Theoretical Price File - FPTHVD

This file contains information about theoretical prices for all Eurex products based on defined downside and upside vola shifts.

The FPTHVD - Theoretical Price File has a four-record structure with the following information:

- Margin Class (M)
- Product (P)
- Series (S)
- Bucket (B)

This file has a variable record length with a maximum of 93 bytes.

```
01  RMTHVD-WS-REC.
    05  RMTHVD-CLS-REC.
        10  REC-TYP-COD-RMTHVD              PIC  X.
        10  FILLER                          PIC  X(92).

***
* RECORD TYPE = "M" (Margin class Record)
***
    05  RMTHVD-MGN-CLS-REC REDEFINES RMTHVD-CLS-REC.
        10  REC-TYP-COD-RMTHVD              PIC  X.
        10  MGN-CLS-COD-RMTHVD              PIC  X(5).
        10  INTP-LST-CLS-PRC-RMTHVD         PIC  X(10).
        10  MGN-INTERVAL-RMTHVD             PIC  X(11).
        10  CURR-DCML-SHFT-GRP-RMTHVD.
          15  CURR-TYP-COD-RMTHVD           PIC  X(3).
          15  DCML-SHFT-NO-RMTHVD           PIC  9(1).

***
* RECORD TYPE = "P" (Product Record)
***
    05  RMTHVD-PROD-REC REDEFINES RMTHVD-CLS-REC.
        10  REC-TYP-COD-RMTHVD              PIC  X.
        10  MGN-CLS-COD-RMTHVD              PIC  X(5).
        10  SECU-ID-COD-RMTHVD              PIC  X(4).
        10  SECU-TIC-SIZE-RMTHVD            PIC  X(7).
        10  SECU-TIC-VAL-RMTHVD             PIC  Z(3)9.9(4).
        10  MGN-STYLE-FLG-RMTHVD            PIC  X(1).
        10  EXER-PRC-DECIMALS-RMTHVD        PIC  9(1).

***
* RECORD TYPE = "S" (Series Record)
***
    05  RMTHVD-SERIES-REC REDEFINES RMTHVD-CLS-REC.
        10  REC-TYP-COD-RMTHVD              PIC  X.
        10  MGN-CLS-COD-RMTHVD              PIC  X(5).
        10  SERI-GRP-ID-COD-RMTHVD.
          15  SECU-ID-COD-RMTHVD            PIC  X(4).
          15  SERI-CLAS-COD-RMTHVD          PIC  X(1).
          15  SERI-EXP-DAT-RMTHVD.
            20  EXPI-YR-DAT-RMTHVD          PIC  9(2).
            20  EXPI-MTH-DAT-RMTHVD         PIC  9(2).
          15  EXER-PRC-RMTHVD               PIC  9(6).
          15  SERI-VERS-NO-RMTHVD           PIC  9(1).
        10  SECU-LST-CLS-PRC-RMTHVD         PIC  X(10).
        10  SERI-LST-STL-PRC-RMTHVD         PIC  X(10).
        10  INTR-RAT-PCT-RMTHVD             PIC  9(1).9(4).
        10  YIELD-RAT-PCT-RMTHVD            PIC  9(1).9(4).
        10  SECU-TRD-UNT-NO-RMTHVD          PIC  Z(3)9.9(4).
        10  SERI-STS-COD-RMTHVD             PIC  X(1).
        10  DAYS-TO-EXP-RMTHVD              PIC  Z(4)9.
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***
* RECORD TYPE = "B" (Bucket Record)
***
    05  RMTHVD-BUCKET-REC REDEFINES RMTHVD-CLS-REC.
        10  REC-TYP-COD-RMTHVD              PIC X.
        10  MGN-CLS-COD-RMTHVD              PIC  X(5).
        10  SERI-GRP-ID-COD-RMTHVD.
          15  SECU-ID-COD-RMTHVD            PIC  X(4).
          15  SERI-CLAS-COD-RMTHVD          PIC  X(1).
          15  SERI-EXP-DAT-RMTHVD.
            20  EXPI-YR-DAT-RMTHVD          PIC  9(2).
            20  EXPI-MTH-DAT-RMTHVD         PIC  9(2).
          15  EXER-PRC-RMTHVD               PIC  9(6).
          15  SERI-VERS-NO-RMTHVD           PIC  9(1).
        10  CALC-BUC-PRICE-RMTHVD           PIC  X(9).
        10  CALC-UND-PRICE-RMTHVD           PIC  X(9).
        10  FORWARD-UND-PRICE-RMTHVD        PIC  Z(4)9.9(6).
        10  UD-IND-RMTHVD                   PIC  X(1).
        10  STOCK-PRC-IND-RMTHVD            PIC  X(1).
        10  THEO-VALUE-RMTHVD               PIC  Z(4)9.9(6).
        10  EA-THEO-VALUE-RMTHVD            PIC  X(9).
        10  SHORT-OPT-THEO-RMTHVD           PIC  Z(4)9.9(6).
        10  VOL-RMTHVD                      PIC  Z(2)9.9(2).

***
* RECORD TYPE = "*" (EOF Record)
***
    05  RMTHVD-FILE-INFO-REC REDEFINES RMTHVD-CLS-REC.
        10  FILE-END-MARK-RMTHVD            PIC  X(5).
        10  FILLER                          PIC  X.
        10  FILE-COUNTER-RMTHVD             PIC  9(8).
        10  FILLER                          PIC  X.
        10  CURR-BUS-DAY-RMTHVD             PIC  9(8).
        10  FILLER                          PIC  X.
        10  DESCRIPTION-RMTHVD              PIC  X(68).
```

The fields contained in the file FPTHVD are described in the following list.

FPTHVD	
Field	**Description**
REC-TYP-COD-RMTHVD	This field contains the record type.
MGN-CLS-COD-RMTHVD	This field contains the margin class code assigned by the exchange.
SECU-ID-COD-RMTHVD	This field contains the three/four letter abbreviation assigned to the underlying instrument.
SERI-CLAS-COD-RMTHVD	This field contains the class code for option series or a blank for futures contracts. Field values include: “C“ – Call “P“ – Put “ “ - Future

FPTHVD	
Field	Description
SERI-EXP-DAT-RMTHVD	This field contains the date the option series or the futures contract expires.
EXER-PRC-RMTHVD	This field contains the price at which an option contract may be exercised. The field EXER-PRC-DECIMALS-RMTHVD contains the number of decimal places to be used to format the value of this field. For future contracts it is zero.
SERI-VERS-NO-RMTHVD	This field contains the version number assigned to the series at 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: 0 – standard series version or futures contract 1 – adjusted series version from most recent capital adjustment 2 – adjusted series version from the second most recent capital adjustment 3 – adjusted series version from the third most recent capital adjustment
CALC-BUC-PRICE-RMTHVD	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-RMTHVD for products that are interval products, or have the same underlying as the interval product for their class. It has a decimal point with variable number of decimal places depending on the product.
CALC-UND-PRICE-RMTHVD	This field contains the projected underlying price used to calculate the theoretical value for this record. It has a decimal point with variable number of decimal places depending on the product.
FORWARD-UND-PRICE-RMTHVD	This field contains the forward underlying price.

FPTHVD	
Field	Description
UD-IND-RMTHVD	This field contains an indicator that shows both whether the projected underlying price is less than (downside), greater than (upside) the closing price of the underlying or at the closing price of the underlying and whether the synthetic volatility used for theoretical price calculations (implied volatility) is shifted according to the up or down scenario or is not shifted. “D” - downside of projected underlying price and implied volatility not shifted “E” - downside of projected underlying price and up scenario of implied volatility “F” - downside of projected underlying price and down scenario of implied volatility “N” - closing price of the underlying and implied volatility not shifted “O” - closing price of the underlying and up scenario of implied volatility “P” - closing price of the underlying and down scenario of implied volatility “U” - upside of projected underlying price and implied volatility not shifted “V” - upside of projected underlying price and up scenario of implied volatility “W” - upside of projected underlying price and down scenario of implied volatility
STOCK-PRC-IND-RMTHVD	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), to a maximum projected underlying price (1) or the current closing price of the underlying (0).
THEO-VALUE-RMTHVD	This field contains the theoretical value calculated for an active options/future position for a given CALC-UND-PRICE-RMTHVD.

FPTHVD	
Field	**Description**
EA-THEO-VALUE-RMTHVD	This field contains the theoretical value calculated for an exercised/assigned options position for a given CALC-UND-PRICE-RMTHVD. It has a decimal point with variable number of decimal places depending on the product.
SHORT-OPT-THEO-RMTHVD	This field contains a value also called short option adjustment. It is calculated by multiplying the margin interval with the out-of-the-money minimum percentage and adding the settlement price for the series to this. 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. For futures this field is set zero.
SECU-LST-CLS-PRC-RMTHVD	This field contains the last closing price of the underlying asset. For futures products with no underlying price, this field contains the settlement price of the appropriate series. It has a decimal point with variable number of decimal places depending on the product.
INTP-LST-CLS-PRC-RMTHVD	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. It has a decimal point with variable number of decimal places depending on the product.
SERI-LST-STL-PRC-RMTHVD	This field contains the last settlement price of the series. It has a decimal point with variable number of decimal places depending on the product.

FPTHVD	
Field	**Description**
MGN-INTERVAL-RMTHVD	This field contains the margin interval. 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. It has a decimal point with variable number of decimal places depending on the product.
VOL-RMTHVD	This field contains the synthetic volatility used for theoretical price calculations (implied volatility). The implied volatility can vary for one option series depending on the projected underlying price.
INTR-RAT-PCT-RMTHVD	This field contains the security risk free interest rate used to calculate the theoretical value.
YIELD-RAT-PCT-RMTHVD	This field contains the yield rate which is used for the calculation of theoretical prices of currency options.
SECU-TRD-UNT-NO-RMTHVD	This field contains the quantity of the underlying instrument traded per contract.
SECU-TIC-SIZE-RMTHVD	This field contains the tick size for the product. It has a decimal point with variable number of decimal places depending on the product.
SECU-TIC-VAL-RMTHVD	This field contains the tick value for the product.
SERI-STS-COD-RMTHVD	This field contains a code to identify an options series/futures contract as active (“A“) or expired (“E“).

FPTHVD	
Field	**Description**
MGN-STYLE-FLG-RMTHVD	This field contains a code to identify the margining style for the product. Valid values are: “F“– futures style “T“– traditional style
EXER-PRC-DECIMALS-RMTHVD	This field indicates the number of decimals in the exercise price.
CURR-TYP-COD-RMTHVD	This field contains the currency code of the underlying instrument.
DCML-SHFT-NO-RMTHVD	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. Example: Decimal Shift: 0 Factor: 10 ^ 0 = 1 (for example, for EUR) The amount “23.45“ is then understood by the user in the associated currency as: 23.45 x 1 = 23.45 EUR
DAYS-TO-EXP-RMTHVD	This field contains the number of days until the Final Settlement Day of the series or contract.

The following descriptions apply to the last record of FPTHVD only.

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