

MASTERCLASS

Valuing Interest Rate Products (cash and derivatives)

GENERAL PRINCIPLES

- Programme combining online and in-class training
- Programme in **6 phases**. The first **5 phases** alternate:
 - . **1st stage of individual work preceding the seminar** in the form of self-assessment quizzes, online consultations of technical sheets and e-learning modules
 - . **One-day course:** revisions, lectures and case studies
 - . **2nd stage of individual work post-seminar:** quizzes, case studies and exercises in EXCEL™ (accessible online after the seminar)
 - . **Phase 6** consists in bestowing a **FIRST FINANCE certificate** to delegates who have successfully completed the programme. Trainees may take the evaluation tests more than once. What is important is that the knowledge be truly acquired.
- This programme is linear. Delegates will have to follow the phases in their sequential order.

EDUCATIONAL HIGHLIGHTS

- Anchor knowledge and skills using:
 - . an appropriate rhythm of preparation, training and practice
 - . an alternated use of educational methods: e-learning, small group size, exercises in EXCEL™, case studies, simulations, MCQ
- Gain state-of-the-art practical skills
- Validation via tests and an official FIRST FINANCE certificate

DURATION

- 50 hours** of training over a **6-month period**
- . Individual work + tests: **15 hours**
 - . Seminars: **5 days x 7 hours = 35 hours**

Phases may be removed from the programme if desired.
Simply ask one of our Training Consultants.

SYNOPSIS

TYPE OF TRAINING	TOPICS	DURATION
PHASE 1: Valuing Bonds		
Quiz	Self-assessment	20 min
E-learning + quiz	Bond markets	60 min
Pre-reading	Index bonds	30 min
Seminar Day 1	Bond valuation methods and sensitivity analysis in EXCEL™	1 day
Summary quiz		30 min
Exercise 1	Accrued interest calculation, price/yield ratio. Calculation of sensitivity, duration and convexity of bonds	45 min
Exercise 2	Hedging a bond portfolio with long-term futures	45 min
PHASE 2: Valuing FRAs, Short-Term Futures and modelling interest rate swaps		
Quiz	Self-assessment	15 min
E-learning + quiz	FRAs and short-term futures	60 min
E-learning + quiz	Interest rate derivatives	50 min
Pre-reading	FRAs, interest rate swaps and currency swaps	45 min
Seminar Day 2	Valuing non-option derivatives and construction of a pricing spreadsheet in EXCEL™	1 day
Summary quiz		20 min
Exercise 1	Euribor futures strip	30 min
Exercise 2	Calculate a mark-to-market in EXCEL™	30 min
PHASE 3: Valuing CIRs and plain vanilla and exotic option sensitivities		
Quiz	Self-assessment	15 min
Pre-reading	Quanto swaps, CMS, Libor-in-arrears swaps	30 min
Seminar Day 3	Valuing CIRs and swap sensitivities	1 day
Summary quiz		20 min
Exercise 1	Price a currency swap in EXCEL™	30 min
Case study	Case study of convexity: hedging a CMS	45 min
PHASE 4: Valuing interest rate options and calculating their sensitivities		
Quiz	Self-assessment	15 min
Pre-reading	Non-vanilla caps/floors	30 min
Seminar Day 4	Valuing options and option sensitivities and construction of a pricing spreadsheet in EXCEL™	1 day
Summary quiz		20 min
Exercise 1	Valuing futures options and their sensitivity	30 min
Exercise 2	Valuing swaptions and their sensitivity	30 min
PHASE 5: VaR calculation methods		
Quiz	Self-assessment	15 min
Pre-reading	Value-at-Risk	40 min
Seminar Day 5	VaR calculation methods	1 day
Summary quiz		20 min
Exercise 1	Calculate the VaR of a bond portfolio	30 min
Exercise 2	Calculate the VaR of standard options	30 min
PHASE 6: Certification by FIRST FINANCE		
Bestowal of FIRST FINANCE certificate to successful delegates		

TOTAL: 50h00



MASTERCLASS OBJECTIVES

- Master the valuation of bonds
- Master the valuation of FRAs, short and long term futures and standard and exotic swaps
- Master swap sensitivity calculation
- Master the valuation and calculation of interest rate option sensitivities
- Gain an understanding of risk measurement (VaR)
- Practical financial modelling in EXCEL™

RECOMMENDED FOR:

- Fund managers
- Senior middle and back office personnel
- Salespeople, financial intermediaries
- Financial departments
- Risk divisions
- IT staff
- Company treasurers
- Institutional investors

COURSE OUTLINES

(No prior mathematical knowledge required)

Day 1

VALUING BONDS

- Revision of mechanics and uses of bonds
- Price, yield, duration, sensitivity and convexity

Practical Workshop

. Construct a bond pricer in EXCEL™

- Calculating a mark-to-market value
- Credit spreads
- Mechanics and uses of long-term futures

Practical Workshop

. Use futures to hedge the sensitivity and duration of a bond portfolio

Day 2

VALUING FRAs, SHORT-TERM FUTURES AND MODELLING INTEREST RATE SWAPS

- Forward rate curve applied to 3-month Euribor futures
- Valuing FRAs
- Zero-coupon curve and discount factor calculation
- Modelling the floating leg of a swap
- Valuing interest rate swaps (IRSs)

Practical Workshop

. Construct a swap pricer in EXCEL™

Day 3

VALUING CIRSs AND STANDARD AND EXOTIC SWAP SENSITIVITIES

- Basis swaps and other CIRSs

Practical Workshop

. Price a fixed-fixed CIRS at an off-market rate in EXCEL™

- Calculating global sensitivities by maturity
- Equivalent futures contracts
- Definition and pricing of an asset swap

- Risk factors of exotic swaps: quanto swaps, constant maturity swaps, Libor-in-arrears swaps
- Introduction to convexity in exotic swaps

Day 4

VALUING INTEREST RATE OPTIONS AND CALCULATING THEIR SENSITIVITIES

- Mechanics of interest rate options: futures options, swaptions, caps/floors (vanilla and exotic)

Practical Workshop

. Price standard options in EXCEL™

- Futures options
- Implied volatility
- Volatility smile
- Analysing sensitivities (Greeks) in relation to the underlying and maturity (delta, gamma, theta) and volatility (vega)
- Analysing an option position's mark-to-market value and market risk management techniques
- Option strategies (straddle, bull spread, etc.)

Day 5

VaR CALCULATION METHODS

- Risk factors – Risk measurement

- Mark-to-market results
- Revision of probability (normal distribution, kurtosis, variance, correlation)
- Value-at-Risk (VaR)
- Parametric VaR

Practical Workshop

. Apply VaR calculations to forex and interest rate markets