

# Foreign Exchange Exotic Options

This practical three-day course covers the pricing, hedging and application of FX exotics for use in trading, risk management, financial engineering and structured products.

**Presented by Professor Uwe Wystup**

**Guest Speaker: Tino Senge - Quantitative Analytics Group, Barclays Capital**

## THE COURSE

FX exotics are becoming increasingly commonplace in today's capital markets. The objective of this workshop is to develop a solid understanding of the current exotic currency derivatives used in international treasury management. This will give participants the mathematical and practical background necessary to deal with all the products on the market.

## PRIOR KNOWLEDGE

Calculus, probability theory, linear algebra, basics of stochastic processes and financial product knowledge up to Hull is also needed. Programming skills are helpful but not essential.

## WHO SHOULD ATTEND?

- Quantitative Analysts
- Traders
- Risk Managers
- Financial Engineers
- Structurers
- Researchers

## About LFS

London Financial Studies is a specialist teaching resource that concentrates exclusively on capital markets. We offer individuals, teams and companies a unique and expert teaching resource that combines theoretical understanding with practical experience. LFS is well known for its personal approach and the economic value that it delivers to clients.

*This program is accredited by the CFA and Institute members are eligible for 24 Continuing Education credit hours.*



# Foreign Exchange Exotic Options

## Day I: Review of the Fundamentals

### Fundamentals

- Components of foreign exchange risk: forwards, swaps and vanilla options
- FX options market: who does what and why
- Software, in particular Reuters Dealing and SuperDerivatives

### Pricing and Hedging in the Black-Scholes model

- Black-Scholes / Merton model in FX
- Derivation of the value of a call and put option
- Detailed discussion of the formula
- Greeks: delta, gamma, theta, rho, vega, vanna, volga, homogeneity and relationships among Greeks

### Vanilla Options

- Put-call parity, put-call symmetry, foreign domestic symmetry
- Quotation conventions in FX
- Dates: trade day, premium payment day, exercise/expiration time, settlement day
- Settlement, spreads, deal processing, counterparty risk
- Exotic features: deferred payment, contingent payment, deferred delivery, cash-settlement, American and Bermudan exercise rights, cut-offs and fixings

### Workshops

#### Volatility

- Implied vs. historic
- Quotation in terms of deltas
- Volatility cones
- Volatility smile: term-structure, skew, risk reversals and butterflies
- Volatility sources
- Interpolation and extrapolation across the volatility smile surface
- Forward volatility

**Workshop:** Greeks in terms of deltas, hedging volatility risk, deriving the strike from the delta with smile

#### First Generation Exotics: Products, Pricing and Hedging

- Digital options: European and American style, single and double barrier
- Barrier options: single and double, knock-in and knock-out
- Compound and instalment
- Asian options: options on the geometric, arithmetic and harmonic mean
- Power, lookback

## The Teacher

**Professor Uwe Wystup** is an extremely experienced practitioner in the field of foreign exchange options, a senior academic and a highly engaging teacher. He has eight years of front office experience as a financial engineer, trader and structurer at UBS, Sal. Oppenheim and Commerzbank. He is also Professor of quantitative finance at Frankfurt's HfB-Business School of Finance and Management. Uwe is well known for his many publications on FX exotics and related topics. His book 'FX Options and Structured Products' is part of the Wiley Finance series and delegates are entitled to a 30% discount on this title.



# Foreign Exchange Exotic Options

## Day II: Structuring and The Traders' Rule of Thumb

### Structuring with Vanilla Options

- Risk reversal and participating forward
- Spreads and seagulls
- Straddles, strangles and butterflies
- Digital options

### Workshop: Rolling series of seagulls

### Applications in Structuring

- Dual currency and other FX-linked deposits
- **Case study: unwinding a DCD**
- Structured forwards: shark forward, bonus forward, range-reset forward
- FX-linked cross currency swaps
- Exotic spot and forward trades

### Workshop: Structuring exercises

### The Traders' Rules of Thumb

- How higher order derivatives influence the price
- Vanna-volga pricing approach
- **Case study: one-touch**
- Discussion of model risk and alternatives: stochastic volatility

### Workshop: Pricing of barriers with smile

“During the second day we use Vanilla and Exotic Options as a standard tool-kit for building more complex derivatives and structures. We will do case-studies and lots of exercises. The afternoon is about the vanna-volga pricing approach commonly used by traders.”



# Foreign Exchange Exotic Options

## Day III: Second Generation Exotics, Pricing and Hedging issues

### Single Currency Exotics

- Exotic features in (vanilla) options: deferred payment, contingent payment, deferred delivery, cash-settlement, American and Bermudan exercise rights, cut-offs and fixings
- Exotic barrier and touch options
- Faders, corridors, accumulative forwards
- Forward start options, step-ups
- Time options
- Variance and Volatility Swaps

### Workshop: Structuring and pricing of accumulative forwards

### Multi Currency Exotics

- Product overview with applications: quanto options, baskets, spreads, best-ofs, outside barriers
- Correlation: implied correlations, correlation risk and hedging
- Pricing in Black-Scholes model: analytic, binomial trees and Monte Carlo

### Workshop: Pricing and correlation hedging a two-currency best-of

### Quantitative Issues

- Efficient computation of Greeks using Homogeneity and other Tricks
- Efficient computation of Greeks for American Options using Leisen-Reimer Trees
- Local Volatility model and pricing with the smile using PDEs, application to barrier options
- Heston's Stochastic Volatility model, pricing, implementation techniques for analytic and Monte Carlo, applications to exotic options
- Pricing with the smile: e.g. weighted Monte Carlo

### Workshop: Time Options with Leisen-Reimer Trees

“During the third day we discuss exotic currency options beyond the first generation. Products, their pricing and risk management, applications are covered thoroughly. We will discuss the main models used in the market by financial engineers and traders so you will be able to get a feeling which model does what and an idea how to develop the models further.”



# Booking Form

The course fee is £1145 per day plus VAT and includes lunch, refreshments, full documentation, all relevant Excel macros and spreadsheets and access to our on-line Library.  
An early booking discount of 10% is available for bookings made more than 20 working days before the start of the course. Multiple booking discounts are also available.  
Invoices will be sent out with payment instructions and are payable by the earlier of 14 days from receipt or the first day of the course.

## Foreign Exchange Exotic Options (Please fill in 1 form for each booking)

PLEASE WRITE CLEARLY IN BLOCK CAPITALS

Course Dates:	Name:
Title: <input type="checkbox"/> Dr <input type="checkbox"/> Mr <input type="checkbox"/> Mrs <input type="checkbox"/> Ms	Company:
Job Title:	Department:
Phone:	E-mail:
Details of person to whom invoice should be sent:	
Name:	E-mail:
Phone:	Job Title:
Payment Type: <input type="checkbox"/> Invoice <input type="checkbox"/> Credit Card	
Address for Invoice:	

Booking Code (if applicable):	Purchase Order:
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I have read and accept the booking conditions on this page

Signed:

Date:

### Registration

To confirm your place, please return this booking form by fax to:  
**+44 (0)20 7378 1062**

### General Course Booking Conditions

#### Cancellations

An administration fee of 15% of the full brochure price will be charged for written cancellations received more than 20 working days prior to the start of the course. Delegates who request cancellation 20 working days or less before the course start date, or who do not attend, will be charged the full course fee. In the event of delegates not being able to attend, substitutes are welcome at any time for no extra charge.

#### Postponements

Delegates may make one postponement of a course place from the date of first booking to the next available date free of charge provided that the postponement request is received more than 20 working days before of the start course. All other postponements will be subject to a fee of 15% of the full brochure price.

#### VAT

For courses run in the United Kingdom, VAT at 17.5% is due on all fees unless a VAT Exemption Certificate is provided at the time of booking.

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