PRE-TRADE PRODUCT DESIGNER

Product Control (SPC)

STRUCTURING AND PRICING SIMULATOR

The Symphony Product Control (SPC) is a front office tool that seamlessly handles the designing of various derivatives and structured products, registration of target products, generation of product hierarchy, and the development of product templates.

In addition to product management, the SPC runs pre-trade price analysis, risk analysis, term sheet generation, back-testing, pay-off graph generation, and other pre-trade analyses. It also supports the 'what-if' scenario simulation based on changes in market data, parameter data, the pricing model, and calibration. Such pre-trade analyses are also available as an ASP (Application Service Providing) on The Smart Quant (SSQ).

Key Features

1. Extendable Structuring Template

The SPC provides templates of structuring ingredients needed for the designing of various complex structured products. These templates have been developed based on the analyses of product tendencies over the course of 20 years. Thus, they have been optimized to simplify and speed up user processes even for new product types.

2. User-based Product Management

The SPC provides both of standard and user-defined product management hierarchies. The standard is designed for users to easily structure new types of products with predefined structuring ingredient templates. The standard product management hierarchy can be managed in the "Instrument" tab. The user-defined hierarchy can be reorganized by users according to their product management standards and create templates with their desired structuring ingredients. The user-defined product hierarchy can be managed in the "Product" tab.

3. Broad Coverage of Pre-trade Analysis

The SPC provides pre-trade ad hoc analyses such price/risk analysis, cash flow analysis, and pay-off graph analysis. Price analysis includes fair value, embedded option price, funding cost, and internal rate of return. Risk analysis includes total and time bucket Greeks and VaR (Value At Risk). Cash flow analysis allows the user to simulate the expected cash flow under changes in market conditions and structures. The pay-off graph is automatically generated for all the changes in structures (excluding interest rate and credit products).

4. Ad Hoc Scenario Simulation

Users are able to execute Ad Hoc simulations for price and risk under the market and parameter scenarios. The simulation can be run simultaneously on the change or reset of scenarios for underlying prices, discount factors, volatilities, and other most parameters. The SPC supports comparison simulations between pricing models, applied market data and parameter sets. Thus, the user is able to easily analyze and compare the results of the application of different models and sets.

5. 3rd Party Engine Plug-In

The SPC's engine plug-in function supports the client or third party pricing engines. This easy-to-use plug-in function only requires matching the I/O message format defined by the SPC. The plug-in API (Application Program Interface) runs on various servers such as Linux, Unix and Windows, and is compatible with programming languages including C, C++, C# and Java. Engines that are plugged in are able to take advantage of all the SPC offers such as grid calculation, reports generation and engine call API.

Up-To-Date Technology

The SPC synthesizes modern financial and mathematical theories, software engineering and technical expertise to provide valuation solutions for the most diverse and complex financial assets.

- Grid processing on multiple computers, supporting Monte Carlo simulations,
  Lattice model and other complex mathematical functions at optimal speed
- Automatic term sheet generation
- Automatic pay-off graph generation
- API on Linux, Unix, Windows-based C, C++, C#, Java
- Engine plug-in compatible with user-built pricing engines
- UI/UX based on RIA (Rich Internet Application)

Product Control

- Derivative and structured products design
- Pre-trade pricing, risk and cash flow estimation
- Scenario and comparison simulations
- Term sheet generation
- Pay-off graph generation
- User-based product management and product template generation
- Back-testing based on historical market data

Underlying Setting

- Setting of underlying assets and reference assets
- Index generation
- Setting of reference interest rates
- Setting of currency pairs

Curve Setting

- Setting of interest rate curves
- Setting of credit spread curves
- Setting of volatility curves and surfaces
- Setting of dividends, recovery ratio, correlation, etc.

Parameter Setting

- Setting of market data parameters
- Setting of calibration parameters
- Setting of model parameters

Market Information

- Up-to-date market data
- Historical market data
- Interpolated market data
- Term structure