Financial Toolbox™ Release Notes

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508-647-7000 (Phone)

508-647-7001 (Fax)

The MathWorks, Inc.
3 Apple Hill Drive
Natick, MA 01760-2098

For contact information about worldwide offices, see the MathWorks Web site.

Financial Toolbox™ Release Notes

Contents

Summary by Version

This table provides quick access to what's new in each version. For clarification, see "Using Release Notes" on page 1.

Version (Release)	New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Latest Version V4.0 (R2011a)	Yes Details	No	Bug Reports
V3.8 (R2010b)	Yes Details	No	Bug Reports
V3.7.1 (R2010a)	No	No	Bug Reports
V3.7 (R2009b)	Yes Details	No	Bug Reports
V3.6 (R2009a)	Yes Details	No	Bug Reports
V3.5 (R2008b)	No	No	Bug Reports
V3.4 (R2008a)	Yes Details	No	Bug Reports
V3.3 (R2007b)	Yes Details	No	Bug Reports
V3.2 (R2007a)	Yes Details	No	Bug Reports Includes fixes
V3.1 (R2006b)	Yes Details	No	Bug Reports
V3.0 (R2006a)	Yes Details	No	Bug Reports
V2.5 (R14SP3)	Yes Details	No	Bug Reports

Using Release Notes

Use release notes when upgrading to a newer version to learn about:

- New features
- Changes
- Potential impact on your existing files and practices

Review the release notes for other MathWorks® products required for this product (for example, MATLAB® or Simulink®). Determine if enhancements, bugs, or compatibility considerations in other products impact you.

If you are upgrading from a software version other than the most recent one, review the current release notes and all interim versions. For example, when you upgrade from V1.0 to V1.2, review the release notes for V1.1 and V1.2.

What Is in the Release Notes

New Features and Changes

- New functionality
- Changes to existing functionality

Version Compatibility Considerations

When a new feature or change introduces a reported incompatibility between versions, the **Compatibility Considerations** subsection explains the impact.

Compatibility issues reported after the product release appear under Bug Reports at the MathWorks Web site. Bug fixes can sometimes result in incompatibilities, so review the fixed bugs in Bug Reports for any compatibility impact.

Fixed Bugs and Known Problems

MathWorks offers a user-searchable Bug Reports database so you can view Bug Reports. The development team updates this database at release time and as more information becomes available. Bug Reports include provisions for any known workarounds or file replacements. Information is available for bugs existing in or fixed in Release 14SP2 or later. Information is not available for all bugs in earlier releases.

Access Bug Reports using your MathWorks Account.

Documentation on the MathWorks Web Site

Related documentation is available on `mathworks.com` for the latest release and for previous releases:

- Latest product documentation
- Archived documentation

Version 4.0 (R2011a) Financial Toolbox Software

This table summarizes what's new in Version 4.0 (R2011a):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	No	Bug Reports

New features and changes introduced in this version are:

Portfolio Turnover and Transaction Costs

New portfolio object and methods support mean-variance portfolio optimization with general linear constraints, transaction costs, and turnover constraints. For more information, see "Portfolio Optimization Tools" and "Portfolio Optimization Objects".

Improved cfamounts

`cfamounts` supports an amortizing schedule. This means that when calculating cash flows, the notional or face value can change in value at specific times.

Updated showdemo Command for Credit Rating Demo

The command to run the demo showing how to use Statistics Toolbox™ functions to support credit ratings is updated. Run the demo at the MATLAB command line by entering:

```
showdemo creditratingdemo
```

Version 3.8 (R2010b) Financial Toolbox Software

This table summarizes what's new in Version 3.8 (R2010b):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	No	Bug Reports

New features and changes introduced in this version are:

Estimation of Transition Probabilities for Credit Risk

Support for estimation of transition matrices based on credit-migration history using both cohort and duration methods. For more information, see `transprob`, `transprobbytotals`, and "Estimation of Transition Probabilities".

Improved Performance in Portfolio Optimization Functions

`portopt` is enhanced for improved speed. Specifically, a broader class of problems now uses the faster linear complementarity programming (LCP) algorithm to obtain portfolios on the efficient frontier.

New Demo for Credit Rating

A new demo shows how to use Statistics Toolbox functions to support credit ratings. Run the demo at the MATLAB command line by entering:

```
echodemo demo_creditrating
```

New Input and Output Options for Swap Functionality

`cfamounts` is enhanced to support new parameter/value pairs for swap functionality.

Version 3.7.1 (R2010a) Financial Toolbox Software

This table summarizes new features in Version 3.7.1 (R2010a):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
No	No	Bug Reports

There are no new features or changes in this version.

Version 3.7 (R2009b) Financial Toolbox Software

This table summarizes new features in Version 3.7 (R2009b):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	No	Bug Reports

New features introduced in this version are:

Support for the BUS/252 Day-Count Convention

Support for the `Basis` day-count convention for BUS/252. BUS/252 is the number of business days between the previous coupon payment and the settlement data divided by 252. BUS/252 business days are non-weekend, non-holiday days. The `holidays.m` file defines holidays.

Extended Support for New York Stock Exchange Closures

The current `holidays` function covers holidays and non-trading days from 1950 to 2050. Using `nyseclosures`, you can determine all known and anticipated closures from January 1, 1885 to December 31, 2050.

Enhancements for Bond Pricing

Support for the following enhancements to bond pricing functions:

- Provide the ability to specify the compounding frequency separately from the coupon frequency.
- Enable specification of a discounting basis. A discounting basis has two purposes in Price/YTM calculations:

  - Computing the accrued interest
  - Computing the discount factors

- Support the specification of a formula for computing the interest in the last coupon period.

The enhanced bond pricing functions are:

Function	Purpose
`accrfrac`	Calculate fraction of coupon period before settlement.
`bndprice`	Price fixed-income security from yield to maturity.
`bndyield`	Calculate yield to maturity for fixed-income security.
`bndspread`	Calculate static spread over spot curve.
`bnddurp`	Calculate bond duration given price.
`bnddury`	Calculate bond duration given yield to maturity.
`bndconvp`	Calculate bond convexity given price.
`bndconvy`	Calculate bond convexity given yield.
`cfamounts`	Calculate cash flow and time mapping for a bond portfolio.
`cftimes`	Calculate time factors corresponding to bond cash flow dates.

Version 3.6 (R2009a) Financial Toolbox Software

This table summarizes new features in Version 3.6 (R2009a):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	No	Bug Reports

New feature introduced in this version is:

Support for Key Rate Duration

Added support for `bndkrdur` to calculate key rate duration for bonds to determine the sensitivities of a bond to nonparallel changes in the yield curve. For more information, see “Calculating Key Rate Durations for Bonds”.

Version 3.5 (R2008b) Financial Toolbox Software

This table summarizes new features in Version 3.5 (R2008b):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
No	No	Bug Reports

There are no new features or changes in this version.

Version 3.4 (R2008a) Financial Toolbox Software

This table summarizes new features in Version 3.4 (R2008a):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	No	Bug Reports

New features and changes introduced in this version are:

Enhanced Mean-Variance Portfolio Optimization Based on Linear Complementarity Programming for Portfolio Optimization

Added support for `varargin` argument for `portopt` and `frontcon`.

Support for Actual/365 (ISDA)

The following functions now support day count conventions for the `basis` argument based on ISDA (International Swap Dealers Association) actual/365:

- `accrfrac`
- `acrubond`
- `acrudisc`
- `bndconvp`

- bndconvy
- bnddurp
- bnddury
- bndprice
- bndspread
- bndyield
- cfamounts
- cfdates
- cftimes
- cpncount
- cpndaten
- cpndatenq
- cpndatep
- cpndatepq
- cpndaysn
- cpnpersz
- datemnth
- daysadd
- daysdif
- disc2zero
- discrate
- fvdisc
- fwd2zero
- prbyzero
- prdisc
- prmat
- pyld2zero

- time2date
- yeardays
- yearfrac
- ylddisc
- yldmat
- zbtprice
- zbtyield
- zero2disc
- zero2fwd
- zero2pyld

Support for ret2tick and tick2ret Functions for Time Series Objects

ret2tick and tick2ret support financial time series objects.

Support for Additional Descriptive Statistics Functions Financial Times Series Objects

The following covariance methods now support a financial time series object:

- corrcoef
- cov
- isempty
- nancov
- nanmax
- nanmedian
- nanmin
- nanstd
- nansum
- nanvar

- `var`

Added New Chart Types

Added support for the following chart types for financial reporting:

- `kagi`
- `renko`
- `linebreak`
- `priceandvol`
- `volarea`

Version 3.3 (R2007b) Financial Toolbox Software

This table summarizes new features in Version 3.3 (R2007b):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	No	Bug Reports

New features and changes introduced in this version are:

ISMA Support for 30/360 Basis as a Variant of 30/360E with Annual Compounding

The following functions now support day count conventions for the `basis` argument to support 30/360 International Securities Market Association (ISMA) convention as a variant of 30/360E with annual compounding:

- `accrfrac`
- `acrubond`
- `acrudisc`
- `bndconvp`
- `bndconvy`
- `bnddurp`
- `bnddury`

- bndprice
- bndspread
- bndyield
- cfamounts
- cfdates
- cftimes
- cpncount
- cpndaten
- cpndatenq
- cpndatep
- cpndatepq
- cpndaysn
- cpnpersz
- datemnth
- daysadd
- daysdif
- disc2zero
- discrate
- fvdisc
- fwd2zero
- prbyzero
- prdisc
- prmat
- pyld2zero
- time2date
- yeardays
- yearfrac

- `ylddisc`
- `yldmat`
- `zbtprice`
- `zbtyield`
- `zero2disc`
- `zero2fwd`
- `zero2pyld`

createholidays Function Added for Different Trading Calendars

The `createholidays` function now supports `http://www.FinancialCalendar.com` trading calendars. This function can be used from the command line or from the Trading Calendars graphical user interface. Using `createholidays`, you can create `holiday.m` files, in conjunction with `FinancialCalendar.com` data, that can be used instead of the standard `holidays.m` that ships with Financial Toolbox™ software.

Diagonal Covariance Matrix Support Added for Multivariate Normal Regression

The new diagonal covariance matrix estimation feature makes it possible to estimate large-scale factor models by treating the residual errors as being jointly independent. The following functions support `CovarFormat`, a new input argument:

- `ecmlsrmle`
- `ecmmvnrmle`
- `ecmmvnrfish`
- `ecmmvnrobj`
- `ecmmvnrstd`
- `mvnrfish`
- `mvnrmle`

- `mvnrobj`
- `mvnrstd`

arith2geom and geom2arith Functions Added for Portfolio Analysis

Two new functions, `arith2geom` and `geom2arith`, support portfolio analysis.

Version 3.2 (R2007a) Financial Toolbox Software

This table summarizes new features in Version 3.2 (R2007a):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	No	Bug Reports Includes fixes

ISMA Support Added

The following functions now support the International Securities Market Association (ISMA) convention for the `basis` argument:

- `accrfrac`
- `acrubond`
- `acrudisc`
- `bndconvp`
- `bndconvy`
- `bnddurp`
- `bnddury`
- `bndprice`
- `bndspread`
- `bndyield`
- `cfamounts`
- `cfdates`
- `cftimes`
- `cpncount`
- `cpndaten`
- `cpndatenq`
- `cpndatep`

- cpndatepq
- cpndaysn
- cpnpersz
- datemnth
- daysadd
- daysdif
- disc2zero
- discrate
- fvdisc
- fwd2zero
- prbyzero
- prdisc
- prmat
- pyld2zero
- time2date
- yeardays
- yearfrac
- ylddisc
- yldmat
- zbtprice
- zbtyield
- zero2disc
- zero2fwd
- zero2pyld

Version 3.1 (R2006b) Financial Toolbox Software

This table summarizes new features in Version 3.1 (R2006b):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	No	Bug Reports

New features and changes introduced in this version are:

Investment Performance Metrics

The following new functions are added to compute common investment performance and risk-adjusted metrics:

- `sharpe`, computes the sharpe ratio.
- `inforatio`, computes information ratio and tracking error.
- `portalpha`, computes risk-adjusted alpha and return.
- `lpm`, computes sample lower partial moments.
- `elpm`, computes expected lower partial moments.
- `maxdrawdown`, computes the drop from maximum to minimum return over a period of time.
- `emaxdrawdown`, computes the returns that are transformed into a linear Brownian motion with drift.

Financial Time Series Tool

Financial Time Series Tool (`ftstool`) is a new graphical user interface to support working with financial time series `FINTS` objects. `ftstool` interoperates with the Financial Time Series Graphical User Interface (`ftsgui`) and Interactive Charts (`chartfts`).

Version 3.0 (R2006a) Financial Toolbox Software

This table summarizes new features in Version 3.0 (R2006a):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	No	Bug Reports

New features and changes introduced in this version are:

Financial Time Series Toolbox Incorporated

As of this release the functionality previously available in Financial Time Series Toolbox has been incorporated into Financial Toolbox software. Financial Toolbox documentation has been modified to include the documentation previously available in the Financial Time Series User's Guide.

Because use of Financial Time Series Toolbox required the purchase and installation of Financial Toolbox software, all customers previously licensed for Financial Time Series Toolbox will continue to have access to it.

Financial Time Series Frequency Conversion Functions Modified

The suite of time series frequency conversion functions (`todaily`, `toweekly`, `tomonthly`, `tosemi`, and `toannual`) has been extensively modified. Consult the function references in the Financial Toolbox User's Guide for specifics.

Continuous Compounding Option Removed from plyd2zero

Continuous compounding is no longer available for `pyld2zero`. Compounding for this function is now consistent with compounding for the function `zero2pyld`. An error message is generated if you attempt to use continuous compounding with these functions.

New Statistical Functions

The new functions in Version 3.0 of Financial Toolbox software fall into these four categories:

Multivariate Normal Regression Without Missing Data

`mvnrfish`	Fisher information matrix for multivariate normal or least-squares regression
`mvnrmle`	Multivariate normal regression (ignore missing data)
`mvnrobj`	Log-likelihood function for multivariate normal regression without missing data
`mvnrstd`	Evaluate standard errors for multivariate normal regression model

Multivariate Normal Regression With Missing Data (Expectation Conditional Maximization)

`ecmmvnrfish`	Fisher information matrix for multivariate normal regression model
`ecmmvnrmle`	Multivariate normal regression with missing data
`ecmmvnrobj`	Log-likelihood function for multivariate normal regression with missing data
`ecmmvnrstd`	Evaluate standard errors for multivariate normal regression model

Least Squares Regression With Missing Data (Expectation Conditional Maximization)

`ecmlsrmle`	Least-squares regression with missing data
`ecmlsrobj`	Log-likelihood function for least-squares regression with missing data

Financial Model Transformation Function

`convert2sur`	Convert a multivariate normal regression model into a seemingly unrelated regression model

Version 2.5 (R14SP3) Financial Toolbox Software

This table summarizes what's new in Version 2.5 (R14SP3):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	No	Bug Reports

New Statistical Functions

Version 2.5 introduces a set of financial statistical computation routines that compute values, such as mean and covariance, when there are missing data elements within a larger data set. These routines implement the Expectation Conditional Maximization (ECM) algorithm with various options that depend on the percentage of missing at random (MAR) data within the data set. The table below lists the functions that implement the ECM algorithm in Financial Toolbox software.

The following ECM functions have been added at this release.

Expectation Conditional Maximization

`ecmnfish`	Fisher information matrix
`ecmnhess`	Hessian of negative log-likelihood function
`ecmninit`	Initial mean and covariance
`ecmnmle`	Mean and covariance of incomplete multivariate normal data
`ecmnobj`	Negative log-likelihood function
`ecmnstd`	Standard errors for mean and covariance of incomplete data

Compatibility Summary for Financial Toolbox Software

This table summarizes new features and changes that might cause incompatibilities when you upgrade from an earlier version, or when you use files on multiple versions. Details are provided with the description of the new feature or change.

Version (Release)	New Features and Changes with Version Compatibility Impact
Latest Version V4.0 (R2011a)	None
V3.8 (R2010b)	None
V3.7.1 (R2010a)	None
V3.7 (R2009b)	None
V3.6 (R2009a)	None
V3.5 (R2008b)	None
V3.4 (R2008a)	None
V3.3 (R2007b)	None
V3.2 (R2007a)	None
V3.1 (R2006b)	None
V3.0 (R2006a)	None
V2.5 (R14SP3)	None