

Algorithmica Risk Management System

PRODUCT BRIEF

Algorithmica Risk Management System – portfolio stress testing and VaR with unmatched flexibility

Investors and government authorities require asset managers and financial institutions to manage their market and credit risks with comprehensive methods like multi factor grid stress-testing and value-at-risk. Algorithmica Risk Management System (ARMS) provides a no-compromise financial risk framework using the latest analytics and a wide range of instruments employed in asset/liability management. Additionally, Algorithmica provides turn-key solutions including system integration and market data if needed.

The ARMS user interface was originally designed to work well in the trading environment. All new trading should instantly have impact on the risk analysis in order to monitor

limit breaches or potential risk/reward ratios. For the investment manager running a risk-budgeted mandate the possibility to do “what-if” scenarios on top of the current portfolio is integral.

ARMS works like a dynamic report where all views can be customized and formatted for external distribution. The user can choose the level of aggregation and decide which analytics to calculate.

Since ARMS does not have a set definition of how the portfolio database should be specified, it will integrate smoothly with most modern portfolio systems. It will also re-use as much of the instrument definitions and available support data as possible to create a familiar work environment.

Direct control of portfolio choice and risk parameters

Position import and price feed in real-time

Dynamic choice of drill-down and risk attribution

Unlimited number of graph and table views



Features

Scenario and stress-testing

- Pre-defined historical scenarios:
 - 9/11
 - Black Monday - 1987
- Common stress programs:
 - Derivatives Policy Group
 - Standard disclosure reporting
 - Traffic light
- User-defined - for all risk factor levels

Analytical Value-at-Risk

- Delta-normal VaR (RiskMetrics version)
- Delta-gamma VaR models:
 - Johnson moment matching
 - Cornish-Fischer
 - FFT

Monte Carlo & Historical simulation using

- Full model valuation
- First moments approximation

Risk data calculation methods

- BIS long and short datasets
- Exponential moving average
- GARCH innovations

Instrument coverage, a selection

- Bonds and bills
- Bond futures & options
- Money market futures
- FRAs
- FRNs
- Cash and depo
- Swaps
- Caps and floors
- Swaptions
- Equities (using index beta or 1:1 mapping)
- Equity futures & forwards
- Equity options
- FX Forwards
- FX Options
- Index futures & options
- Commodities

Additional optional analytics

- Fixed income sensitivities
- Option greeks
- Performance attribution
- Performance contribution
- Marginal risk
- Risk contribution

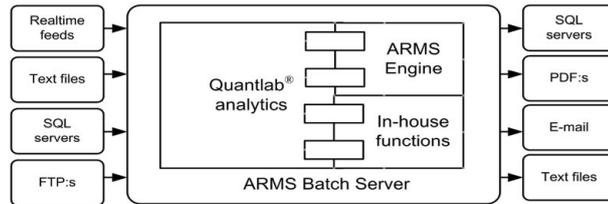
Standardized or custom aggregation by

- Country & currency
- Industry sectors (GICS)
- Risk types
- Maturity nodes
- Asset class & instrument types

Using ARMS open .NET API, custom analytics can be incorporated and the user interface can be independently tailored.

Distribution center approach

Many larger banking institutions have recognized the possibility to expand the use of an ARMS Batch Server installation to include distribution of risk reports to internal and external clients. Calculated data can be automatically distributed at scheduled times in a variety of formats such as PDF, text files, HTML etc.



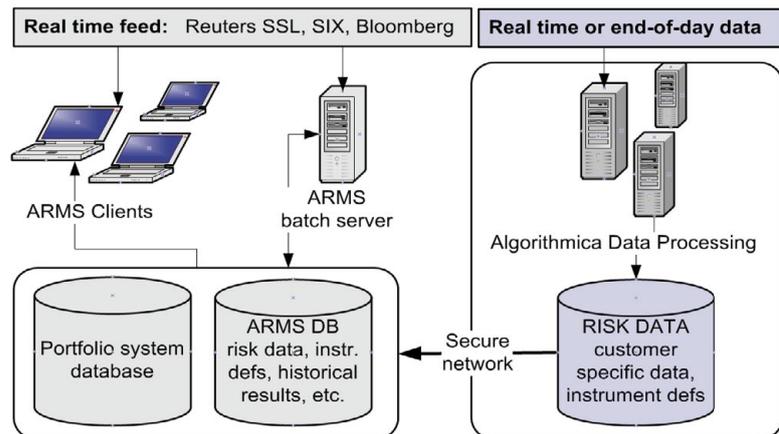
Provision of market risk data

An important part of any serious risk management initiative includes maintenance of vast amounts of market data. The user of the risk system must have a perfect understanding of where the market risk data comes from. The correct treatment of instruments and markets ultimately depends on the sampling, filtering and cleansing of data. The old saying *garbage in, garbage out* could not be more true than for risk management systems.

ARMS can be installed with three risk data options:

1

By using the integrated Algorithmica data services, which will seamlessly provide the system installation with customer specific risk data on a daily basis. Instrument and curve definitions can be provided for selected markets, as well.



2

By using the powerful Algorithmica History Server in order to generate filtered and cleaned market data in-house, which can also be used for other purposes. The Algorithmica History Server can be used with common real time feeds or end-of-day files.

3

By using independently created time series that are downloaded into the ARMS database.