
AMENDMENTS ARE MARKED AS FOLLOWS:

INSERTIONS ARE UNDERLINED

DELETIONS ARE CROSSED OUT

1. Part: Contract Specifications for Futures Contracts

[...]

1.21 **Subpart:** **Contract Specifications for Variance Futures Contracts**

The following sub-part contains contract specifications for Futures Contracts on Variance ("Variance Futures Contracts").

1.21.1 **Subject Matter of Contract**

- (1) A Variance Futures contract shall refer to future average price fluctuation (variance) of a specific underlying instrument.
- (2) The following Futures Contracts on variance are available for trading at the Eurex Exchanges; the institutions mentioned in brackets, being owners of the respective index, are responsible for the calculation:
 - Variance Futures Contracts (product ID: EVAR) referring to Variance of the EURO STOXX[®] 50 Index (STOXX Limited)
- (3) The value of a Variance Futures contract shall be:
 - EUR 1 per Variance Futures point for Variance Futures contracts (product ID: EVAR)
- (4) If any changes are made in the calculation of an underlying index such that the concept of the index appears to be no longer comparable with the concept that applied when the Variance Futures contract was admitted to trading, the Boards of Management of the Eurex Exchanges may order the termination of trading in such contracts as of the last trading day prior to the change in the respective index. Open positions shall be settled in cash upon the termination of trading. The respective final settlement price shall be used (Chapter II, number 2.6.3 of the Clearing Conditions of Eurex Clearing AG).

1.21.2 **Obligation of fulfillment**

After the determination of the final settlement price (according to 1.21.7.5) on the final settlement day of the contract, the seller of a Variance Futures Contract shall pay in cash any

difference between the agreed price and the higher final settlement price/ the purchaser shall pay in cash any difference between the agreed price and the lower final settlement price.

1.21.3 Term

Variance Futures Contracts are available for trading at the Eurex Exchanges until one day before the final settlement day (number 1.21.4) of each of the following terms: up to and in each case including the final settlement day of the next, the second and the third succeeding calendar month and the next three succeeding quarter-end months (March, June, September, December) and the next two succeeding half-year expiration days (June and December) thereafter.

1.21.4 Last trading day, Final Settlement day, Close of Trading

- (1) Last trading day of the Variance Futures Contract is the day before the final settlement day.
- (2) Close of trading on the last trading day of Variance Futures Contracts (product ID: EVAR) referring to Variance of the EURO STOXX[®] 50 Index is 17:30 CET.
- (3) Final settlement day is generally the third Friday of the expiration month, one business day after the last trading day provided that such day is a trading day at Eurex; otherwise, it shall be the trading day immediately preceding such day. Final settlement takes place at 12:00 CET. At this point in time the last price observation is recorded and the final Realized Variance (according to 1.21.7.2.2.1) is calculated.

1.21.5 Price Gradations

The price of a Variance Futures Contracts shall be calculated with four decimal places. The minimum price change (tick) is

- 0.0001 points for Variance Futures Contracts (product ID: EVAR); this corresponds to a value of EUR 0.0001.

1.21.6 Fulfilment, Cash Settlement

- (1) Fulfilment day for Variance Futures Contracts shall be the Exchange day after the final settlement day.
- (2) The Variance Futures Contracts shall be fulfilled through cash settlement between the Clearing Members and Eurex Clearing AG. The responsible Clearing Member is in charge of the cash settlement to Non-Clearing-Members and own clients; whereas the Non-Clearing Members are in charge of the cash settlement of Non-Clearing Members to their clients.

1.21.7 Trading convention

1.21.7.1 Exchange Trading

Variance Futures are traded in a quantity of "notional Vega", which represents a risk amount that is expressed in Euros and at prices of "Volatility", which is the annualized average price fluctuation of a specific underlying instrument over the lifetime of the contract that is expressed in percentage points. Subsequent to a trade matching the traded notional Vega is

converted into a Variance Futures quantity and the Volatility is converted into a Variance Futures price, according to 1.21.7.2

Price gradation and trade size:

In trading Variance Futures, the minimum price increment in Volatility is 0.05 percentage points. The minimum trade size in trading Variance Futures is 1 notional Vega.

1.21.7.2 Conversion

1.21.7.2.1 Description

Upon matching of orders that are expressed in notional Vega (v) and Volatility (σ), matched trades are converted into a position in Variance Futures contracts at Variance Futures prices. Conversions from Volatility into Variance Futures prices require the end of day closing price of the underlying instrument. Trade price conversions before the publication of this price result into preliminary trade prices. The preliminary trade prices will be updated after the publication of the closing price of the underlying instrument.

The conversion takes place according to the formulae specified in sections 1.21.7.2.2 and 1.21.7.2.3.

1.21.7.2.2 Formula Trade Price Conversion

Volatility is converted into the Variance Futures price according to the following formulae:

1. Traded variance

$$\text{traded variance } (\sigma_t^2) = \frac{(\text{traded "Volatility"} (\sigma)^2 * (T - t) + \sigma_r^2 * t)}{T}$$

2. Traded Variance Futures price

$$\begin{aligned} \text{traded Futures price}(F_t(\sigma)) \\ = D_t * (\text{traded variance } (\sigma_t^2) - \text{standard variance strike}(\sigma_0^2)) - \text{ARMVM}_t \\ + C \end{aligned}$$

.where

T = total amount of daily variance observations that are expected to occur during the life time of the contract

t = amount of daily variance observations that have occurred until the day of the trade match

D_t = discount factor according to 1.21.7.2.2.3, valid at time t

σ_r^2 = realized variance measured until and including the closing price of the underlying instrument at the end of the day of the trade match. Realized variance is calculated according to section 1.21.7.2.2.1

σ_0^2 = standard variance strike according to section 1.21.7.3

ARMVM_t = Accumulated Return on Modified Variation Margin –
A correction term according to section 1.21.7.2.2.2

C = a constant term

1.21.7.2.2.1 Realized Variance

Realized variance is determined by the Boards of Management of the Eurex Exchanges based on the closing prices of the underlying instrument between the first trading day and the final settlement day according to the following formula:

$$\sigma_r^2 = 10.000 * \frac{252}{t} \cdot \sum_{i=1}^t \ln^2 \left(\frac{S_i^{und}}{S_{i-1}^{und}} \right)$$

,where

t = amount of daily variance observations that have occurred until the day of the calculation

S_i^{und} = end of day closing price of the underlying instrument

1.21.7.2.2 Accumulated Return on Modified Variation Margin

The Accumulated Return on Modified Variation Margin (ARMVM) is calculated on each variance observation day, using the following formula:

$$ARMVM_t = ARMVM_{t-1} * e^{(r'_{t-1}(\frac{\Delta t}{365}))} + (S_{t-1} - C) * (e^{(r'_{t-1}(\frac{\Delta t}{365}))} - 1)$$

,where

S_{t-1} = the settlement price of the variance futures on the previous business day according to 1.21.7.4

r'_{t-1} = the risk free overnight rate (EONIA) that was set on the previous business day by the European Central Bank

Δt = the difference between two subsequent calculations of the ARMVM in calendar days

C = a constant term

On the first trading day of a Variance Futures contract ARMVM is set to zero.

1.21.7.2.3 Discount Factor

The discount factor is calculated on every exchange business day based on the following formula:

$$D_t = e^{(\frac{-r_t(T-t)}{365})}$$

, where

T = expiration date

t = calculation date

r_t = EURIBOR rate interpolated for the maturity of the Variance Futures contract, remaining between the calculation date and the expiration date

Interpolation Method:

Linear interpolation is used in order to determine the risk free interest rate. Inputs are the EURIBOR rates surrounding the maturity of the Variance Futures:

$$r_t = \frac{T_{K+1} - T}{T_{K+1} - T_K} * r(T_K) + \frac{T - T_K}{T_{K+1} - T_K} * r(T_{K+1}) \quad , \text{with } T_K \leq T < T_{K+1}$$

,where

T_{K+1} = maturity of the EURIBOR rate later than the Variance Futures maturity

T_K = maturity of the EURIBOR rate before the Variance Futures maturity

T = maturity of the Variance Futures

1.21.7.2.3 Formula Trade Size Conversion

The traded quantity, expressed in notional Vega is converted into Variance Futures using the following formula:

$$Q(F) = \frac{\text{notional Vega}(v)}{2 * \sigma} * \frac{T}{T - t}$$

, where

T = total amount of daily variance observations that are expected to occur during the life time of the contract

t = amount of daily variance observations that have occurred until the day of the calculation

σ = traded "Volatility"

The Variance Futures quantity is rounded to the nearest integer; at least to 1 Variance Futures contract.

The highest admissible Variance Futures quantity is 999,999 contracts. If an order or a quote is entered into the Eurex system specifying a notional Vega quantity that would result, according to the conversion method set out in 1.21.7.2.3, in a transaction with a higher Variance Futures quantity ("Exceeding Order"), the respective Exceeding Order will be deleted and will not generate a transaction. Orders or quotes that are matched with such Exceeding Orders in full will be deleted and will neither generate a transaction. Orders or quotes that are matched only partially with such Exceeding Orders will be deleted to the extent they have been matched with such Exceeding Order and the respective deleted part of the order or quote and will neither generate a transaction. Such orders or quotes will remain in the order book to the extent they have not been deleted.

1.21.7.3 Standard Variance Strike

The standard variance strike (σ_0^2) is determined by the Boards of Management of the Eurex Exchanges on the first trading day of a new instrument and is kept unchanged during the life time of the instrument. The standard variance strike is based on the volatility level (σ) in percentage points that is observed in the market on that day.

1.21.7.4 Daily settlement price

The daily settlement price of Variance Futures contracts (S_t) is calculated in the same way as described in 1.21.7.2.2. Instead of traded "Volatility" (σ)², a settlement "Volatility" (σ_{settle})² is used as input factor. That means $S_t = F_t(\sigma_{settle})$. The settlement "Volatility" (σ_{settle})² is determined as:

1. The volume weighted average price during the last 30 minutes of trading on each scheduled trading day.
2. The market maker mid point price during the last 30 minutes of trading on each scheduled trading day.
3. The last price of the VSTOXX Sub index that references the same maturity as the Variance Futures contract.

1.21.7.5 Final settlement price

The final settlement price of Variance Futures contracts is calculated in the same way as described in 1.21.7.2.2. For the calculation of the Realized Variance according to 1.21.7.2.2.1 the following underlying price S_T^{und} is used on the final settlement day:

- Variance Futures on the EURO STOXX[®] 50 index use the EURO STOXX[®] 50 index value that is based on the average of the EURO STOXX[®] 50 index calculations from 11:50 a.m. until 12:00 noon CET on the final settlement day of the expiration month.

1.21.7.6 Market Disruption

In case of a market disruption event on trading day t, the realized variance according to section 1.21.7.2.2.1 is calculated using

$$S_t^{und} = S_{t-1}^{und}$$

The closing price of the underlying instrument of the previous day is used as the closing price of the day of the realized variance calculation.

A market disruption event means the occurrence or existence of at least one of the following situations on an exchange day:

1. The index provider fails to calculate an index level.
2. Eurex is closed for trading during the last hour prior to the publication of the last underlying price.
3. The Futures on the underlying instrument is not available for trading during the last hour prior to the publication of the last underlying price.
4. The options on the underlying instrument are not available for trading during the last hour prior to the publication of the last underlying price.

The Boards of Management of the Eurex Exchanges determine situations where orderly price determination is not possible and a market disruption event has occurred.

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Annex C in relation to Contract Specifications:

Trading Hours Futures Contracts

Index Futures Contracts

Product	Product-ID	Pre-Trading-Period	Continuous Trading	Post-Trading Full-Period	OTC Block Trading	Last Trading Day	
						Trading until	
<u>Variance Futures on EURO STOXX 50® Index</u>	<u>EVAR</u>	<u>07:00-08:50</u>	<u>09:00-17:30</u>	<u>18:30-22:00</u>	<u>18:30-21:00</u>	<u>17:30</u>	

* During daylight savings time in Germany (CEST)

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