

Delivery Margin

NASDAQ OMX Derivatives Markets assumes responsibility for the fulfillment of all cleared contracts, including delivery versus payment. Therefore NASDAQ OMX Derivatives Markets require margin during the delivery period, referred to hereby as delivery margin, for all stock products (refer to Appendix 11 of NASDAQ OMX Derivatives Market's Rules & Regulations). This document explains how delivery margin is calculated and answers a few common questions regarding delivery margin.

Delivery Margin Calculations

A position's delivery margin consists of the position's profit and loss plus the position's scenario risk. Delivery margin is applied between expiration and settlement and its purpose is to ensure the clearing house's capacity to fulfill its settlement obligations.

Delivery margin for options

Definitions

<i>DLV</i>	Delivery margin
<i>RP</i>	Risk parameter
<i>Ad</i>	Adjustment factor for bought/sold contracts
<i>CM</i>	Contract size
<i>P</i>	Number of contracts
<i>LP</i>	Strike price
<i>UP</i>	Last closing price of the underlying

Formulas

Sold call option or bought put option

$$DLV = CM \cdot P \cdot [LP - (UP + RP \cdot UP + Ad \cdot UP)]_2 \quad (1)$$

Sold put option or bought call option

$$DLV = CM \cdot P \cdot [(UP - RP \cdot UP - Ad \cdot UP) - LP]_2 \quad (2)$$

Delivery margin for forwards

Definitions

<i>CP</i>	Contracted price of the forward
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Formulas

Bought forward

$$DLV = CM \cdot P \cdot [(UP - RP \cdot UP - Ad \cdot UP) - CP]_2 \quad (3)$$

Sold forward

$$DLV = CM \cdot P \cdot [CP - (UP + RP \cdot UP + Ad \cdot UP)]_2 \quad (4)$$

In the above formulas [...] means rounding to two decimals.

Delivery Margin Examples

Example 1

Consider a portfolio consisting of 50 sold contracts of BOLI8W36.

t	Date	2008-10-24
RP	Risk parameter	25%
Ad	Adjustment factor for bought/sold contracts	2%
CM	Contract size	100
P	Number of contracts	50
LP	Strike price	36
UP	Last closing price of the underlying	18
	Currency	SEK

BOLI8W36

$$DLV = 100 \cdot 50 \cdot [(18 - 0,25 \cdot 18 - 0,02 \cdot 18) - 36]_2 = SEK -114\ 300$$

Example 2

Consider a portfolio consisting of 21 bought contracts of ERICB8U and 20 sold contracts of ERICB8X.

t	Date	2008-10-24
RP	Risk parameter	25%
Ad	Adjustment factor for bought/sold contracts	2%
CM	Contract size (for both ERICB8U and ERICB8X)	100
P_X	Number of contracts for ERICB8X	20
P_U	Number of contracts for ERICB8U	21
CP	Contracted price of the forward (for both ERICB8U and ERICB8X)	53
MSP	Margin settlement price for ERICB8X	53,34
UP	Last closing price of the underlying	53
	Currency	SEK

The margin requirement for ERICB8X and ERICB8U will be calculated in 31 valuation points and the underlying price will be adjusted with a factor $V_{wd} = UP \cdot RP \cdot (16 - \text{valuation point}) / 15$ for each valuation point.

ERICB8U

In each valuation point the delivery margin for ERICB8U will be calculated according to *Equation 5*.

$$DLV = CM \cdot P_U \cdot [CP - (UP + V_{wd} + Ad \cdot UP)]_2 \quad (5)$$

ERICB8X

There is no delivery margin for ERICB8X since the series is not expired. Instead an open margin will be calculated according to *Equation 6*.

$$Open\ Margin = CM \cdot P_X \cdot [(MSP + V_{wd} - Ad \cdot MSP) - CP]_2 \quad (6)$$

In each valuation point the sum of the delivery margin for ERICB8U and the open margin for ERICB8X will be calculated. The margin requirement will be the worst value of this sum.

Valuation Point	V _{u/d}	ERICB8X	ERICB8U	Total margin
		Open margin	Delivery margin	
1	13,25	25 040	-30 051	-5 011
2	12,37	23 280	-28 203	-4 923
3	11,48	21 520	-26 334	-4 814
4	10,60	19 740	-24 486	-4 746
5	9,72	17 980	-22 638	-4 658
6	8,83	16 220	-20 769	-4 549
7	7,95	14 440	-18 921	-4 481
8	7,07	12 680	-17 073	-4 393
9	6,18	10 920	-15 204	-4 284
10	5,30	9 140	-13 356	-4 216
11	4,42	7 380	-11 508	-4 128
12	3,53	5 620	-9 639	-4 019
13	2,65	3 840	-7 791	-3 951
14	1,77	2 080	-5 943	-3 863
15	0,88	320	-4 074	-3 754
16	0,00	-1 460	-2 226	-3 686
17	-0,88	-3 220	-378	-3 598
18	-1,77	-4 980	1 491	-3 489
19	-2,65	-6 760	3 339	-3 421
20	-3,53	-8 520	5 187	-3 333
21	-4,42	-10 280	7 056	-3 224
22	-5,30	-12 060	8 904	-3 156
23	-6,18	-13 820	10 752	-3 068
24	-7,07	-15 580	12 621	-2 959
25	-7,95	-17 360	14 469	-2 891
26	-8,83	-19 120	16 317	-2 803
27	-9,72	-20 880	18 186	-2 694
28	-10,60	-22 660	20 034	-2 626
29	-11,48	-24 420	21 882	-2 538
30	-12,37	-26 180	23 751	-2 429
31	-13,25	-27 960	25 599	-2 361

Common questions

Q: How should a clearing member manage delivery margin for its end clients?

A: According to NASDAQ OMX Derivatives Market's Rules & Regulations the clearing member is obligated to claim their TCA accounts on a margin requirement equal to or greater than the margin requirement specified from NASDAQ OMX Derivatives Markets. It should be noted that if a member disregards from the delivery margin records in the exchange's margin lists and instead charges the client margin based on the member's own method, the margin for the non-expired positions may be calculated in an incorrect valuation point. If the member in this case charges the client the full value of the share transaction there is no risk that insufficient margin is charged from the client even if the non-expired positions would be valued in an incorrect valuation point.

Q: For how long does NASDAQ OMX Derivatives Markets keep the pledged collateral corresponding to the delivery margin?

A: A position's delivery margin is included for the last time in the margin calculations performed on the evening of the day before the settlement of the position.