration & Convertible Bond Pricing Linking Equity & Credit Markets Exploring the application of a structural credit model to the valuation and hedging of convertible bonds.

- The hazard rate is a function of a distance to default given by the stock price and the leverage o the firm.

# the stock price and the leverage o the firm. Analysing the behaviour of the model for a sample of traded convertibles and compare with other widely used models. Rick Shypit, Executive Director, MORGAN STANLEY Rick is an Executive Director in the equity Division at Morgan Stanley where he is responsible for quantitative modelling of equity derivatives and convertible bonds. Prior to joining Morgan Stanley, Rick was Capital Markets Officer in Firm Risk Management at Chemical Bank, NY covering interest rate derivatives and bond trading).

### 11.35 Valuing And Hedging Volatility Derivatives

- Review of variance swap pricing and hedging
- Volatility swaps and the convexity adjustment
- The effect of jumps
- Carr-Lee model-independent valuation of volatility derivatives
- Real world applications

### Jim Gatheral, Head of Qu MERRILL LYNCH

MERRILL LYNCH
Over a career spanning over 20 years, Dr. Jim Gatheral has been involved in all of the major derivative product areas as bookrunner, risk manager and quantitative analyst in London, Tokyo and latterly New York. He is currently head of Quantitative Analytics and Listed Options Automated Market Making for Equity Markets at Merrill Lynch. An adjunct Professor at the Courant Institute of Mathematical Sciences, New York and co-teacher of a popular Masters course with Nassim Taleh. Jim holds a Ph.D. in theoretical physics from Cambridge University.

### The Characteristic Curve Approach to **Arbitrage-Free Time Interpolation of Volatility**

- The calendar-spread condition for European calls or dividendless stocks
- Generalisations to puts and dividend-paying shares, currencies, and commodities
   Differential formulation of the constraint and solution in
- terms of characteristic curves

  Model-independent results and interpretation in terms of
- variance interpolation along characteristics

  Extension to fixed cash dividends

farket Risk, UBS AG

Eric Reiner is a Managing Director within the Group Market Risk unit of UBS Corporate Center. He is charged with the creation of a new global function responsible for market risk methodology across all of the UBS Business Groups as well as providing actions at 17 jine Option and State and Sportung, and Augustitative and analytical advisory to UBS Group and Business Group senior management and risk control functions. Prior to assuming his new note in February 2003, he was for 5 years a Managing Director in Equities Trading at UBS Warburg, based in

# LUNCH & OPPORTUNITY TO VISIT THE DERIVATIVES & RISK MANAGEMENT 2004 TECHNOLOGY EXCHANGE

### Hedging With Options In The Presence Of Jumps And Stochastic Volatility

- Some new model free results
- Hedging with jumps
- Empirical results with S&P500 options

### ■ Introducing stochastic volatility Peter Carr, Head of Quantitative BLOOMBERG LP

BLOOMBERG LP

Dr. Peter Carr heads Quantitative Research at Bloomberg LP. He also directs the Masters in Mathematical Finance program at NYU's Courant Institute. Prior to his current positions, he headed equity derivative research groups at Banc of America Securities and at Morgan Stanley. He is currently the treasurer of the Bachelier Finance Society and an associate editor for 6 academic journals related to mathematical finance and derivatives. He was selected as Risk Magazine's prestigious "Quant of the Year" for 2003

# Implementing A Jump-Diffusion Model For Exotic Equity Products Using jumps to explain the equity volatility smile. Hedging under jumps. A multi name jump diffusion model.

# Pricing exotic equity options with the jump diffusion model. Empirical evidence. Jesper Andreasen, Head of Product Development, NORDEA MARKETS Jesper Andreasen heads the Product Development Team at Nordea

Jesper Anareasen neuas ine rrouaci Development team at Noraeu Markets in Copenhagen. Prior to this, Jesper has held positions in the quantitative research departments of General Re Financial Products and Bank Of America in London. Jesper's research interest include yield curve models, volatility smiles, numerical methods, and credit derivatives. In 2001 Jesper received Risk Magazine's Okumentels Viewwend Quant of the Year award.

# Case Study: Calibration And Comparison Of Stochastic Volatility And Other Advanced Volatility Models

- Effects of jumps in price and variance
- Stochastic volatility and Levy processes
   Including 'exotics' in model calibration

### Using a high level language Curt Randall, Senior Vice President for Applications,

CUT Refridall, Senior vice Frestaem for Expressions,
SCICOMP INC
Cur Randall is head of financial product development for SciComp Inc.
He was the chief architect of the PDE and Monte Carlo modules for
SciFinance which are used by some of the worlds largest banks, and

### Jim Gatheral, Head of Quantitative Analysis

MERRILL LYNCH See above for biographical details

Vladimir Lucic, Qua ative Analyst, TD SECURITIES

# AFTERNOON TEA & OPPORTUNITY TO VISIT THE DERIVATIVES & RISK MANAGEMENT 2004 TECHNOLOGY EXCHANGE

### **Examining Two Sided Barrier/Exit Problems**

- With Jumps
   Valuation theory for double barrier options, when the security
- price can jump.

   Relationships between the payoff density and exit and overshoot densities.

oversnoot densities.

Exact Valuation solutions for special and general cases.

Alan Lewis, Founder, OPTIONCITY.NET

Alan has been active in option valuation and related financial research for over twenty years. He served as Director of Research, Chief Investment Officer, and President of the mutual fund family at Analytic Investment Management, a money management firm specializing in derivative securities More recently, Alan authored the book "Option Valuation under Stochastic Volatility".

# Talking Exotics: Examining New Innovations In Pricing (& Mis-pricing), Hedging, & Trading The Latest Generation Of Exotic Equity Derivative Products

RBS FINANCIAL MARKETS

David Samuel is Head of Equity Products Trading at RBS Financial Markets, prior to this he ran the equity exotics desk at Chase Manhattan Bank and held a quant-trading role at Lehman Brothers.

Research, SOCIETE GENERALE
Lorenzo joined SG in 1997 as a quantitative analyst on the exotics
desk and in 2000, set up a global research team covering
quantitative issues for the Equity Derivatives Department. His group
currently focuses on models & algorithms for exotics, prop.trading
strategies, creditlequity models. Originally trained as an electrical
engineer, Lorenzo obtained a PhD in theoretical physics in the
theory group at CEA, Saclay, France, then spent two years at MIT
before joining SG before joining SG.

Andrew Harmstone, Head of European Der Quantitative Research, LEHMAN BROTHERS See page 8 for biographical details

### 18.05 Champagne Round Tables

**Gala Cocktail Party** 

### MAIN CONFERENCE DAY THREE

### **MAIN CONFERENCE DAY 3 -**27 MAY 2004

#### Coffee & Opportunity To Visit The Derivatives & Risk Management 2004 08.30 Technology Exchange

#### Quantitative Finance: How We Got Here, Where We're Going

- Hardback classics
- Pulp fiction
- True adventure

■ True adventure

Emanuel Derman, Professor & Co-Head Financial

Engineering Program, COLUMBIA UNIVERSITY

Emanuel Derman obtained a Ph.D. in theoretical physics from

Columbia University in 1973. Between 1973 and 1980 he did

of the control of the physics and from 1980 to 198 research in theoretical particle physics, and from 1980 to 1985 he worked at AT&T Bell Laboratories. In 1985 Dr Derman joined Goldman Sachs' fixed income division where he was one of the co-developers of the Black-Derman-Toy interest-rate model. From 1990 to 2000 he led the Quantitative Strategies group in the Equities division, where they pioneered the study of the volatility smile. He was appointed a Managing Director of Goldman Sachs smile. He was appointed a Managing Director of columna sacins in 1997. In 2000 he become head of the firmwide Quantitative Risk Strategies group. He retired from Goldman, Sachs in 2002. Dr Derman was named the IAFE/Sungard Financial Engineer of the Year 2000. He is a professor at Columbia University and co-head of their financial engineering program.

#### On The Cognitive Aspects Of The Preference For Negative Skewness

- Cognitive explanations for over-inference: the law of small
- Behavioural explanations for the neglect of rare events Prospect theory
- Recent empirical research
- Is there a solution?

Nassim Taleb, Founder, EMPIRICA CAPITAL See page 7 for biographical details

GLOBAL DERIVATIVES FINANCIAL MINDS PANEL

**Exploring Trends & Developments In** Volatility & Correlation

COLUMBIA UNIVERSITY See above for biographical details

Jim Gatheral, Head Of Quantitative Analysi MERRILL LYNCH

See page 9 for biographical details

ROYAL BANK OF SCOTLAND
See nage & for king. See page 8 for biographical details

Head Of Quant Research, Bloomberg LP & h Finance, COURANT INSTITUTE NYU

See page 9 for biographical details Greg Merchant, Managing Director, Head Derivatives Analytics, DEUTSCHE BANK

Derivatives Analytics, DEUTSCHE BANK
Greg Merchant joined Deutsche Bank in 1996 to head up the New
York derivatives analytics team. In 1998 he moved to London to
become head of European derivatives analytics at Deutsche Bank.
Prior to joining Deutsche Bank Greg joined the Dollar Swaps desk at
Merrill Lynch in New York in 1993 and he was previously T.J. Watson
research fellow at IBM. He has a PhD in Applied Mathematics from
Northwestern University and worked as a postdoctoral fellow in the
Mathematics department at Stanford University.

MORNING COFFEE & OPPORTUNITY TO VISIT THE DERIVATIVES & RISK MANAGEMENT 2004 TECHNOLOGY EXCHANGE

### STREAM A - INNOVATIONS IN VOLATILITY TRADING

#### **Option Valuation With Conditional** Skewness

- Jumps and local skewness
- Stochastic volatility and long-term skewness
   Interaction between jumps and stochastic volatility
- Steven Heston, A

### UNIVERSITY OF MARYLAND

UNIVERSITY OF MARYLAND

Steve Heston graduated with a B.S. double major in Mathematics and Economics from the University of Maryland, College Park in 1983. He attended the Graduate School of Industrial Administration and earned an MBA in 1985 followed by a Ph.D. in Finance in 1990. He held previous faculty positions at Yale, Columbia, Washington University, and the University of Auckland in New Zealand. He worked in the private sector with Goldman Sachs in Fixed Income Arbitrage and in Asset Management Quantitative Equities. He is known for analyzing options with stochastic volatility and international stock risk.

### 12.35 Measuring The Value Of Dynamic Correlations For Asset Allocation

- Solving portfolio risk, option prices on multiple underlyings, portfolios of options, and correlated default risk all at once
- Can we reduce volatility without reducing expected returns? Special Address
- Which covariance matrix to use?
- Errors that cost nothing DCC- a new simple covariance matrix

Measuring the Value of Correlation Information Robert Engle, Professor of Finance, NYU STERN SCHOOL OF BUSINESS

See page 9 for biographical details

LUNCH & OPPORTUNITY TO VISIT THE DERIVATIVES & RISK MANAGEMENT 2004 TECHNOLOGY EXCHANGE

Assessing How The Current Generation Of Exotic Models Combine With Trading Reality

# Pricing Options On Realized Volatility And Variance – Evaluating A New Pricing / Hedging Methodology

- Simple
- Arbitrage-Free

Practical

Zhenyu Duanmu, Director, Merrill Lynch

Since 1996, Zhenyu Duanmu has been an Exotic Option / Structuring Trader in Merrill Lynch. Prior to his current position he was a Quant at Bear Stearns and at UBS.

AFTERNOON TEA & OPPORTUNITY TO VISIT THE DERIVATIVES & RISK MANAGEMENT 2004 TECHNOLOGY EXCHANGE

### INNOVATIONS IN VOLATILITY PRICING & MODELLING

### 16.00 New Work On Pricing Options On Realised Variants

Brand New

Research

- Variance Swap and Volatility Swaps The Variance SwapPrice
- Modeling Quadratic Variation (QV) Laplace Transforms of QV
- Time changes (TC) of Brownian Motior
- Laplace transforms of TC
- Comparing QV with TC

Dilip Madan, Professor of Finance UNIVERSITY OF MARYLAND

See page 6 for biographical details

### Understanding And Implementing Volatility And Correlation Arbitrages

- How to get individual stock skews from historical data Locking conditional and unconditional forward volatilities
- What can be said about forward skews? Skew dynamics arbitrage
- Arbitraging between skew and credit derivatives
- Dispersion trades revisited
- FX arbitrage: triangular, tetraedric and beyond

■ Caps/Swaption arbitrage

Bruno Dupire, Quantitative Research, BLOOMBERG

Bruno Dupire has headed the Derivatives Research teams at

Société Générale, Paribas Capital Markets and Nikko Financial Products before being a consultant in derivatives and asset allocation and now joining Bloomberg to develop pricing, risk management and arbitrage models. He is best known for having management and arbitrage models. He is best known for having pioneered the widely used local volatility model (simplest extension of the Black-Scholes-Merton model to fit all option prices) in 1993 and subsequent stochastic volatility extensions. Before these years, he obtained a Master's Degree in Artificial Intelligence, a PhD in Numerical Analysis and introduced the use of Neural Networks for financial time series forecasting. In 2002 he was included in the Risk magazine "Hall of Fame" of the 50 most influential people in Devivations and Pisk Management. most influential people in Derivatives and Risk Management.

### 17.05 Assessing Volatility Model Robustness

- Calibration
- Vega hedging
- Nonlinear models
- Optimal static hedging

Case study: Cliquet options

Paul Wilmott, Founder, WILMOTT ASSOCIATES

Dr Paul Wilmott has been described by the Financial Times as the cult derivatives lecturer. He has for many years been a ine cui aervantes ecuné: ne nas jor many year soven u financial consultant specializing in derivatives, risk management and quantitative finance. Dr Wilmott received his D. Phil. from Oxford University in 1988. He is the author of Paul Wilmott Introduces Quantitative Finance (Wiley 2000) and Paul Wilmott

Oxyon University in 1905. He is the author of ratu witmont introduces Quantitative Finance (Wiley 2001). He has written over 100 research articles on finance and mathematics. Dr Wilmott runs www.wilmott.com, the popular quantitative finance community website, the quant magazine Wilmott and is the Course Director for the Certificate in Quantitative Finance. Paul Wilmott is a partner in the volatility arbitrage hedge fund Caissa Capital. Erwin Simons, Quantitative Modelling, ING Erwin Simons current not is in Quantitative Modelling at ING-South-West Europe. He has three years front-office experience in Equity, Interest Rate and Hybrid derivatives pricing. Advanced Monte-Carlo methods, Incertain parameter models, Levy stochastic volatility models, Finite difference methods, Parallel computation and Advanced hedging techniques. He has a PhD in Applied Mathematics from the Catholic University Leuven - von Karman Institute for Fluid Dynamics (Belgium) on Parallel Large-Eddy Simulation of Incompressible Turbulent Flows in Complex Geometries.

### STREAM B – ENHANCED PRICING, HEDGING & TRADING CREDIT DERIVATIVES & CDOS

### Overcoming The Challenges Of Calibrating & Fitting The Smile For More Accurate Pricing Of Exotic Hybrid Equity-Credit Products

- Modelling the distribution of the default time
   From CDS spreads to Default probabilities & from Defaultable bonds to Default probabilities First generation of hybrid model
- Calibration of a deterministic framework through stripping of market defaultable instruments
- Impact on standard europeans options pricing
   The hybrid model with jumps

### Marcus Overhaus, MD, Global Head of Quantitative Research, DEUTSCHE BANK

Research, DEUTSCHE BANK
Marcus Overhaus has been the global head of quantitative
research for Deutsche Bank Global Equities, based in London,
since 1996. Previously he worked in interest rate and foreign
exchange derivatives quantitative research for Deutsche Bank in
New York and Frankfurt respectively. Marcus is co-author of the
following books: Modelling and Hedging Equity Derivatives
(Risk Books, 1999): Equity Derivatives and Market Risk Models
(Risk Books, 2000) and Equity Derivatives: Theory and
Applications (Wiley, 2002). He is currently co-writing a fourth
book for publication in 2004. He is a member of scientific
advisory boards for two International Research Institutes based
in Swansea and Berlin. Marcus has a degree and PhD in pure in Swansea and Berlin. Marcus has a degree and PhD in pure mathematics and theoretical physics.

### Modelling Default Contagion And Hedging Basket And Portfolio Credit Derivatives

- Types of default contagion and their effects on credit spread
   Frailty models: a convenient way to model information-
- based default contagion
- Resulting spread dynamics
- Hedging basket credit derivatives: spread-delta and default-delta
- Dispersion Risk: Can we hedge with the underlying index alone?

alone?

Philipp Schönbucher, Assistant Professor Quantitative Methods of Risk Management. ETH ZURICH
Since October 1st, 2002, Philipp J. Schönbucher is Assistant Professor for Quantitative Methods of Risk Management at the ETH Zurich. From 2000-2002 Dr Schönbucher was postdoctoral researcher at the Department of Statistics at the Faculty of Economics at Bonn University. His research interests cover all areas of mathematical finance, in particular the modelling of credit risks but he has also published on other questions like market illiquidity or stochastic volatility. He is associate editor of Finance and Stochastics and member of the European Academic Concil of Standard and Poor's.

# LUNCH & OPPORTUNITY TO VISIT THE DERIVATIVES & RISK MANAGEMENT 2004 TECHNOLOGY EXCHANGE

Evaluating The Benefits & Limitations Of Using Monte Carlo Simulation To Measure & Manage Risk Exposure In CDOs Of CDOs & Determining The Future Modelling Challenges
■ What are CDOs of CDOs?

- Copula valuation models.

  Monte Carlo approaches to variance reduction from a valuation perspective.
- The seed variance of risk calculations for CDOs of CDOs.
- The profile of risk exposures for CDOs of CDOs. Spread risk, recovery risk and default exposure.

Calibration to the CDO market.

David Beaglehole, Head of Derivatives Research North

America and Global Credit Derivatives, **DEUTSCHE BANK** 

DeutsCHE BARN David Beaglehole is a Managing Director and head of Derivatives Research for North America at Deutsche Bank. At Deutsche David is in charge of all credit derivatives research. David has worked for Deutsche Bank for 6 years. Prior to working at Deutsche, he worked in the Derivatives Modeling Group at Goldman Sachs in New York for 5 years. Prior to this David was an Assistant Professor of Finance at the University of lowa for 2 years. He has published a number of articles at several finance journals including the Journal of Financial Economics, has a PhD and an MBA in Finance and Economics from the University of Chicago, a First Class B.Sc. Honours degreee in Mathematics from the University of Auckland and has been an Associate of the Society of Actuaries in the United States.

# Examining Key Strategies For The Optimum Valuation Of Synthetic CDOs And Successfully Hedging The Positions Review & pitfalls of the models Hedging out residual positions Martin 51-Pierre, Global Head of Structured Credit Derivatives Trading, BEAR STEARNS

DETIVATIVES TRADING, DEAR 3 JEARNS
Mr. St. Pierre is a Senior Managing Director at Bear Stearns and is Global Head of Structured Credit Derivatives Trading, Previous roles at Bear Stearns include being co-head of New York Credit Derivative Trading and head of Latin American Credit Derivatives Derivative Trading and head of Latin American Credit Derivative Trading, Martin joined Bear Stearns in June 2000 from Credit Suisse Financial Products were he traded Latin American Credit Derivatives and Structured Brady Bond Options, Prior to joining the trading desk at CSFP, he was a member of the product development group where he developed the Credit Derivative models for Credit Suisse. Before moving to CSFP, Mr. St. Pierre was a Research and Teaching Fellow at Harvard University. He graduated with a BS from McGill University in Montreal, Canada, and earned a PhD in Mathematics from UCLA.

# 15:40 AFTERNOON TEA & OPPORTUNITY TO VISIT THE DERIVATIVES & RISK MANAGEMENT 2004 TECHNOLOGY EXCHANGE

# Examining Key Developments In Accurately Estimating Correlations & Volatilities Of Credit Spreads For The Valuation Of CDO

- Single tranche CDO dynamic hedging strategies
   Distinguishing Pricing and Risk Management of the position
- Input of new credit index

CREDIT AGRICOLE INDOSUEZ

Loic Fery is Managing Director in the Fixed Income division of Credit Agricole Indosuez (CAI). He is based in London and acting as Global Head of Credit Derivatives & Structures: his product line

### MAIN CONFERENCE DAY THREE

responsibility includes CDS Trading, Credit Structuring (including synthetic CDO business-line), and Convertible Stripping. He started working in Credit Derivatives in 1996 and has been involved successively in both Trading and Structuring sides of this growing activity. Before moving to London to head the global business, he was based in Hong Kong where he ran Asian Credit Derivatives desk for CAI and previously for SocGen.

### 16.35 Variance Minimization Versus Spread pv01

Ali Hirsa, Vice President, MORGAN STANLEY
Ali joined Morgan Stanley in January 2000. His main focus is on model risk and model review. Prior to his current position, he worked in the Equity Derivatives Research at Banc of America Securities and the Fixed Income Research at Prudential Securities. His research interests are credit and equity derivatives. He is also an adjunct professor at Columbia University where he teaches in the Mathematics Finance Program.

### **Accurately Estimating Credit Spreads From**

### Exploring Multi-Step Monte Carlo Simulation Of CDOs And CDO2s

- Fast and complete generation of Waterfalls for Multi Step Simulation
- Tranche PIK probabilities OC Breaching Probabilities for Cash Flow CDOs
- Interest Only Principal Only Risk Decomposition and
- Reinvestment Algorithms

  Case Study Simulation of all CDOs in a CDO2

#### Volkan Kurtas, Sen. **UNIQA ALTERNATIVE INVESTMENTS**

UNIQA ALTERNATIVE INVESTMENTS
Volkan Kurtas is leading the Risk & Analytics team of UNIQA
Alternative Investments GmbH. The team conducts quantitative
analysis on investments for buy decision, develops further
quantitative and monitoring systems and manages the risks of assets
under management. Mr. Kurtas is mainly focused on analyzing
portfolios of CDO tranches with various simulation techniques and
managing the risks of CDO2s.

#### William Morokoff, Director, New Products Research Group MOODY'S KMV

William Morokoff is a financial engineer in the research and analytics group at Moody's KMV. He heads the New Products Research Group, which is focused on developing new methodologies and products for risk management of credit sensitive portfolios and structures. Key efforts of the group include development of credit valuation models and simulation methods for pricing and risk management of CDOs and portfolios of CDO tranches. Prior to joining KMV, he was a vice president in quantitative risk management research at Goldman Sachs.

#### **STREAM C - HYBRID MODELLING** & PRICING INNOVATIONS

#### **Reusing Interest Rate Models For Better Hybrid** 11.30 Pricing Credit Deterministic hazard rates

- Payout Representation
- Stochastic hazard rates
- Reusing cross-currency models
- Payout Representation (II)
- Model Merging

### Tom Hyer, Executive Director Derivatives Analytics,

Tom Hyer obtained a B.A. from Rice and a Ph.D. from Stanford Iom Hyer obtained a B.A. from Rice and a Ph.D. from Stanford before beginning his analytics career in fixed-income derivatives at Bankers Trust (now Deutsche Bank); he subsequently worked at First Union before joing UBS in 2001. He is perhaps best known as the author of "It's About Forward Vol", a seminal analysis of calibration techniques for interest rate models. He has devised and implemented models for equity, credit, FX, cross-currency and hybrid products, as well as languages for trade description, hedge computation and runtime extensions. His current focus is on interests rate cross-currency time extensions. His current focus is on interest-rate, cross-currency and hybrid models, and on their interoperation with payout languages and frameworks.

# Linked Bond Successfully Synthesising A Euro Inflation Using a Combination Of Credit & Inflation-Linked Derivatives

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### **LUNCH & OPPORTUNITY TO VISIT THE** DERIVATIVES & RISK MANAGEMENT 2004 TECHNOLOGY EXCHANGE

### Theory And Calibration Of Lognormal Swap Market Models And Smile-Consistent Generalisations

- Theory and calibration of swap market models. A new fast and accurate calibration method
- Analytical bounds on the errors
- Simultaneous calibration to caps and swaptions in co-terminal swap market models is faster, more stable and accurate than in
- standard LIBOR market models

  Introducing smile-consistent extensions of the standard lognormal-based modelling that are viable for pricing and hedging exotic derivatives.

### Stefano Galluccio, Director, Exotic Derivatives Trader & **BNP PARIBAS**

Stefano Galluccio is an Exotic interest-rates derivatives and hybrids Prior to his current position he was a senior quantitative analyst in interest-rates and hybrid derivatives. Stefano previously worked at Commerzbank as a senior quantitative analyst in credit derivatives

### **Explorations Into The Co-Movement Of Rates &**

- Motivation: pricing and hedging of hybrid derivatives
- What drives correlations between equities and interest rates? Exploring variation of equities-rates correlation over time
- Equities-rates co-movement during major market shocks Implications for designing and pricing hybrid derivatives

### otr Karasinski, Di

Piotr Karasinski heads development of pricing models for interest rate and hybrid derivative products at Citigroup Global Markets in London. During his 20 years in derivatives, he developed valuation models for interest rates, forex, equity and hybrid products, did pioneering work developing a credit model for a Triple-A rate derivatives subsidiary, and worked on applications of derivatives to corporate finance. He has a PhD in Physics from Yale University.

### ADVANCED EQUITY DERIVATIVES PRICING, HEDGING & TRADING

### Assessing The Suitability Of The Current Generation Of Models For Pricing Equity **Default Swaps**

Head of Equity Derivatives Research **HSBC** 

# Developing A Consistent Approach For Handling The Forward Smile General Issues about forward starting options

- Modelling under Jump and stochastic volatility setting
- Arbitrage constraint

Chrif Youssif, Director,

DRESDNER KLEINWORT WASSERSTEIN

Chrif is a Director at DrKW in charge of structuring and quantitative modelling. He joined DrKw as senior trader in April 2003, prior to that he was a senior quant then an exotic trader at Merrill Lynch Equity Derivatives Desk. Chrif joined Merrill Lynch in June 1999 from Paribas Capital Market where he was head of Equity Derivative Quantitative Research.

### The Latest Innovations In Pricing & Hedging Cliquets, Forward Starts & Other Exotic Equity **Derivatives**

### STREAM D- THE LATEST INNOVATIONS IN INTEREST RATE MODELLING

### Mathematical, Empirical And Practical Issues With Volatility Modelling

- Which volatility?
- Problems with correlation

Marek Musiela, Global Hea Strategy Team, BNP PARIBAS

Marek Musiela is Global Head of BNP Paribas Fixed Income Research and Strategy Team (FIRST). His team develops, implements Research and Strategy Team (FIRS1). His team develops, implements and supports quantitative models for credit, foreign exchange and interest rates businesses. Marek has a distinguished professional career. His area of expertise lies in stochastic calculus, probability, statistics and applications of such methods in finance. His current main interests lie in reconciling the latest academic research with its applications to pricing and hedging of financial derivatives and to other aspects of financial risk management. Marek is best known for his contribution to the development of term structure models. Among other aspects of Junancial risk management. Marek is best known for his contribution to the development of term structure models. Among other things he introduced the so-called 'Mussiela parameterisation' and is the co-developer of the 'BGM' or 'Market Models'. His book, co-authored with M. Rutkowski, entitled 'Martingale Methods in Financial Modelling' provides a comprehensive, self-contained, and up-to-date treatment of the main topics in the option pricing theory and is considered to be a classic in this area. Marek gained PhD in Mathematics from the Polish Academy of Sciences in 1976.

### New Empirical And Computational Results InThe Relative Importance Of Jumps In Returns, In Stochastic Volatility And In Volatility

- Evidence from S&P500 futures options
- Comparison of methods for fitting implied volatility surfaces to data
- Pitfalls in implying option model parameters from data
- New method for unbiased simulation of affine-jump diffusion
- Relative importance of jumps in volatility

### Mark Broadie, Professor of Business, COLUMBIA GRADUATE SCHOOL OF BUSINESS

Mark Broadie is a professor at the Graduate School of Business at Columbia University. His research focuses on problems in the pricing Columbia University. His research focuses on problems in the pricing of derivative securities, risk management, and portfolio optimization. Much of his research focuses on the design and analysis of efficient Monte Carlo methods for pricing and risk management. Professor Broadie is editor-in-chief of the Journal of Computational Finance and serves as associate editor for Mathematical Finance, Operations Research, and Computational Management Science. Previously he was a vice president at Lehman Brothers in their fixed-income research agreements.

# 13.10 LUNCH & OPPORTUNITY TO VISIT THE DERIVATIVES & RISK MANAGEMENT 2004 TECHNOLOGY EXCHANGE

- Evaluating An Interest Rate Modelling
  Framework in Discrete Rolling Spot Measure
  A discrete framework, as defined on event time grid, for
- cross-currency term structure modeling

  A construction of a cross currency model with Markov-Functional models for each currency

Alexandre Antonov got his PhD degree in physics in the Landau Institute of Theoretical Physics in 1997. In 1998 he joined Numerix Corporation where he works until now as Senior Quantitative Analyst. His field of interest is rather wide. It covers interest rate models, cross currency models and credit ones. His activity is concentrated on modelling and numerical methods development including such popular areas as Monte-Carlo simulations, lattices and stochastic mesh algorithms.

### Examining An Effective Volatility Technique For Stochastic Volatility BGM

- Libor Market Models: framework and extensions
   Analytic Formula for European with mean-reverting alpha stoch-vol
- Controlling joint evolution of interest-rate and volatility
- Calibration of Libor Model to smile
- Markov simplification

 Mile-Rifect on CMS and Bermudan
 Philippe Balland, Director, MERRILL LYNCH
 Philippe Balland is a Director in the fixed income division at Merrill
 Lynch. London, where he has the responsibility for developing and
 implementing stochastic models for pricing and hedging complex options. He is a regular guess speaker at leading academic and industry conferences. Philippe holds a PhD in mathematics from Oxford University.

### AFTERNOON TEA & OPPORTUNITY TO VISIT THE DERIVATIVES & RISK MANAGEMENT 2004 TECHNOLOGY EXCHANGE

#### The 'Numéraire Alignment' Optimisation Of **BGM Model**

- A control variance method based on a non-arbitrage strategy ■ Error behaviour in the BGM model implemented as a Monte
  - Carlo simulation
  - Error reduction technique on the domestic Interest rate curve
  - Practical results
  - Generalisation to other variables: foreign interest rate curve,

■ Generalisation to other variables: foreign interest rate curve, FX rates, equity prices

Emmanuel Fruchard, Director, Front Office & Risk

Management Continental Europe, SUMMIT SYSTEMS

Mr. Fruchard joined Summit in 1995 and led the Financial

Engineering group at Summit's New York headquarters for three years before returning to the Paris office to take charge of the company's front office and risk management product line for continental Europe. Since 2002 he has also been managing the BGM implementation project. Before Summit, Mr. Fruchard was head of Fixed Income & FX Research at Crédit Lyonnais in Paris. He holds a BA deepre in Economics and Ms. deepres in Commits. He holds a BA degree in Economics and M.S. degrees in Mathematics and Computer Science.

### Innovations In Using The Framework Of Stochastic Volatility, Local Volatility And Correlation Structures As Powerful Tools In The Analysis Of Compound Options And Financial **Product Innovations**

- PRDC's, callable Range accrual options, etc. display common phenomena of compound options in their investment
- performance and risk management.

  Incompleteness of market information and the need for

simplicity present the challenge to the day to day practice.

Ken Yan, Head of Structured Derivatives Trading, NOMURA

Ken Yan is head of structured derivative trading and head of Asia pacific derivatives in Nomura international. Prior to that, he traded structured derivatives in Citibank NY and TMI in London. He was a assistant professor in mathematics in the US before his finance

# International Models For Interest Rates And Foreign Exchange: A General Framework For The Unification Of Interest Rate Dynamics And Stochastic Volatility Modelling

- Wiener chaos representations for positive-interest arbitragefree interest rate systems.
- Interest rate models as square-integrable Wiener functionals
- Chaotic approach to interest rate yield curve and volatility calibration. Construction of specific models. Exact solutions for swaptions and bond options.
- Arbitrage-free exchange rate systems and their relation to the Rogers "potential" approach. Relation to the Amin-Jarrow
- Chaotic models for foreign exchange volatility. Extensions to

a Chaote inducts no indegal exchange volatinity. Extensions to other asset classes.

Lane Hughston, Professor of Financial Mathematics,

King's College London

Lane Hughston is Professor of Financial Mathematics at King's

College London, where he is the head of a lively research group and runs a successful postgraduate teaching programme. Before joining King's College he was Director of Derivative Product Risk Management at Merrill Lynch, London. He received his doctorate in mathematics from the University of Oxford, where he was a Rhodes Scholar. His research interests include the pricing and risk management of derivative securities, martingale models for interest rate and foreign exchange processes, and the applications of geometric methods in finance. Website: www.mth.kcl.ac.uk

### **Examining The Markov Functional Model Under Smile**

- Interest Rate Vol Smile Analysis
- Market Calibration
- Pricing Behaviours & Analysis

### Dongning Qu, Head of Quantitative Products Group, ABBEY NATIONAL FINANCIAL PRODUCTS

Dongning Qu is currently head of Quantitative Products Group within Abbey National Financial Products, which structures and risk manages products covering all major asset classes. He previously worked in FX and equity markets at banks including HSBC and Nikko Securities. His PhD was in Statistical Optics from Imperial College. Prior to his career in derivatives, Dongning worked for the Defence Research Agency for several years.

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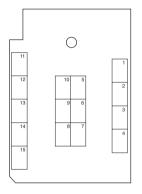
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Our clients use NumeriX software to price the most complex segment of trading room products, "exotic" derivatives, and to hedge and manage the risk of interest rate, foreign exchange, equity and credit portfolios. NumeriX software solutions include precise calibration, well-researched and implemented market valuation models, as well as proprietary tree algorithms and Monte Carlo simulation.

NumeriX Tools and Pricing & Risk Management Engines can be easily integrated within our client's information technology environment. Using NumeriX software allows portfolio managers and risk managers to safely and accurately price any traded interest rate, foreign currency, equity, or other derivative instruments

#### BENEFITS

- Our solutions allow users to easily structure and price new complex instruments when margins are highest and
- without programming Integration with third party and in-house systems enable middle office professionals to

- analyze and manage risk effectively across asset classes.
- NumeriX solutions reduce development time and costs, creating a software environment that requires less maintenance and improve coordination and performance across business, information technology and quantitative functions.

#### COMPANY PROFILE

NumeriX has offices in New York, London and Tokyo. Our business professionals originate from the derivatives trading environment, while our research and development team benefits from PhD level expertise in theoretical physics, computer science and applied mathematics. Today. NumeriX employs over 80 people worldwide. NumeriX can be found at www.numerix.com

### CONTACT

Nick Haining Managing Director, Europe Tel +44 207 628 8123 haining@numerix.com

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