

The IFF School of Derivatives

Valuation Frameworks, Derivatives Tools, Techniques & Implementation Mechanics



27th June-1st July 2011 & 17th-21st October 2011

Wotton House, Dorking (near London)

This unique residential course:

- Provides a unifying framework for understanding the two most influential analytical tools underpinning derivatives market valuation and products
 - model-free swaps (forwards)
 - model-dependent options
- Will be taught in a series of connected modules that focus on applicable techniques, whilst remaining analytically and mathematically rigorous and in an accessible manner
- Emphasises the economic intuition behind the key theoretical concepts, apparatus and vocabulary of derivatives
- Distils the subtleties and essence of derivatives use and valuation tools, bridging the gap between theory and practice
- Uses numerous worked examples set in a real-life context using actual historical market prices
- Demystifies difficult concepts illustrated throughout with concrete examples and worked through by extensive modelling using Excel spreadsheet applications

Save **£500**
if you book before
22nd April 2011

The IFF School of Derivatives



Valuation Frameworks, Derivatives Tools, Techniques & Implementation Mechanics

27th June-1st July 2011 & 17th-21st October 2011

Wotton House, Dorking (near London)

Course Rationale

Turbulent decades of economic crises and increased volatilities across all asset classes have brought about innovative derivatives solutions to manage risk. These developments and the recent dramatic failure in appraising derivatives models, place a heavy emphasis on institutions' ability to assess the risks of derivatives, which have been blamed for exacerbating the present crisis in financial markets.

Despite the debate, derivatives are still the strategic instruments of choice to manage financial risks and create value. Their failure has typically been due to a lack of understanding of how to use and price derivatives. Understanding their dynamics, risks, valuations and uses has become more important than ever. The recent credit market turmoil, for example, has witnessed a wide variety of approaches that seem to have little in common.

However, the **key** to understanding derivatives is that all products, no matter how complex, are portfolios of just two **fundamental building blocks**: a swap (forward) and an option. This course provides this understanding in a rigorous, consistent and coherent framework.

Course Objectives

This intensive course provides detailed insights into the principles, methods and mathematical tools for understanding the analytics of derivatives structuring, use, valuation and risk management.

It discusses the **economic intuition** behind each important aspect of derivatives in order to show how they can be understood in a more sophisticated way, bridging the gap between theory and practice. The concepts and mathematics are set and illustrated by detailed worked examples from the marketplace. The course involves extensive modelling and computations using Excel spreadsheets.

Learning Outcomes

By the end of the course, participants will have acquired a detailed practical and theoretical knowledge of:

- Valuation and modelling of fixed income and equity-linked derivatives
- The practicalities behind options; their trading, structuring and risk mechanics
- Recent developments behind integrated stochastic yield curve models
- Securitisation and hybrid corporate credit-risky securities
- Credit derivatives and an introduction to credit risk models

As well as key technical skills and an understanding of the two core derivatives valuation tools: Model-free swaps (forwards) and Model-dependent options.

UNIQUE COURSE SPECIFICATIONS

Owing to its residential format, this course will prove invaluable in giving participants the opportunity to concentrate exclusively on the subject without any distractions. Here are some of the unique factors that make this course an essential learning experience:

- **Strictly limited numbers** mean that you will receive maximum personal tuition and coaching throughout the entire programme
- **The intensive residential format** of the course ensures that you can focus completely on learning and improving your skills without the distractions of the office
- **IFF's reputation as the global leader** in financial training means you are guaranteed to benefit from a course that is unique and without equal

There will be an inclusive welcome dinner on Sunday evening before the course.

Save £500 if you book before 22nd April 2011

The IFF School of Derivatives



Valuation Frameworks, Derivatives Tools, Techniques & Implementation Mechanics

MODULE 1

YIELD CURVES, SWAPS & INTEREST RATE DERIVATIVES

Yield Curve Derivatives: Hedging/Arbitraging Taxonomy, Markets Linkage & Overview

- Risk measures, concept of volatility & model-specific valuations
- Decomposition into simpler (fixed, floating, contingent) cash flows

Forward Rate Agreements (FRAs)



- FRAs, swaps & futures: convexity bias adjustment
- *Computer Workshop: FRAs Cash Flows*

Fundamentals of Yield Curve Construction, Interest Rate Swaps & Micro-Structure



- *Computer Workshop: Swap fixed leg cash flows*

Stochastic Floating Cash Flow Valuation (Some Key Results)

- Valuing unknown LIBOR cash flows
- Key strategic (static) replicating portfolio & exit strategies
- Forward rate method & spot-forward parity
- Principal (FRN, Synthetic Bond) Method

Swap Yield Curves & Zero-Coupon Valuation



- Par money market (spot LIBOR) and swaps (forward LIBOR) rates
- "Stripping" par-rates curve
- "Bootstrapping" zero-coupon bond price curve
- Audit checks: profit & loss: principal & forward rate methods
- Effective yield-to-maturity, zero-coupon bond yield curve
- *Computer Workshop: Constructing annual swap*
- Stripping "special" one-year semi-annual equivalent par rate
- *Computer Workshop: Constructing semi-annual swap*

Off-Market Swap Points



- Linear, geometric (log-linear), exponential & spline interpolations
- *Computer Workshop: Exponential interpolation*

Interest Rate Futures



- Forward rate, futures price/rate, convexity adjustment
- First futures stub rate, futures strip zero-coupon bond prices
- *Computer Workshop: Bootstrapping futures strip zeros*



- Integrating money, swap & futures curves
- *Computer Workshop: Incorporating futures strip prices*

Principal Component Analysis (PCA) & Swap Pricing

- Yield curves dynamics: Shifts, tilts & turns
- Correlation, factor components & volatility (cone) surface

FX Currency Swaps



- Equivalent bond positions
- Equivalent forward exchange positions
- *Computer Workshop: Valuing FX currency swaps*

Non-Standard & Off-Market Swaps



- Amortising swaps, accreting swaps & rollercoaster swaps
- *Computer Workshop: Valuing existing off-market swaps*
- Pricing LIBOR-in-arrears (DRS) interest rate swaps
- Limitations of forward rate method & volatility model

MODULE 2

OPTIONALITIES: EQUITY, FX & INTEREST RATE OPTIONS

Derivatives Contracts: Fundamental Building Blocks, Arbitrage Boundaries, Synthetics & Strategies

- Arbitrage boundaries & properties of option pricing
- Determinants of an option's value
- Option strategies & payoffs
- Covered call writing – PERCS, DECS
 - M-KMV structural model of credit risk
 - Mertonian structural model of credit risk

The IFF School of Derivatives



Valuation Frameworks, Derivatives Tools, Techniques & Implementation Mechanics

- Protective puts: Portfolio insurance
- Put-call parity
 - Accounting, tax and regulatory arbitrage
 - Locking in unrealised speculative profits
 - Zero-cost collars
 - Capital structure arbitrage
 - Securitisation & cdos

Computational Workshop Exercises: Structured Product Solutions, Embedding & Embedded Options

- Bank loan decisions (embedding options)
- Real estate and credit risk analysis (embedded options)
- Zero-cost collar
- Creative Security design embedded options
 - Explore creation of hybrid securities and contingent forms of payment & embedded optionalities
 - Tax, accounting & regulatory arbitrage

Derivatives Valuation: Concepts & Insights

- Overview of valuation models
- Intuitive concepts: Binomial option pricing model
 - Portfolio duplication (replication) approach
 - Self-financing strategy approach
 - Risk-neutral (martingale) probability approach
-  • *Computer Workshop: Binomial option pricing model*
- Black-Scholes option pricing model
- Options insights of valuation and risk management
-  • *Computer Workshop: Black-Scholes option pricing model*

Understanding Options Risk: Stock Exposure (Delta)

- Delta hedging/replication as cost of option
- Monte-Carlo simulation: Delta-neutral hedging strategy
-  • *Computer Workshop: Delta-neutral exit strategy cost*

Volatility (Convexity) Risk Mechanics

- Delta-neutral long volatility trade and hedged portfolio
- Mechanics and essence of buying volatilities (long gamma)
- Time-decay (Theta) effects of delta and gamma
-  • *Computer Workshop: Long volatility (Gamma) trading*

FX Currency Options

- Arbitrage bounds, zero-cost collars, risk reversals, butterflies

- Structured products and implications for corporate treasurers
- Binomial and Black-Scholes (Garman-Kolhagen) valuation
- Exotic currency options
-  • *Computer Workshop: Pricing FX options*

Interest Rate, Yield Curve Volatilities & Options: Portfolio of Options on FRAs

- Interest rate options: Caps/floors
 - Valuation of caps: Black's (1976) market model
 - Valuation of interest rate floors: Cap/floor-swap parity
-  • *Computer Workshop: Pricing interest rate caps and floors*
 - > Using flat brokers' (market's) volatilities
 - > Using term-structure of volatilities (volatility surface)

Option on Portfolio of FRAs (Swaps)

- Options on interest rate swaps: Swaptions
 - Black (1976) market model valuation of payers/receiver swaptions
 - *Computer Workshop: Pricing swaptions*
 - > Hedging cap with swaptions

Volatility Surface Asymptotics

- Volatility skews, volatility smile effects
- Stochastic Alpha Beta Rho (SABR) Black (1976) model

Yield Curve Models: Motivation

- Inconsistencies in applying Black-Scholes/Black (1976) models
- Black (1976) cap/floor pricing bias & convexity adjustment
- Effects of interest rate volatility on bond prices
-  • *Computer Workshop: Yield curve model & convexity adjustment*

Derivatives Pricing Tools: Fundamental Theorem

- Applied to interest rates & fixed-income options
- Arrow-debreu state primitive prices (stochastic discount function)
- State prices, risk-neutral & martingale probabilities

The IFF School of Derivatives



Valuation Frameworks, Derivatives Tools, Techniques & Implementation Mechanics

Yield Curves Models

- Equilibrium and fitting no-arbitrage models
 - Vasicek, Cox–Ingersoll–Ross (CIR), Ho–Lee, Hull–White, Black–Derman–Toy (BDT) & HJM/BGM
- LIBOR Market Model (LMM)

Implementing & Calibrating Yield Curve Models: One-Factor Models

Black-Derman-Toy (BDT) Model: Implementation

- Main features of BDT model
- Term structures of interest rates and volatilities

Black-Derman-Toy (BDT) Model: Applications

- Valuing interest rate options: Caps/floors
- Valuing European coupon bond options
- Valuing Bermudan coupon bond options
- Valuing payer/receiver swaptions
- Valuing swaps and bonds with BDT model



Computer Workshops:

- *Constructing Black-Derman–Toy (BDT) yield curve model*
- *Valuing interest rate caps, bond options, swaptions, futures*
- *Valuing Bermudan options, interest rate swaps*
- *Comparison of BDT & Black (market) models – Convexity adjustment*

MODULE 3

CREDIT RISK DERIVATIVES MODELS

Credit Default Swaps (CDS): Structure, Pricing & Hedging

- Decomposing defaultable risky bond
- Isolating underlying default (credit) risk using swap/CDS
- Adding swap floating LIBOR-based payments
- Pricing the CDS premium leg & protection leg



Computer Workshop: Pricing Single-Named CDSs

Main Uses of Credit Derivatives

Mertonian/KMV Structural Model (Firm Assets) Approach

- Embedded complexities of interim cash flows
 - Effects of dividends on default risk
 - Effects of capital structure on default risk
 - Effects of investments on default risk
- Recapitalisation effects



Computer Workshop: Mertonian/KMV Binomial Models

- *Credit (default) risk measurement spreadsheet based on the mertonian option pricing methodology, and study the effects of dividend, capital structure and investment policies on default risk*

Jarrow–Turnbull (JT) Reduced-Form (Intensity-Based) Model: Applying Term Structure Models

- Stochastic term structure of default-free interest rates
- The Markov process for credit ratings
- Stochastic maturity specific credit-risk spread
- Implementing a discrete-time Markov model
 - Pricing credit risky bonds
 - Pricing options on credit risky bonds
 - Pricing vulnerable derivatives
 - Credit Default Swaps (CDS)



Computer Workshop: Jarrow–Turnbull Reduced-Form Model

International Trainers / Consultants Wanted

Due to increased global expansion, IFF is seeking additional trainers to join our respected faculty. If you would like to discuss training opportunities with IFF around the world, please email Jeff Hearn (General Manager) jhearn@iirltd.co.uk

Meet Your Expert Course Leader

Dr. T.S. Ho

Dr. T.S. Ho is the managing and technical director of an educational consultancy firm based in the UK and professorial advisor of global derivatives risk analytics and chief scientific officer at leading financial institutions. His academic positions include visiting scholar and professor of finance and professorial research fellow at various universities.

A recipient of the “highly commended prize” in the Pilkington Teaching Award and “best teacher” awards, he has worked with numerous leading investment banks and has implemented risk management systems for derivative products for major financial institutions worldwide.

He holds a doctorate in mathematical and empirical finance and has published papers on the valuation and hedging of complex derivatives, market risk and credit risk in eminent academic journals, books and conference proceedings. He has received a number of research and educational grants for innovation in finance teaching and research. He was awarded the ANBAR citation for “international recognition of outstanding contribution to the literature and body of knowledge”.

TAKE ACTION NOW AND SECURE YOUR PLACE – YOU CAN'T AFFORD TO MISS OUT

By now I'm sure you will have a firm understanding as to how you could apply all the concepts and knowledge you will gain from the IFF School of Derivatives. However, please remember that we are only able to select a limited number of delegates at each course. Please call our registration hotline on +44 (0)20 7017 7190 and secure your place now.

Who Should Attend

This is an intermediate level course developed to meet the needs of financial professionals who want to master fully the complexity of a broad range of derivative products. The intensive nature of this course will provide an invaluable update for:

- all derivatives traders and sales personnel
 - risk controllers and risk managers
 - financial structurers and engineers
 - investment managers

... and other functions closely working within the derivatives markets.

Companies Who Have Attended Previous IFF Derivatives Courses Include

> Arab National Bank	> ING	> SEB
> Folksam	> Investec Bank	> National Bank of Abu Dhabi
> Nordea Investment Fund	> Bank Austria Creditanstalt	> Commerzbank AG
> Baker & McKenzie LLP	> KPMG Business Advisory Services	> Standard Chartered Bank
> Inter-American Bank	> European Central Bank	> Calyon
> Kommuninvest AB	> BDO Stoy Hayward LLP	> HSBC
> Bank For International Settlements	> Rabobank Nederland	

About the Course Organiser – IFF

As a specialist training division of Informa – the world's leading provider of business information – The International Faculty of Finance (IFF) is the premier source of *specialist financial training* for the global financial markets. The quality which distinguishes IFF from its competitors is the high level of expertise and proven training skills of its course leaders, and the unique independent advisory board of international industry experts who advise on the programme content and trainer selection. The interactive nature of IFF's courses, combined with restricted class sizes, ensure each attendee receives personalised instruction when required. Most of the courses include computer-based exercises using real data, case study sessions, a manual of materials and a certificate of course completion.

VENUE DETAILS



Historic and elegant Wotton House was first documented in 1086. Set in 20 acres of secluded grounds, the original Manor House still remains in pristine condition and represents the epitome of country living: a grand and impressive building enclosed within extensive grounds in a wonderful rural setting. Located in the heart of leafy Surrey, Wotton House is near Dorking, south of London.

What is included in the price?

- All tuition, course materials and documentation.
- Luxury accommodation and meals provided by Wotton House just for your convenience, invoiced by IFF
- Superb accommodation; the ensuite rooms are beautifully furnished and are very well equipped with a private study area, ironing facilities, hair dryer and complimentary toiletries (5 nights including the night before the course starts).
- All meals (breakfast, lunch and dinner) for the duration of the course. Wotton House offers excellent cuisine and an extremely high level of service.
- Full use of the great leisure facilities that the venue has to offer. Wotton House features an indoor swimming pool, spa pool and sauna plus a well-equipped gymnasium. Outdoors you'll find tennis and jogging trails.

Owing to the location of the venue we recommend that overseas delegates fly to Gatwick Airport



Want to find out more? View a video of Wotton House: <http://new.iff-training.com/WHV>

BENEFIT FROM STATE OF THE ART IN-COMPANY TRAINING

IFF are also the world's leading provider of in-company highly customised derivatives training programmes. Not only is in-company training highly cost effective (saving up to 40%), it also allows organisations to focus on the topics and issues most important to their staff.

Our in-company training programmes have been utilised in almost every continent around the world. Here are just some of the organisations already benefiting from IFF in-company training programmes;

- | | | |
|---------------------------|------------------------|-------------------------------|
| > Turkcell | > WestLB | > SMBC |
| > Fortis Bank | > Irish Stock Exchange | > Nordea |
| > National Bank of Greece | > Standard Bank | > Brunei Investment Authority |
| > HSBC | > Rabobank | > First Gulf Bank |

Our in-company training specialists are available now to discuss your needs.
Call now on +44 (0) 207 017 7190 or email: jhearn@iirltd.co.uk

The IFF School of Derivatives

PK = RK1130



Your VIP code is on the address label. If no label, please quote

E M A G

FREE IFF NEWSLETTER

Sign up for the IFF e-bulletins where you can find out about our latest programmes and special discounts. Log on to www.iff-training.com

I would like to register on the training course:

The IFF School of Derivatives

Wotton House, London (Dorking). Please tick your preferred course(s):

- COURSE ☐ 27th June-1st July 2011 (Ref: LF3505)
☐ 17th-21st October 2011 (Ref: LF3507)

YOUR DETAILS

(PLEASE COMPLETE IN CAPITAL LETTERS)

Full Attendee Name Mr/Mrs/Ms

Job Title Dept

Full Attendee Name Mr/Mrs/Ms

Job Title Dept

Company

Address

City Postcode

Tel Fax

* Email

VAT Registration Number

Head of Department Mr/Mrs/Ms

Job Title Dept

Booking Contact Mr/Mrs/Ms

Job Title

Billing Address (if different from above)

* Email

* By giving you my email address I am giving only IIR companies permission to contact me by email.

Administration Details

How much does it cost?

Your total investment for attending this intensive course is **£4,999 plus VAT = £5,998.80**
 This price includes accommodation and meals provided by Wotton House at £685.11 plus VAT
£4,499 if you book before 22nd April 2011

The VAT rate is subject to change and may differ from the advertised rate. The amount you are charged will be determined when your invoice is raised.
 (Our VAT no. is 365 4626 36). Please include payment in favour of International Faculty of Finance with your application. All registrations are acknowledged by return with a VAT receipt.

Places cannot be guaranteed until full payment has been received.

Your Method of Payment

Please tick ☐ Cheque ☐ Credit Card☐ Bank Transfer – full details of bank transfer options will be given with your invoice on registration.☐ Enclosed is my cheque for £ (inc. VAT) in favour of International Faculty of Finance☐ Please charge my card £ (inc. VAT) ☐ AMEX ☐ VISA ☐ MASTERCARD

Name of Cardholder

Card No

Expiry Date

3 digit security code on the reverse of card, 4 digits for AMEX card

Full Address of Cardholder:

Postcode:



2011 marks our 20th year of serving the global financial community. In launching the business 20 years ago, our goal was for the IFF brand to become synonymous with quality, value and service. Those principles continue to guide our business today and always will. We would like to thank our customers past and present for making IFF your training partner of choice.

Hold any course at your own site

SAVE up to 40% and improve performance with our cost-effective tailored in-house courses
 contact Jeff Hearn on +44 (0)20 7017 7190 for details



5 ways to register...

- 1 Tel: +44 (0)20 7017 7190
- 2 Fax: +44 (0)20 7017 7802
- 3 Email: enquiries@iirltd.co.uk
- 4 Web: www.iff-training.com
- 5 Mail: Customer Service Manager

International Faculty of Finance
 6th Floor, 29 Bressenden Place
 London SW1E 5DR

What is included in the price

All tuition, course materials and documentation, 5 nights accommodation at Wotton House (including the night before the course starts), breakfast, lunch and dinner for the duration of the course, use of the excellent leisure facilities that the Conference Centre has to offer.

About the venue

Historic and elegant Wotton House, close to Dorking, south of London is the epitome of country living: a grand and impressive building enclosed within extensive grounds in a wonderful rural setting in leafy Surrey. Wotton House features an indoor swimming pool, spa pool and sauna plus a well-equipped gymnasium. Outdoors you'll find tennis and jogging trails.

What happens if I have to cancel?

Please note that all invoices must be paid at least 30 days prior to the course start date. If you cancel your place within 14 days of the course start date, the full value of the invoice will still remain due. In addition if you are unable to attend, the following cancellation charges will apply for written notice received: 30+ days before the course: 10%. 15-30 days before the course: 50%. 1-14 days before: 100%.

We will happily transfer you to a future course or a colleague can take your place, however a 10% admin charge will be made if the transfer occurs between 15-30 days before the course. A 25% admin charge will be made if the transfer occurs within 14 days of the course. This cancellation policy is necessary owing to the strict limitation on attendance numbers.

Data Protection

The personal information shown on this form, and/or provided by you, will be held on a database and may be shared with other companies in the Informa Group in the UK and internationally. If you do not wish your details to be available to other companies in the Informa Group please contact the Database Manager at the above address, Tel +44 (0)20 7017 7077, Fax +44 (0)20 7017 7828 or email: integrity@iirltd.co.uk.

Occasionally your details may be obtained from, or made available to, external companies who wish to communicate with you offers related to your business activities. If you do not wish to receive these offers, please tick the box ☐

Incorrect Mailing

If you are receiving multiple mailings or you would like us to change any details or remove your name from our database, please contact the Database Manager at the above address, Tel +44 (0)20 7017 7077, Fax +44 (0)20 7017 7828 or email: integrity@iirltd.co.uk - quoting the reference number printed on the mailing label.

DUE TO THE LOCATION OF THE VENUE WE RECOMMEND THAT OVERSEAS DELEGATES FLY TO GATWICK AIRPORT

International Faculty of Finance, 6th Floor,
 29 Bressenden Place, London SW1E 5DR

