

FMR3000 Version 1.7.5 – Release Notes

1. Introduction

On December 2001 FMR Consulting has officially released FMR3000 version 1.7.5. The main effort has been done to efficiently support

- Options embedded in bonds;
- Repo calculation modes;
- Floating rate notes;
- Greece Euro conventions;
- Hungarian bonds;
- Eurobonds;
- Grey market;
- Convexity adjustment;
- Italian bonds fiscal regulation.

All FMR3000 users are entitled to receive this new version. We have started shipping the release, so you should receive the distribution CD in the next few weeks.

Please note that FMR3000 Version 1.7.5 does not support Windows XP and/or Office XP at the moment.

2. Options Embedded in Bonds:

- Is now possible to exercise an option embedded in a bond by means of *Varg1* function argument. The *Varg1* value for option exercise is 20 and the fractional part represents the i-th cash flow index before bond maturity (when the option has to be exercised). You can set the strike price (referred to a nominal of 100) by *Varg1*=18 value as well. For example *Varg1* = {20.05; 18.07834} means that an option with strike price=78.34 has to be exercised 5 cash flows before maturity. The strike price must be referred to 100 nominal;
- An additional function, FMRU01OptCallParam, has been developed to retrieve the proper *Varg1* for a specific bond, if exercise dates and strike prices have been previously inserted through the FMR Database Manager (Version 1.7.5 and higher). The FMRU01OptCallParam accepts as arguments the Code of the bond, the Settlement date, an argument identifying the exercise date index with reference to the settlement (0 is the next exercise date starting from settlement, 1 the second next, etc.) and a flag for discriminating call or put options;
- Version 1.7.5 supports sinkable bonds with embedded options.

3. Repo Calculation Modes:

- The FMRR (Repo) functions have been upgraded to support the Classic Repo and the Pension Livrée Repo modes. These function now accept a new argument, *Repo_mode*, following the table below:

Repo Mode	Description	Repo_mode Ticker
Buy and Sell Back	Spot and forward price are clean. If coupons are paid during the repo period, they are reinvested at a specific rate.	BSB or 1
Classic	No coupons reinvestment. Spot and forward prices are dirty (all-in).	CLASSIC or 2
Pension Livrée	No coupons reinvestment. Forward price is dirty (all-in).	PLIV or 3

The FMR3000 Repo Calculator has been upgraded to support the new repo calculation modes;

- One decimal place has been added to the Euro countries prices.

4. Floating Rate Notes:

- FMRC00SimpleMargin and FMRC00DiscountMargin functions have been added to compute the simple and discount margin of a floating rate note starting from the FMR3000 database and using the code that identifies the bond. FMRG00DiscountMarginPrice and FMRC00DiscountMarginPrice have been added to compute the price that balances the discount margin passed by argument. The discount margin functions do not support sinkable bonds at the moment;
- FMRS04LiborSpread and FMRC05BondPV functions have been added. They accept an additional argument, *Use_DbCoup*, to force the database coupon values for a floating rate note bond;
- During periods a floating rate note first coupon is not fixed yet, forward rate is now automatically (when possible) computed and converted to an interest amount;
- By means of the *Varg1* function argument (value is 21) the first interest amount can be forced. For example *Varg1* = 21.002745 means that an interest equal to 2.745 is paid at the next coupon date. In the same way by *Varg1* = 22 it is possible to force the annual simple coupon rate value. For example *Varg1* = 22.004125 means that a coupon rate equal to 4.125% is paid at the next coupon date. The time base of the rate must be expressed in the bond coupon rate base, for example act/360 for Eurobonds. The value of the interest amount and the coupon rate must be referred to 100 nominal. These features work on FMRC05BondPV and FMRS04LiborSpread functions and on floating rate bonds only;
- A new function has been added to retrieve the next interest amount (FMRC00FRNNextInterest);
- The new function FMRC00FRNConf returns a numerical value indicating if a payment is certain or not. The meaning of the values returned by the function are summarized as follows:

RESULT	MEANING
4	Certain interest amount.
3 (only for Italian CCT)	Tendential coupon: 3 BOT auctions out of 4 have been found.
2 (only for Italian CCT)	Tendential coupon: 2 BOT auctions out of 4 have been found.
1 (only for Italian CCT)	Tendential coupon: 1 BOT auction out of 4 has been found.
0	Interest amount has not been fixed yet.

5. Greece Euro Conventions:

The yield time base convention for Greek government bonds issued after 31st December 2000 has changed to ACT/ACT.

6. Hungarian Bonds Support:

FMR3000 Version 1.7.5 supports Hungarian bonds computations.

7. Eurobonds:

It is possible to customize the time base convention for Eurobonds yield computation by means of FMR2.INI file. Adding the keys `use_eu_cust=1` and `eurobonds_dcount=dc01,mjd,dc02` to the `[fmr_calc]` section, you can set the time base convention to `dc01` (see Help for valid input strings) for Eurobonds whose accrual starting date falls before `mjd` (modified Julian day), to `dc02` if the accrual starting date falls on or after that day. For example, adding the following section to FMR2.INI (or adding the two proper keys to `[fmr_calc]` if already existing)

```
[fmr_calc]
eurobonds_dcount=30e/360,51910,act/act
use_eu_cust=1
```

sets the day count convention to 30E/360 for those Eurobonds whose accrual start day falls before `mjd=51910` (that is Jan 1st 2001) and to ACT/ACT for the others.

8. Grey Market Support:

A support for grey market has been added. If a negative settlement date is passed to functions it is interpreted as the bond issue date. FMR3000 computes the regular settlement date using the computer system date and checks if the settlement date falls before the issue date. If so, the evaluation date switches automatically to the issue date (or first working date if holiday).

9. Convexity Adjustment:

- A new function, `FMRRD00CMSSwapRate`, has been added. It returns the adjusted annual swap rate for a CMS contract. The function adds to the swap fix rate the convexity adjustment given by the Linear Swap Rate Model (see A. Pelsser, "Efficient Methods for Valuing Interest Rate Derivatives", Springer 2000);

- FMRRD01ConvexAdj has been added. It returns the convexity adjustment for a generic contract using the Hull model (see J. Hull, "Options, Futures and Other Derivatives", Prentice Hall 2000).

10. Italian Bonds Fiscal Regulation:

- The meaning of the *Net* function argument has been generalized to support capital gain taxation and Sigma computation mode, following the table below:

Computation mode	Net
Gross	-2
Gross (Sigma mode)	-1
Default (see FMR2.INI file)	0
Net without capital gain taxation	1
Net	2
Net without capital gain taxation (Sigma mode)	3
Net (Sigma mode)	4

Sigma mode differs from the classic formulas for Italian zero-coupon bonds (government and corporate);

- FMRI00CapitalGain function has been added. It computes the capital gain tax amount given the spot price and the settlement date of an Italian bond. The capital gain tax applies when the spot price is below the issue price plus interests matured at settlement, according to the specific fiscal rules of the considered bond.