

ADVANCED RISK MANAGEMENT

Quantitative
Finance Programs

COURSE SUMMARY:

<i>Interest Rate Risk</i>	Day 1
<i>Interest Rate & Default Risk Modeling</i>	Day 1
<i>Derivatives Risk</i>	Day 2
<i>Forecasting & Simulation Techniques</i>	Day 2
<i>Risk Models</i>	Day 3
<i>Credit Risk</i>	Day 3

Course Dates

Dec 17, 18, 19, 2004

New York

One day programs also
available

Who Should Attend

- ✓ Risk Analysts
- ✓ Quantitative Analysts
- ✓ Financial Engineers
- ✓ Economists
- ✓ Investment Strategists

Course Leader:



Jonathan Kinlay
Hedge Fund Manager
The Proteom Fund
Adjunct Professor of
Finance

A 3 DAY COURSE PROVIDING A COMPREHENSIVE AND PRACTICAL REVIEW OF ADVANCED QUANTITATIVE TECHNIQUES IN RISK MODELLING AND MANAGEMENT.

About This Course

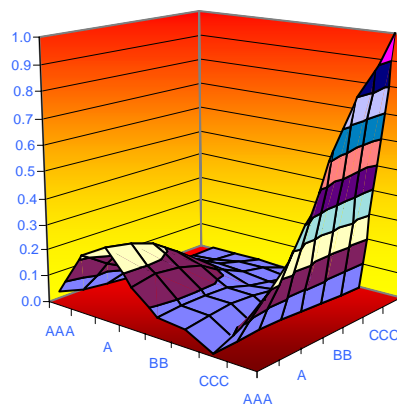
The Risk Management course has been developed with the aim of providing participants with a comprehensive understanding of the theory and practice of risk management methodology that will assist them to formulate, analyze, develop and implement strategies for effective risk management.

The course draws together the latest innovative developments as well as the most effective practical tools and quantitative methods, guiding delegates through a step by step learning process to illustrate the application of theoretical concepts to real risk management problems and modeling solutions.

Credit rating transition probability surface modeling

Delegates will gain a thorough understanding of the most important aspects of risk management and how to apply the latest modeling, forecasting and simulation techniques for VaR and credit risk management applications.

Class work is participatory and will involve exercises in evaluating risk factors, developing spreadsheet valuation and risk measurement tools and case studies requiring students to evaluate and implement suitable risk management solutions.



WHAT YOU WILL LEARN FROM THIS COURSE

This comprehensive course will enable you to:

- ◆ Discover advanced mathematical techniques for forecasting, simulating and quantifying interest rate, derivatives and credit exposures.
- ◆ Understand complex derivative structures and how their risk factors may be properly assessed.
- ◆ Apply the latest techniques for modeling and hedging credit risk through the application of credit derivatives.
- ◆ Implement VaR, Crashmetrics and other advanced risk management systems.
- ◆ Determine how to make sophisticated investment and hedging decisions.

Previous Delegates

- ◆ Salomon Brothers
- ◆ Chase/ JP Morgan
- ◆ Bankers Trust
- ◆ Credit Suisse
- ◆ Merrill Lynch
- ◆ Deutsche Bank
- ◆ ABN-AMRO
- ◆ NatWest Markets

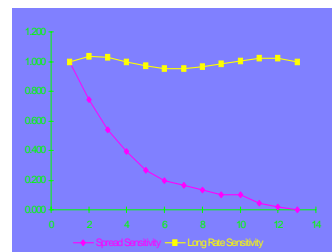
DAY 1 – INTEREST RATE RISK

Morning

Interest Rate Risk

- Risk theory of yield
- Yield curve movement
- Yield volatility
- Bond values & interest rates
- Duration
- Duration-yield curves
- Immunization
- Convexity
- Limitations of traditional measures
- Factor analysis of yield volatility
- Multifactor duration
- Multi-factor vs single factor risk models
- Risk concept for floating rate instruments
- Index rate duration
- Key Treasury rate duration
- Volatility duration
- Option adjusted duration
- Option adjusted convexity
- Duration spectrum

- Duration by Linear Smooth Estimation
- Duration using Monte-Carlo simulation



Duration factorization

What delegates say about our courses

“Very comprehensive, very complete.”

“Best course I have taken in the last two years.”

“The content of the class is extremely valuable. Presentation is outstanding. The organization of this session is excellent.”

“A wealth of material is presented and the media used to deliver it is effective, affording the participant with valuable hands-on experience with spreadsheet and other software.”

“Practicality & theory made fun, together with interesting tools and exercises makes this class excellent!”

“Excellent fusion of theory and practical example”.

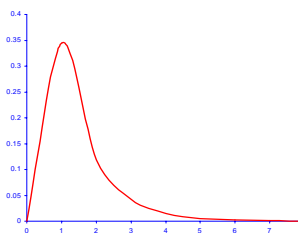
“Lecturers clearly demonstrated their mastery of subject matter.”

Afternoon

Yield Curve & Default Risk Modeling

- Apply the bootstrap method with bonds
- Limitations of bootstrapping
- Multiple regression techniques
- Bond pricing as a regression model
- Constructing the yield curve using regression
- Confidence intervals for

- the yield curve
- Model validation
- Goodness of fit and residuals tests



Hazard rate modeling

- Interpolation methods
- Linear interpolation
- Spline interpolation
- Cubic spline formulation & methodology
- Modeling credit risk
- Credit spreads
- Implied default risk
- Term structure of default
- Stochastic default risk
- Hazard functions
- Hazard rate modeling

LABS & MODELLING EXERCISES

Applying Multi-Factor Duration Models

Delegates examine the interest-rate sensitivity characteristics of a bond portfolio under various interest rate scenarios and consider how the simple linear duration concept can be extended using a multi-factor model to capture important second-order effects and so reduce the exposure.

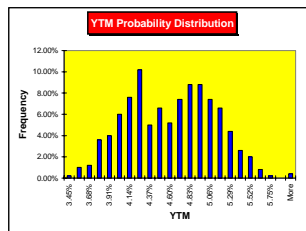
Risk Measurement for a Structured Note

Delegates use deterministic and Monte-Carlo methods to evaluate the index rate, Key Treasury

rate and option-adjusted duration of a structured note.

Building a Yield Curve & Default Risk Model

Delegates construct a yield curve from bond data using a regression model. They then apply optimization routines to estimate the default risk function using fixed and stochastic default probability models.



Yield simulation modeling

DAY 2—DERIVATIVES RISK

Morning

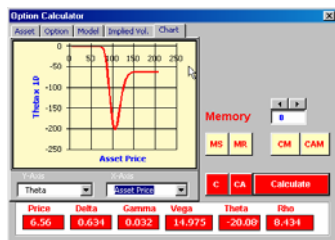
Derivatives Valuation & Risk Management Models

- Random walk
- Lattice models
- Risk neutral valuation
- Brownian motion
- Stochastic differential equations
- Ito's lemma
- The Black-Scholes model
- Merton's model
- Black (76) model
- Valuation of caps & floors

- Swaption pricing
- Limitations of Black-Scholes & extensions

Derivatives Risk

- Price risk—Delta



Option Greeks

- Time decay—Theta
- Volatility risk
- Gamma & Vega
- Gamma & leverage
- Sensitivity analysis
- Assessing risk with Greeks

Volatility Modeling & Risk Management

- Estimating volatility
- Volatility cone
- Seasonal volatility
- Volatility smile
- Forward volatility

Course Leader:



Jonathan Kinlay
Hedge Fund Manager
Adjunct Professor of Finance

“The knowledge and experience of the instructor was tremendous. I have worked at top Wall Street firms for ten years and judge him to be at the upper ranks of those I have come into contact with.”

Afternoon

Volatility Modeling & Risk Management (cont'd.)

- Volatility surface modeling
- Volatility forecasting
- ARCH, GARCH & EGARCH models
- Volatility persistence
- Evidence of GARCH effects in markets
- Forecasting correlations
- Volatility risk management
- Delta-Gamma hedging
- Delta-Vega hedging

Monte-Carlo Techniques

- Pseudo-Random number generation
- Generation of distributions
- Diffusion events
- Jump events
- Multivariate Monte-Carlo
- Dealing with correlation
- Pricing with Monte-Carlo
- Monte-Carlo Greeks
- Variance reduction techniques

Exotic Options

- Path dependency
- Range notes
- Barrier options
- Asian options
- Lookback options
- Quantos
- Ladders
- Volatility options
- Exotic pricing with trees
- Monte-Carlo valuation
- Exotic risk management & hedging

About your course leader

Jonathan Kinlay has advised multinational corporations and financial institutions in Europe, North America and Africa over a period of 16 years in the areas of financial engineering, quantitative analysis and risk management, initially with NatWest Bank and subsequently Chase Manhattan Bank. He subsequently worked as head of quantitative analysis and proprietary trading in a European hedge fund, trading US and European fixed income and OTC & exchange traded derivatives in fixed income, foreign exchange, stocks and commodities.

Mr Kinlay has taught advanced courses in trading and financial engineering as an Adjunct Professor of Finance at leading US and European Universities, including the Universities of Cambridge, Oxford and Reading and at Carnegie Mellon University in New York.

LABS & MODELLING EXERCISES

Derivative Pricing & Greek Computation

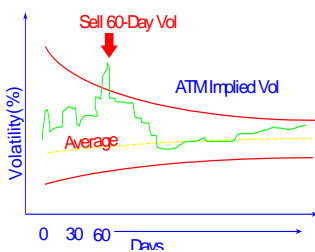
Delegates use Black-Scholes, Merton and Black (76) models to price and calculate the Greeks of a variety of derivative instruments.

Option Sensitivity Analysis

Delegates use the Option Calculator to explore the sensitivity characteristics for options with various parameters.

Greek Hedging

Delegates apply the Greek parameters to estimate the change in value in a derivatives portfolio in response to changes in underlying market conditions,



Volatility cone estimation

and then employ linear programming techniques to develop a hedging strategy which will delta-neutralize, or delta-gamma-neutralize, the portfolio.

Exotic Option Valuation & Hedging

Delegates apply Monte-Carlo techniques to prices and assess the risk sensitivity of a variety of exotic options.

DAY 3—CREDIT RISK & RISK MODELS

About Our Courses

Our training courses are thoroughly researched and structured to provide intense, practical training directly applicable to your organization.

Our instructors combine academic excellence and teaching experience at top Ivy-league schools with practical experience in trading, investing and quantitative analysis at leading financial institutions.

All of our courses make extensive use of analytics software, modelling exercises and case studies using real market data, to ensure that delegates consolidate their understanding of theoretical concepts and learn how to apply them in practice.

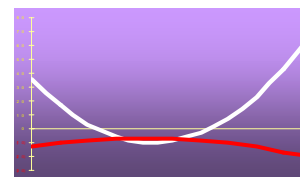
Benefits include:

- ◆ Strictly limited numbers
- ◆ Pre-course questionnaire
- ◆ Tailored program to address individual needs
- ◆ Practical workshops and modelling exercises
- ◆ Extensive use of analytics software tools
- ◆ Comprehensive course documentation

Morning Risk Models

- Definition of Value at Risk
- Gaussian VaR model
- Volatility & VaR
- VaR & confidence levels
- VaR & holding period
- VaR for equities
- VaR for FX
- VaR for bonds
- VaR for FRNs
- VaR for swaps
- VaR for derivatives
- Normal model
- Delta-Normal model
- Delta-Gamma model
- Model failure rate tests
- Kupiec / Christoffersen
- Lopez probability forecast
- Historical simulation
- Stress testing
- Monte-Carlo approach
- Non-Normal VaR
- Normal mixture model
- GED VaR model
- Zangari test

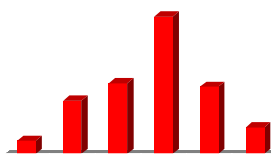
- Limitations of VaR
- Mapping: RiskMetrics
- PCA /Factor analysis
- Extreme value theory
- CrashMetrics model
- Tests of risk models



Optimal crash hedging

Afternoon Credit Risk

- Credit risk measurement
- Credit rating
- BIS approach
- Merton's approach
- Risk term structure
- Implied default term structure
- Duffie-Singleton model
- Hazard functions
- Recovery rates
- Credit exposure
- Credit at Risk
- Default VaR
- Credit risk management
- Hedging approaches
- Markov models
- Integrating default and market VaR



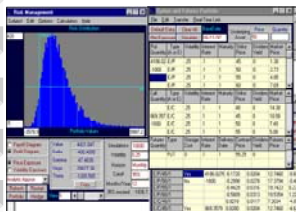
Recovery rate modeling

- Integrated VaR
- CreditMetrics
- Other credit risk models
- **Credit Derivatives**
- Total return swap
- Default swap
- Limited recourse note
- Credit swap applications
- Credit spread options
- Exotic credit options
- Pricing credit derivatives
- Das model
- Longstaff & Schwartz

LABS & MODELLING EXERCISES

VaR Modeling

Delegates implement a Delta-Normal and Delta-Gamma-Normal VaR models for a de-



Computing Value-at-Risk using Monte-Carlo simulation

derivatives portfolio and compare the results of a Monte-Carlo simulation VaR model.

CrashMetrics Modeling

Delegates apply the CrashMetrics methodology to construct an optimal hedge for a derivatives portfolio & evaluate its performance under extreme market con-

ditions.

Pricing Credit Risky Debt & Debt Options

Delegates use lattice methods to back out the default term structure, and price credit-risky bonds & bond options.

BOOKING FORM & CONTRACT

Please complete this form and fax back to:

Fax #: +1 (212) 208 2492

Sign up for:	Date	Fees
<input type="checkbox"/> Advanced Risk Management	Dec 17-19	\$4,200 *
<input type="checkbox"/> One day of program (indicate which)	17 18 19	\$1,500*
	Total	_____



BOOK 3 PLACES AND 4TH DELEGATE IS FREE!

Name _____

Position _____

Organization _____

Address _____

City _____ State _____ Postcode _____

Phone _____

Email _____

Cardholder Name _____

Billing Address _____

City _____ State _____ Postcode _____

Phone _____ Email: _____

Payment

- Visa
- MasterCard
- American Express

Credit Card # _____ Exp. date _____

Signature _____ Date: _____

UPCOMING COURSES

Please send me details of the following courses

- Advanced Quantitative Methods in Finance
- Bond Trading
- Credit Risk & Credit Derivatives
- Derivative Strategies
- Forecasting Financial Markets
- Structured Products
- Swaps & Derivatives
- Yield Curve & Interest Rate Modeling

TERMS & CONDITIONS

Cancellation

By completing this registration form the signatory hereby agrees that Investment Analytics will not be able to mitigate its losses for any less than 50% of the total contract value. Cancellations must be received by email or fax three weeks before the conference date. Delegate substitutions are welcome at any time. Thereafter the full conference fee is payable. If for any reason Investment Analytics decides to amend this program, we are not responsible for any

airfare, hotel charges or other expenses or costs incurred by the registrants. In the event that Investment Analytics cancels the event, Investment Analytics reserves the right to transfer this booking to another conference to be held in the following twelve months or to provide a credit for an equivalent amount to another conference.

Indemnity: The client hereby indemnifies and holds Investment Analytics harmless from and against all costs charges and expenses, including legal fees, which are incurred by

the client. The construction validity and performance of this agreement shall be governed in all respects by the laws of the Bahamas, the exclusive jurisdiction of whose courts the Parties hereby agree to submit.



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Investment Analytics provides independent research focusing on applications of sophisticated mathematical and financial modeling techniques to problems of strategy development and repair, performance analysis and risk management for clients in the investment management industry in Europe and North America.

Our methodology represents a radical departure from traditional methods of research and is based instead on advanced techniques of quantitative finance that have proved highly successful in tackling complex problems in financial engineering and investment analysis. Investment Analytics has applied these powerful and robust techniques to the field of equity analysis, to bring fresh insights and a whole new approach to investment research

