

Development of a pricing and risk management framework for inflation-linked products

Client / sector	Large European bank
Project description	<p>Development and implementation of a pricing and risk management framework for inflation-linked interest rate products in Front Arena and internal risk management systems</p> <ul style="list-style-type: none"> • Validation and (further) development of mathematical models for pricing and risk management of inflation-indexed financial products as new products (support for new product processes) • Inflation bonds, inflation asset swaps, inflation swaps (zero, year-on-year, pay-as-you-go), inflation caps/floors, inflation swaptions • Implementation of the mathematical models and trading and settlement processes in Front Arena and internal risk management systems
Service	<ul style="list-style-type: none"> • Analysis of the system landscape (Front Arena) and the existing mapping possibilities in the GUI and database model • Validation of financial mathematical models (Black Scholes 76 Normal, Jarrow Yildirim [based on Heath-Jarrow-Morton]) • Validation of model approaches for the pricing of path-dependent structured inflation products (Monte Carlo simulation) • Validation of seasonality models and models for the convexity adjustment • Development and testing of the implementation of the models and pricing functionalities in spreadsheets • Development of the selected models in external DLLs and implementation in Front Arena and internal systems • Connection of the DLLs to Microsoft Excel • Test preparation and execution in cooperation with the trading desk
Technology	EXCEL-VBA, C/C++, Sungard Front-Arena, Python
Professional input	Product, pricing and risk management know-how, mathematical modelling
Scope	2 consultants, >9 months
Tags	pricing, valuation, risk management, trading, Front Arena