

## PRODUCT DESCRIPTION

MakeVC uses exponentially-weighted moving averages (EWMA) to forecast volatility and correlation information from input historical price and interest-rate time series. The output datasets can be used for trading and risk management activities involving variance-covariance methodologies, such as value at risk (VaR), or any calculation which requires a volatility or correlation forecast. You can use your own data to make forecasts not published in RiskMetrics® datasets. For example, energy and power firms can create datasets containing commodity prices for different pipelines and delivery points, an emerging markets trader can incorporate Brady bonds, and an equities trader can include market sectors and individual stocks.

The underlying MakeVC calculation engine is accessible through many user interfaces to allow calculation and processing of data in many settings. It includes a set of Add-in functions to Microsoft Excel, a stand-alone graphical user interface, as well as a set of commandline functions. Documentation and sample input data are provided for each interface.

MakeVC also includes a C/C++ library for Unix and Windows programmers who want to incorporate MakeVC functions into custom and third-party C, C++, Visual Basic, and SQL database applications. MakeVC is written completely in C/C++ and provides extremely fast calculations.

## KEY FEATURES

- **Missing Price Estimation:** Expectation maximization (EM), linear interpolation, omitday, prior-day, and nearest-day methods are provided to accurately replace missing prices.
- **Multiple CMF Methodologies:** You can use strict-nearby, rolling-nearby, linear, or loglinear interpolation to construct constant maturity futures. Also, the same methods may be applied to price returns instead of prices themselves.
- **Decay Factor Optimization:** The decay factor can be automatically optimized to minimize the forecasting error. Or you can specify a fixed decay factor and tolerance to control the weight given to prior price observations.
- **Adjustable Observation Window:** Backtesting and other analyses are easy to conduct because you can specify the starting and ending dates of the observation period.
- **Variable Confidence and Horizon:** Specify any confidence level and set the forecast horizon to any period between one day and several years.
- **Zero-Coupon Yield Curve Generation:** MakeVC converts quoted rates on couponbearing bonds and swaps to zero-coupon rates, accounting for payment frequency and day-count basis.
- **Currency Rebasing:** Results can be expressed in local currency terms or rebased to any specified currency. You can also specify which asset classes to rebase.
- **Cholesky Decomposition:** You can calculate a volatility-correlation matrix and its Cholesky decomposition. The Cholesky matrix is useful for generating correlated random variables in Monte Carlo simulation.
- **Matrix Adjustment:** You can check if a volatility-correlation matrix is positive-definite and, if not, automatically shift its eigenvalues to make it positive-definite.
- **Seasonality Adjustment:** You can specify a seasonal parameter to use data only from particular season. This adjustment permits more accurate forecasts for time series whose volatility fluctuates greatly with the seasons.
- **Comprehensive Diagnostics:** Detailed progress messages, error messages, and tables of summary statistics are displayed during calculations.
- **Multiple Interfaces:** MakeVC comes with several interfaces: a set of Excel Add-ins, a Windows graphical interface, command-line functions, and a programming library.
- **Flexibility:** MakeVC is optimized to work with FEA VaRworks® but can be used in any risk management system. The RiskMetrics format is also supported.
- **Multiple Equities per Currency:** MakeVC supports the definition of multiple equity assets per local currency.


## COVERAGE

MakeVC produces volatility and correlation data sets using exponentially weighted moving averages on historical price and interest-rate time series.

MakeVC allows historical futures price input and creates constant maturity futures using a choice of several methodologies. The MakeVC Excel interface allows historical data input through Excel, thus allowing easy input through multiple data feeds.

Example data feed interfaces included with the product are:

- Bloomberg®
- FAME®
- Thompson Financial™/Datastream
- Microsoft® Excel

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