Numerix Training Agenda

Structuring and Pricing EQ, FI, FX, CC Derivatives Using Numerix CrossAsset XL

Day 1 Introduction to CA XL, Toolsets, Setting deals through Analytics- Focus EQ

9:00–10:30	***Overview of Numerix products and system architecture*** • Introduction to Numerix object structure and functional interface in Excel • Overview of Numerix Models and numerical methods ***Configuration and settings*** • Quick overview of global calendar, fixings, convention collections and their intended use ***Market Data*** • Walk through Numerix IR and EQ Market Data sheets; Yield Curves; Volatility surfaces; Dividend Curves etc. • Updating Bloomberg Market data sheets and creating new market data sheets on the fly • Numerix object and Function Interfaces
10:30–10:45	*Coffee Break*
10:45–12:30	***Pricing vanilla and semi-exotic deals via analytics*** • **Case Study**: setting up and pricing an Equity European Call/Put via analytics using both the object interface and function interface • Capturing and displaying pricing results and Greeks on spreadsheet • Quick overview of pricing of other vanilla deals – Numerix Examples library • **Case Study**: setting up and pricing an Equity Barriers via analytics (KI/KO with variations on barriers) • **Case Study**: Setting up and pricing Equity futures via analytics
12:30–13:15	*Lunch Break*
13:15–15:30	***Understanding solutions from the Numerix Template Library*** • Understanding the structure of out of the shelf solutions • ***Case Study:*** *Pricing an Equity Call Option using the template library* • Understanding the structure of the Numerix scripted deals; Model viewers: Viewing calibration results • Equity Model Setup and calibration to market instruments • Pricing with a different model –using solution builder to add a different model template • Risk analysis and risk reports
15:30–15:45	*Coffee Break*
15:45–17:00	***Using payment streams to setup an Equity deal*** • Report templates; Price convergence study and Numerix scenario tools; • **Walkthrough other Equity deal templates and examples**
17:00-17:30	• Setup time slice observers to observe the underlying Equity index • Q&A

Day 2 Focus EQ- Setting Deals through scripting language, Termsheets

9:00-10:30	Accessing the Home work Problems – Go through any issues ***Review of day one materials*** ***In-depth understanding of deal structuring via scripting*** ***Case Study: Deal structuring, valuation and risk reports for an Asian Dual Call option*** • Defining the payoff script for the deal **-** line by line coding of Numerix scripts • Defining events, indices and fixing history; Pricing and valuation of the deal • Equity and FX market data sheets and model constructions • Walk through sample EQ deal templates and examples • The Model builder in CA XL
10:30–10:45	*Coffee Break*
10:45–12:30	• Pricing Equity Asian and American Options • Pricing Equity Lookback Options
12:30–13:15	*Lunch Break*
13:15–15:30	• Pricing Equity barrier options • Pricing Equity Digital Options • Pricing Quantos
15:30–15:45	*Coffee Break*
15:45–17:00	***Case Study: Insert a TERMSHEET HERE – PROVIDED BY CLIENT*** ***Structure the Payoff, and pricing the deal*** • Defining the payoff for the deal. • Defining the events for the deal. • Setting up the kernel pricer and pricing the deal.
17:00-17:30	Q&A

Any of the above deals could be expanded to full session on implementing the deal from Scratch

Day 3 Focus – FI, Setting deals using Payment Stream

9:00-9:30	Accessing the Home work Problems – Go through any issues
9:30–10:00	***Pricing vanilla deals using analytics*** ***Case Study:*** pricing an interest rate swap via analytics using the object interface and functional interface
10:00- 10:15	• *Coffee Break*
10:15-12:00	***Various ways to construct model objects and calibrate them to instruments*** • Volatility surfaces and volatility cubes • Constructing calibration instruments • Calibrating models to Swaptions and Caps Model viewers: Viewing calibration results
12:00–12:30	*Lunch break*
12:30-3:30	***Overview of Numerix Template Library (Solutions)*** • Understanding the structure of out the shelf solutions • Walk through an example deal: *Pricing a Bermudan Callable Inverse Floater Swap* • Modifying solution to accommodate Coupon & Funding Step-up/Step-down schedules, Notional amortization tables, caps, floors and call probabilities • Pricing with a different model • Report templates
3:3 0 - 3:45	*Coffee Break*
3:45–5:30	***Structuring of Interest Rate exotic deals (Single Currency Fixed Income deals)*** ***In depth understanding of deal structuring and pricing of exotic deals in Numerix: Step by step structuring and pricing a Bermudan callable Capped Floater*** • Defining events, indices and fixing history • Setup time slice observer index to observe and record Libor based indices Introduction to Numerix scripting language: Defining the payoff script for the deal ***Pricing and Valuation of the Deal*** • Putting everything together–pricing and valuation of the deal • Quality Study and Numerix Scenario tools • Break-even analysis: determining the fair spread – Solver object • Risk analysis and risk reports • Setting up Coupon & Funding Step-ups and calculating Exercise probabilities Viewing model calibration instruments, cashflows, exercise probability and risk reports
5:30-6:00	• Q&A

Day 4 Focus CC, FX, FX Baskets, EQ Baskets

9:00–9:15	Accessing the Home work Problems – Go through any issues
9:15-10:30	***Structuring and Pricing of Fixed Income Cross Currency deals*** ***Case study: Bermudan callable Cross Currency CMS Spread Deal*** • Walk through Market Data Objects for Cross Currency deal • Setting up the deal – specifics on script for cross currency deals • Setting up cross currency models • Pricing the deal and displaying pricing results • Risk analysis and risk reports
10:30–10:45	*Coffee Break*
10:45–12:00	• Overview and walk through various examples of Fixed Income Deals • Deal Structuring and Pricing of Callable Path Dependent Deals
12:00–12:30	*Lunch Break*
12:30–3:00	***Structuring and Pricing Foreign Exchange*** • Market data objects and setting up models for FX deals • Constructing Market Data objects for FX • Setting up and pricing FX vanilla deals • Setting up FX models and calibrate them to corresponding market instruments ***Structure, price and run risk reports for a basket of FX/EQ*** • FX/EQ Basket Construction: using array indices • Defining the payoff for basket deals: defining arrays in script
3:00–3:15	*Coffee Break*
3:15-5:30	• Setting up FX/EQ basket models • Generating risk reports for Basket deals Pricing (client specific) • Overview and walk through various examples of FX/EQ Basket Deals

5:30-6:00 Q&A