

Clearing Notice SIX x-clear Ltd

Changes to margin and default fund model arrangements

1.0 Overview

SIX x-clear (“x-clear”) is closely monitoring the CCP environment in Europe as well as the needs of its Members. It concluded that the current margin and default fund arrangements should be rebalanced and the margin model should be enhanced to ensure best practice standards in risk management and the fair treatment of all Members and Co-CCPs.

Therefore, the following **measures** will be introduced:

1. Reduction of the current **default fund segment for Cash Markets** (equities and bonds) by CHF 80 million from CHF 300 million to **CHF 220 million**;
2. **Increase of the current margin by up to 30%**, to be imposed on all Members which participate in the default fund segment for Cash Markets by raising the current basic risk coefficient by 0.3;
3. **Introduction of a new default fund distribution methodology** for individual default fund contributions;
4. **Introduction of the “Wrong Way Risk” (WWR) margin add-on.**

2.0 Effective date

Measures 1-3: Friday, 28 April 2017, end of day (EOD)

Measure 4: Monday, 15 May 2017, beginning of day (BOD)

3.0 Impact on Members

Quantitative analyses provided evidence that the vast majority of Members will benefit from lower individual default fund contributions and potentially lower regulatory capital charges through this reduction in size of the Cash Markets default fund segment.

With regards to the increase of the risk coefficient by up to 30% on the top of the current margin, x-clear will compensate (“re-balance”) for the reduction in the default fund. The appropriate coverage of risks will remain ensured.

Please be sure to provide or keep available sufficient collateral to cover the increase of up to 30% in margin requirements at the latest by Friday, 28 April 2017 EOD (to avoid any margin calls).

With the rebalancing of the margins and the default fund arrangements, the “defaulter pays” principle will become more important in case of a Member Default. At the same time, the risk of usage of contributions from non-defaulting Members (“Survivor pays” principle) diminishes.

By taking into account the default probability as reflected in the rating of each Member, the new Default Fund distribution will further optimise a fair risk allocation among all Members. Consequently, Members with a higher default probability will have to provide more default

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fund contributions and Members with a lower default probability will benefit from a reduced requirement.

In May 2017, x-clear will introduce the Wrong-Way-Risk (WWR) margin add-on. The WWR margin will cover the risk that occurs when the value of open positions of a clearing member is adversely correlated with its credit quality. This is the case, in particular, when a Member buys clearing-eligible equities that have been issued by itself. The WWR margin will be implemented as an additional component of the Variation Margin. Hence the Variation Margin will include the WWR margin component in any report and MT message provided to the Members.

Quantitative analyses proved that for the vast majority of Members, the WWR margin is very low compared to the ordinary Initial Margin requirement. All Members on which the WWR margin is likely to have a relevant impact have already been directly contacted and informed by x-clear.

By the SECOM November 2017 release, the existing margin report RDXL090 will be complemented with a new field "32H-WWR Margin". Thus, any Member which opted for this report will be provided with specific information on its WWR margin requirements. The same change will be available in webMAX Professional as of November 2017.

4.0 Changes in Clearing Terms

The following changes will become effective in the Clearing Terms:

a. Change in default fund methodology

With the reduction of CHF 80 million of the Cash Markets Default Fund Segment size, the individual calculation for the individual default fund contribution will also be changed. In future, x-clear will use the median instead of the average of the Initial Margin and will now take into account the current default probability based on the rating attributed.

x-clear will change the paragraph in section **10.1 para. 2** of the new Clearing Terms which will be published on 28 April 2017 with the following provisions:

«The amount of the Default Fund Contribution payable by the Member into the Cash Markets or Derivatives Default Fund Segment of x-clear is dependent on the membership category (x-clear ICM/x-clear GCM) and on the median of the Initial Margin (MIM) over the last 30 Business Days or over the last 90 Business Days, whichever is higher, and the credit rating. The respective MIM is calculated monthly on the daily EOD open amount.

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The following minimum contributions apply (with no upper cap limit) based on the membership category:

x-clear ICM:	Swiss francs (CHF) 0.5 million
x-clear GCM:	Swiss francs (CHF) 5.0 million

Optimizing Default Fund Distribution

The following Minimization (under constraints) of loss function with respect to Default Fund contributions DF_c will be used for the optimization of the individual Default Fund Contribution by taking into account the Member's default probability:

$$L = \sum_{d=1}^M \frac{1}{N-d} \sum_c Q_c \bar{Q}_c [PnL_c^{Sim} - IM_c - DF_c]^+$$

Parameters

N: total number of Members

d: number of defaulting parties

M: maximum number of defaulting parties; in cover 2 setup M=2

c: possible combinations of d defaults, $N - d$ Members are non-defaulting

$Q_c = \prod q_i$ probability of common defaults, PD aligned with SIX credit risk model

\bar{Q}_c : probability of non-defaults

PnL^{Sim} : simulated profits and losses adapted to Member's risk profile

$[A]^+ = \max(A, 0)$, optionality of possible losses

All Default Fund Contributions are rounded up to the next Swiss franc (CHF) 0.1 million increment."

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b. Risk coefficient adjustment

In section 8.1.6 of the new Clearing Terms which will be published on 28 April 2017, the following changes with regards to the current risk coefficients will be introduced.

Current rating			Current risk rating coefficient	New risk rating coefficient
Standard & Poor's	Moody's	FITCH		
AAA to A-	Aaa to A3	AAA to A-	1	1.3
BBB+ to BBB-	Baa1 to Baa3	BBB+ to BBB-	1.5	1.8
BB+ to BB-	Ba1 to Ba3	BB+ to BB-	2	2.3
B+ or lower	B1 or lower	B+ or lower	determined case by case	determined case by case

c. Wrong-Way Risk add-on

In section 8.2 "Variation Margin" of the new Clearing Terms which will be published on 28 April 2017, the following provisions about the Wrong-Way Risk add-on will be introduced.

«8.2 Variation margin

The Total Variation Margin VM_i for a clearing account i consists of the following two cumulative components:

$$VM_i = VM_i^{CE} + WWR_i \quad (1)$$

where:

VM_i^{CE} = Variation Margin component covers market price fluctuations of the current exposure of the clearing account i

WWR_i = Wrong-Way Risk Margin for the clearing account i

8.2.1 Variation Margin component to protect from the current exposure

The Variation Margin component covers market price fluctuations of the current exposure that have already been incurred upon open positions per Security. The Variation Margin component to protect from the current exposure is marked to market several times daily, normally every 90 minutes, on the basis of the net position of all Outstanding Contracts of the Member per security. The level of the Variation Margin component protecting the current exposure depends solely on the market valuation. Positive and negative values (price gains/losses) are netted out across all Securities. Based on these values, negative values are charged additionally while positive values may offset Initial Margin requirements.

8.2.2 Wrong-Way Risk Margin

The Wrong-Way Risk Margin covers the risk that occurs when the value of open positions of a Member is adversely correlated with the credit quality of that Member. Assuming such

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adverse correlations, the portfolio VaR of the open positions of a Member is calculated as follows:

1. The process for calculating the Wrong-Way Risk Margin considers all open equity instruments (including ETFs), whereas positions in the bonds asset class are neglected.
2. The total portfolio of open equity positions in a clearing account i is decomposed into three sub-portfolios:
 - a. The equity instruments issued by the financial group (or any of its subsidiaries) of the Member (\Rightarrow sub-portfolio of own-stocks)
 - b. The sub-portfolio of equity instruments issued by other companies within the financial sector (\Rightarrow sub-portfolio of financial stocks)
 - c. The sub-portfolio of equity instruments issued by companies from non-financial sectors (\Rightarrow sub-portfolio of non-financial stocks).
3. To calculate the sub-portfolio VaR under the assumption of adverse correlations between the open positions and the default risk of the Member, all instruments within the same sub-portfolio are netted to a single net position for each of the three sub-portfolios. If the net position in a sub-portfolio is long then it will be multiplied by the margin rate¹⁾ for the respective sub-portfolio to get the sub-portfolio VaR. If the net position is short then the VaR of the sub-portfolio is zero. Only in the calculation of the sub-portfolio VaR for non-financial instruments will both a net long or a net short position be multiplied by the margin rate of the sub-portfolio.

¹⁾ The margin rates for the sub-portfolios are calculated under the normality assumption on a 99% confidence level using volatilities in historic stress periods where adverse correlations between the own stocks and the default risk of banks prevailed.

4. Having computed the VaR for each sub-portfolio, the VaR of the total portfolio in the clearing account i under the assumption of adverse correlations between the open positions and the default risk of the Member is calculated as:

$$VaR_i^{WWR} = \sqrt{\mathbf{v}' \Sigma \mathbf{v}} \quad (2)$$

where:

\mathbf{v} is the vector with the VaR values of the three sub-portfolios under the assumptions made in step 3 above.

Σ is the correlation matrix derived empirically from historical stress periods where adverse correlations between the own stocks and the default risk of banks prevailed.

Since the portfolio VaR calculated by the initial margin validation and calibration module (see chapter 6) partly considers periods of stressed market conditions (including bank stress) some Wrong-Way Risk is already incorporated in the calibrated initial margin. Hence to avoid

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a margin double charge, the calibrated initial margin is deducted from the Wrong-Way Risk Margin.

$$WWR_i = \max(VaR_i^{WWR} - RC \cdot \lambda_j \cdot IM_i^E, 0) \quad (3)$$

where:

WWR_i = Wrong-Way Risk Margin for clearing account i

VaR_i^{WWR} = VaR of the total portfolio in the clearing account i under the assumption of adverse correlations between the open positions and the default risk of the Member

RC = Risk rating coefficient of the Member

λ_j = Lambda factor for credit group j (as explained in chapter 8.3.3)

IM_i^E = Clean SECOM initial margin for all open equity positions in the clearing account i»

5.0 Contact

For further assistance, please contact the Risk Management Operations team of x-clear at xclearops@sisclear.com, tel: +41 58 399 43 23

In this context, SIX x-clear Ltd draws the Members' attention to clauses **7.1 lit. f.**, **chapter 17.0 and 25.3** General Terms and Conditions of SIX x-clear Ltd stipulating that the Member bears responsibility for the tax requirements and consequences of clearing with x-clear pursuant to the Applicable Law and that SIX x-clear Ltd assumes no liability for any charges or other negative consequences arising in conjunction with clearing through SIX x-clear Ltd that are a result of tax laws or ordinances issued by tax authorities pursuant to the Applicable Law.