



## Corporate Actions Procedures

### Adjustments to Eurex Equity Options and Single Stock Futures due to Corporate Actions

In the case of capital adjustments of quoted equities, the corresponding equity options and Single Stock Futures may be affected. Adjustments to equity options and Single Stock Futures at the Eurex exchanges are subject to the principle of unchanged contract values. Hence, Eurex derivatives must represent the same rights/contract values prior to and after a capital adjustment.

The following gives an insight to the various types of capital adjustments and their handling:

- The same capital adjustment ratio applies to option and futures products on the same underlying.
- The capital adjustment does not affect the LEPO (Low Exercise Price Option) exercise price. The rules for the incrementing of the version number of a LEPO series are identical to those for a regular series. The existing rules for regular series apply to LEPO series concerning the splitting of the contract size into cash fraction and share fraction.
- The effects of capital adjustments on OTC Flexible Option series are identical to those on regular option series. The handling of capital adjustments on regular options, described in the following text also applies to them.
- For OTC Flexible Options transactions, the change of expiration date in case of a holiday or annual general meeting that is newly scheduled to this date is treated like a capital adjustment. The handling of capital adjustments on pending deliveries is performed by the Central Counterparty System (CCP) of Eurex Clearing AG.
- At Eurex each standard option series generally has the version number 0. In the event of a capital adjustment, existing option series have their version number increased by 1.
- The exercise prices and contract sizes resulting from the adjustment will be published by Eurex Clearing AG to members via the Market Supervision Messages window of the Eurex GUI (Graphical User Interface) immediately after the close of trading on the day before the capital adjustment takes effect.
- Usually all outstanding orders and quotes in the order book in the adjusted series will be deleted after close of trading on the day before the adjustment takes effect.

### Adjustment Methodologies

#### Ratio Method

Where the ratio method is used to make adjustments to option and futures contracts, Eurex will disclose the adjustment ratio if known or the equation necessary to calculate the ratio.

The following conventions will apply for the application of the ratio method:

- The R-factor will be rounded, using mathematical rounding conventions, to eight decimal places
- For option contracts the R-factor will be applied to adjust exercise prices and contract sizes
- Exercise prices will be rounded using mathematical rounding conventions to the number of decimal places according to their listing standard
- The contract size will be rounded using mathematical rounding conventions, to four decimal places
- For option contracts and futures contracts the contract size will be adjusted by dividing the contract size by the R-factor

On exercise, any whole number of shares of the adjusted contract size has to be delivered. Eurex shall provide cash settlement for any fractional shares the new contract size will cover.

#### Package Method

The package method entails substituting the underlying shares in a contract with a package of the ex-entitlement share and a proportionate number of entitlements.

No adjustment will be made to contract sizes or exercise prices. In the case of option contracts, on exercise, a package of the ex-entitlement shares and the proportionate number of the other consideration multiplied with the contract size has to be delivered.

In the case of cash settled futures contracts no adjustment will be made to the contract size. As of the ex-event trading day, the daily settlement prices will be determined by aggregating the components which form the package.

### Corporate Action Types

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The following section details the adjustment methodology by providing examples for various types of corporate actions.

Formula for calculating the R-factor:

R = capital adjustment ratio  
 X = exercise price  
 CS = contract size  
 DS = decimal part of contract size  
 C = cash settlement amount per contract  
 Scum = official closing price of the cum entitlement share of the relevant cash market  
 E = issue price of the new shares/value of entitlement per share  
 $Sex = Scum \cdot E$   
 N = number of shares issued  
 F = fraction of the new contract size  
 OD = ordinary dividend  
 n = new  
 o = old

The following formulas are used in the calculation of the examples:

#### Capital adjustment formula

$$R = ((No / Nn) * (1 - (E/So))) + (E/So)$$

$$Xn = Xo * R$$

$$CSn = (CSo * Xo) / Xn \text{ (after rounding)}$$

$$C = F * (Sn - Xn)$$

#### Simplified adjustment formula

$$R = Sex / Scum$$

#### Special Dividends

According to the Eurex contract specifications equity options and futures contracts are adjusted in case of special dividend payments. The adjustment factor is calculated as follows:

- If the ex-date of the special dividend payment is identical to the ex-date of an ordinary dividend  
 => Adjustment factor  $R = (Scum - OD - E) / (Scum - OD)$
- If the ex-date is different  
 => Adjustment factor  $R = (Scum - E / Scum)$

An exception to the described rule is the treatment of special dividends for Russian derivatives.

#### Treatment of Corporate Actions for Russian Derivatives

When holding shares of Russian companies, certain special characteristics need to be considered regarding the notification of corporate actions. Eurex has developed special regulations governing the treatment of corporate actions for Russian derivatives, to account for these characteristics and to harmonize them - to the extent possible - with procedures applied at other European exchanges.

The general principle that no adjustment to option series or Single Stock Futures is made in the event of ordinary dividends also applies to contracts based on Russian underlying instruments. Additional regulations introduced refer to measures taken where corporate actions are announced after the record date for the distribution, or without stipulating a distribution amount.

- Where a distribution is only announced after the relevant record date, trading in affected contracts will be suspended immediately. The relevant futures contracts and option series will be adjusted with effect from the next exchange day.
- If a distribution is announced without a stipulated amount, and the amount is not expected to be specified prior to the record date, trading in affected contracts will be suspended on the ex-dividend day. The relevant futures contracts and option series will be adjusted effective from the exchange trading day following the ex-dividend day. This adjustment will be based on the difference between the volume weighted average price of the underlying instrument on the exchange day preceding the ex-dividend day, and the average on the ex-dividend day.
- If a distribution is announced without a stipulated amount and the announcement takes place after the record date, trading in affected contracts will be suspended immediately. In this case, the relevant futures contracts and option series will be adjusted effective from the exchange day following the announcement. This adjustment will be based on the difference between the volume weighted average price of the underlying instrument on the exchange day preceding the announcement day, and the average on the announcement day.

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**Increase of Capital****Increase of Capital by Issue of New Shares with Full Dividends Rights (Rights Issue)**

Example

A quoted company would like to increase its basic capital of EUR 40 million by EUR 10 million. This gives a relation of 4:1, i.e. a shareholder obtains one new share for four old ones. The price of the old share is EUR 34.90. The issue price of the new share is EUR 27.50

The value of the purchase right is calculated as follows:

4 old shares cost 4x EUR 34.90 = EUR 139.60  
1 new share costs EUR 27.50

Therefore, 5 shares cost EUR 139.60 + EUR 27.50 = EUR 167.10, and each share costs on average EUR 33.42.

The value of the purchase per share corresponds to the difference between the price of the old share and the average price calculated above, i.e.

EUR 34.90 - EUR 33.42 = EUR 1.48

The formula used for the calculation reads as follows:

(price of the old share - price new share)  
purchase ratio + 1

34.90 - 27.50  
4 + 1

= EUR 1.48

Since the purchase rights are traded independently from the share, the price of the share is, in theory, reduced by the mathematical value of the purchase right, i.e. from EUR 34.90 to EUR 27.50 + (4x EUR 1.48) = EUR 33.42.

**Effects on Option Contracts**

Example:

Price of the old share: EUR 34.90

Issue price of the young share: EUR 27.50

Purchase relation: 4:1

Currently Traded Option Series

Exercise Price	Contract Size
34.00	100
36.00	100
38.00	100

First, the capital variation ratio (R) is calculated:

$$R = ((N_o/N_n) \times (1 - (E/S_o))) + (E/S_o)$$

$$= ((4/5) \times (1 - (27.50/34.90))) + (27.50/34.90)$$

$$= 0.95759312$$

With the help of R, the option series and contract sizes currently traded are adjusted

Exercise Price	Contract Size
Xn1 = 34.00 x 0.95759312 = 32.56	CSn = 100 / 0,95759312 = 104,4285
Xn2 = 36.00 x 0.95759312 = 34.47	
Xn3 = 38.00 x 0.95759312 = 36.39	

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The version number of the adjusted series will be increased by 1 (old series with version 0 change to version 1; old version 1 series change to version 2 .....etc.)

New option series with standard contract size and version 0 will be introduced with effect as of the ex-date into the system. The reference price of the atm series is calculated as  $R \times S_{cum}$

For a LEPO series with an exercise price of 1 unit of currency, the new contract size is determined by taking the new theoretical underlying value into account and applying the following calculations:

New theoretical underlying value:  $R \times S = 34.90 \times 0.95759312 = 33.42$

LEPO before capital adjustment:	$S - 0.01$	$= 34.90 - 0.01$	$= 34.89$
LEPO after capital adjustment:		$= 33.42 - 0.01$	$= 33.41$
New contract size for a LEPO:		$= (34.89 \times 100) / 33.41$	$= 104.4298$

On exercise a cash settlement is done in general only for the decimal part of the contract size. In the above example 104 shares have to be delivered and the remaining part of the contract size will be cash settled.

The cash settlement amount is calculated as follows:

$$C = DS \times (S_n - X_n)$$

With an exercise price of EUR 32.56 and a current share price of EUR 34.00 the cash settlement amount is calculated as follows:

$$C = 0.4285 \times (34.00 - 32.56)$$

$$= \text{EUR } 0.62$$

#### **Increase of Capital by Issue of New Shares without Full Dividends Rights**

A quoted company can also provide new shares with different rights than the old shares. If the new shares are not entitled to the next dividend payment (or part of it), the mathematical value of the purchase right and the resulting ex-entitlement share price are different.

Example: see "Increase of Capital by Issue of new shares with full Dividend Rights"

Dividend of the old share: EUR 2.00

Dividend of the new share: EUR 1.00

The issuing price of the new share is therefore:

$$\text{EUR } 27.50 + \text{EUR } 1.00 = \text{EUR } 28.50$$

To calculate the purchase right, the formula for the mathematical value is widened by subtracting the dividend loss from the price of the old share.

$$\text{Value of the purchase right} = \frac{\text{price of the old share} - (\text{price new share} + \text{dividend loss})}{\text{purchase ratio} + 1}$$

$$= \frac{34.90 - (27.50 + 1.00)}{4+1}$$

$$= \text{EUR } 1.28$$

The share price is then, in theory, reduced to the price of the new share plus the price of four purchase rights.  $\text{EUR } 28.50 + (4 \times \text{EUR } 1.28) = \text{EUR } 33.62$

#### **Effects on the Option Contracts**

In this case, the issue price of the new young shares is corrected by the dividend loss.

Example:

A dividend of EUR 2.00 is expected for the old share.

The new share has a dividend loss of EUR 1.00

The higher issue price of EUR 1.00 in comparison with the former example makes clear the smaller value of the purchase right.

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The capital variation leads to the following adjustments:

Price of the old share: EUR 34.90

Price of the new share: EUR 28.50

Purchase ratio: 4:1

The capital variation ratio (R) is calculated:

$$\begin{aligned} R_n &= ((N_o/N_n) \times (1 - (E/S_o))) + (E/S_o) \\ &= ((4/5) \times (1 - (28.50/34.90))) + (28.50/34.90) \\ &= 0.96332378 \end{aligned}$$

#### **Capital Increase by Issue of Correction/Bonus Shares**

If a stock company carries out a capital increase by converting reserves into basic capital, the shareholders are offered correction shares in a determined ratio. Since the conversion of reserves into capital is a pure passive exchange on the balance sheet, the share price is, in theory, reduced proportionally to the basic capital increase.

Example:

Price of the old share: EUR 36.00

Purchase ratio: 5:1

5 x EUR 36.00 = EUR 180.00

EUR 180.00/6 = EUR 30.00 = Price of the share after the issue of the correction/bonus shares.

Effects on the option contracts:

Price of the old share: EUR 36.00

Price of the new share: EUR --

Purchase ratio: 5:1

Again, the capital variation ratio (R) is calculated:

$$\begin{aligned} R &= ((N_o/N_n) \times (1 - (E/S_o))) + (E/S_o) \\ &= ((5/6) \times (1 - (0/36.00))) + (0/36.00) \\ &= 0.83333333 \end{aligned}$$

#### **Increase of Capital by Issue of Correction Shares without Full Dividend Rights**

Example:

Dividend of the old share: EUR 2.00

Dividend of the new share: EUR 1.00

The issuing price of the new share is:

Issuing price of the new share + dividend loss

EUR 0.-- + EUR 1.00 = EUR 1.00

Effects on option contracts

Price of the old share: EUR 36.00

Price of the new share: EUR 1.00

Purchase ratio: 4:1

The capital adjustment ratio (R) is calculated:

$$\begin{aligned} R &= ((N_o/N_n) \times (1 - (E/S_o))) + (E/S_o) \\ &= ((4/5) \times (1 - (1.00/36.00))) + (1.00/36.00) \\ &= 0.80555556 \end{aligned}$$

#### **Reductions in Capital**

##### **Simplified Reduction in Capital - Description**

In the case of a simplified reduction of capital, the capital reduction caused by losses is spread equally over the shares. This is accomplished by reducing the nominal value of the shares by the amount of proportional reduction. This procedure is known as "stamp cancellation" and does not lead to an adjustment of option and futures contracts.

##### **Ordinary Reduction in Capital - Description**

Besides the simplified reduction of capital an ordinary capital can be affected. Unlike the simplified capital reduction, the basic capital can be reduced by a decrease in the nominal value or by a consolidation of the shares. The condition for consolidation is that the minimum nominal value of the share is diminished in the case of a capital reduction.

##### **Effects of a Reduction in Capital on Option Contracts**

The effects of a capital modification on option contracts in the case of a reduction in capital are as follows:

The capital variation ratio (R) is calculated:

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$$\begin{aligned}
 R &= ((N_o/N_n) \times (1 - (E/S_o))) + (E/S_o) \\
 &= ((3/2) \times (1 - (0))) + 0 \\
 &= 1.5
 \end{aligned}$$

The currently traded option series and contract sizes are corrected using R.

#### Currently Traded Option Series

Exercise Price	Contract Size
34.00	100
36.00	100
38.00	100

#### Option Series After Adjustment

Exercise Price	Contract Size
$X_{n1} = 34.00 \times 1.5 = 51.00$	$CS_n = 100 / 1.5 = 66.6667$
$X_{n2} = 36.00 \times 1.5 = 54.00$	
$X_{n3} = 38.00 \times 1.5 = 57.00$	

For LEPOs, the new contract size is calculated as follows:

New theoretical underlying value:	$R \times S_0 = 36.00 \times 1.5 = 54.00$
Amount paid for a LEPO before capital adjustment:	$S_0 - 0.01 = 36.00 - 0.01 = 35.99$
Amount paid for a LEPO after capital adjustment:	$54.00 - 0.01 = 53.99$
New contract size for a LEPO:	$(35.99 \times 100) / 53.99 = 66.6605$

If an adjusted contract is exercised, a new cash settlement amount is calculated for the part of the contract that cannot be balanced by real shares. For the LEPO contract, 66 shares are deliverable and 0.6605 are settled in cash.  $C = F \times (S_n - X_n)$

With an exercise price of EUR 51.00, and a share price of EUR 54.00, the following cash settlement amount is calculated:

$$C = (66.6667 - 66) \times (54.00 - 51.00) = \text{EUR } 2.00 \text{ EUR}$$

#### Stock Split

In a stock split, the base capital is divided according to the split ratio (the nominal value is decreased). A share which represents EUR 50.00 of the capital stock is divided into X shares (old nominal value / new nominal value).

The share price is decreased to:

$$\text{price of the old share} \times X$$

#### Effects on Option Contracts

Example:

A quoted company wants to decrease the nominal value of its shares from EUR 50.00 to EUR 5.00. This means that one old share now is ten new shares.

Purchase ratio: 1:10

Issuing price of the new share: EUR 0.00

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The capital variation ratio (R) is calculated:

$$R = ((N_o / N_n) \times (1 - (E/S_o))) + (E/S_o)$$

$$= ((1/10) \times (1 - 0)) + 0$$

$$= 0.1$$

The currently traded options series and contract sizes are corrected with R.

#### Currently Traded Option Series

Exercise Price	Contract Size
34.00	100
36.00	100
38.00	100

#### Option Series After Adjustment

Exercise Price	Contract Size
$X = 34.00 \times 0.1 = 3.40$	$CS = 100 / 0.1 = 1000$
$X = 36.00 \times 0.1 = 3.60$	
$X = 38.00 \times 0.1 = 3.80$	

In case of an exercise, all "full" shares have to be delivered, 1000 in this example. Fractional parts must be settled in cash. For LEPOs, the new contract size is calculated as follows:

New theoretical underlying value:  $R \times S_0 = 3.60$

Amount paid for a LEPO before capital adjustment:  $S_0 - 0.01 = 36.00 - 0.01 = 35.99$

Amount paid for a LEPO after capital adjustment:  $3.60 - 0.01 = 3.59$

New contract size for a LEPO:  $(35.99 \times 100) / 3.59 = 1002.5070$

For the LEPO contract, 1002 shares are deliverable and 0.5070 are settled in cash.

Instead of adjusting the contract size, the stock split can also be performed by adjusting the number of positions and leaving the contract size unchanged.

#### Option Series After Adjustment

Exercise Price	Contract Size		Position Size	
	old	new	old	new
$X = 34.00 \times 0.1 = 3.40$	100	100	1	10
$X = 36.00 \times 0.1 = 3.60$	100	100	1	10
$X = 38.00 \times 0.1 = 3.80$	100	100	1	10

The LEPO contract is adjusted as follows:

The above calculated contract size 1002.5070 is divided by ten.

Contract Size		Position Size		Market Status XEUR
old	new	old	new	

100

100.2507

1

10

Members are informed in a timely manner which of the above methods Eurex is going to apply in case of a stock split.

### Mergers

As a general rule, there is a distinction between

- offers consisting of shares only,
- a combination of shares and cash payment,
- or cash payment only.

If a transaction is done by means of a share offer, generally the former underlying is replaced by the offered underlying and trading continues on the new underlying shares after the successful completion of the offer. The existing contract is adjusted using the ratio method.

The adjustment factor is calculated as:

Adjustment Ratio =  $x / y$

Where  $y$  is equal to the number of shares offered for every  $x$  shares held in the underlying company.

Exercise prices and contract sizes are adjusted according to the procedure described in the previous examples.

The same procedure applies for mixed shares/cash offers. At the point in time the offer is made public, however, the share of equities needs to be at least 33 percent of the total value.

The cash part will be reflected in the adjustment ratio as follows. It will either be transformed into a corresponding number of  $y$  shares and accordingly added to  $y$ , or it will be transformed into a number of  $x$  shares and accordingly subtracted from  $x$ .

The following example will illustrate this:

$x = 50$   
 $y = 40$   
 $1x = 1y + 10$  (cash)

EUR 10 EUR in cash are transformed either into 0,25  $y$ -shares or 0,20  $x$ -shares

$R = x / 1.25y = 0.80$

$R = 0.80x / 1y = 0.80$

### Settlement at Fair Value

Where a transaction is done by means of a cash offer, equity contracts will be settled at their fair value according to the contract specifications immediately after the offeror has declared the offer to be unconditional. This procedure also applies if the transaction is done by means of a mixed cash/share offer and where the shares as part of the offer represent less than 33 percent of the total value at the time when the offer is made public.

An offer is deemed to be announced as soon as a firm price has been mentioned by the company issuing the bid, which could be an intended bid.

### Determination of the Fair Value

#### Option Contracts

Eurex will use the Cox/Ross/Rubinstein binomial option valuation model in order to determine the fair value of the option series. For each series an average implied volatility is calculated based on the settlement prices of the ten business days preceding the announcement of the bid. The highest and lowest value shall be excluded from the calculation of the average (Eurex provides implied volatilities of settlement prices on a daily basis in its theoretical price file as well as on the Settlement Price Overview window of the GUIs which are available to direct users of the Eurex® system).

The implied volatilities as well as the future dividends which will be used to determine the fair value on the settlement day will be announced to the Eurex Members immediately.

For option series which are far out-of-the-money or deep in-the-money the implied volatility calculated from the settlement price might be unduly high due to the fact that the lowest possible settlement price in the Eurex® system is the minimum tick size. This could lead to the application of completely inappropriate volatility levels for the determination of fair values. Therefore for exercise prices, where the settlement value of the far out-of-the-money option equals the minimum tick or where the respective deep in-the-money option is lower or equal to the intrinsic value, the volatility of the last preceding exercise price, where

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the settlement value exceeds the minimum tick or where the settlement value exceeds the intrinsic value is to be taken.

The daily settlement price and consequently the implied volatility at Eurex are determined as follows:

- The reference price of the underlying is the official closing price on the corresponding home exchange.
- Volatility skews are determined based on observed intraday market quotations and traded prices.
- Risk free interest rate.
- Eurex uses market dividend forecasts in order to determine dividend payments for the remaining lifetime of an option. However, such dividends might be adjusted in order to observe put/call parity and are therefore a result of synthetic prices.

Once determined these implied volatilities are fixed until the moment of settlement regardless of any changes in the price of the underlying share until the settlement day. This also applies to the future dividends. The risk free interest rate is the only factor which fluctuates and which will be determined on the actual settlement day.

If during the course of a takeover the offeror increases the offer consideration or makes any other change to the respective offer (such as extending the acceptance period), new implied volatilities will not be calculated. In addition, should a counter bid, which is also in cash, be launched by another company whilst a bid is still active (i.e. has not expired or been withdrawn), then the implied volatilities, calculated as described above and in relation to the initial bid, will be used if the counter bid should be declared effective.

#### **Futures Contracts**

Settlement of futures contracts is done on the basis of the value of the offer consideration and allowing for the risk-free interest rate of the remaining maturity and, if applicable, estimated dividends.

#### **Demergers**

The package method is the standard method applied for demergers. In such a case the old share is replaced by a basket of two or more shares. When such a spin off becomes effective the sum of the basket components in theory matches the value of the old share. Under certain circumstances the package method might not be the appropriate procedure to adjust options and futures contracts. In such cases the ratio method will be applied as an alternative.

The adjustment ratio will be calculated as follows:

$$R = (\text{Scum} - \text{value of the demerged company per share}) / (\text{Scum})$$

Eurex will inform the members about the procedure to determine the value of the demerged company.

#### **Effects on Option Contracts Using the Package Method**

Example:

A quoted company A spins off part of its business by distributing new shares of company B to the existing shareholders at a ratio of 1 new share per every 10 old shares held. Purchase

The price of the old shares cum entitlement is 36.00 EUR

At the time of the spin off the following condition must be valid:

$$\text{Price A cum} = \text{Price A ex} + (0.1 \times B)$$

B is assumed to trade at EUR 20.00

The ex-price of share A is therefore EUR 34.00

$$36.00 = 34 + (0.1 \times 20)$$

Exercise prices and contract sizes of the option on contract on share A remain unchanged.

On the ex-day the underlying share A old is replaced by a basket of (1 A ex-share + 0.1 B share).

#### **Capital Adjustment Procedure for Single Stock Futures**

The following sections explain the differences in the handling of capital adjustments on Single Stock Futures from the corresponding options.

#### **Special Items of Processing**

- Trading Unit: No new future series with even trading units will be introduced. The trading unit for all existing contracts is adjusted to preserve the contract value and stored as the new products trading unit. The R-factor used for calculating the adjusted trading unit is the same as for the corresponding option series. This is explained in the section capital adjustment processing of options on stocks.

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The adapted trading unit is calculated by:

$$\text{Tr.Unitnew} = \text{Tr.Unitold} / R$$

- The invoice amount is calculated by:  
invoice amount = number of contracts x number of shares actually to be delivered x settlement price
- Previous settlement price: In order to simplify the variation margin calculation of the following day, the adjusted previous settlement price is calculated directly during the capital adjustment processing. The previous settlement price will be adjusted as follows:  
 $\text{Adj.Prv.Stl.Prc.} = \text{Prv.Stl.Prc.old} \times R\text{-factor}$
- This value will be used for the calculation of the variation margin for open positions. The position transaction record for creation of the positions in the adapted series will include a match price in order to adjust the variation margin amount correspondingly.
- Mark to market ticks: The mark to market ticks will be calculated as the difference between the adjusted previous settlement price and the current settlement price:  
 $\text{mark to market ticks} = (\text{Curr.Stl.Prc} - \text{Adj.Prv.Stl.Prc.}) / \text{tick size}$
- Variation Margin: The Variation Margin has to be calculated both for trades executed on the current business day as well as for positions carried forward from the previous business day. For the purpose of variation margin calculation the day after a capital adjustment, the changes to the trading unit have to be taken into account.

The variation margin amount per contract has to be determined as

$$\text{Adj.VM} = (\text{Curr.Stl.Prc.} \times \text{Tr.Unitnew}) - (\text{Adj.Prv.Stl.Prc.} \times \text{Tr. Unitold})$$

At the end of the next trading day, the variation margin calculation will become identical to a trade.

Then the variation margin is calculated regularly from the mark to market ticks and the net/movement position:

$$\text{Reg.VM} = \text{MarkToMarketTicks} \times \text{net/movement position} \times \text{Value per tick} \times \text{Tr.Unitnew}$$

- Settlement:
  - The settlement of cash settled futures is done by the final variation margin payment on the expiration day.
  - If the futures product is share settled, it may not be possible or not desired to physically deliver the entire trading unit of an expiring contract. Depending on the type of capital adjustment and according to the current procedures defined a cash settlement has to be performed for the residual portion of the trading unit. In contrast to equity options, this cash settlement is already part of the last variation margin calculation, therefore the "cash trading unit" is set to zero for the futures. Under special circumstances (e.g. open interest in expiring futures contract exceeds the free float of the underlying share) cash settlement may be necessary. In that case, all processes except the calculation and payment of the last variation margin will be suppressed.
  - New product setup: The products trading unit will be adjusted during the capital adjustment. After an adjustment of a Single Stock Future a new Single Stock Future on the same underlying with standard contract size series may be set up. The new product has a different product name, different ISIN code and the original trading unit of the adjusted product. The members have the opportunity to close their positions in the adjusted product and trade the new one.

#### Example for Processing:

The following example illustrates the capital adjustment procedure for Single Stock Futures.

It is based on an increase of the capital.

On the day the capital adjustment is entered, the following values are given:

Prv.Stl.Prc.old = 93.00  
 Curr.Stl.Prc. = 93.00  
 Tr.Unitold = 100.0000  
 Value per tick: = 0.0100

The calculated capital variation ratio (R) is:

$$R = 0.98759312$$

The new Trading Unit is adjusted as follows:

$$\begin{aligned} \text{Tr.Unitnew} &= \text{Tr.Unitold} / R \\ &= 100.0000 / 0.98759312 \\ &= 101.2563 \end{aligned}$$

The following values are adjusted directly on the next trading day after the capital adjustment processing:

$$\begin{aligned} \text{Adj.Prv.Stl.Prc.} &= \text{Prv.Stl.Prc.old} \times (R\text{-factor}) \\ &= 93 \times 0.98759312 \\ &= 91.85 \end{aligned}$$

$$\begin{aligned} \text{Adj.MarkToMarketTicks} &= (\text{Adj.Prv.Stl.Prc} - \text{Prv.Stl.Prc.}) / \text{tick size} \\ &= (91.85 - 93.00) / 0.01 \\ &= -1.15 / 0.01 \\ &= -115 \end{aligned}$$

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$$\begin{aligned}\text{Adj.VM} &= (\text{Curr.Stl.Prc.} \times \text{Tr.Unitnew}) - (\text{Prv.Stl.Prc.} \times \text{Tr. Unitold}) \\ &= (93.00 \times 101.2563) - (93.00 \times 100.0000) \\ &= 9416.8359 - 9300.0000 \\ &= 116.8359\end{aligned}$$

On the following trading day, all values are adapted:

$$\begin{aligned}\text{MarkToMarketTicks} &= (\text{Curr.Stl.Prc} - \text{Adj.Prv.Stl.Prc.}) / \text{tick size} \\ &= (83,17 - 91.85) / 0.01 \\ &= - 8,68 / 0.01 \\ &= -868\end{aligned}$$

Allocated with the adjusted MarkToMarketTicks:  
 $(-115) + (-868) = - 983$

and the adjusted Variation Margin:

$$\begin{aligned}\text{Reg.VM} &= \text{MarkToMarketTicks} \times \text{Value per tick} \times \text{Tr.Unitnew} \\ &= 983 \times 0.0100 \times 101.2563 \\ &= 995.349\end{aligned}$$

The result of the Variation Margin calculations per contract has to be multiplied with the Net/Movement Position.