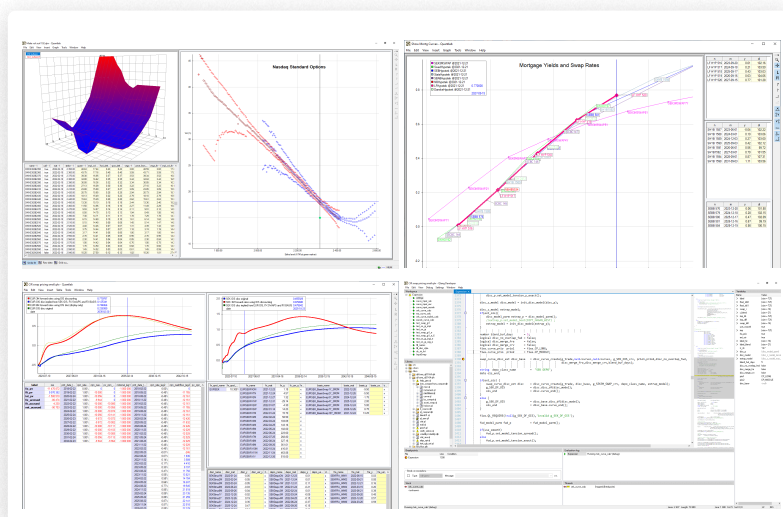


# Develop and distribute quantitative analysis

## PRODUCT BRIEF

Quantitative analysis often implies tedious programming and maintenance of ad-hoc built spreadsheets. Quantlab® solves these problems by giving the quantitative analyst a general and easy-to-use framework for financial calculations based on time-series and real-time data, to be used interactively by the analyst himself, or implemented as a solution for the trading- or sales-desk.

Quantlab® is available in two versions, the Developer edition and the User edition. The Developer edition is the more comprehensive application, used by analysts to build quantitative models and views. In the User edition, traders and sales people can access the analysis through graphs and tables, and change parameters like dates, markets and instruments.



1. Multiple graph and table formats
2. Real-time prices, possible to adjust manually
3. Time series analysis based on yield curves and instruments.
4. User-defined controls automatically created from function parameters

Unique for Quantlab® is the tight link between financial modeling, real-time quotes and historical time series. This link is further strengthened by the important concept of database driven analysis: All financial data – time-series data as well as static data such as instrument and yield curve definitions – is stored and updated

in a central database and automatically fetched when needed by Quantlab®. Thus, all quantitative analysis built with Quantlab® always reflects the latest changes in both dynamic and static data. For collecting and managing time series data, Quantlab® integrates seamlessly with the optional Algorithmica History Server.

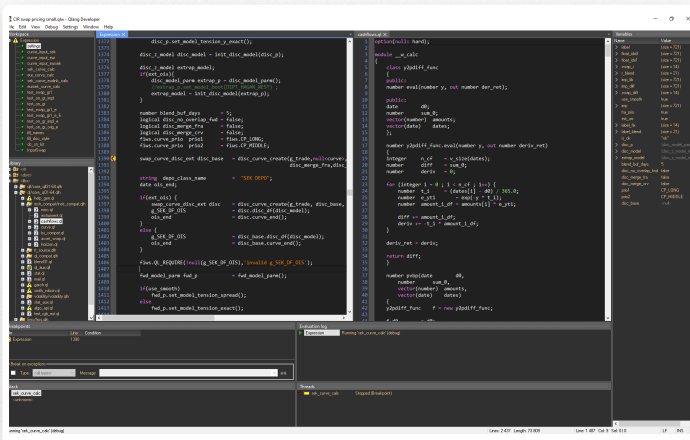
QUANTITATIVE FINANCE MADE USER-FRIENDLY

With the Quantlab® Developer edition, the quantitative analyst can focus on designing and testing financial ideas instead of spending time on implementing low-level functionality or coding yet another GUI.

The Quantlab® expression language QLang is a high-level object-oriented programming language with many features making it especially suited for quantitative analysis.

It comes with an extensive library of financial functions and classes, thus making programming fast and easy. Using a simple drag-and-drop technique the analyst creates tables and graphs based on functions written in QLang. The analyst's work is saved as a workspace, formatted for the use of other analysts, traders or external customers in the User edition of Quantlab®.

The workspace serves as an advanced live report, updated with real-time data. The core library mainly covers the fixed income market and is currently being extended to other asset classes. User-defined classes may also be written using the C++ API and all functions are available from MS Excel, Visual Basic and .NET.



1. Versatile workspace window
2. Debugger with inspection of variables during execution
3. Expressions are always active and updated in real-time
4. Warning and error windows

QLang

GENERAL FEATURES

- Object-oriented functional language
- Vector/matrix algebra and functions
- High-level treatment of time-series data
- Local and global variables
- Program flow control: for, while, if-else etc.
- Try/catch error handling
- Efficient implementation of basic types
- Full-function debugger

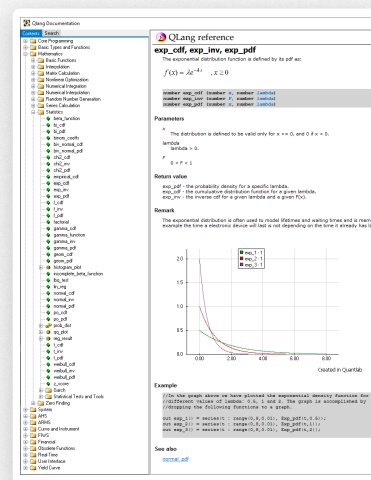
OPEN-ENDED SOLUTION

- All QLang functions available through COM interfaces from Microsoft Excel, Visual Basic and .NET
- Develop your own code library in QLang
- Extend Quantlab using C/C++ and the comprehensive Quantlab API to include your own instrument models or thirdparty library code

Quantlab Core Library

EXAMPLES OF FUNCTIONS AND CLASSES

- Date & calendar functions
- Price-yield and all sensitivity calculations on a wide range of instruments including bonds, depo, swaps, futures, FRA etc
- Curve blending of depo, FRA & swaps
- Horizon investment functions
- Asset swap pricing
- Zero coupon curve modelling using a wide range of methods: Bootstrap, Nelson & Siegel, B- & C-Splines, Max smoothness, Tanggaard, Spread models
- Pricing of instruments using zero coupon models
- A wide selection of statistical functions including ARCH/ GARCH modelling
- Database functions
- File I/O functions
- Text/string handling functions



The function browser