

This 2-day course is specifically designed to expand participants' knowledge of, and skills with respect to outright, embedded and real options, physical assets, hedging future cash flows of assets, optimize allocation of assets, flexibility, pricing of options, valuation of real options and Greek variables as indicators for sensitivities.

Although the course is about real options and the fact that statistics are important in that field of expertise, and even although a bit of mathematics is incorporated, in this course things are brought forward in a way that everybody is able to understand. This however does not effect the level of the course in a negative way, but moreover allows for taking all subject even more in-depth than you can imagine.

Learning objectives

Acquiring insight and knowledge of:

- Option &, options theory
- Options valuation & valuation of physical assets
- Scenario analysis
- Sensitivity analysis of cash flows
- Greeks variables

Target group

This program is specifically developed for Traders, Asset & Portfolio managers, Quants, Risk managers and Analysts, but more in general it is also very suitable for:

- Front, Mid & Back office staff
- Originators
- ICT experts & Project managers
- Legal staff & Compliance officers
- Staff of the Finance department
- Controllers & Accountants

Training

The training has a strong interactive character whereby the contribution of participants is of utmost importance. Theory and practice are brought forward by means of official definitions, scientific theories, practical exercises, cases and simulations.

Documentation

Participants will be provided a syllabus with study material regarding this specific program. It contains all relevant documents, such as power point slides, factsheets, cases and exercises.

2-DAYS REAL OPTIONS

DAY 1

Session 1

Options

- Call & put options
 - Premium
 - Strike price
 - Options style
 - American, European & Asian Style, and more
 - Plain vanilla versus Exotic options
- Options
 - Outright options
 - Embedded options
 - Real options
- Flexibility as option
 - 1-sided right vs. 2-sided obligation
 - The real options approach

Session 2

Option valuation

- Valuation models
 - Black & Scholes
 - Binomial models
 - Trees
- Disadvantages of models
 - Assumptions do not represent real life
- Skew
 - Skewness Tail risk
 - Volatility smile
 - Positive / Negative skew
- Kurtosis
 - Lepto-kurtosis
 - Height of the mean
- Impact on options premiums
 - Volatility curve & smile

Exercise

Option value via binomial tree

Exercise

Premium with normal distribution

Exercise

Premium with log-normal distrib

Exercise

Option value with skew

Session 3

Power plants as real options

- Power plants as sequence of call options on the spark spread
- Asset-backed trading
 - SS optimization
 - Delta hedging
 - Strategy to lock in
 - Dynamic hedging
 - Objective approach
 - Subjective approach
 - Under/over-hedging
 - Value of real option
 - Time value
 - Intrinsic value
 - Volatility of SS

Exercise

Power plants as real options

Session 4

Gas storages

- Gas storage
 - Sequence of time-spread options
- Locking in the value of gas asset
 - Hedging process
 - Setting up hedge
 - Choose amount/significance
 - Unwinding hedge
 - Choose significance
 - Repeat sequence
 - Timing is critical element
 - View on the market

Exercise

Gas storage valuation

Simulation

Trading sim to lock in & optimize value

Excel

Option with 2 legs, 2 prices & 2 volas

DAY 2

Session 5

Transport capacity as real options

- Gas / Power transport capacity
 - String of location-spread options
- Basis trading
 - Trading the basis

Session 6

Greek variables

- Sensitivity analysis
 - Delta
 - Gamma
 - Vega
 - Theta
 - Rho
- Scenario vs sensitivity analysis
- Combined reporting - Matrix

Simulation

Trading options & managing flexibility in portfolios

Session 7

Managing Greeks in large portfolios-1

- Overview of all Greeks
- Combining this overview with scenario analysis
- Steering exposures by doing transactions
- What deals are required or preferable?

Exercise

Greeks management for an energy portfolio of an energy producer.

Exercise

Power options

Session 8

Managing Greeks in large portfolios-2

- Management of an integrated portfolio of options
- Calculate (or estimate) the Greeks
- Create a matrix which incorporates both: Scenario analysis, and Sensitivity analysis

Exercise

Analysis of a portfolio of power options