

Scenario generation and analysis tool for financial time series (risk management, asset management, research)

Client / sector	Large European bank
Project description	<p>Scenario generation and analysis tool for financial time series (risk management, asset management, research)</p> <ul style="list-style-type: none"> • Market risk analysis and simulation of financial time series (equity, fixed income, FX, indexes) • Methods: PCA (Principal Component Analysis), cluster analysis, filter techniques, Monte Carlo simulation, correlation analysis • Stochastic models: Brownian motion, mean reversion, jump diffusion • Generation of path-dependent scenarios (time series paths) for the simulation of the portfolio development <ul style="list-style-type: none"> ◦ Application areas: risk management, pricing, asset management, value-at-risk calculation • Utilisation for dynamic allocation strategies: CPPI, TIPP, rebalancing of portfolios • Utilisation in cross-asset research
Service	<ul style="list-style-type: none"> • Development of a technical design and implementation in a web-based client/server solution • Further development and adjustment of the mathematical models • Release management, test management
Technology	Web-based solution based on C#/ .NET, SQL server
Professional input	Mathematical modelling, cross-asset know-how
Scope	1 consultant, 15 months
Tags	Brownian Motion, mean reversion, jump diffusion, risk management, asset management, principal component analysis, cluster analysis, filter techniques, Monte Carlo simulation, correlation analysis