Associate Training Programme

Sample outline

Aims

This two week training course covers the main financial markets. A traditional associate programme will focus on products rather than markets, which we believe is not the optimum solution. For an associate audience that has a sales and trading focus we have opted for a relative value approach to the subject matter. Arguably, the key theme of the seminar is "*what is the best way to express a view on market movements*?"

The main focus is on Equity and Debt but consideration is given to alternative asset classes when appropriate.

The course includes a 2 day product refresher that acknowledges that not all MBAs are equal in terms of their content. This will ensure that all of the participants will have the key building blocks in place before moving onto the subject matter that is more detailed.

The emphasis will be on tests and case studies which will allow the session to move at the speed dictated by the individual participants.

One omission, which can be remedied at the client's request, is a module covering the concepts of equity valuation. Additionally, we have included two days on traded credit on the assumption that "debt" is defined as both fixed income and credit.

Course Overview

	Day 1	Day 2	Day 3	Day 4	Day 5
Week 1 **Concepts**	**Product review** • Basics of forwards • Basics of swaps	**Product review** • Basics of options	**Fixed income analysis** • Pricing bonds • Yield curve analysis • Measures of bond market risk	**Fixed income analysis** • Forward pricing of bonds • Roll down and carry • Fixed income spread analysis	**Relative value in fixed income** • Fixed income relationships • Bonds and futures • Bonds and swaps • Futures and swaps • Trading volatility
	Day 6	**Day 7**	**Day 8**	**Day 9**	**Day 10**
Week 2 **Fixed Income**	**Relative value in fixed income** • Expressing views on the yield curve • Parallel moves, curvature trades, cross currency, range bound	**Credit default swaps** • Single name CDS • Index CDS • CDS options	**Relative value in credit** • CDS valuation • Basis trades • Capital structure arbitrage	**Equity derivative applications** • Real money accounts • Retail accounts • Leveraged accounts	**Relative value in equities** • Delta 1 strategies • Long / short call options • Risk reversals • Outperformance options

Detailed Outlines

Day 1: Product review - Forwards and Swaps

Forwards

- Defining forwards
  - Why forwards are not forecasts
- Pricing forward contracts (equity, commodities)
  - Cash and carry principles
  - Convenience yield
- Applications of forwards
- Futures vs. forwards
  - Features of futures contracts
  - Role of the exchange
  - Margining provisions
  - Variation vs. initial margins
- Interest rate forwards (forward rate agreements)
- Short term interest rate futures

Case studies: Index arbitrage
Using forwards to hedge an underlying exposure
Using forwards to express a view on potential market movements

Swaps

- Basic principles of swaps
  - Key terminology
  - Quoting conventions
- Simple applications of swaps (asset and liability structures)
- Interest rate quoting conventions and conversions
  - Annual vs. annual
  - Money market vs. bond equivalent yield
- Swap valuation
  - Forward rates
  - Zero coupon rates
  - Discount factors
  - Zero coupon valuation techniques

Case studies: Swap applications
Interest rate conversions
Swap valuation principles

Day 2: Product review - Options

Options

- Understanding the basic option terminology
  - Calls / puts
  - Strike price
  - American / European
  - ITM / OTM / ATM
- Applications of options
  - Comparison to forwards
  - Single option strategies
    - Buy / sell, call /put
  - Premium reduction strategies
    - zero cost collar, participations

Case study: applications of options

Valuation

- The intuition behind closed form and binomial pricing solutions
- The role of a pricing model
- Market factors that influence the value of an option
  - underlying price
  - time
  - volatility

Case study: Principles of option valuation

Option risk management

- Defining and interpreting the main option Greeks
  - Delta
  - Gamma
  - Vega
  - Rho
  - Theta
  - Vanna
  - Vomma

Case study: Managing delta and gamma

Exotic option basics

- Barriers
- Binaries
- Forward starting structures

Day 3: Fixed Income analysis

Pricing bonds

- Pricing bonds
  - Conventional methods
  - Yield to maturity
  - Limitations of yield to maturity - reinvestment risk

Case study: pricing bonds

Yield curve analysis

- Yield curve construction
  - Par curves
  - Zero curves
  - Forward curves
  - Discount factors
- Sources of rates
  - Deposits
  - Futures
  - Convexity adjustments
  - Swaps
- Yield curve modelling
  - Different methods of interpolation
  - Cubic splines
- Pricing bonds revisited
- Zero coupon pricing methods

Case study: constructing a yield curve

Market risk

- Macaulay Duration
- modified duration
- DV01
- Convexity

Case study: calculating bond market risk

Day 4: Fixed income analysis

Forward pricing of bonds

- Deriving the forward price of a bond
  - OTC vs. bond futures
- Factors that drive the forward price
- Bond futures
  - Conversion factors
  - Gross basis
  - Net basis
- How forward prices determine the appropriate fixed income strategy

  Case study: Using forward rates to select the appropriate fixed income strategy

Roll down and carry

- Defining roll down
- Defining carry
- Example strategies to illustrate

  Case study: Roll down and carry in a fixed income context

Alternative measures of fixed income spread

- Option adjusted spreads
- Z spreads ("zero volatility spreads")
- Swap spreads
- Asset swap spreads
- Z scores

  Case study: identifying value in a fixed income context

Day 5: Fixed income relative value - trading relationships

Fixed income relationships

- Bonds and futures
  - Trading the gross basis
- Bonds and swaps
  - Trading the swap spread
- Futures and swaps
  - Trading the forward swap spread
  - Forward vs. spot start trading strategies
- Trading volatility
  - Volatility revisited
    - Smiles vs. skews
    - Fat tails vs. hedging vega and gamma
  - Trading vol using caps, floors and swaptions
    - Directional strategies
    - Volatility strategies
- Correlation between caps, floors and swaptions
  - The volatility "wedge"

Case studies: Trading the gross basis
Trading swap spreads in spot or forward space
Trading volatility using options

Day 6: Fixed income relative value - expressing views on the yield curve

Yield curve movements

- Understanding how the yield curve can move
  - Why parallel movements never happen
  - DV01 neutrality
- Fundamental principles revisited
  - Taking a view on forward rate
  - Selling optionality

Yield curve strategies

- Curvature trades
  - Different ways of constructing the hedge ratio
  - Yield betas
    - Regression analysis
    - Ratio of swaption implied volatilities
- Constant maturity structures
  - CMS floaters
  - Options on spreads
  - Impact of correlation on the value of the option
- Cross currency transactions
- Volatile or range bound views
  - Trading volatility using options
  - Range accruals

Case studies: curvature trades using a variety of different instruments (spot starting swaps vs. forward starting vs. swaptions)
Constant maturity transactions
Volatility trades using structured products

Day 7: Single name and index default swaps

Features of CDS

- Key terminology
- Analysing a CDS transaction (reference entity, reference obligation, events of default)
  Case study: analysing a single name CDS

Features of index CDS

- Key terminology
- Market practice
- Differences between single name and index structures
- Main types of CDS indices traded
- Pricing of index trades
- The index skew and arbitrage possibilities
  Case study: index CDS transactions

CDS options

- Basic features
- Valuation of CDS options
- Spread risk vs. default risk
  - Events of default
  - Knock in and knock out clauses
- Applications of options
- Trading strategies
- Classic volatility strategies
  - Straddles vs. strangles

  Case studies: cancellable CDS trades
  Decompression transactions

Day 8: Relative value in credit markets

CDS valuation

- Calculating credit risky DV01 and PV01
- Valuation of CDS
  - Mathematical models
  - Proxy valuation

Case study: Pricing a single name CDS

CDS trading strategies

- Roll down and carry
- Forward spreads
- DV01 neutrality
- Spot starting strategies
- Curvature trades
- Forward starting strategies

Case study: CDS trading strategies

Basis trades

- Key terminology
- Drivers of the basis
- Trading the basis

Case study: Basis trading

Capital structure arbitrage

- Merton's model
- Example transactions

Case study: Identifying value in capital structures

Day 9: Equity Derivatives

Real money accounts

- Typical usage of options by fund managers
  - Protective puts
  - Covered calls
- Introducing barrier options
  - Deriving 16 different barrier payoffs
  - Pricing of barriers
  - How barriers alter the payoff structure

Case study: Using index options within a portfolio context

Retail market participants

- Capital guaranteed products
  - Increasing the participation rate by altering the nature of the embedded option
    - Asian options
    - Basket options
    - Barrier options
    - Buying and selling options
- Reverse convertibles
  - Vanilla structures
  - Adding a barrier option

Case studies: capital guaranteed notes – improving the participation rate offered to investors
Reverse convertibles

Leveraged accounts

- Equity swaps
  - Valuation
  - Applications
- Dividend swaps
  - Applications
- Trading volatility using options
  - Issues of dynamic hedging
- Trading volatility using variance swaps
  - Volatility vs. variance swaps
  - Convexity of payoffs
- Correlation in the equity markets
  - Implied vs. historical correlation
  - Correlation swaps
  - Dispersion trades

Case studies: Equity swaps
Dividend swaps
Variance swaps
Correlation swaps
Dispersion trades

Day 10: Equity derivatives – relative value concepts

Trade drivers

- Defining relative value
- Fundamentally driven strategies
- Quantitatively driven strategies
- Momentum models
- Mean reversion models

Delta 1 strategies

- Long / short strategies
  - Weighting the trade
  - Beta weighting
  - Volatility weighting
  - Financing the transaction
  - Risks of the transaction

Long / short call options

- Exploiting views on volatility differentials
  - Choice of strike rates
  - Choice of maturity – taking into account the term structure of volatility
  - Choice of notional amounts
  - Risks of the transaction

Long / short risk reversal

- Defining terminology – bullish and bearish strategies
  - Interbank risk reversals vs. corporate risk reversals
  - Understanding the volatility skew
  - Choice of strike, notional and maturity
  - Risks of the transaction

Outperformance options

- Defining the option payoff
  - Understanding the drivers – correlation
  - Pricing an outperformance option in a Black – Scholes context
  - An outperformance option as an exchange option
  - Motivation for the transaction
  - Manipulating the deal parameters
  - Allowable losses
  - Hurdle factors
  - Risks of the transaction