## Theoretical Values: Flexible Options Contracts – FPTHEF

This file contains derivative theoretical prices used for margining of flexible option contracts.

### Enhancement with Eurex Release 9.0:

The field IMPLIED-VOL-RMTHEF will be renamed to VOL-RMTHEF as it will contain the volatility used for theoretical price calculations. The layout of the file will not be changed.

Record layout of the file FPTHEF:

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01  RMTHEF-WS-REC.
          10  MGN-CLS-COD-RMTHEF              PIC  X(5).
          10  SERI-GRP-ID-COD-RMTHEF.
            15  SECU-ID-COD-RMTHEF            PIC  X(4).
            15  SERI-CLAS-COD-RMTHEF          PIC  X(1).
            15  SERI-EXP-DAT-RMTHEF.
              20  EXPI-YR-DAT-RMTHEF          PIC  9(2).
              20  EXPI-MTH-DAT-RMTHEF         PIC  9(2).
              20  EXPI-DAY-DAT-RMTHEF         PIC  9(2).
            15  EXER-PRC-RMTHEF               PIC  9(5).9(4).
            15  EXER-STYLE-FLG-RMTHEF         PIC  X(1).
            15  SERI-VERS-NO-RMTHEF           PIC  9(1).
            15  FLX-OPT-SECU-ID-RMTHEF        PIC  X(4).
          10  CALC-BUC-PRICE-RMTHEF           PIC  X(9).
          10  CALC-UND-PRICE-RMTHEF           PIC  X(9).
          10  FORWARD-UND-PRICE-RMTHEF        PIC  Z(4)9.9(6).
          10  UD-IND-RMTHEF                   PIC  X(1).
          10  STOCK-PRC-IND-RMTHEF            PIC  X(1).
          10  THEO-VALUE-RMTHEF               PIC  Z(4)9.9(6).
          10  EA-THEO-VALUE-RMTHEF            PIC  X(9).
          10  SHORT-OPT-THEO-RMTHEF           PIC  Z(4)9.9(6).
          10  SECU-LST-CLS-PRC-RMTHEF         PIC  X(10).
          10  INTP-LST-CLS-PRC-RMTHEF         PIC  X(10).
          10  SERI-LST-STL-PRC-RMTHEF         PIC  X(10).
          10  MGN-INTERVAL-RMTHEF             PIC  X(11).
          10  VOL-RMTHEF                      PIC  Z(2)9.9(2).
          10  INTR-RAT-PCT-RMTHEF             PIC  9(1).9(4).
          10  YIELD-RAT-PCT-RMTHEF            PIC  9(1).9(4).
          10  SECU-TRD-UNT-NO-RMTHEF          PIC  Z(3)9.9(4).
          10  SECU-TIC-SIZE-RMTHEF            PIC  X(7).
          10  SECU-TIC-VAL-RMTHEF             PIC  Z(3)9.9(4).
          10  SERI-STS-COD-RMTHEF             PIC  X(1).
          10  MGN-STYLE-FLG-RMTHEF            PIC  X(1).
          10  CURR-DCML-SHFT-GRP-RMTHEF.
            15  CURR-TYP-COD-RMTHEF           PIC  X(3).
            15  DCML-SHFT-NO-RMTHEF           PIC  9(1).
          10  DAYS-TO-EXP-RMTHEF              PIC  Z(4)9.

  01  RMTHEF-FILE-INFO-REC REDEFINES RMTHEF-WS-REC.   (last record)
        05  FILE-END-MARK-RMTHEF              PIC  X(5).
        05  FILLER                            PIC  X.
        05  FILE-COUNTER-RMTHEF               PIC  9(8).
        05  FILLER                            PIC  X.
        05  CURR-BUS-DAY-RMTHEF               PIC  9(8).
        05  FILLER                            PIC  X.
        05  DESCRIPTION-RMTHEF                PIC  X(92).
        05  FILLER                            PIC  X(76).
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| Field | Description |
|---|---|
| MGN-CLS-COD-RMTHEF | This field contains the margin class code assigned by the exchange. |
| SECU-ID-COD-RMTHEF | This field contains the three/four letter abbreviation assigned to the underlying instrument. |
| SERI-CLAS-COD-RMTHEF | This field contains the class code for option series or a blank for futures contracts. Field values include:<br>“C“ - Call<br>“P“ - Put<br>“ “ - Future |
| EXPI-YR-DAT-RMTHEF | This field contains the year when the flexible option contract expires. |
| EXPI-MTH-DAT-RMTHEF | This field contains the month when the flexible option contract expires. |
| EXPI-DAY-DAT-RMTHEF | This field contains the day when the flexible option contract expires. |
| EXER-PRC-RMTHEF | This field contains the price at which an option contract may be exercised. This field has the format 99999.9999. |
| EXER-STYLE-FLG-RMTHEF | This field contains the exercise style of the flexible options contract. It has either the value ´A´ for American style or ´E´ for European style. |

| Field | Description |
|---|---|
| SERI-VERS-NO-RMTHEF | This field contains the version number assigned to the series on creation. The value is zero for all standard series not changed as a result of capital adjustment to the underlying instrument and for futures contracts. Valid values include:<br>0 - standard series version or futures contract<br>1 - adjusted series version from most recent capital adjustment<br>2 - adjusted series version from the last two capital adjustments<br>3 - adjusted series version from the last three capital adjustments<br>…<br>9 – adjusted series version from the last ninth capital adjustments |
| FLX-OPT-SECU-ID-RMTHEF | This field contains the additional security Id code for the Flexible Options depending on the exercise style (E)uropean or (A)merican. |
| CALC-BUC-PRICE-RMTHEF | This field contains the projected underlying price for the interval product. For each class there is one interval product which determines the margin interval and projected underlying values for all products in the class. This field has the same value as the CALC-UND-PRICE-RMTHEF for products that are themselves interval products, or have the same underlying as the interval product for their class.<br>This field contains a decimal point with a variable number of decimal places depending on the product. |
| CALC-UND-PRICE-RMTHEF | This field contains the projected underlying price used to calculate the theoretical value for this record.<br>This field contains a decimal point with a variable number of decimal places depending on the product. |
| FORWARD-UND-PRICE-RMTHEF | This entry contains the forward underlying price. |

| Field | Description |
|---|---|
| UD-IND-RMTHEF | This field contains an indicator showing whether the projected underlying price is less than (downside) or greater than (upside) the closing price of the underlying.<br>“D“ - downside<br>“U“ - upside |
| STOCK-PRC-IND-RMTHEF | This field contains an indicator showing whether the theoretical price calculated relates to a minimum projected underlying price (2), to an in-between strike (3) or to a maximum projected underlying price (1). |
| THEO-VALUE-RMTHEF | This field contains the theoretical value calculated for an active flexible options contract for a given CALC-UND-PRICE-RMTHEF. |
| EA-THEO-VALUE-RMTHEF | This field contains the theoretical value calculated for an exercised/assigned flexible options contract for a given CALC-UND-PRICE-RMTHEF.<br>This field contains a decimal point with a variable number of decimal places depending on the product. |
| SHORT-OPT-THEO-RMTHEF | This field contains the value short option adjustment. It is calculated by multiplying the margin interval by the out-of-the-money minimum percentage and adding to it the settlement price for the series. It replaces the maximum upside theoretical option price for a short call option if it is greater than that theoretical. It replaces the maximum downside theoretical option price for a short put option if it is greater than that theoretical. |
| SECU-LST-CLS-PRC-RMTHEF | This field contains the last closing price of the underlying asset.<br>This field contains a decimal point with a variable number of decimal places depending on the product. |

| Field | Description |
| --- | --- |
| INTP-LST-CLS-PRC-RMTHEF | This field contains the last closing price of the underlying asset for the interval product. If the interval product is a future with no underlying price, this field contains the settlement price of the spot month series.<br>This field contains a decimal point with a variable number of decimal places depending on the product. |
| SERI-LST-STL-PRC-RMTHEF | This field contains the last settlement price of the flexible option contract.<br>This field contains a decimal point with a variable number of decimal places depending on the product. |
| MGN-INTERVAL-RMTHEF | The value of this field is determined using the last closing price and historical volatility of the interval product. For products, whose historical volatility is expressed as a percentage (for instance stock options), the margin interval is the historical volatility multiplied by the last closing price. For products with a historical volatility expressed in ticks (such as the Bund and DAX futures and their options), the margin interval is the historical volatility multiplied by the tick value.<br>This field contains a decimal point with a variable number of decimal places depending on the product. |
| VOL-RMTHEF | This field contains the volatility used for theoretical price calculations. |
| INTR-RAT-PCT-RMTHEF | This field contains the security risk free interest rate used to calculate the theoretical value. |
| YIELD-RAT-PCT-RMTHEF | This field contains the yield rate which is used for the calculation of theoretical prices of currency options. |
| SECU-TRD-UNT-NO-RMTHEF | This field contains the quantity of the underlying instrument traded per contract. |

| Field | Description |
|---|---|
| SECU-TIC-SIZE-RMTHEF | This field contains the tick size for the product.<br>This field contains a decimal point with a variable number of decimal places depending on the product. |
| SECU-TIC-VAL-RMTHEF | This field contains the tick value for the product. |
| SERI-STS-COD-RMTHEF | This field contains a code to identify an option series/future contract as active (“A“) or expired (“E“). |
| MGN-STYLE-FLG-RMTHEF | This field contains a code to identify the margining style for the product. Valid values are:<br>“F“ - futures style<br>“T“ - traditional style |
| CURR-TYP-COD-RMTHEF | This field contains the currency code of the underlying instrument. |
| DCML-SHFT-NO-RMTHEF | This field contains one digit specifying a decimal given as a power of ten. It represents the factor by which a price has to be multiplied in order to get the „real“ price.<br>Example:<br>Decimal Shift: 0<br>Factor: $10^0 = 1$ (e.g. for EUR)<br>The amount “23.45“ is then understood by the user in the associated currency as:<br>23.45 x 1 = 23.45 EUR |
| DAYS-TO-EXP-RMTHEF | This field contains the number of days until expiration of the contract. |

The following descriptions apply to the last record only.

| Field | Description |
|---|---|
| FILE-END-MARK-RMTHEF | This field marks the end of the file and contains the string "*EOF*". |
| FILE-COUNTER-RMTHEF | This field contains the number of data records contained in the file, *not* including the last record. |
| CURR-BUS-DAY-RMTHEF | This field contains the date of the business day in the format YYYYMMDD. |
| DESCRIPTION-RMTHEF | This field contains a short description of the file content. |