Derivatives Modelling

REGISTRATION FORM (Please do not remove this label)

YES! Please register the following delegate(s) for Interest Rate Derivatives Modelling - Fee US$ 3,300

☐ 20-22 September 2000, Singapore (ST2196)

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(please underline family name)

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Registration Fee:
US$3,300 per person for the 3-day course. Fee includes tuition, lunch, refreshments and teaching materials. Hotel accommodation is not included in the course fee, but special rates have been arranged for delegates. (See below)
Please note: Delegates registering from Singapore will be charged an additional 3% GST.

Early Bird:
Register and pay for the course before 16 August 2000 and benefit from a 5% discount
Team Discount:
When three or more colleagues from one institution attend the same course date, there is a 5% discount available on the second and additional bookings.

Payment:
Crossed cheque payable to **Euromoney Training.** *Registration is confirmed only upon receipt of payment.*

Cancellation and Transfer Policy:
Payments will be converted towards Euromoney course voucher that can be applied for any Euromoney Training course in Asia for up to one full year. A course voucher for the full amount will be issued for cancellations received up to 21 days before this event. Cancellations must be made in writing (letter or fax) and reach this office before the 21 days deadline. A 25% charge will be deducted from the course voucher note for cancellations received less than 21 days before this event. Of course a replacement is always welcome. A course voucher will not be issued in case of no attendance without cancellation

Course Venue and Accommodation Information:
The Oriental, 5 Raffles Avenue, Marina Square, Singapore 039797
Tel: (+65) 331 0030 Fax: (+65) 336 5079 Email: reserve-orsin@mohg.com Contact person: Ms Angie Chua
Special corporate rates have been negotiated for course delegates. Please make your accommodation bookings direct with the hotel. To take advantage of the special rates for delegates, please indicate that you are attending **Euromoney's Interest Rate Derivatives Modelling course.**

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EUROMONEY TRAINING
A Division of Euromoney Institutional Investor Plc

Interest Rate Derivatives Modelling

Using the latest modelling techniques to effectively price and trade complex interest rate derivative instruments

- Use and apply state-of-the-art modelling techniques to accurately value interest rate derivatives
- Benefit from computer simulations and real-life case studies of derivative instruments
- Use models to effectively formulate risk management and hedging strategies for derivatives
- Examine international and regional characteristics of the capital markets
- Master bond mathematics and yield curve calculations
- Examine essential elements in bond portfolio management

Incorporating Computer Simulations

SINGAPORE
20-22 September 2000, The Oriental

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INTEREST RATE DERIVATIVES MODELLING

Course Objectives

Developments in financial derivatives continue to be some of the most innovative and exciting in today's financial markets. New and novel uses for derivatives are being constantly developed, as are highly inventive methods of structuring derivative instruments. However, in order to take full advantage of the enormous opportunities presented by the use of derivatives, practitioners and users require the latest and most accurate information about the instrument before vital decisions can be made. As a result, the need for effective derivative modelling techniques has never been so important.

Euromoney Training's intensive **Interest Rate Derivatives Modelling** course will provide delegates with extensive exposure to the newest techniques for the pricing and trading of major fixed income instruments in the financial markets. The state-of-the-art models used for valuing these derivative instruments will be explained and illustrated through case studies and computer simulations of real financial products. Also covered will be the portfolio management techniques for bonds as well as the risk management of these derivative instruments. The course will focus on both the international perspective and regional characteristics of the capital markets.

Course Content

This unique 3-day course covers:

- ☑ Characteristics of interest rate instruments
- ☑ Bond mathematics
- ☑ Spot rate models and forward rate models
- ☑ Yield curve calibration
- ☑ Pricing of bonds, bond options and other interest rate instruments
- ☑ Structure of European, US and Asian bond markets
- ☑ Bond portfolio management

Teaching Methods

The course strikes a fine balance between lecture sessions, worked examples and exercises and case studies through computer simulations. One distinctive feature of the programme is the interactive hands-on **computer simulations** of real case studies of various classes of derivative products. Throughout the course, participants will price and hedge various fixed income instruments on spreadsheets. They will then be given information about changing market conditions and will be required to identify the options open to them and make a decision on their trading strategy. Heavy reliance is therefore made upon computer simulations throughout the course.

Participants

This course is directed to market practitioners with limited exposure to interest rate derivatives who want to acquire a sound understanding of various aspects of trading and pricing derivatives. It is suitable for individuals in financial institutions who are involved in derivatives in their recent job functions. It is also suitable for those whose jobs are related to the trading and marketing of interest rate instruments to gain acquaintance with the new generation of financial derivative products.

Course Level / Assumed Knowledge

A good working knowledge of derivatives, capital markets and basic financial mathematics is assumed. Delegates should also be familiar with Microsoft Excel.

Documentation & Course Texts

All delegates will receive comprehensive course documentation, as well as a copy of Dr Kwok's textbook, *"Mathematical Models of Financial Derivatives"*, for use during and after the course, enabling them to return to their organisations with an extensive and valuable source of information for future reference.

Day One

Review of Interest Rate Instruments

- Straight-rate instruments:
  - Straight bonds: Treasury, corporate or high yields
  - Short term borrowing/lending: Repos, reverse Repos and FRAs
  - Floating rate notes (FRNs)
  - Interest rate futures: T-Bond, T-Note and Eurodollar futures
  - Interest rate swaps and currency swaps
- Convex-rate instruments
  - T-Bond options
  - T-Bond and Eurodollar futures options
  - LIBOR instruments: caps, floor and swaptions
  - Betting on the yield spreads: spread options
  - Structured notes
    - Callable bonds
    - Reverse/inverse FRNs
    - Capped/collared FRNs
    - Dual currency bonds
    - Currency indexed notes
  - Convertible bonds, CMOs and CBOs

Basics of Bond Mathematics

- Day count convention and compounding frequency
- Price-yield relationship
- Measures of sensitivity: PVBP/DV01, McCauley duration and convexity

Case Studies & Computer Simulations:

- Notes of Credit Local de France
- Straight bond pricing methodology
- Calculating PVBP, DV01, duration and convexity
- Valuing T-bond futures

Day Two

Term Structure Models

- Term rates, forward rates and futures implied rates
- Variety of yields: zero, forward, par, LIBOR, swap, CMT and CMS
- Bootstrapping method for Treasury yield curves
- From yield curves to forward rate curves

Spot Rate Models

- Vasicek model and Cox-Ingersoll-Ross model: capturing yield curve dynamics
- Bond pricing formulas
- Term structure of volatilities
- Fitting the term structures: Black-Derman-Toy model and Hull-White model
- Building a binomial tree for the Hull-White model
- Pricing American T-bond options using a calibrated tree

Case Studies & Computer Simulations:

- Bootstrapping for the HIBOR yield curve
- Valuing American bond options using the Hull-White model
- Credit Local de France swaption

Day Three

Forward Rate Models

- Heath-Jarrow-Morton model: all in one
- Ho-Lee model: simplicity is beauty
- Forward measure and Black's model
- Implied volatility: measurement of price rationality
- Hedging with the Black model
- Pros and cons of spot versus forward models

Bond Portfolio Management

- Structure of bond markets
- International bond markets
  - Eurobond markets
  - US Treasury and corporate debt markets
  - Asian bond markets
  - Other sovereign debts: Brady bonds and Eastern European bonds
- Credit ratings and prices
  - Credit scales and risk premiums
  - Investment grade versus non-investment grade bonds
- Sharpe ratio for portfolio return measurement
- Passive risk management
  - Dedicated portfolio/duration immunization/horizon matching/indexed portfolios
- Active risk management
  - Yield curve trading/arbitrage/bond switch/yield enhancement

Case Studies & Computer Simulations:

- Black model for T-Bond futures options
- Black model for LIBOR caps and swaptions
- Credit, price and YTM of the Brazilian C-bond

Course Conclusion & Summary

Course Times:

Registration is at 8.30am on the day one. The course begins at 9.00am and concludes at approximately 5.00pm daily.

Please note: *Delegates should bring a good financial calculator to the course. The Hewlett Packard HP-B series are recommended.*

Euromoney Training Certificate

The Euromoney Certificate

Delegates who successfully complete this course will receive the prestigious **Euromoney Training Certificate**, a statement of excellence recognised worldwide.

Course Directors

Dr. Yue Kuen Kwok, is a senior lecturer, Department of Mathematics, The Hong Kong University of Science and Technology, Hong Kong. Yue Kuen Kwok was awarded his PhD degree in Applied Mathematics from Brown University. His research interests concentrate on pricing and risk management of equity and fixed income derivatives. Dr Kwok has published research articles in major research journals in financial engineering and presented invited lectures at various international finance conferences. In addition, he is the author of a widely adopted textbook on mathematical models of financial derivatives and a popular book on the Hong Kong derivative markets. He has provided extensive consulting services to financial houses on various aspects of derivative trading.

Dr. Lixin Wu, is a lecturer, Department of Mathematics, The Hong Kong University of Science and Technology, Hong Kong. Lixin Wu received his PhD degree in Applied Mathematics from UCLA. His current research interests are quantitative modelling of equity and fixed income derivatives. He has published numerous articles on financial engineering in major journals. Between 1998 and 1999, Dr Wu was a consultant to Morgan Stanley Dean Witter (New York) on credit risk modelling of the Brady debt markets. In addition, he has acted as a consultant to local firms on exotic derivative modelling. Mr. Wu is an experienced trader of equity options.

Both instructors are columnists in the Hong Kong Economic Journal, and write on financial derivatives trading.

About Euromoney

Euromoney Training is a division of Euromoney Institutional Investor plc. one of the world's leading financial publishing and information groups. Euromoney publishes over 60 magazine titles worldwide including *Euromoney, Asiamoney, Corporate Finance, Euroweek* and *Project & Trade Finance.*

In addition to specialist magazines, Euromoney provides the international business community with a wide range of financial, legal and general business information in the form of books and directories, training courses, conferences, databases, videos and CD-ROMs.

Pre-Course Delegate Questionnaire

To help us effectively establish your individual training needs, we will send you a short questionnaire upon receipt of your registration. This will allow us to gain a thorough understanding of your job duties, experience and desired objectives from attending this course. Please therefore register early to allow sufficient time for this to take place.