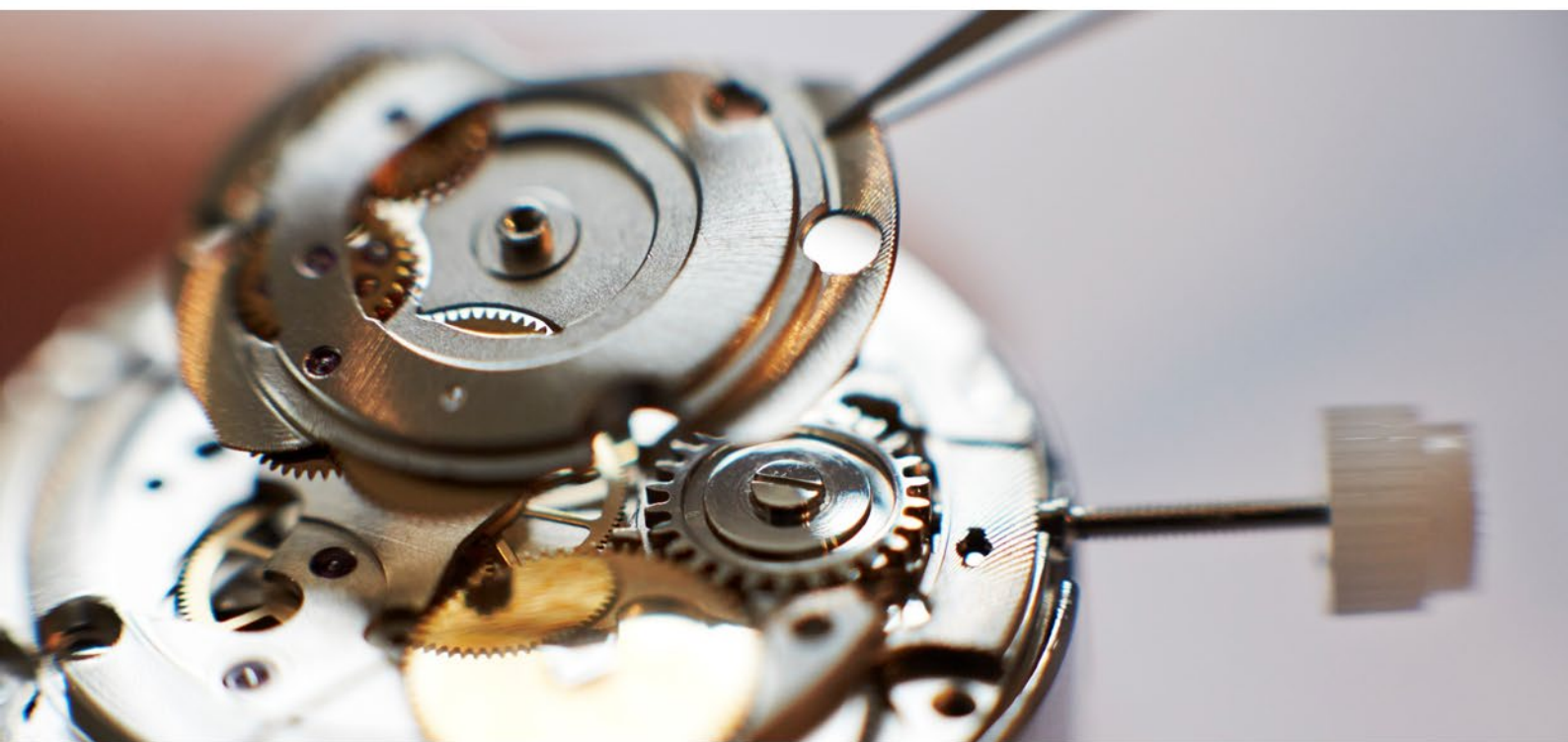




Rules and Regulations SIX x-clear AG

Operational Manual of SIX x-clear AG xcl-510

October 2023





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Operational Manual of SIX x-clear AG

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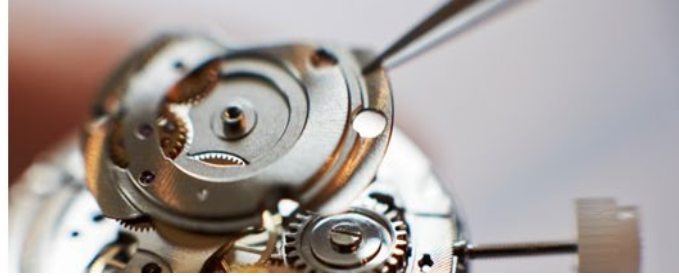
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1.0 Purpose of the Operational Manual

In accordance with the Basic Agreement (either under Swiss Law or English Law or German/European Law) between SIX x-clear AG (hereinafter "SIX x-clear") and the Member of SIX x-clear (hereinafter "Member"), this Operational Manual (previously "Clearing Terms") forms part of the Contractual Relationship between SIX x-clear and the Member and shall be read in conjunction with the Basic Agreement and the Financial Collateral Agreements (including any Amendments thereof, the "FCA").

The graphical overview of the Contractual Relationship of SIX x-clear is published separately on the webpage of SIX x-clear: www.six-group.com > Securities Services > Clearing Services > Clearing Contractual Framework.

Capitalized terms used in this document shall, unless specifically stipulated otherwise, have the meanings given to them in the Rulebook and, where appropriate, any other documents of the Contractual Relationship.

The specifications of the technical infrastructure in the relationship of SIX x-clear to become a Member (such as information technology or communications) will be set during the on-boarding process. In case of additional information and needs of contact regarding the requirements for Membership are published on the webpage of SIX x-clear: www.six-group.com > Securities Services > Clearing Services > Clearing Contractual Framework > Membership.

2.0 General

2.1 Scope of Trading Platforms

This Operational Manual is valid for all Trading Platforms as Exchanges, Matching Platforms and Multilateral Trading Facilities (MTF) for which SIX x-clear is offering Clearing Services and is available only in English.

2.2 Eligible Trading Platform Products

SIX x-clear decides which Trading Platform Products will be accepted/novated for Clearing in accordance with the criteria as stated in the Rulebook, and it reserves the right in individual cases to exclude certain Trading Platform Products from Clearing.

2.3 Grey Market Stocks

In the event that a "when-issued" Trading Platform Product is added to the list of tradable instruments by the respective Trading Platform, Members must note that any obligations of SIX x-clear in respect of any prospective Single Contract for that Trading Platform Product will only arise in the event that the relevant Trading Platform Product is listed as planned. In the event that the listing does not proceed on the planned day of listing, SIX x-clear shall deem any prospective Single Contract registered in that Trading Platform Product to be null and void "ab initio". SIX x-clear will reject it from clearing



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and adjust Margin requirements accordingly. SIX x-clear will not have any obligation or liability whatsoever in this respect.

2.4 **Technical and operational readiness**

The Member may not commence operations that result in the provision of Clearing Services by SIX x-clear to that member until it has confirmed in writing to SIX x-clear that it has conducted tests that demonstrate that it is technically and operationally ready to avail itself of SIX x-clear's Clearing Services.

The relevant confirmation notice will be provided to the Member by SIX x-clear and will form part of its application for membership.

3.0 **Clearing Systems**

For historic reasons, SIX x-clear currently uses two different clearing systems to provide clearing services to its Members. Based on the information provided, the Member will be informed during the on-boarding process on which clearing system the Clearing Services will be offered.

3.1 **SECOM**

SECOM is the Swiss Securities settlement system operated by SIX SIS AG ("SIX SIS") and stands for Settlement Communication System. It offers custody and settlement for tradable financial instruments and is a key element in the Swiss Value Chain.

The Swiss Value Chain is the term used to describe the fully electronic integration of the trading, clearing and settlement of shares, bonds and structured products in Switzerland.

The clearing module forms part of the fully integrated SECOM system in the SIX Value Chain and provides clearing services for equities and bonds for Securities transactions concluded on the Swiss Exchange (SSX), European Exchanges (LSE, Nasdaq OMX, CBoe) and various European MTFs.

3.2 **SIX Clearing Platform (SCP)**

The SIX Clearing Platform (SCP) is based on the NASDAQ Financial Framework (NFF) and has been integrated into the SIX Post-Trading Target Architecture (PTTA) to offer Clearing Services.

SCP offers Clearing Services for tradable financial instruments and serves as a standalone Clearing Service application for SIX x-clear.

The Clearing application offers Clearing Services for equities to Oslo Børs, Nasdaq OMX, CBoe and various European MTFs.



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Through SCP, all relevant Clearing information is provided on a near real-time basis for the purpose of accessing and monitoring transaction data as well as managing collateral and settlement information.

4.0 Permissible Collateral

4.1 General

The provision and transfer of Permissible Collateral shall be effected in accordance with the Financial Collateral Agreement, the Rulebook and the following provisions and as further specified in the Lending Norms.

SIX x-clear will generally accept different types of collateral as Permissible Collateral. For further details, see the separate lending norm rules, which are set out in the “Lending Norms” document. They can be accessed on the Clearing pages of the SIX x-clear website at www.six-group.com > Securities Services > Clearing Services > Info Center > Existing Members > Lending Norms.

Permissible Collateral deposited is accounted for at market value and is subject to a Haircut. Due to the Applicable Laws, Securities and other instruments issued in the United States of America cannot be accepted as Permissible Collateral.

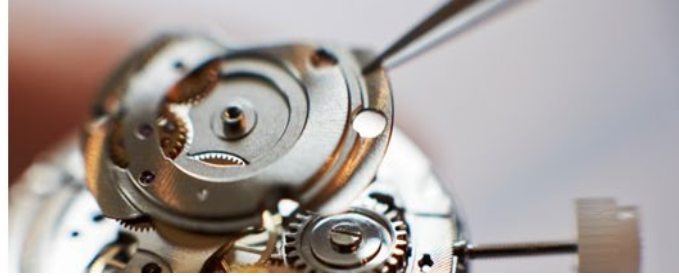
Securities collateral must be replaced eight days prior to the maturity of the relevant instrument posted as collateral. Following the expiry of the maturity date of an instrument posted as collateral, it shall no longer be classed as satisfying the SIX x-clear requirements.

4.2 Collateral concentration limits

The concentration limits are only applicable for bonds accepted as collateral for Margin and the Default Fund of SIX x-clear. They are based on the face value of the bond and set as a percentage of the respective bond issue size (total issued capital).

In principle, concentration limits are established for each Member at the credit group level. Collateral exceeding the respective concentration limits has to be replaced such that the concentration limits are met after the replacements.

For further details, see the separate lending norm rules which are described in the “Lending Norms” and can be accessed on the Clearing pages at www.six-group.com > Securities Services > Clearing Services > Info Center > Existing Members > Lending Norms.



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4.3 Collateral release cut-off times

The following table depicts the latest collateral release cut-off times with same-day value date:

System	Type	Collateral Service Provider	Currency	SIX x-clear execution deadline	
SECOM	Cash	SIX SIS	CHF*	16:15 CET	
			EUR	15:30 CET	
			GBP	17:15 CET	
			USD	18:00 CET	
			NOK	14:30 CET	
			DKK	13:30 CET	
			SEK	15:00 CET	
			JPY	18:00 CET value date -1	
			AUD**	18:00 CET value date -1	
			CAD**	18:00 CET	
	NZD**	18:00 CET value date -1			
	Securities	SIX SIS		20:00 CET	
SCP	Cash	DNB	NOK	14:00 CET	
			Danske	NOK	14:00 CET
			Danske	CHF**	12:30 CET
			Dankse	USD**	17:00 CET
		Clearstream Banking Luxembourg (CBL)	NOK	15:00 CET	
			CHF	15:45 CET	
			EUR	16:30 CET	
			GBP	18:00 CET	
		SIX SIS	USD	19:00 CET	
			CHF*	16:15 CET	
EUR*	16:30 CET				
GBP	17:15 CET				
USD	18:00 CET				
NOK	14:30 CET				
DKK	13:30 CET				
SEK	15:00 CET				
JPY	18:00 CET value date -1				
AUD**	18:00 CET value date -1				
CAD**	18:00 CET				
	NZD**	18:00 CET value date -1			
	Securities	Clearstream Banking Luxembourg (CBL)		17:00 CET	
			SIX SIS		20:00 CET

*Best effort execution to Link Margin Element (LME) and Default Fund collateral releases:
- CHF until 16:30 CET

** Currencies are not accepted for LME in the respective system



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4.4 Administration, proceeds and corporate actions

Responsibility for administering the Permissible Collateral shall rest with SIX x-clear.

The following rules shall apply when Intermediated Securities are provided by the Member as Permissible Collateral and are booked on the Collateral Accounts of SIX x-clear:

- a. SIX x-clear shall be the holder of the participation rights (taking part in the annual general meeting, voting rights and rights of election) attached to the Intermediated Securities booked to the Collateral Accounts of SIX x-clear. If the Member wishes to exercise such participation rights, it must replace the relevant Intermediated Securities required for the exercise of such rights with Permissible Collateral of the same value within a reasonable period of time prior to the exercise of any participation rights. SIX x-clear shall not be liable for any loss or disadvantages suffered by the Member as a result of it being unable to exercise participation rights.
- b. All earnings (dividends, interest and premiums) due on any liquidation proceeds in respect of Intermediated Securities booked to the Collateral Accounts of SIX x-clear shall entitle the Member to compensation payments from SIX x-clear of the same value (in the respective currency) of such earnings or proceeds, less any withholding tax and any expenses or charges actually incurred.
- c. SIX x-clear shall be the holder of options, pre-emption rights and other rights (together, the "Attached Rights") relating to the Intermediated Securities booked to the Collateral Accounts of SIX x-clear and shall inform the relevant Member of the existence of any attached rights. Where the attached right embodies a choice, the Member may issue instructions to SIX x-clear regarding the exercise of such choice, but must replace the relevant Intermediated Securities to which the attached right relates with Permissible Collateral of the same value within a reasonable period of time prior to the exercise of such attached right.
- d. If the Member does not wish to exercise its right to issue instructions in relation to pre-emption rights, then such rights will normally be credited to the Member, unless credit entry is impossible, in which case compensation shall be paid to the Member on the basis of the average market value of these rights on the last trading day on the relevant Trading Platform before expiry of the pre-emption period.
- e. SIX x-clear shall not be liable for any loss suffered by the Member as a result of it being unable to exercise pre-emption rights. If distributions in respect of Intermediated Securities transferred as Permissible Collateral are in the form of Intermediated Securities, SIX x-clear shall return these additional Intermediated Securities when the relevant Permissible Collateral is released.



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4.5 **Taxation of Permissible Collateral**

The following rules shall apply:

- a. In the case of Permissible Collateral provided by Swiss Members in the form of Intermediated Securities of Swiss issuers, SIX x-clear gives an assurance that the transfer of the Intermediated Securities as Permissible Collateral does not trigger Swiss transfer stamp taxes or Swiss withholding tax. The transfer of Intermediated Securities does not constitute a transfer of deed against consideration within the meaning of Art. 13 (1) of the Swiss Federal Act on Stamp Duty. Beneficial ownership of the Intermediated Securities of Swiss issuers according to Art. 21 ff. of the Swiss Federal Act on Withholding Tax remains with the Swiss Members. It rests with the Swiss Members to secure the refund of the withholding tax. The provisions of this sub-clause let. a. shall apply as long as the Permissible Collateral is not realized.
- b. In the case of Permissible Collateral provided by non-Swiss Members in the form of Intermediated Securities of Swiss issuers, the Member accepts that (i) any taxes on the transfer of Intermediated Securities to SIX x-clear are to be borne by the Member; (ii) any additional withholding tax burden is to be borne by the Member; and (iii) SIX x-clear is not liable for any reduction or impairment of a refund of withholding tax payments made on such Intermediated Securities.
- c. A Member wishing to use Intermediated Securities of non-Swiss issuers as Permissible Collateral for Margin shall clarify the tax consequences (such as withholding tax or transfer stamp taxes) in respect of these Intermediated Securities of non-Swiss issuers. A Member who deposits Intermediated Securities of non-Swiss issuers as Permissible Collateral in spite of any potentially adverse tax consequences accepts that (i) any taxes on the transfer of securities to SIX x-clear are to be borne by the Member; (ii) any additional withholding tax burden is to be borne by the Member; and (iii) SIX x-clear is not liable for any reduction or impairment of a refund of withholding tax payments made on such Intermediated Securities.
- d. The Member shall be liable to SIX x-clear for any further tax charges (including, without limitation, corporate income taxes) incurred either by the Member or SIX x-clear as a result of the provision of Permissible Collateral in addition to the tax consequences cited under paragraphs a. to c. above. The same holds true for any further tax charge in case Permissible Collateral must be realised.



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5.0 Account structures

5.1 General

Each Member is required to maintain its specific accounts for the purposes of Clearing. It is irrelevant whether the Member is a GCM or an ICM.

5.2 SECOM Accounts

The Member's Outstanding Contracts from Trading Platform Transactions executed on the Trading Platform (whether for itself or, if a GCM, on behalf of an NCM) connected to SECOM are recorded in Clearing Accounts. All Collateral Accounts (Margin, Default Fund and Link Margin Element Collateral Accounts) are held at SIX SIS.

5.2.1 Clearing Accounts

The Clearing Accounts are maintained at SIX x-clear. Typically, SIX x-clear will open two Clearing Accounts (House/Client) for Members in SECOM. Trading Platform Transactions which the GCM is clearing for itself will be allocated to the House Account and those being cleared by the GCM for its NCMs shall be allocated to the Client Account. In case of individual segregation for an NCM, a separate Clearing Account position shall be opened.

On the basis of the net positions of all Outstanding Contracts per Security on each Clearing Account of that Member, the required Margin is calculated and matched against the Permissible Collateral.

5.2.2 Collateral Accounts

The Member must post Permissible Collateral for Margin, Link Margin Element and Default Fund Contributions either:

- a. in the form of Cash by transferring Cash to the Cash Collateral Account of SIX x-clear labelled with its name. Such Cash account will be opened by SIX SIS or at any other Collateral Institution for each eligible currency.
- b. in the form of Securities by transferring eligible Securities to the Securities Collateral Account of SIX x-clear labelled with its name. Such account will be opened at SIX SIS or any other Collateral Institution.

5.2.2.1 Margin Collateral Accounts

For the purpose of posting Margin, SIX x-clear will open segregated Collateral Accounts (Cash and/or Securities) for each Member or NCM at SIX SIS in the name of SIX x-clear. The Permissible Collateral will be provided to SIX x-clear by way of an Irregular Pledge ("full title transfer") under the Financial Collateral Agreement.



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SIX x-clear is entitled to transfer the corresponding credit balances (Permissible Collateral) on the basis of a respective proxy authorization, and will automatically trigger such a transfer (“direct debit”). If the available credit balances do not allow the required transfer to be carried out completely, SIX x-clear will issue a Margin call, which must be covered by the Member manually.

Information on the extent of usage of the Permissible Collateral can either be requested by the Member and provided by SIX x-clear at any time or be called up via a communication medium (e.g. CC Link/webMAX Professional, SIS Web Services) by the Member at any time.

5.2.2.2 **Default Fund Collateral Accounts**

SIX x-clear will open Default Fund Collateral Account(s) (Securities and/or Cash) at SIX SIS for each Member for the purpose of covering the Default Fund Contribution.

The accounts will be in the name of SIX x-clear labelled with the name of the Member. The balance of the Default Fund Collateral Accounts will stand to the credit of SIX x-clear also under a full title transfer arrangement in accordance with the Financial Collateral Agreement.

5.2.2.3 **Link Margin Element Collateral Accounts**

SIX x-clear will open Link Margin Element Account(s) (Securities and/or Cash) at SIX SIS for each Member.

The Link Margin Element Accounts at SIX SIS will be in the name of SIX x-clear labelled with the name of the Member. The balance of the Link Margin Element Accounts will stand to the credit of SIX x-clear under a full title transfer arrangement in accordance with the Financial Collateral Agreement.

The collateral assets in the Link Margin Element accounts are used to cover Margin liabilities against the Co-CCPs.

5.2.2.4 **Request for release or substitution of Permissible Collateral**

Each SECOM Member is required to place Cash or Securities in the respective Collateral Account by transfer from its Ordinary Securities Account at SIX SIS via webMAX or in the form of Cash via SIC/SWIFT to cover the calculated collateral requirement.

Any release of Permissible Collateral can be requested by e-mail from the Risk Management Operations Team in Zurich or a transfer of the excess collateral can be initiated by the Member itself from the Collateral Account via webMAX.

If a SECOM Member wishes to substitute Permissible Collateral for Margin or for Default Fund Contributions, the new Permissible Collateral must be delivered prior to withdrawing the old Permissible Collateral. In the case of a substitution of Securities by



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the Member, the Member shall keep in mind that a price re-evaluation takes place hourly from 8:00 a.m. to 5:00 p.m. (CET) and SECOM will allow the withdrawal of specific Securities only after the hourly re-evaluation is completed.

5.3 **SCP Accounts**

Each Member is required to maintain specific accounts in the name of the Member or SIX x-clear for the purposes of Clearing in SCP. It is immaterial for this purpose whether the Member is a General Clearing Member (GCM) or an Individual Clearing Member (ICM).

A distinction is mainly made between **Clearing** and **Collateral Accounts**.

5.3.1 **Clearing Accounts**

The Member's and Non-Clearing Member's (NCM) Outstanding Contracts from Trading Platform Transactions executed on the respective trading venues offered for Clearing (whether for itself or, if a GCM, on behalf of an NCM) are recorded in Clearing Accounts.

The Clearing Accounts are opened at SIX x-clear in SCP and are used by standard as all-in-one accounts for most SIX x-clear Members where trades, positions and calculated Margin requirements as well as settlements are registered. SIX x-clear will set up a Clearing Account structure in accordance with the instructions given by the Member.

SIX x-clear offers the following Clearing Accounts to Members and NCMs:

- **House Account:** A House Account in SCP can be opened for an SIX x-clear Member or NCM to clear its own positions. Position netting is performed at Clearing Account level. The Margin is calculated on the net position at account level by standard.
- **Client Account:** A Client Account in SCP can be opened by an SIX x-clear Member or NCM. The account may be used in the form of an omnibus or segregated account. Position netting is performed at Clearing Account level by standard. The Margin is calculated on the net position at account level by standard.

On the basis of all Outstanding Contracts in the Clearing Account(s), the required Margin is calculated by standard per segregated Clearing Account and matched against the Permissible Collateral in the relevant Collateral Accounts.

Typically, SIX x-clear will open a House Clearing Account for an ICM in SCP as a standard solution.

In the case of a GCM, SIX x-clear will open a House and a Client Account (e.g. omnibus) in SCP as a standard solution. The Trading Platform Transactions which the GCM is clearing for itself will be allocated to the House Account and those being cleared by the GCM for its NCMs shall be allocated to the Client Account.



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SIX x-clear may offer more complex account structures by segregating the functions of recording trades, positions, calculated Margin Requirements and settlement into separate accounts and combine them to a functional account structure, which provides the necessary flexibility for special solutions.

With regards to segregated accounts structures and requirements, the offered service is described in Chapter 6.0

5.3.2 Collateral Accounts

All Collateral Accounts are opened and held externally with Collateral Service Providers (e.g. banks) of excellent credit standing and are mirrored in SCP. The Collateral Service Providers are listed in section 4.2 *Collateral concentration limits*.

As stated in the Financial Collateral Agreement, the Member may post Permissible Collateral for Margin, Link Margin Element and Default Fund Contributions:

- a. in the form of Cash by transferring Cash to a Cash Collateral Account to SIX x-clear by way of legal title transfer. A Cash Account will be opened for each eligible currency; or
- b. in the form of Securities held in a Securities Account to SIX x-clear by way of legal title transfer pursuant to the Financial Collateral Agreement.

The Member shall at all times whenever possible ensure that its Collateral Accounts hold a credit balance in the amount of the deposits to fulfil its obligations by providing Margin, Link Margin Element and/or Default Fund Contribution to satisfy Margin calls.

The Collateral Accounts are used for recording Permissible Collateral:

- a. for Margins in Cash provided by way of transfer of title by the Member. Such accounts shall belong to SIX x-clear under the applicable Financial Collateral Agreement; and/or
- b. for Link Margin Element contributions in Cash provided by way of transfer of title by the Member; and/or
- c. for Default Fund Contributions by the Member.

With regard to segregated account structures and requirements, the offered service is described in Chapter 6.0 *Segregated account structures*.

5.3.2.1 Cash Collateral Accounts

SIX x-clear opens Cash Collateral Account(s) held by SIX x-clear in either of the Collateral Servicer Providers offered as outlined in section 4.2 *Collateral concentration limits* and in currencies as defined in the Lending Norms (see website: www.six-group.com >



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Securities Services > Clearing Services > Info Center > Existing Members > Lending Norms). The Cash Collateral Accounts are mirrored in SCP.

At least one cash Collateral Account for each requirement category (e.g. Margin, Link Margin Element and Default Fund) needs to be opened by SIX x-clear.

5.3.2.2 **Securities Collateral Accounts**

If the Member wants to provide Permissible Collateral in the form of Financial Instruments (pursuant to the terms of the Lending Norms) a Securities Collateral Account shall be opened with a designated Collateral Service Provider as outlined in section 4.2 *Collateral concentration limits*. The Securities Collateral Accounts are mirrored in SCP.

5.3.2.3 **Release of Permissible Collateral from Collateral Account(s)**

Each SIX x-clear Member is required to transfer Cash into Collateral Accounts, or pledge Securities in its securities Collateral Accounts with the designated Collateral Service Provider, to cover the calculated requirements of Margin, Link Margin Element and Default Fund.

For any withdrawal, the Member is required to submit a respective request to SIX x-clear by way of

- using the withdrawal request functionality directly within SCP platform. Necessary agreements, authorisation and availability with the respective Collateral Service Provider must be in place; or
- using the Collateral Withdrawal Form, which can be accessed on the Clearing site at www.six-group.com > Securities Services > Clearing Services > Info Center > Download Center > Membership > Onboarding Forms. The form shall be provided by e-mail.

The Member may request SIX x-clear to release Permissible Collateral when the Permissible Collateral value exceeds the latest requirement calculation, upon which a release shall be carried out on a best-effort basis, but subject to the terms and conditions set out in the Contractual Relationship, especially the Financial Collateral Agreements.

If a Member wishes to substitute Permissible Collateral, the new Permissible Collateral must be delivered prior to withdrawing the old Permissible Collateral.

The cut-off and best-effort deadlines for Cash and Securities transfers are published in clause 4.3 *Collateral release cut-off times*.



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6.0 Segregated account structures

SIX x-clear offers in SECOM and SCP the following omnibus and individual client segregation models for positions and assets:

1. Omnibus Client Segregation (OCS)
2. Mini-Omnibus Client Segregation (Mini-OCS)
3. Individual Client Segregation (ICS)

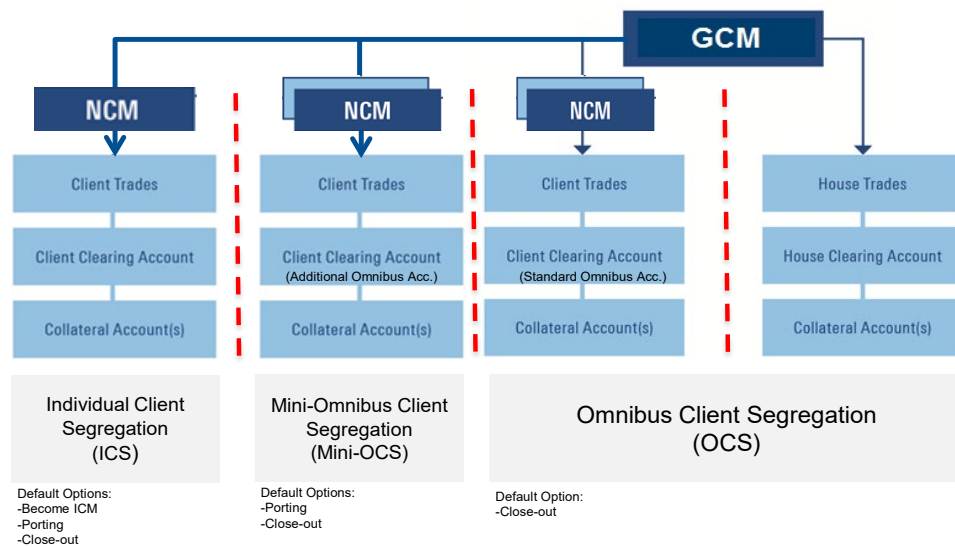


Figure 3: Segregation Models

The segregated account structures affect SIX x-clear’s Clearing Accounts and Collateral Accounts for Margin only.

Please find below in this section an explanation of a detailed setup of each account structure, including a visual simplification.

6.1 Omnibus Client Segregation (OCS)

The picture below depicts the account structures at GCM level. The GCM positions and assets are segregated from those of its NCM(s). The OCS will segregate positions and assets of the GCM and the NCM. The cross-netting (cross-margining) of positions takes place at the Clearing Account level. OCS is the standard solution offered by SIX x-clear.



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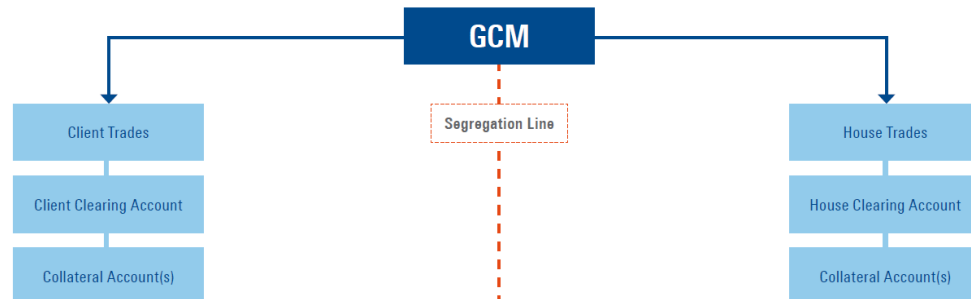


Figure 6: Omnibus Client Segregation (OCS)

The segregation of the Clearing Account referable to the NCM and the Clearing Account of the GCM, as well as the segregation of the Collateral Accounts containing the GCM's collateral assets and its NCMs' assets will ensure clear segregation. The segregated Collateral Accounts shall cover the Margin requirements in respect of the Outstanding Contracts referable to the NCM(s) and the Outstanding Contracts of the GCM.

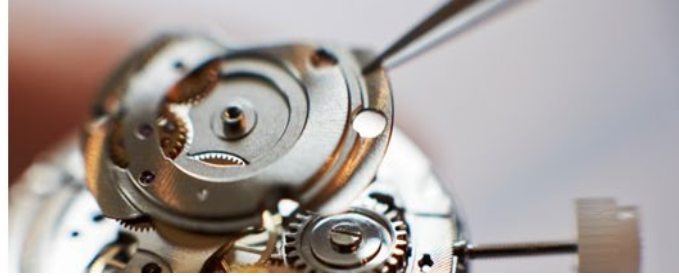
From a risk management and default management point of view, the account setup is viewed at credit group level. The credit group combines, on a technical level, the Clearing Account with the respective Collateral Account(s) to a unit which, in case of transfer (portability) or close-out, will be treated jointly. This applies to stress testing, default management, close-out possibilities and porting options of the NCM in the case of the GCM defaulting.

Practical implementation:

If opting for the OCS solution, an NCM instruction shall be given by using a standard form (form 007) of SIX x-clear to initiate client segregation. Portability shall be based on a contractual agreement of the designated Back-up GCM and the GCM in respect of the NCMs' assets and positions. This form can be found under www.six-group.com > Securities Services > Clearing Services > Info Center > Download Center > Membership > Onboarding Forms.

6.2 Mini-Omnibus Client Segregation (Mini OCS)

The picture below depicts the account structure at NCM level. The GCM positions and assets are segregated from those of its NCMs. The Mini OCS is similar to the OCS model and offers the GCM the possibility to use more than one OCS structure. The Mini OCS will segregate positions and assets of the GCM and each of its NCM structures. The cross-netting (cross-margining) of positions takes place at the Clearing Account level.



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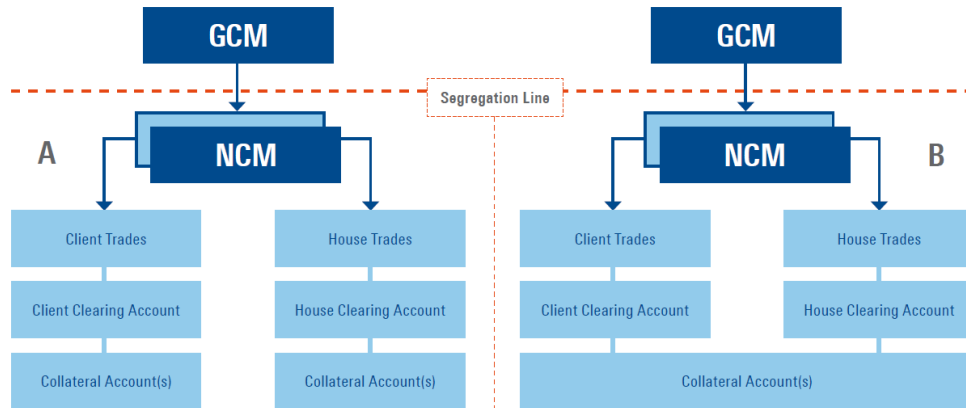


Figure 7: Mini-Omnibus Client Segregation (Mini OCS)

The Clearing Accounts referable to each NCM structure are segregated from each other as well as from the Clearing Account of the GCM. Similarly, assets held on the Collateral Accounts of each NCM structure are segregated from each other and against the assets held on the Collateral Accounts of the GCM. Each of the segregated Collateral Accounts shall cover the Margin requirements for the Outstanding Contracts referable to the NCMs, or the Outstanding Contracts of the GCM, respectively.

From a risk management and default management point of view, the account setup is viewed at credit group level. The credit group combines, on a technical level, the Clearing Account with the respective Collateral Account(s) to a unit which, in case of transfer (portability) or close-out, will be treated jointly. This applies to stress testing, default management, close-out possibilities and porting options of the NCM in the case of the GCM defaulting.

Practical implementation

When opting for the Mini OCS solution, a GCM instruction shall be given and NCM instructions shall be given for each structure by using a standard form (form 007) of SIX x-clear. Portability for each NCM structure is conditional on a contractual agreement of the designated Back-up GCM and the GCM to assume the NCMs' assets and positions. The form can be found under www.six-group.com > Securities Services > Clearing Services > Info Center > Download Center > Membership > Onboarding Forms.

6.3 Individual Client Segregation (ICS)

The chart below depicts the account structure at NCM level. The GCM positions and assets are segregated from those of its NCM(s). In addition, each NCM is segregated from the other NCM(s). The account structure for the ICS model allows dedicated individual and segregated Clearing and Collateral Accounts to be held, reflecting the assets (collateral) and positions of each NCM. The cross-netting (cross-margining) of positions takes place in the Clearing Account at NCM level.



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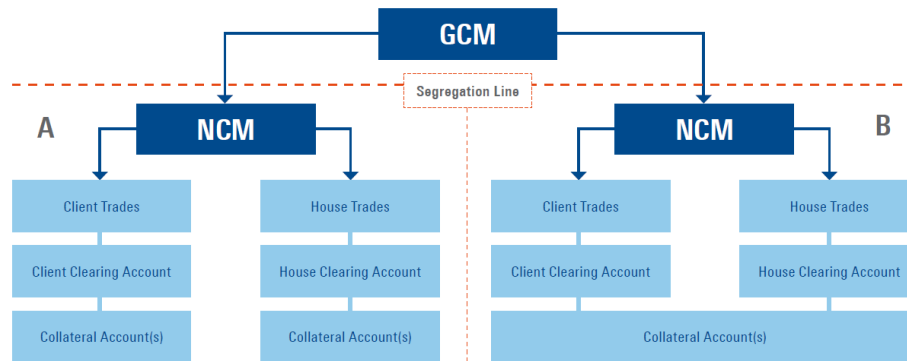


Figure 5: Individual Client Segregation (ICS)

As requested by the NCM, the Member (GCM) shall opt for each NCM to use either separate Collateral Accounts for Client and House Clearing Accounts (model A) or an omnibus Collateral Account (model B) for both Clearing Accounts. The collateral of the GCM is always segregated from the collateral of its NCM(s). The GCM has to pass through the collateral amount provided by the NCM if the collateral fulfils the collateral eligibility requirements of SIX x-clear. The respective collateral requirements are calculated by SIX x-clear with respect to the NCM's positions and shall be requested by the GCM from the NCM.

From a risk management and default management point of view, the account setup is viewed at credit group level. The credit group combines, on a technical level, the Clearing Account (consisting of one or several technical accounts) with the respective Collateral Account(s) to a unit which, in case of transfer (portability) or close-out, will be treated jointly. This applies to stress testing, default management, close-out possibilities and porting options of the NCM in the case of the GCM defaulting.

Practical implementation

When opting for the ICS solution, an NCM instruction shall be given by using a standard form (form 007) of SIX x-clear. Portability shall be based on a contractual agreement of the designated Back-up GCM and the NCM to assume the latter's collateral and positions. This form can be found at www.six-group.com > Securities Services > Clearing Services > Info Center > Download Center > Membership > Onboarding Forms.

When opting for the ICS account structure, the NCM can change its status in case of a GCM Default. Specifically, the NCM can choose to become an Individual Clearing Member (ICM), under the condition that the Member requirements of SIX x-clear are fulfilled. This form can be found at www.six-group.com > Securities Services > Clearing Services > Info Center > Download Center > Membership > Onboarding Forms.



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7.0 **SECOM Margining**

Real-time Margins are calculated for each product type considering the risk characteristics of the respective asset class, i.e. the real-time margining module calculates the open positions and Margin for bonds and equities separately using an individual methodology to calculate the respective market risk and the asset-class-related Margin.

Margin requirements are basically calculated at the Clearing Account level and then aggregated across all Clearing Accounts belonging to the same credit group. Credit groups are used for Margin collection; they allow for a segregation of the margining and collateral management process.

7.1 **Initial Margin**

7.1.1 **Principle**

The Initial Margin requirement is continually calculated for each security and currency held in a Clearing Account on the basis of the net positions in all Outstanding Contracts of Exchanges and MTFs for which SIX x-clear provides Clearing.

In the case of multiple listed Securities, the Member's open positions as well as the Initial Margin will be computed by taking into account that Member's net position from Outstanding Contracts on all Exchanges and MTFs in respect of which SIX x-clear provides Clearing.

In so doing, the maximum value resulting from the calculation of the short-term and long-term VaR is decisive. For the calculation of the Initial Margin, Securities are allocated to different risk buckets.

Using the historic Value-at-Risk (VaR) model, the current VaR is calculated per Security. For this purpose, the historic data of the previous four years (approximately 1000 working days) are adopted for the long-term VaR and the previous three months (approximately 90 days) for the short-term VaR, by calculating the two-day VaRs for equities and ETFs and the seven-day VaR for bonds, based on a confidence interval of 99.7% for equities, ETFs and bonds.

The VaR is generally calculated on a weekly basis. However, in case of difficult market conditions, it may also be calculated daily.

If the same Securities are traded on different Exchanges and MTFs, they are subject to the same risk bucket structure. Risk buckets are formed at intervals of 5% for equities and ETFs.

Securities eligible for Clearing with similar risks (defined by the VaR) are allocated to the same buckets and, for this purpose, the respective differentiated Initial Margin is calculated on the basis of the positions that have been netted per bucket.



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Clearing-eligible instruments which are considered high risk by x-clear Risk Management are allocated to either “High Risk” bucket 7 with a fixed Margin rate of 50%, or the “Very High Risk” bucket 8 with a fixed margin rate of 100%, irrespective of the historical VaR of individual instruments.

In future, SIX x-clear reserves the right to allocate new product types to the newly introduced “High Risk” and “Very High Risk” buckets and/or modify its risk parameters based on internal assessments and reviews.

Risk bucket	Equities & ETFs		Bonds		High risk	
	VaR range %	Initial Margin %	VaR range %	Initial Margin %	VaR range %	Initial Margin %
1	0 to 5	3.8	0 to 1.5	1.5	n/a	n/a
2	5 to 10	8.8	1.5 to 3	2.8		
3	10 to 15	13.8	3 to 4.5	4.3		
4 (default)	15 to 20	18.8	4.5 to 6	5.9		
5	20 to 25	23.8	6 to 7.5	7.5		
6	25 or more	28.8	7.5 or more	14.4		
7	n/a	n/a	n/a	n/a	0 to 100	50
8	n/a	n/a	n/a	n/a	0 to 100	100

For all Securities where trading prices are not available for a period of at least 250 Exchange or trading days, the VaR usually amounts to 15.01% to 20.00% for equities and ETFs, and between 4.51% and 6.00% for bonds.

7.1.2 Risk netting coefficient I (intra-bucket)

Due to the fact that the Securities contained in a risk bucket do not correlate perfectly, a risk netting coefficient (based on the average correlation) is used to net the respective Securities positions within the same bucket (risk netting coefficient I). For each Security, the Initial Margin is therefore calculated first on the basis of the net position (long or short) in that Security. Subsequently, the total of all net long positions and the total of all net short positions within the same bucket are netted using the risk netting coefficient I for the smaller of both values. Due to a specific risk profile of products allocated to “High Risk” bucket 7 and “Very High Risk” bucket 8, there is no Margin offsetting between net long and net short positions in these buckets.

7.1.3 Risk netting coefficient II (inter-bucket)

Additionally, a second risk netting coefficient is applied between the risk buckets of the same asset class. The net Initial Margin per risk bucket (positive/negative values) are aggregated across all buckets, taking into account the algebraic sign (plus/minus). This results in the total of the Initial Margin net long and the total of the Initial Margin net short. The smaller of these two figures is multiplied by the inter-bucket coefficient and the Initial Margin is reduced by that amount.



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7.1.4 Initial Margin on transaction level

Initial Margin requirements vary in real time with each transaction in a Security. The total amount of the Initial Margin per Clearing Account is derived from adding up all results on transaction level from the risk buckets which contain the net positions of all Outstanding Contracts relating to Securities and arising from transactions on all Exchanges and MTFs cleared by SIX x-clear.

7.1.5 Extreme net open amount

In the case of an extreme net open amount (NOA) of a participant (i.e. the absolute values of a net long open minus a net short open amount) which exceed CHF 750 million (taking into account the consolidated position of the Member across all Exchanges and MTFs cleared by SIX x-clear), the participant's existing risk rating coefficient is increased for the period in which this situation persists, i.e. the Initial Margin requirements are accordingly higher (see table below).

Net Open Amount in CHF m	IRC = 1.00	IRC = 1.50	IRC = 2.00	RC Step
0 ≤ 750	1.00	1.50	2.00	-
750 ≤ 1000	1.25	1.75	2.25	0.25
1000 ≤ 1250	1.50	2.00	2.50	0.50
1250 ≤ 1500	1.75	2.25	2.75	0.75
1500 ≤ 2000	2.00	2.50	3.00	1.00
2000 <	2.25	2.75	3.25	1.25

The SIX x-clear Member will be informed in the event that its Initial Margin requirements are increased on this basis.

7.1.6 Risk rating coefficient

The risk rating coefficient has been designed to increase the amount of defaulter-pay resources rather than mutualized resources. It depends on the Member's credit rating and has a direct bearing on the Initial Margin requirements. The risk rating coefficient is the factor by which the Initial Margin is multiplied to arrive at the Initial Margin requirement. SIX x-clear accepts credit ratings from the following external rating agencies:

- Standard & Poor's
- Moody's
- FITCH/IBCA

Additionally, the internal rating is taken into account. The internal rating is derived on the basis of a dedicated internal model.

The risk rating coefficient takes into account the probability of non-performance on the part of a Member. The risk rating coefficient is determined on the basis of the



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Member's credit rating and is used to weight the Initial Margin, i.e. Initial Margin requirements increase or decrease depending on the Member's credit rating.

The level of the risk rating coefficient is reviewed at least once a year and is determined as follows:

Rating				Risk rating coefficient
Standard & Poor's	Moody's	FITCH	Internal rating	
AAA to A-	Aaa to A3	AAA to A-	AAA to A-	1.00
BBB+	Baa1	BBB+	BBB+	1.25
BBB	Baa2	BBB	BBB	1.50
BBB-	Baa3	BBB-	BBB-	1.75
BB+ to BB-	Ba1 to Ba3	BB+ to BB-	BB+ to BB-	2.00
B+ or lower	B1 or lower	B+ or lower	B+ or lower	determined case by case

SIX x-clear uses the long-term rating. If several credit ratings are available, the second-best rating is used.

7.2 Variation Margin

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

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

where:

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

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

7.2.1 Variation Margin component to protect from the current exposure

The Variation Margin component covers market price fluctuations of 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 SIX x-clear 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.



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7.2.2 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 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), while positions in the asset class bonds are not regarded.
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 (=> sub-portfolio of own-stocks)
 - b. The sub-portfolio of equity instruments issued by other companies within the financial sector (=> sub-portfolio of financial stocks)
 - c. The sub-portfolio of equity instruments issued by companies from non-financial sectors (=> 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 rate 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. 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:

$$VaR_i^{WWR} = \sqrt{\mathbf{v}' \Sigma \mathbf{v}}$$

Equation (2)



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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 partly considers periods of stressed marked conditions (including bank stress), some Wrong-Way-Risk is already incorporated in the calibrated initial Margin. Hence, to avoid a Margin double charge, the initial Margin is deducted from the Wrong-Way-Risk Margin.

$$WWR_i = \max(VaR_i^{WWR} - IM_i^E, 0) \quad \text{Equation (3)}$$

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;

IM_i^E = Clean SECOM initial Margin for all open positions in the clearing account i .

All Margin requirements are computed in Swiss francs (CHF).

7.3 Stress Margin Add-On

The Stress Margin Add-On forms part of the default waterfall of SIX x-clear. This add-on serves as an additional protective layer for the mutualized Default Fund, since the usage of the Default Fund becomes more remote when large stress exposures are covered by additional defaulter-pays resources.

Stress Margin Add-Ons will be charged whenever stress losses calculated under extreme but plausible market scenarios on a credit group level exceed a certain threshold of the Default Fund.



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For those members connecting to the SECOM platform, the Stress Margin Add-On is computed as:

$$|\min(SL_j + \max(RC \cdot \lambda_j \cdot IM_j + WWR_j; -VM_j^{CE}) + SIG + 45\% \cdot DF; 0)| \quad \text{Equation (4)}$$

where:

SL_j is the most severe Stress Loss for the credit group j (negative value)

λ_j is the Margin scaling factor

IM_j is the SECOM initial Margin for the Member's net open position

WWR_j is the Wrong-Way Risk Margin for credit group j

VM_j^{CE} is the Variation Margin component to cover the current exposure of the credit group j

SIG is the "skin in the game" as available on the SIX x-clear website (rolling average of 25% of (SIX x-clear's required capital + wind-down capital) over the past four quarters).

DF is the applicable Default Fund size.

7.4 Total Margin

After the Initial and Variation Margin for each Clearing Account have been calculated, the Total Margin per credit group and per Member, respectively, is computed using the risk rating coefficient to scale the Margin:

$$TM_j = \sum_{i=1}^n \max(RC \cdot \lambda_j \cdot IM_i + VM_i, 0) + SAO_j \quad \text{Equation (5)}$$

where

$TM_j =$ is the Total Margin per credit group j and per Member, respectively;

$RC =$ is the Risk rating coefficient of the Member;

$\lambda_j =$ is the Margin scaling factor for credit group j (as explained in clause 7.5.3 *Adjustment of initial Margin*);

$IM_i =$ is the Initial Margin calculated for Clearing Account i (belonging to credit group j);



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VM_i = is the Total Variation Margin calculated for Clearing Account i (belonging to credit group j);

n = is the number of Clearing Accounts belonging to the credit group/Member j ; and

SAO_j is the Stress Add-On for the credit group/the Member j as explained in clause 8.1.2 *Stress Margin Add-On*.

The required amount of Permissible Collateral to be provided by a Member is reviewed by SIX x-clear on a regular basis so as to promptly respond to market developments and to any changes of an individual Member's situation.

If a Member is a participant/trading member at several Exchanges and MTFs where SIX x-clear provides Clearing, the Margin requirement for all these Exchanges and MTFs can be consolidated on the basis of all Outstanding Contracts¹⁾ (on such Exchanges and MTFs).

¹⁾ For the purpose of the Operational Manual, this term refers to unsettled contracts with SIX x-clear as the Central Counterparty arising from transactions on all Exchanges and MTFs in respect of which SIX x-clear provides Clearing.

7.5 Initial Margin validation and calibration module

SIX x-clear's SECOM margining module is supplemented by a Margin validation and calibration module performing several daily runs (and, if required, additional ad hoc) risk-factor-based Monte Carlo simulations of the Margin requirement. This approach allows for an independent and comprehensive portfolio-based assessment of the Margin requirement and a comparison with the initial Margin calculated by the SECOM margining module. SIX x-clear reserves the right to adjust the Margin requirements based on the outcome of this Margin validation.

7.5.1 Simulation technique of the validation module

SIX x-clear's SECOM margining module is mainly based on historical volatilities of the underlying instruments, volatility buckets, static intra-bucket and inter-bucket netting. SIX x-clear's Margin validation and calibration module employs a risk-factor-based Monte Carlo simulation technique for a portfolio-based assessment of the replacement risk of the clearing portfolios. This technique takes into account the prevailing volatilities and correlations between the risk factors. It further reflects the prevailing regression mapping of the returns of the underlying securities within the clearing portfolios to the returns of the risk factors, as well as the residual intrinsic risk of the securities.



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The methodology underlying SIX x-clear's initial Margin validation and calibration module consists of the following five main elements:

I. Risk factor set definition

A consistent set of potential risk factors is defined which displays a high explanatory power for the return of the securities in clearing. The chosen risk factors represent the following asset classes:

- **Cash:** Cash risk factors capture the FX risk based on portfolio currencies. All key currencies are represented.
- **Equity:** A variety of country-specific and regional (mostly emerging-market) stock indices as well as a full set of sector indices (developed countries) is chosen.
- **Fixed Income:** Aggregate indices with an average duration of 5-7 years are taken for the long leg, while the short leg is represented by the corresponding cash risk factors.
- **Alternative Investments (AI) and Commodities:** AI and commodity indices are included because they can be particularly useful in explaining the return dynamics of certain equity instruments, such as oil-related firms. Also, the risk dynamics of ETFs and Funds can often be determined by commodity price movements.

II. Mapping the underlying securities to the risk factors

The returns of all securities of the clearing portfolios are mapped to the risk factor returns via a regression technique:

$$\text{Security Return} = \sum (\text{Risk Factor Return}_i \times \beta_i) + \text{Intrinsic Risk}$$

The vector of exposures β is recalibrated on a daily basis.

III. Scenario generation of security returns

Potential future distributions of the security returns are derived from daily combined Monte Carlo Simulations of risk factor return distributions and distributions of the intrinsic risk of security returns. Each Monte-Carlo-simulated security return consists of a set of Monte-Carlo-simulated risk factor returns multiplied by the securities exposure vector β plus a Monte Carlo-simulated uncorrelated intrinsic risk component.

In order to calibrate the Monte Carlo simulations of the risk factor returns, the risk model considers historical observations of the risk factor returns from a rolling non-overlapping time window using a Filtered Historical Simulation approach.

The variance-covariance matrix of risk factor returns is derived from an Exponentially Weighted Moving Average (EWMA) model. The model is performed on a daily basis. The



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residual intrinsic risk of the regression of the securities returns to the risk factor returns is simulated using a Student's t-distribution.

IV. Scenario generation of clearing portfolio returns

The potential future distribution of clearing portfolio returns is computed by aggregating the simulated security returns of the positions of a Member. This aggregation takes place at the credit group level, i.e. the open positions of all Clearing Accounts belonging to the same credit group are considered to be one single portfolio. Hence, SIX x-clear's Margin validation and calibration module fully takes into consideration the potential diversification benefit between the various asset classes cleared and the open positions from the Clearing Accounts belonging to the same credit group.

V. Measuring the clearing portfolio risk

In order to validate and calibrate the Initial Margin calculated by the real-time margining module, SIX x-clear applies a portfolio VaR at 99% confidence level.

In addition, the simulation approach of SIX x-clear's Margin validation and calibration module makes it possible to take into account further risk components as required by the applicable regulations in the EU and Switzerland. SIX x-clear reflects the following additional risk components in its Margin validation and calibration process:

Stressed VaR

The initial Margin model applied by SECOM does not have a procyclicality mitigation factor. To address this issue, SIX x-clear assigns a 25% weight to stressed observations in the lookback period underlying the VaR computation of the Margin validation and calibration module. The feature of Stressed VaR allows periods of stressed market conditions (i.e. stressed variance-covariance matrices) to be incorporated into the Monte Carlo Simulations of the risk factor scenarios.

Liquidity-adjusted VaR

The initial Margin calculated by the SECOM margining module do not consider market liquidity risk due to open position concentrations. For this reason, SIX x-clear's Margin validation and calibration module takes into account the adverse price movements of holdings concentrated in single securities within a clearing portfolio. This liquidity premium depends on

- the relative position size of the underlying instruments compared to their market capacity; and
- the current and simulated market risk of the underlying instrument and on its bid/ask spread.



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The liquidity risk component of the Margin validation and calibration module implements the liquidity uncertainty as a function of the simulated market scenario, which results in increased VaRs for the clearing portfolios.

Variable close-out periods

SIX x-clear's Margin validation and calibration module allows for an asset-class-specific setting of VaR horizons. SIX x-clear sets these asset-class-specific VaR horizons in accordance with its prevailing assumptions about realistic close-out periods per asset class.

7.5.2 Stress testing and defence line calibration

SIX x-clear's Margin validation and calibration module is also used for the calculation of historical and hypothetical stress tests as required by the applicable regulations in the EU and in Switzerland. SIX x-clear reflects the respective stress test results in the design and calibration of its defence lines.

7.5.3 Adjustment of Initial Margin

SIX x-clear may adjust the Margin requirement based on the outcome of the Margin validation process described in clause 7.5.1 *Simulation technique of the validation module*.

To this end, a scaling factor λ_j for every credit group j of a Member has been implemented in order to align the Initial Margin with the portfolio VaR of the open positions in the respective credit group j . The portfolio VaR is computed by the Margin validation module, as explained in chapter 7.4 *Total Margin*.

The adjustment of the Margin requirement by λ_j is based on a comparison of the Initial Margin (computed by the SECOM margining module) with the portfolio VaR resulting from the Margin validation module in the following way: For each credit group j , the sum of initial Margin of all Clearing Accounts i ($\sum_{i=1}^n IM_i$) in credit group j is compared to the Portfolio VaR ($PVaR$) for the set of open positions in credit group j . The value of λ_j that is entered into equation (4) in chapter 7.4 *Total Margin* to adjust the Margin requirement is determined by:

$$\lambda_j = \frac{PVaR_j}{\sum_{i=1}^n IM_i}$$

Equation (6)

In order to avoid procyclicality, λ_j entered in equation (5) will never be less than 1.



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The adjustment of λ_j and the risk rating coefficient RC are independent of each other, i.e. the regime for adjusting RC is not affected by the Margin calibration through the scaling factor λ_j .

7.5.4 Margin calls

If, at any time, the Margin provided is insufficient or if the value of the Default Fund falls below SIX x-clear's requirements for whatever reason such that there are outstanding obligations of a Member to pay Contributions, SIX x-clear will automatically issue a Margin call in real time denominated in Swiss francs (CHF).

The following rules apply:

1. The Margin call is in principle to be met in the form of Cash.
2. Every member is required to designate an account which SIX x-clear is entitled to debit with the amount of the Margin call in accordance with the Rulebook. The following types of account may be used:
 - a. SIX Interbank Clearing Account ("**SIC account**"); or
 - b. Ordinary money account at SIS SIX AG ("**SIX SIS account**").
 - The Member may designate one charge account only (SIC or ordinary money account at SIX SIS). Generally, a SIC account is required for Margin calls. Usage of an ordinary money account of SIX SIS is only accepted on an exceptional basis.
 - SIX x-clear will open an SIX x-clear money Collateral Account at SIX SIS for each member in accordance with this Operational Manual to place the requested collateral.
 - c. An account denominated in British pounds (GBP) or Euro (EUR) at the Member's Payment Bank.
3. Each Margin call must be met within the deadline communicated by SIX x-clear. Margin calls issued no later than 5:00 p.m. (CET) have a deadline on the same day. All deadlines have to be met within a **maximum of sixty minutes** after the call is issued. If a Margin call after 5:00 p.m. (CET) cannot be satisfied on the same day, it has to be fulfilled by no later than 9:00 a.m. (CET) on the next business day. Under extraordinary circumstances, Margin calls may also be issued after 5:00 p.m. (CET).
4. If the Member has opted for the OTC Extended Window Clearing Service (see clause 7.7 *OTC Extended Window Clearing Service*), the Member has to provide Margin collateral due to a Margin call in USD or securities by 9:00 p.m. (CET) at the latest on the same day.



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5. If the Margin call is not satisfied by the Member within the stipulated time as outlined above, Clearing by SIX x-clear of future transactions to which that Member is a counterparty shall be suspended henceforth and SIX x-clear shall cease to act as the Central Counterparty for that Member. Additionally, SIX x-clear reserves its right to place this Member in Default by issuing a respective Default Notice in accordance with the Rulebook. Please note in particular that any such Default Notice will also be transmitted to the Trading Platforms cleared by SIX x-clear for this Member.

7.5.4.1 Settlement of Margin calls through a Payment Bank

As a membership requirement, a Member which decides to satisfy Margin calls through a Payment Bank must have an account denominated in British pounds (GBP) or Euro (EUR) at its Payment Bank. Margin calls will be processed by SIX SIS (on behalf of SIX x-clear) by directly debiting the Member's GBP or EUR account at its Payment Bank, in favour of SIX x-clear's Cash Collateral Account at SIX SIS. Before Clearing by SIX x-clear can commence for a Member, SIX SIS (on behalf of SIX x-clear) requires an appropriate direct debit authority/mandate signed by both the Member and its Payment Bank.

Upon a Member's request for the withdrawal of Cash, subject to the availability of sufficient underlying Permissible Collateral to meet Margin and Default Fund Contribution requirements (so that such requirements would continue to be satisfied after such withdrawal), SIX x-clear shall arrange for the return of Cash to the Member's account denominated in GBP or EUR at its Payment Bank. Such available cash collateral is transferred/paid by SIX SIS (on behalf of SIX x-clear) via its Payment Bank (whether a concentration or a correspondence bank) in London.

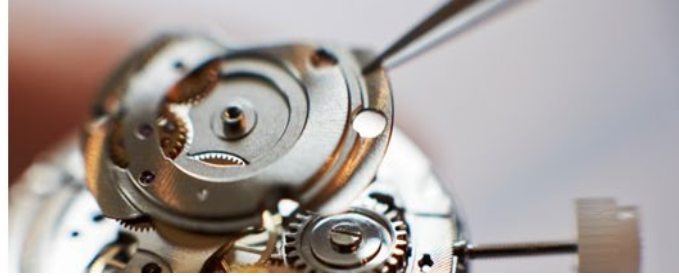
SIX x-clear will secure the co-operation of several financial institutions with regard to the required Margin call settlement services if there is any customer need for such a solution. The Member is responsible for meeting all banking charges imposed or charged by its Payment Bank.

7.5.5 Delivery into the SIX x-clear Collateral Account

Every Member may transfer Margin deposited in its respective Collateral Account as required by the Margin requirements of SIX x-clear ("**Margin Deposits**") to the SIX x-clear Collateral Account at all times. The delivery of Securities can be initiated through SIX SIS or Euroclear UK and Ireland. The delivery of Cash can be initiated through SIX SIS or Payment Banks by Members. The transfer is effected via an ATF (MT542 or MT598-100) instruction for Securities or MT202 instruction for cash transfers, which is to be issued by the Member. SIX x-clear only accepts as Margin Deposits the Permissible Collateral which is defined in chapter 5.0 *Account structures* of this Operational Manual as Margin Deposits and the Lending Norms.

7.5.6 Withdrawal from the SIX x-clear Collateral Account

The withdrawal of Margin Deposits may be instructed automatically by each member (ATF or MT 202/200) or manually by SIX x-clear. The Member is, in the case of manual



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processing, required to submit an appropriate signed request in writing by e-mail to SIX x-clear. Margin Deposits may be withdrawn only when no longer required to satisfy the Member's Margin requirements. If a Member wishes to replace the Margin Deposits, the new Permissible Collateral must be delivered prior to withdrawing the old Permissible Collateral.

The Member must be aware that any replacement or withdrawal of collateral under certain circumstances can be delayed by SIX x-clear. For example, the replacement or withdrawal of collateral may be delayed when pledged cash collateral is placed into short-term repurchase agreements.

The cut-off and best-effort deadlines for Cash and Securities transfers are published in clause 4.3. *Collateral release cut-off times*

7.6 **Collateralization of Co-CCPs: Link Margin Element**

7.6.1 **Preliminary remarks**

When Members trade in inter-operable markets, inter-CCP exposures arise between the two Co-CCPs involved due to the different CCP memberships and inter-CCP Collateral requirements (in accordance with the Pledge Agreement with the respective Co-operating Clearing House [Co-CCP]). Regulators require that these credit exposures are measured, monitored and mitigated separately by the holding of collateral. Such inter-CCP collateral has to be funded and covered by additional assets, which must be independent and be segregated from the collateral provided by the Member.

The Link Margin Element will be levied in the case of SIX x-clear providing clearing services to a Member on Trading Platforms which are also cleared by a Co-CCP. The amount defined by SIX x-clear to cover the overall Co-CCP collateral funding requirements of all Members for all interoperable markets is referred to as the "Link Margin". The individual contribution by the Member is the "Link Margin Element".

As a consequence, each Member shall, in addition to providing Margin and making Default Fund Contributions, provide the so-called "Link Margin Element" to SIX x-clear. The Link Margin Element shall exclusively be applied to finance the Inter-CCP Collateral which is set out by the respective Co-CCP – all in accordance with and subject to the Financial Collateral Agreement.

7.6.2 **Link Margin Element Model**

The following parameters regulate the Link Margin Element model:

- a. The Link Margin Elements shall enable SIX x-clear to meet the Collateral requirements (in the form of Margin) from the Co-CCP under the respective Link Agreement.



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- b. The Link Margin Element shall be based on the Link Margin set by SIX x-clear. SIX x-clear shall calculate the Link Margin based on the recent Margin requirements applicable to SIX x-clear according to SIX x-clear's obligations under the Link Agreements with the Co-CCPs. When deemed necessary for objective reasons, such as but not restricted to triple witching days, a temporary requirement may be necessary, as well as for events with recurring patterns.
- c. The Link Margin set by SIX x-clear shall apply until a new Link Margin is deemed necessary, for example in a situation of unexpected fluctuations in the Collateral requirements applicable to SIX x-clear under the Link Agreement(s).
- d. The Link Margin Element payable by the respective Member shall be the Link Margin distributed between the relevant Members on a pro rata basis. The percentage ratio shall be defined mainly at the end of day (EOD) or exceptionally on an intraday basis.
- e. SIX x-clear may, if required and at any time, vary the Link Margin and Link Margin Element, including but not limited to satisfying intra-day Margin calls made by a Co-CCP. The Link Margin Element shall be posted in Cash or Securities as defined in the Lending Norms (see website: www.six-group.com > Securities Services > Clearing Services > Info Center > Existing Members > Lending Norms).

7.6.3 Calculation of the Link Margin Element

The Link Margin Element (LME) liability is established by means of an Irregular Pledge based on the Contractual Relationship, especially the Financial Collateral Agreement, which is governed by Swiss law. The LME is determined mainly on a daily basis on the pro rata share of the Link Margin based on the Member's end-of-day (EOD) Total Initial Margin (TIM) in proportion to the EOD TIM of all Members in markets where an interoperable arrangement exists. In case of an intraday change of the Link Margin, SIX x-clear will apply the same distribution logic by taking the respective TIM at the time of distribution as the basis for allocating the Link Margin to the Members. This will allow a fair distribution of the Link Margin according to the recent risk level of each Member.

The LME minimum contribution is CHF 0.1 million. The LME is rounded up to the next CHF 0.1 million increment.

The LME is calculated on a daily/intraday basis and has to be delivered within 60 minutes after the receipt of a Margin call. SIX x-clear may recalculate the Link Margin at any time and initiate a Margin call if the Link Margin has to be resized.

The value of the Securities and/or currencies provided for the purpose of financing the LME is calculated on the basis of their current market value after applying the applicable Haircut (see Lending Norms published on the SIX x-clear website) and not on the nominal value of the Securities or currencies deposited in the Collateral Accounts.



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SIX x-clear may issue a Margin call to a Member in order to top up the LME if the value of the LME made available by the Member has been reduced (whereby this value is calculated on the basis of the current market value less the applicable Haircut) and this reduction in value has caused the value of the LME to fall below the level required from the respective Member.

The transfer is effected via an ATF (MT542 or MT598-100) instruction for Securities or MT202 instruction for cash transfer, which is to be issued by the Member. The Member is, in the case of manual processing, required to submit an appropriate request in writing by e-mail.

7.6.4 **Margin call**

The same rules as in clause 7.5.4 *Margin Call*, para 3 apply for a Margin call for the LME. In case the Member is set up for direct debit for Margin Calls in the Swiss Interbank Clearing System (SIC), the Margin Call will be automatically executed in SIC.

7.6.5 **Withdrawal and replacement of Link Margin Element collateral**

The withdrawal of Excess Collateral (as set forth in the Rulebook and the Financial Collateral Agreement) may be instructed manually by each Member or by SIX x-clear. The Member is, in the case of manual processing, required to submit an appropriate request in writing to SIX x-clear either by e-mail or letter. Upon receiving a written request for a withdrawal from the Member, SIX x-clear will retransfer any Excess Collateral.

If a Member wishes to replace Securities and/or Currencies deposited for the purpose of the Link Margin Element, the new Securities and/or Currencies must be delivered prior to withdrawing the old Securities and/or Currencies (see chapter 4.0 *Permissible Collateral*).

The cut-off and best-effort deadlines for Cash and Securities transfers are published in clause 4.3 *Collateral release cut-off times*.

The Member must be aware that any replacement or withdrawal of collateral under certain circumstances (e.g. Triple Witching Day) can be delayed by SIX x-clear. For example, the replacement or withdrawal of collateral may be delayed when pledged cash collateral is placed into short-term repurchase agreements.

Eligible Securities provided for the purpose of the Link Margin Element must be replaced fifteen days prior to their maturity date or redemption.

7.6.6 **Collateral Requirement to Co-CCPs (Add-On to Co-CCPs)**

Under the "Pledge Agreement for SIX x-clear as a Collateral Receiver", SIX x-clear is entitled to receive a pledge from the respective Co-CCP over the security items claimed as Collateral Requirement (as defined in the Pledge Agreement with the respective Co-



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CCP) for the coverage of the risk of its actual credit exposure to that Co-CCP (“Balance Position” as defined in the MCLA).

The Collateral Requirement shall be assessed and claimed by SIX x-clear as follows:

- i. SIX x-clear shall effect a calculation of the Collateral Requirement in accordance with its methodology for the calculation of Total Margin as described in chapter 8.1.3 *Total Margin* and additional add-ons as agreed between interoperating CCPs (the “SIX x-clear Collateral Reference”).
- ii. For the corresponding credit exposure (Balance Position), SIX x-clear will receive and acknowledge the Collateral Requirement as calculated, assessed and submitted by the respective Co-CCP under the “Pledge Agreement for SIX x-clear as a Collateral Giver” (the “Co-CCP Collateral Reference”).
- iii. SIX x-clear shall compare its SIX x-clear Collateral Reference with the Co-CCP Collateral Reference and shall fix the higher of the two amounts as its Collateral Requirement to the Co-CCP. The Collateral References compared shall be adjusted for variation Margin.

For the claiming (by Margin call), administration and release of the security items of the Collateral Requirement provided by the Co-CCPs, the rules of the MCLA (including the Pledge Agreements and the Inter-CCP Procedures) shall apply.

7.7 **OTC Extended Window Clearing Service**

If the Member has opted for a Trading Platform for which SIX x-clear provides the OTC Extended Window Clearing Service (6:30 p.m. to 7:30 p.m. (CET)), the respective Member has to cover the additional risk.

The following Trading Platforms provide OTC Clearing transactions during the extended clearing window:

- Traiana
- Cboe ETR

Members which have opted for the Trading Platform with OTC Extended Windows Clearing Service have to ensure support for Margin calls until 9:00 p.m. (CET) as in clause 7.5.4 *Margin Call*.



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8.0 SCP Margining

8.1 Equities

The SCP Margin model is based on a Monte Carlo Value-at-Risk (VaR) approach. Monte Carlo VaR allows SIX x-clear to generate sufficient profit and loss (PnL) scenarios for portfolio margining. The parametric assumptions for return simulations, such as volatility and correlations, will be checked daily against historical data, resulting in better calibration and quick adjustment to changing market conditions.

SIX x-clear will utilise an integrated generalised auto-regressive conditional heteroscedasticity model (I-GARCH) with Student-t distributed residual for volatility estimation. Volatilities are floored against a long-term volatility estimate.

The correlation between assets is estimated using a shrinkage-based approach with an average correlation shrinkage target. Shrinkage intensity is determined following a Bayesian analysis with an inverse-Wishart prior. The return simulations are generated sampling from a multi-variate t-distribution with fixed number of degrees of freedom. The simulations are scaled by \sqrt{MPOR} where $MPOR$ is the Margin period of risk. Following the portfolio aggregation of the simulations, the base initial Margin is given as VaR 99%.

8.2 Fixed income

The risk model for fixed income instruments will be based on yield curves. By using yield curves SIX x-clear can price fixed income instruments consistently. SIX x-clear considers a yield curve model based on principal components analysis (PCA) method. The covariance matrix of yield differences is estimated using an exponentially weighted (EW) estimator with $\lambda=0.97$.

In the Margin system, multiple yield curves are required to determine initial Margin for fixed income instruments differing, for example, in currencies and ratings. Accounting for the correlation between the curves, one joint PCA is used where the number of retained components is determined as follows:

- N=3 components per currency,
- One additional component for each credit spread curve,
- Number of FX conversion rates.

SIX x-clear simulates the PC factors 7 days ahead by sampling independently from t-distributions. Using the PC loadings, one rotates back to simulations of yield difference at the original tenors. Finally, simulated yields are constructed by adding the simulated differences to the last observable yields in the data.

Simulated bond prices require yield simulations at time-to-maturities differing from the standard tenors. These simulations are obtained by inter- and extrapolation of the simulated curve.



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Fixed income price simulations are obtained by using simulated yields in the bond pricing formula.

The initial Margin is found as the VaR 99% of the PnL simulations. Please note that there will be no cross-margin between the fixed income and equity segments.

8.3 Margin addons

8.3.1 Risk coefficient addon

The same as in the current Margin model, the SCP will contain a credit rating dependent initial Margin component. The initial Margin is increased by a certain factor depending on the rating of the Member. The factors are going to be as follows:

Rating	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	≥BB+
Risk coefficient	1	1	1	1	1	1	1	1.25	1.5	1.75	2

8.3.2 Wrong-way risk addon

Wrong-way risk is the adverse correlation between market risk exposure and counterparty credit risk.

In detail, the instruments in the clearing portfolio are assigned to industry sectors following a SIX Financial Information classification. Analogously, the industry sector of the Member is established. In addition, the credit rating of the Members is mapped to the probability of default as assigned internally by SIX x-clear .

Market and credit risk are correlated using a Gaussian copula. Default events are extreme tail observations of the credit risk distribution. The wrong-way risk adjusted initial Margin is defined as the 99% quantile of the P&L distribution conditional on default.

8.3.3 Liquidity addon

Liquidity risk manifests itself in the occurrence of large bid-ask spreads and the price impact in closing large positions of a defaulted Member. For a single instrument the liquidity adjustment is given by

$$\mu_n = \alpha_n |\Delta h_n| - \beta_n \sigma_n \frac{|\Delta h_n|^{\frac{3}{2}}}{\sqrt{v_n}}$$

where Δh_n is the execution amount of the security over a specific time horizon τ . In addition, v_n is the volume traded in the market over the period τ and σ_n is the volatility of the security. The parameter alpha is the mid-price



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$$\alpha_n = \frac{p_{bid,n} - p_{ask,n}}{2}.$$

Parameter values for β are calibrated depending on the realization of a liquidity volatility index. Generally, β is only depending on the asset class dependent, not the individual instrument.

The liquidity addon for clearing portfolios is found by aggregating the individual liquidity addons.

8.3.4 Stress Margin addon

Stress tests are computed six times during the day. All sequences trigger a subsequent stress Margin addon computation. The stress Margin addon for the financial group FG is given as

$$STMA = \min(0, mEUL_{FG} + c \times \sum_{WF(FG)} DF_{WF} + \sum_{WF(FG)} SIG_{WF})$$

where $mEUL_{FG}$ is the largest expect uncovered loss, linked to a specific stress scenario, at financial group level. Additionally, DF_{WF} are the sizes of the default fund in various default waterfalls that FG is assigned to. The term SIG is SIX x-clear 's skin in game of the various default waterfalls.

The factor c controls the amount of default fund resources that can absorb stress losses given the default of the financial group. Currently, c is fixed to 0.45. Note that if the combined default fund contributions of the financial group are larger than

$$c \times \sum_{WF(FG)} DF_{WF},$$

the former are used instead.

The stress Margin addon for financial groups is broken down to Clearing Member level following pro rata to uncovered losses per member as

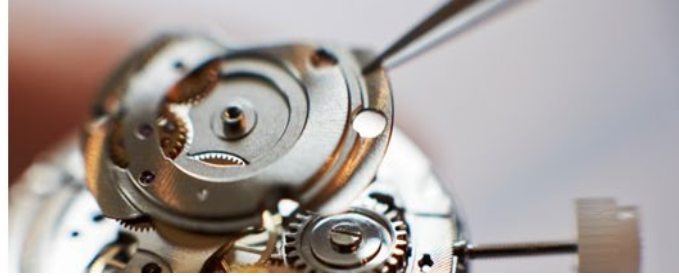
$$STMA_{CM} = \frac{\min(mEUL_{CM}, 0)}{mEUL_{FG}} \times STMA_{FG}.$$

Analogously, the stress Margin add-on on account level for clearing member CM is given as

$$STMA_{ACC} = \frac{\min(mEUL_{ACC}, 0)}{mEUL_{CM}} \times STMA_{CM}.$$

8.3.5 Linked margin addon

A linked Margin addon will be charged to Members based on the Margin requirement received by the Co-CCPs in interoperable markets. The Margin requirements demanded



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by the Co-CCPs will be aggregated and distributed pro rata according to the Member's previous day end-of-day Initial Margin (with add-ons). Intra-day Margin updates sent by the Co-CCPs will be reflected in the next Margin run using the same distribution mechanism as explained above.

8.3.6 Variational Margin and total Margin

SCP will receive a price data snapshot from SIX Market Data Feed (MDF). A snapshot request will be sent for every Margin run, e.g. intraday every 10 minutes, for all Clearing-eligible instruments. Total Margin requirement is given by

$$TM = \text{Max}(IM + Addons + VM; 0).$$

8.3.7 Fallback Margin

Instruments that do not have sufficient historical price data are not subject to the full-fledged Monte Carlo Margin method. For an instrument to be included in the I-GARCH model, the system requires 125 non-zero returns in the last 250 business days. An instrument will be included in the correlation model if first, the estimated current and historical volatilities are larger than a configurable threshold and second, 220 price updates have been observed in the last 250 business days.

If any of these conditions are violated, the instrument is excluded from correlation or volatility modelling, respectively. In order to assign Margin in such a situation, a flat Margin rate methodology will be applied. Fallback instrument Margin is added, i.e. there is no offsetting. Margin rates are configurable per instrument.

Generally, the computation is as follows

- If net quantity > 0, i.e. the position is long:

$$IM_Flat = |MV| \times \min((\sigma + \sigma_{FX}) \times FR, 1),$$

where MV , σ , σ_{FX} denotes the market value of the position, the volatility of the instrument and the volatility of a possible FX conversion. FR , the flat rate, is the parameter controlling the Margin amount that is blocked. The overall initial Margin is capped at 100% for long positions.

- If net quantity < 0, i.e. the position is short:

$$IM_Flat = |MV| \times (\sigma + \sigma_{FX}) \times FR.$$

For fixed income instruments, the flat rate should represent a major yield shift. The generic computation of IM_{Flat} is therefore enhanced by modified duration MD of the bond position. Hence one has



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$$IM_{Flat}^{FI} = |MV| \times |MD| \times (\sigma_{IR} + \sigma_{FX}) \times FR,$$

where σ_{IR} is an estimated of the volatility of the relevant yield tenor.

The default value for the flat Margin rate FR will be

$$FR = \sqrt{MPOR} * T^{-1}(\alpha, \nu) \times \sqrt{\frac{\nu - 2}{\nu}},$$

where T^{-1} is the quantile function of the t-distribution with ν degrees of freedom. The target quantile α is usually 0.99 and the Margin period of risk MPOR is asset class-dependent.

Additionally, the Margin add-ons will have fallback mechanisms defined. For fallback instruments, the wrong-way risk margin component will be given as

$$IM_{WWR} = FR_{WWR} \times IM,$$

where IM is the base initial Margin and FR_{WWR} is a Margin rate depending on the Member rating, whether the member is small or large cap, and the position type, i.e. is the position own security or from the same economic sector as the Member.

8.4 Stress testing

SCP will use scenario-based stress testing. In the following subsections we list all available scenario types in SCP.

8.4.1 Macroeconomic stress scenarios

Each instrument will have to have a sector index assigned to it. Stress events are defined on indices. Index stress returns that are not set manually are filled with conditional expectation.

Index shocks are transferred to instruments following

$$r_{stress}^S = \frac{\sigma_S}{\sigma_I} r_{stress}^I,$$

where $r_{stress}^S(r_{stress}^I)$ is the stress shock on instrument (index). The volatilities are exponentially weighted estimates. Note that yield curve instruments will be mapped to a configured reference yield curve.

The definition of macroeconomic scenarios will follow hypothetical stress scenarios currently used by SIX x-clear .



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8.4.2 Break of correlation

This scenario randomly interchanges filtered historical simulations, i.e. residuals r_t/σ_{t-1} , for each instrument and yield curve with a defined probability. One obtains scrambled return simulations with reduced correlation. The stress value is computed as the portfolio VaR of the simulations.

8.4.3 Boost of correlation

The methodology is similar to the break of correlation scenario. Instead of randomly interchanging, the residuals will be replaced by an index residual with a certain probability. Using the same residuals will effectively increase the correlation among instruments.

8.4.4 Historical date scenarios

Historical scenarios will be comprised of stress events from the following years: 2001 to 2003, 2008 to 2011, 2015, 2020.

8.4.5 Idiosyncratic scenarios

We will use these stress scenarios to model idiosyncratic shocks to single titles. In order to find a coherent, extreme, but plausible scenario we apply the following strategy.

The scenarios are determined by optimizing the Mahalanobis distance/ likelihood under loss constraints on recent Member portfolios cleared at SIX x-clear . Due to the loss constraints, these scenarios will have a reverse stress testing component.

Primarily, we will generate scenarios corresponding to specific SIX x-clear Member defaults or singular events like the Gamestop short squeeze.

8.5 Margin call

A Margin call will be raised by SIX x-clear to Member(s) to post additional collateral to offset credit risk in case of unsecured Margin requirements.

If, at any time, the Margin provided is insufficient, SIX x-clear will automatically issue a Margin call in real time denominated in Norwegian krone (NOK).

The following rules apply:

1. The Margin call is in principle to be met in the form of Cash.
2. Permissible Collateral to satisfy Margin calls in the form of Cash shall be transferred to the Cash Account designated to the Member or the SIX x-clear / Registered Client by SIX x-clear.



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3. The daily Margin call is calculated each Business Day after completion of the first settlement in VPO and is notified to the Member. Margin calls for SIX x-clear / Registered Clients are notified to its Clearing Administrator.
4. SIX x-clear calculates the Margin continuously through the Business Day in accordance with its Margin methodology. The Margin methodology is available on the SIX x-clear website.
5. SIX x-clear will continuously recalculate the Margin and the value of the Permissible Collateral during the Business Day.

If the Margin call is not satisfied by the Member or the SIX x-clear / Registered Client within the stipulated time, the Default rules pursuant to the GTC of the Norwegian Branch shall apply.

8.5.1 Daily Margin call

The daily Margin call is calculated each Business Day after completion of the first settlement in VPO and is communicated to the Members. Margin calls for SIX x-clear / Registered Clients are notified to the relevant Clearing Administrator. The Margin call needs to be fulfilled by **11:00 am CET** at the latest.

SIX x-clear calculates the Margin continuously during Business Hours in accordance with its Margin methodology.

8.5.2 Extraordinary Margin call

SIX x-clear will continuously recalculate the Margin and the Permissible Collateral value during the Business Day. SIX x-clear may define limits on risk exposure applicable to the Members. Upon a breach of such limits, SIX x-clear will issue an Extraordinary Margin call.

SIX x-clear may issue an Extraordinary Margin call if the Permissible Collateral provided by a Member or the SIX x-clear / Registered Client is deemed to be insufficient to cover the risk of the Member or the SIX x-clear / Registered Client, or due to prevailing market conditions, or for any other imperative reason (including prior to a Business Day which is not a Norwegian banking day).

Each Margin call must be met within the deadline communicated by SIX x-clear. Margin calls issued by no later than 5:00 p.m. (CET) have a deadline on the same day. All deadlines have to be met within a **maximum of 60 minutes** after the call is issued. Under extraordinary circumstances, Margin calls may also be issued after 5:00 p.m. (CET). If a Margin call after 5:00 p.m. (CET) cannot be satisfied on the same day, it has to be fulfilled by no later than 9:00 a.m. (CET) on the next business day.



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9.0 SIX x-clear Default Fund

The Default Fund represent the Members' funded contributions towards the CCP's mutualized loss sharing arrangement as agreed in the respective Financial Collateral Agreements to cover a Member and/or Co-CCP default. According to the Rulebook, Members are required to participate in and contribute to the Default Fund of SIX x-clear.

SIX x-clear has one single Default Fund, which may have various Default Fund Segments.

The following Default Fund Segment(s) are active:

Cash Markets (equities/bonds)

Based on the Trading Platform Product segment(s) which the Member is clearing through SIX x-clear, it shall be assigned to the corresponding segment of the Default Fund.

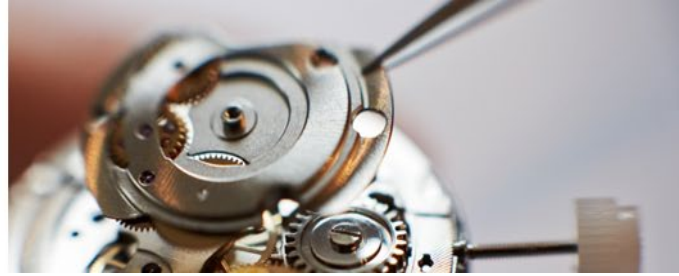
The total size of the Default Fund is the sum of the sizes of the respective Default Fund Segments. The sizes of the Default Fund Segments are defined to cover the default of the two largest participants or participant groups ("cover 2 principle") of each Default Fund Segment. The size of the Default Fund is published as part of the CPMI-IOSCO quantitative reporting (16.1) on the official website: www.six-group.com > Securities Services > Clearing Services > Info Center > Regulatory Disclosure.

9.1 Calculation of Default Fund Contribution

The amount of the Default Fund Contribution payable by the Member into the respective Default Fund Segment of SIX x-clear is dependent on the membership category (SIX x-clear ICM or SIX 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.

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

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



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Calculation of 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 the Member's risk profile

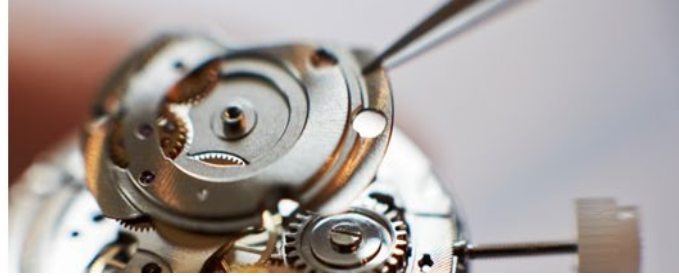
$[A]^+ = \max(A, 0)$: optionality of possible losses

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

An upfront Default Fund Contribution defined by SIX x-clear will be required for the initial phases of the Clearing of Trading Platform Transactions. For new Members, SIX x-clear may determine the upfront Default Fund Contribution based on expected Clearing volumes.

The value of the Securities and/or currencies (in relation to Cash) deposited by way of Default Fund Contribution is calculated on the basis of their current market value after applying the applicable Haircut (as published in the Lending Norms on the SIX x-clear website) and not on the nominal value of the Securities or currencies deposited.

The types and the release of Permissible Collateral and their respective values are specified in chapter 5.0 *Account structures* of this Operational Manual.



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9.2 Additional Default Fund Contributions

Members are obliged to make additional Default Fund Contributions to SIX x-clear's Default Fund if one of the following situations occurs:

9.2.1 Increase of contribution requirements

The Median of the Initial Margin (MIM) is calculated on a monthly basis according to clause 9.1 *Calculation of Default Fund Contribution* of this Operational Manual. A change in the MIM (increase/decrease) will necessitate an adjustment to the Default Fund Contribution to be made.

If the contribution needs to be adjusted, the relevant Member shall be notified. The adjustment must be effected within two calendar days of the notification. If the additional Default Fund Contribution is not made within the stipulated period of two calendar days, SIX x-clear will issue a Margin call and perform a direct debit.

The debit is made to the Member's designated account for direct debits applicable to Margin requirements. The provisions of chapter 7.0 *SECOM Margining* and chapter 8.0 *SCP Margin Model* apply to Margin calls issued.

9.2.2 Price fluctuations

If the Default Fund requirements are not met as a result of a decrease in the value of the Permissible Collateral in the Default Fund, SIX x-clear will notify the Member accordingly. The Member shall provide additional Permissible Collateral within 60 minutes of being notified by SIX x-clear.

9.2.3 Drawdown on Default Fund Segment

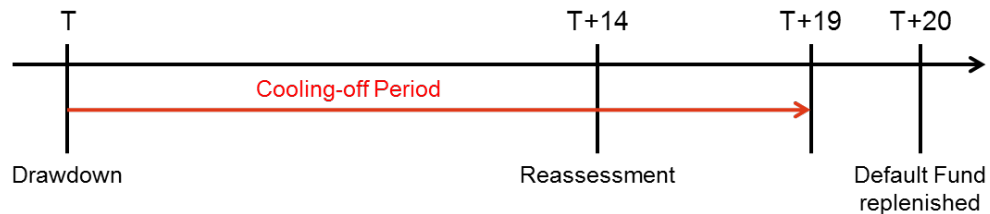
According to the Financial Collateral Agreement and the Rulebook, any drawdown of the respective Default Fund Segment affected by a Member Default gives rise to an obligation on each non-Defaulting Member to replenish this Default Fund Segment through supplementary contributions.

Following any full or partial drawdown of a Default Fund Segment, a grace period ("Cooling-off Period") sets in for a time of 20 Business Days. During this period, non-Defaulting Members are relieved from making Supplementary Contributions in respect of that drawdown. A reassessment of the Default Segment size will be effected five Business Days prior to the end of the Cooling-off Period.



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The Replenishment Obligation of the respective Default Fund Segment will continue throughout the entire Membership duration of a Member. Notifications requiring the Member to provide additional Permissible Collateral in favour of the Default Fund Segment will be made by SIX x-clear to Members in writing.

Permissible Collateral to restore the Default Fund Segment to its required size must be transferred to SIX x-clear one Business Day before the end of the Cooling-off Period, i.e. at the latest T+20. Should SIX x-clear not receive sufficient eligible Collateral to cover the Replenishment Obligation of the Default Fund, SIX x-clear will send a Margin Call on T+20, which must be covered within 60 minutes.

9.3 Top-up Contribution

According to the Rulebook, in cases of an Extraordinary Default causing a loss which exceeds that Default Fund Segment's current size ("Exceeding Drawdown"), a Top-up contribution as coverage for such exceeding loss will be requested from non-Defaulting Members. The Top-up Contribution will only come into effect if all preceding Layers of Collateral have been exhausted.

The amount of the Top-up Contribution is limited per default event to a maximum of three times the individual Default Fund Contribution by the Member to the entire Default Fund Segment at the time of the Default leading to an exceeding loss beyond the size of the Default Fund Segment ("Exceeding Drawdown"). A Top-up Contribution can be requested up to 3 times within a 6 month timespan.

The Top-up Contribution shall be collected through a Margin call and must be provided by the Members within 24 hours.



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10.0 Application of collateral (Default Waterfall)

In the event of one or several Events of Default of a Member, a) the contributions from the defaulting Member, b) SIX x-clear’s dedicated own equity contribution, c) the Default Fund and d) the Top-up Contributions shall be used for the coverage of such Event of Default(s) in the order of priority as defined in the Rulebook. This is depicted in the following graph:

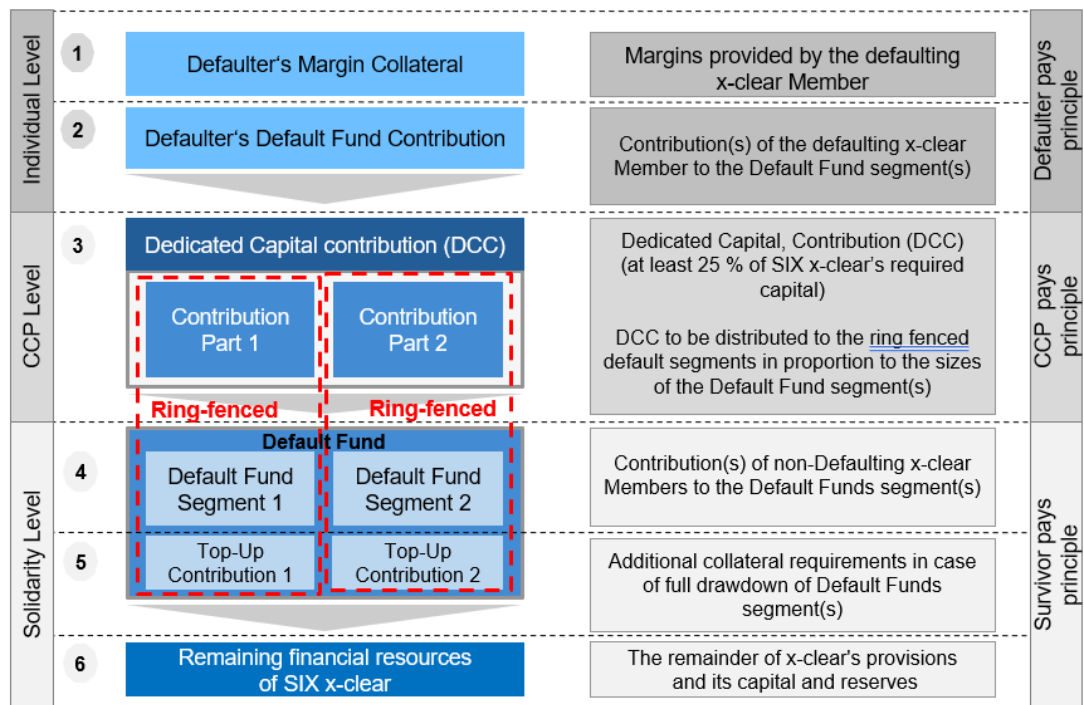


Figure 8: SIX x-clear Default Waterfall

10.1.1 Dedicated Capital Contribution by SIX x-clear AG (CCP Level)

In the event of a Member default at any day t, SIX x-clear shall apply its own available dedicated resources (i.e. “skin in the game”) amounting to:

$$SIG_t = \text{Max}(SIG_A, SIG_{B,t})$$

where for the current quarter Q=0:

$$SIG_A = 25\% * \frac{1}{4} \sum_{i=1}^4 (\text{Required Capital ERV}_{Q=-i} + \text{WindDown}_{Q=-i})$$

and

$$SIG_{B,t} = 25\% * \text{Required Capital ERV}_t$$



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10.1.2 Example of collateral application in case of sequential Defaults of a Member

The chart below shows a potential evolution of the last four layers of the Waterfall of resources, using the hypothetical example of an extreme total loss of CHF 475 million due to four Default events occurring within 20 days (i.e. within the Cooling-off Period following the first Default).

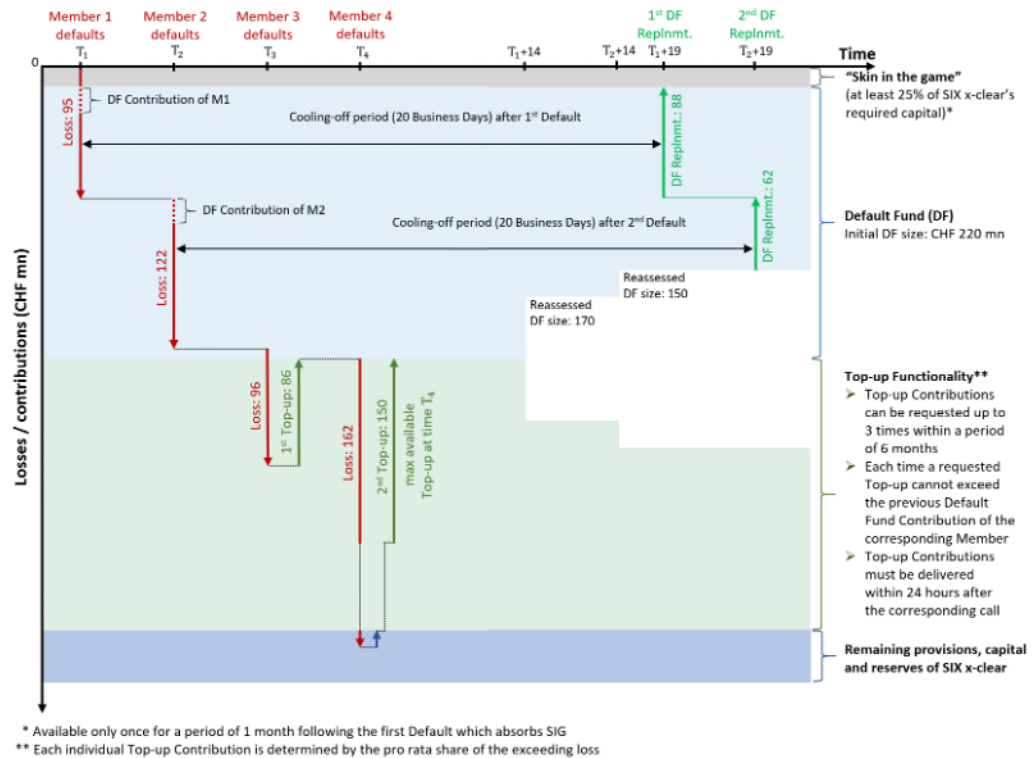


Figure 9: Multiple Member Defaults in a short time period (theoretical example)

T₀ = 0: We assume that SIX x-clear's dedicated capital contribution ("skin in the game") is 7 million and that the Default Fund (DF) is 220 million. Theoretically, maximum possible Top-up Contribution = 220 – smallest DF Contribution (in million).

However, following a default it will decrease by the initial DF Contribution of the defaulting Member.

T₁: M1 defaults; we assume that the induced loss after the reduction of the Initial and Variation Margin of M1 is 95 million; entirety of SIX x-clear's "skin in the game" is used and absorbs 7 million of the loss; DF Contribution of M1 was 18 million; DF absorbs remaining 70 million and reduces to 132 million (220 million – 18 million – 70 million); maximum available top-up capacity is 202 million (220 million – 18 million).

T₂: M2 defaults; DF Contribution of M2 was 20 million; we assume that the induced loss after the reduction of the Initial and Variation Margin of M2 is 122 million; the



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remaining DF (132 million) absorbs the loss and reduces to 10 million; maximum available top-up capacity is 182 million (202 million – 20 million).

T₃: M3 defaults; DF Contribution of M3 was 14 million; maximum available top-up capacity is 168 million (182 million – 14 million); we assume that the induced loss after the reduction of the Initial and Variation Margin of M3 is 96 million; the remaining DF (10 million) absorbs 10 million and is depleted. A Top-up Contribution of 86 million¹ (96 million – 10 million) is called (1st top-up).

Every non-defaulting Member j ($4 \leq j \leq N$) provides $\frac{w_j}{\sum_{4 \leq j \leq N} w_j} \times (86 \text{ mn})$, where w_j is the proportionality coefficient of the Member j determined in the distribution of the DF at time T_0 and N is the initial number of non-defaulting Members. Individual Top-up Contribution amounts in the next top-ups are determined analogously.

T₄: M4 defaults; DF Contribution of M4 was 18 million; maximum available top-up capacity is 150 million (168 million – 18 million), DF has been depleted; we assume that the induced loss after the reduction of the Initial and Variation Margin of M4 is 162 million; (maximum possible) Top-up Contribution of 150 million is called (2nd top-up); remaining loss of 12 million is absorbed by the last defence layer (SIX x-clear's remaining provisions, capital and reserves).

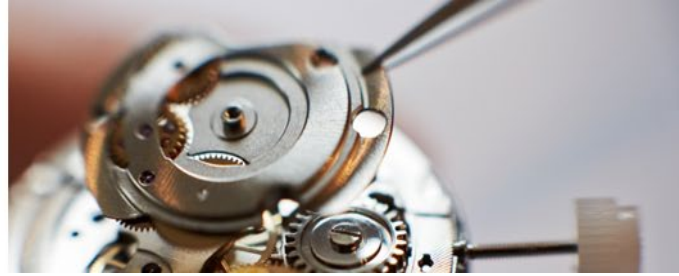
T₁+14: New DF size is calculated and reduced from 220 million to 170 million (Reassessment).

T₁+19: Non-defaulting Members replenish 88 million of the DF (Replenishment).

T₂+14: New DF size is calculated and reduced from 170 million to 150 million (Reassessment).

T₂+19: Non-defaulting Members replenish 62 million (150 million – 88 million) of the DF (remaining required amount to fill the DF to the newly reassessed level).

A third Top-up Contribution within 6 months is available in case the loss following a further default event exceeds the available Default Fund resources.



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11.0 Suspension and termination procedures

The Rulebook determines the rights and obligations of SIX x-clear and Members relating to the suspension of Clearing Services and the termination of Membership.

The respective procedures are as follows:

11.1 Suspension and termination procedure with regard to Members

A request for suspension and/or termination may come from either:

- the Trading Platform;
- the Member; or
- SIX x-clear.

11.2 Required information

Any requesting party is required to provide the following:

- Name and member ID (if available) of the ICM or GCM concerned
- Names and member IDs (if available) of relevant NCMs in the case of a GCM
- Reason(s) for suspension/termination
- Date and time of suspension/termination
- Trading Platforms and/or Product Segments where the Member was active
- Any regulatory announcement regarding the Member, if available
- Any other steps required.

11.3 Actions and timelines

11.3.1 Request by the Trading Platform

The Trading Platform, in accordance with its stock exchange rules, can suspend a Trading Platform Member. Following a decision to suspend a Trading Platform Member, the procedure of SIX x-clear for a Member Default will be prompted (see clause 11.6 *Suspension/Default communication process*).

11.3.2 Request by the Member

A Member can only have its Membership at SIX x-clear suspended or terminated by sending a written notice to SIX x-clear via e-mail, providing the necessary information as specified in clause 11.2 *Required information*.

SIX x-clear verifies the request. A valid request is confirmed to the Member and forwarded together with SIX x-clear's endorsement to the relevant body of the Trading Platform (e.g. market control or compliance) via e-mail within 30 minutes of receipt.

The Trading Platform confirms the receipt of the request via e-mail within 15 minutes.



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The Trading Platform then takes all necessary steps to ensure that the relevant Trading Platform Member can no longer conclude Transactions in the name of the Member from the date and time indicated on the request. Until the date and time indicated on the request, the existing setup remains in full force.

The Trading Platform confirms to SIX x-clear via e-mail that the appropriate measures have been taken. In addition, the Trading Platform is supposed to inform the Trading Platform Member of the execution of its request via e-mail.

SIX x-clear adapts its internal systems accordingly.

SIX x-clear confirms to the Member via e-mail that the request has been/will be executed with the date and time indicated on the request. Until the date and time indicated on the request, the existing setup remains in full force.

11.3.3 **Request by SIX x-clear**

SIX x-clear, in accordance with the Applicable Laws, the Contractual Relationship and its internal regulations and processes, can suspend a Member. Such a suspension may be followed by the Close-out Procedure for a Member's Default if deemed necessary and as regulated in the Rulebook.

11.4 **Member reinstatement**

11.4.1 **Request by the Trading Platform**

To reinstate a Trading Platform Member as a Member, the rules and processes of the respective Trading Platform are to be considered.

11.4.2 **Request by SIX x-clear**

To reinstate a Member, the rules and processes for a new Member are followed, including the completion of the required forms.

11.5 **Change of Member setup**

If the Member wishes to change its setup (alter or extend the scope of its Membership) with SIX x-clear, a form with the relevant information needs to be completed and sent to SIX x-clear.

SIX x-clear validates the request and upon acceptance, confirms this to the Member via e-mail within 24 hours of receipt. SIX x-clear forwards the relevant information to the Trading Platform concerned within 24 hours of receipt.

SIX x-clear and the Trading Platform carry out the changes for the relevant setup for the Member for the indicated date and time and confirm the execution of the change to each other via e-mail. SIX x-clear confirms the execution of the changes to the Member.



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11.6 Suspension/Default communication process

11.6.1 Member declaring Suspension/Default

A Member declaring itself in Suspension and/or Default has to provide the following information:

- Name and member ID (if available) of Member
- Names and member IDs (if available) of relevant NCM in the case of a GCM
- Reason(s) for Suspension / Default
- Effective time of Suspension / occurrence of Default
- Trading Platforms and/or Product Segments that the Member was active on
- Statutory reporting obligations, if applicable
- Any other steps required

11.6.2 Trading Platform declaring a Member in Suspension/Default

The responsible officials from the Trading Platform will decide whether to declare a Member in Suspension and/or Default in compliance with the applicable stock exchange regulations.

In the event that the Trading Platform declares the Member in Suspension and/or Default, it shall disable any associated dealing relationships for the Member and its NCMs (in the case the Member is a GCM) within 15 minutes. Furthermore, the Trading Platform shall disable order entry and delete any existing orders of the member in the SIX x-clear markets, where appropriate.

Immediately (within a maximum of 15 minutes) after the declaration of Suspension and/or Default (Default Notice), the Trading Platform informs SIX x-clear via telephone that it has done so, followed by an e-mail with the required information (see clause 11.2 *Required information*).

The responsible officials of the Trading Platform issue a notice to the market containing this information about the Suspension or Default of the relevant Member via e-mail within 30 minutes.

11.6.3 Procedure by SIX x-clear

SIX x-clear verifies the declaration of Suspension and/or Default by a confirmatory call to the respective body within the Trading Platform.

SIX x-clear initiates its own Suspension and Default procedures in accordance with the Rulebook and its internal Default Procedure Handbook. In particular, it informs the involved Member, the trading venues, the regulators, its Co-CCPs and the European Association of Clearinghouses (EACH).



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SIX x-clear takes all necessary steps to disable the appropriate Member (i.e. suspend Open Offer/Novation for that Member) within 15 minutes of verification. After successful disabling, it is confirmed to the Trading Platform via e-mail (within a maximum of 15 minutes). In the event that SIX x-clear declares a Member Default, it will provide the Trading Platform with the required information immediately by telephone followed by an e-mail.

SIX x-clear informs its own regulator (FINMA and the Swiss National Bank) about the Suspension or Default of a Member with the information specified in clause 11.2 *Required information*.

If the Defaulting Member is active in markets where SIX x-clear interoperates with other CCPs, SIX x-clear will inform the relevant foreign regulator(s) via its home regulator (FINMA) as well as the involved Co-CCP(s) directly of the details according to clause 11.2 *Required information*.

Furthermore, SIX x-clear, as a member of the European Association of Central Counterparty Clearing Houses (EACH), is also obliged to inform EACH's members of the Default of a Member. The information is to be provided to EACH along the lines as set out in clause 11.2 *Required information*.

11.7 **Procedural details of SIX x-clear declaring a Member in Suspension/Default**

11.7.1 **SIX x-clear level**

Responsible officials and senior management of SIX x-clear and SIX Securities & Exchanges decide whether to declare the Member in Default in compliance with the Applicable Laws, the Contractual Information and SIX x-clear's rules and processes.

In the event that SIX x-clear declares a Member Default, it shall inform the defaulting Member and the Trading Platform(s) immediately by telephone followed by an e-mail with the required information.

After 15 minutes, SIX x-clear implements all the steps necessary to disengage the Defaulting Member's access to the Clearing Services (i.e. suspension of Open Offer/Novation for that Member) and the relationship to the Member. Upon completion, the successful disengagement is confirmed to the Trading Platform via e-mail (within a maximum of 15 minutes). In the case of Oslo Børs, the whole disengagement process may take up to 60 minutes.

SIX x-clear informs its own regulator (FINMA and the Swiss National Bank) about the Default of a Member.

If the Defaulting Member is active in markets where SIX x-clear interoperates with other CCPs, SIX x-clear will inform the involved Co-CCP(s) with the required details.



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SIX x-clear, as a member of European Association of Central Counterparty Clearing Houses (EACH), shall inform the other EACH members of the Default of a Member. The shared information will be the same as set out in clause 11.2 *Required information*.

11.7.2 Trading Platform level

The Trading Platform shall verify the declaration of Default by returning the call to the respective body within SIX x-clear (Risk Operations team).

The Trading Platform shall implement all steps necessary to disable any associated dealing relationships for the Member and its NCMs (in case the member is a GCM) within 15 minutes. Furthermore, the Trading Platform disables order entry and deletes any existing orders of the Member in the SIX x-clear markets, where appropriate. In the case of Oslo Børs, the whole disengagement process will take 60 minutes.

Upon completion, the successful disablement is confirmed to SIX x-clear via e-mail (within a maximum of 15 minutes).

11.8 GCM declaring an NCM's Suspension

11.8.1 GCM

Responsible officials from the GCM will decide whether to suspend the NCM from their clearing services through SIX x-clear in compliance with their contractual relationship with the NCM.

They inform SIX x-clear, the relevant Trading Platforms(s), Settlement Agent(s) and Central Securities Depositories accordingly.

- **London Stock Exchange (LSE):** The LSE has to be informed directly by the GCM according to the rules of the stock exchange.
- **SIX Swiss Exchange and MTFs:** SIX x-clear has to be informed immediately by the GCM by telephone followed by an e-mail with the required information (pursuant to clause 11.2 *Required information*).
- **SIX SIS (only SECOM user):** SIX x-clear has to be informed immediately by the GCM by telephone followed by an e-mail with the required information (pursuant to clause 11.2 *Required information*). SIX SIS will relay the information to the central custodians (in particular, SIX SIS) if needed.

The liability of the GCM for unsettled contracts and any other outstanding obligations of the NCM are set out in the Rulebook.



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11.8.2 **SIX x-clear**

SIX x-clear verifies the declaration of Suspension or Default by returning the call to the respective body within the GCM and the Trading Platform. After verification, SIX x-clear takes all steps necessary to disable the respective NCM (i.e. suspension of Open Offers/Novation) within 15 minutes, where necessary.

The successful disengagement will be confirmed back to the GCM and the Trading Platform by e-mail (within a maximum of 15 minutes).

11.8.3 **Trading Platform**

The Trading Platform verifies the Suspension or Default Notice by returning the call to the respective body within the GCM and SIX x-clear (x-clear Risk Operations team). After verification, the Trading Platform takes all necessary steps to disable any dealing relationships associated with the NCM within 15 minutes. The Trading Platform disables the order entry function and deletes any existing orders of the respective member where appropriate. This will be confirmed to the GCM and SIX x-clear via e-mail.

12.0 **Portability**

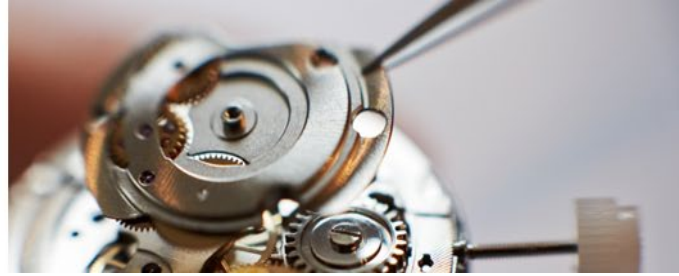
12.1 **General**

In case of the default of a Member, a CCP can be committed to trigger the procedures for the transfer of positions and collateral held by the defaulting direct Member (GCM) for the account of its clients (Non-Clearing Member or NCMs) to a transferee, i.e. the "Back up GCM". The process is known as Portability or Porting.

SIX x-clear offers portability services exclusively for its General Clearing Members (GCMs) and their clients (NCMs). The following jurisdictions are currently supported by SIX x-clear with respect to portability:

- Germany
- Switzerland
- United Kingdom

For the countries outlined above, SIX x-clear has verified the legal soundness and enforceability of the offered segregation and portability by obtaining external legal opinions (in particular, based on the applicable insolvency law) in the country of domicile of the respective GCM. If the GCM is domiciled in a jurisdiction other than those stated above, this GCM shall provide a legal opinion as to the legal soundness and enforceability of the selected solution.



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12.2 Portability process in case of segregated accounts

The objective of Portability is to protect the positions (from Outstanding Contracts) and assets (in particular, Permissible Collateral) of NCMs recorded on a Segregated Account in case of the Default of the GCM.

This shall be achieved, in the case of NCMs, by transferring Outstanding Contracts and Permissible Collateral (provided as Margin) to another Member ("Back-up GCM") in accordance with the Contractual Relationship. A transfer is also effected in case the NCM is admitted to Membership at SIX x-clear and is now acting as an ICM to its own accounts. Consequently, continuous Clearing of the NCMs' Trading Platform Transactions Single Contracts will be ensured.

The scope of Portability is limited to Outstanding Contracts in the Clearing Accounts and Permissible Collateral in the Collateral Accounts (whether Cash or Securities), which are recorded in an individual account segregated for the relevant NCM (Segregated Account). Such transfers shall be effected at the NCM's request and shall not require the consent of the defaulting GCM.

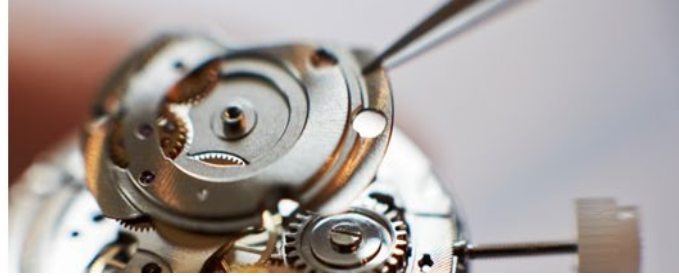
Porting is based on pre-arranged contractual agreements and orders given by the GCM and/or the Back-up GCM by proxy of the NCM. Only full Portability will be supported by SIX x-clear, which means that all Outstanding Contracts in the Segregated Accounts and all Permissible Collateral will be transferred to the designated Back-up GCM.

12.3 Operational requirements

All of the following operational requirements for Portability have to be fulfilled to initiate the transfer process:

1. The Back-up GCM's Membership is firmly established in all respects at the time of porting.
2. The same granularity of account and settlement segregation of the current is established with the Back-up GCM or the NCM itself, if henceforth acting as ICM.
3. All pending settlements with the Defaulting GCM (or its Settlement Agent) will be cancelled and settlement instructions will be reinstructed and redirected to the Back-up GCM (or its Settlement Agent) such that any risk of time discrepancies can be excluded.
4. An instruction by the GCM which is co-signed by the NCM must be given to SIX x-clear stating the option which shall be executed in case of the GCM's Default. The options available are set out in the Rulebook.

For the different segregation solutions, the following specialties for porting and close-out apply in case of Default of the GCM:



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a. Individual Client Segregation:

- NCM with admitted Individual Clearing Member (ICM) status

All Outstanding Contracts in the Clearing Accounts and Permissible Collateral in the Collateral Accounts held by the GCM on behalf of the NCM will be transferred to an active account structure established with the NCM now acting as an ICM. All legal, technical and operational arrangements (including for settlement) under the Contractual Relationship with SIX x-clear have to be fulfilled by the NCM, henceforth acting as ICM, before any porting can be executed.

- Porting all positions and assets to a Back-up GCM

All Outstanding Contracts in the Clearing Accounts and Permissible Collateral in the Collateral Accounts held by the GCM on behalf of the NCM will be transferred to an active account structure established with the Back-up GCM. The legal contracts between the NCM and Back-up GCM shall be in place, and the technical and operational requirements (including for settlement) for SIX x-clear have to be fulfilled, including testing by the respective NCM before any Portability can be executed.

In case no porting solution is in place or chosen by the NCM, the standard close-out procedure will be performed in accordance with the Rulebook.

b. Omnibus Client Segregation:

- Porting all omnibus positions and assets to a Backup GCM

All Outstanding Contracts in the Clearing Accounts and Permissible Collateral in the Collateral Accounts held by the GCM on behalf of the NCMs will be transferred as a whole package ("bulk transfer") to an active account structure established with the Back-up GCM. The agreement between the GCM and the Back-up GCM must be in place (GCM/Backup GCM Agreement). The technical and operational requirements (including for settlement) have to be fulfilled by the Back-up GCM before any porting can be executed. In case no porting solution is in place or chosen by the NCM, the standard close-out procedure will be performed in accordance with the Rulebook.

The requirements outlined above must be fulfilled as a precondition for porting on a best-effort basis within **eight Business Hours** after the Default Notice has been given to the Defaulting Member (GCM).

12.4 Excess Collateral

Under Individual Client Account segregation, any excess of Permissible Collateral will be fully ported by the NCM to the NCM's Collateral Accounts after designating the Back-up GCM, or in the case of NCM with admitted ICM status, to the Collateral Account of the NCM now acting as ICM.



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12.5 **Unsuccessful porting: Application of Close-out Procedure**

In case of the non-fulfilment of the porting requirements outlined in clause 12.4 SIX x-clear will employ the Close-out Procedure for such Segregated Accounts, upon which a Close-out Settlement Amount is calculated, which is offset against the Permissible Collateral and any excess value is paid out as follows:

- in the case of Omnibus Client Segregation: Excess value is paid to the defaulting GCM or – in case of an event of Insolvency – to its liquidator / bankruptcy liquidator (“Resolution Agent”); or
- in the case of Individual Client Segregation: Excess value is paid to the applicable NCM, provided that this is not prevented under the Applicable Laws of the jurisdiction of the Defaulting GCM, and if so, or in case this is uncertain, to the defaulting GCM or – in case of an event of Insolvency – to its liquidator / bankruptcy liquidator.

13.0 **Settlement**

13.1 **General remarks**

Trading platform transactions subject to clearing by SIX x-clear will be settled on the basis of the Applicable Laws, market rules and practices prevailing in the market of the relevant security. Each Member must have appropriate settlement arrangements in place to enable settlement to take place in accordance with the below rules.

Members shall notify SIX x-clear of their settlement arrangements for different countries and markets. SIX x-clear will use SIX SIS as its settlement agent and Collateral Service Provider for settling its leg of the settlement instruction in different settlement markets.

In this chapter, the term "transaction" will be understood as meaning the settlement of contracts arising from an Open Offer or from Off-Order-Book Trades.

In the event of a Member defaulting, SIX x-clear may place on “hold” any contracts arising from an Open Offer or Off-Order-Book Trade from the settlement process. SIX x-clear will notify the Member accordingly by e-mail, followed by formal written confirmation.

Settlement netting

SIX x-clear offers optional settlement netting to its Members. Net settlement reduces the number of settlement transactions per security/currency and trade date. Settlement netting will have no impact on the margining of outstanding contracts. The Member must indicate the netting preference details in the static data form of SIX x-clear.



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SIX x-clear allows optional trade date netting (“TDN”) for Members for trading platform transactions subject to clearing by SIX x-clear. Such netting will be performed after the clearing window at the respective Trading Platform is closed for the Trading Day.

Based on Members’ preferences, TDN can be extended to:

Cross-order book netting between the two order books of Cboe Europe on the UK/Irish market and cross-platform netting with a free choice of the trading platforms cleared by SIX x-clear, based on the Member’s preferences indicated in the static data form of SIX x-clear.

In the case of netting of trades concluded on SSX, the gross/net settlement instructions are instructed to SIX SIS by SIX x-clear on behalf of Members upon completion of TDN at SIX x-clear. Members authorize SIX x-clear to submit settlement instructions to SIX SIS on their behalf.

13.2 **Shaping**

Shaping as a configured service is only available for settlements at SIX SIS. As a result of the TDN, the net settlement transaction may represent a substantially large size in terms of amounts payable in respect of it (as determined by SIX x-clear at its sole discretion). To prevent such large sizes, the Member has to inform SIX x-clear of a maximum amount per currency for the net settlement transaction. Where the net transaction amount in relation to a net settlement transaction exceeds this cap, a "shaping" process takes place, in which the net settlement transaction is divided into a number of net settlement transactions of smaller amounts. SIX x-clear will support net settlements in SIX SIS up to a cap of CHF 100 million per settlement transaction.

Shaping as a manual service is available for all other markets where SIX x-clear as well as the Member may request manual shaping.

13.3 **Splitting**

SIX x-clear will endeavour to forward the Securities received from the seller to the buyer as quickly as possible. For this reason, SIX x-clear uses the splitting functionalities made available by the approved settlement systems (CSD).

If the CSD does not support automatic splitting of settlement transactions, SIX x-clear or its Members may request manual splitting if:

- the settlement transactions represent a substantially large size;
- splitting would reduce the trade size for an upcoming corporate action deadline; or
- splitting would reduce the trade size for an upcoming buy-in which has already been advised.



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In any case, SIX x-clear may refuse the split request from Members, if it would not be possible to forward positions to a third party on the same settlement date.

13.4 **Strange nets**

If the netting of settlement instructions results in any of the following exotic instructions, namely, security and money transactions, money-only transactions or null deliveries, then a special treatment is applied to such “strange nets”, “exotic instructions” or “odd settlements”.

SIX x-clear offers Members the choice as to how strange nets are handled. The options offered include:

- Direct strange net settlement: Only where the local CSD allows for strange net settlement.
- Second-level shaping, which divides the strange nets into a combination of versus-payment and free-of-payment instructions.
- Segregation, which separates Securities and Cash to independent instructions.
- Aggregation, which separately aggregates gross buys and nets to net RVPs and DVPs.

SCP members do have to apply for aggregation. For Single Contracts in Equity Products netted, which result in a strange net for SCP members, SIX x-clear will aggregate all purchase transactions and all sales transactions separately in order to create two Single Net Contracts that both involve delivery against payment, and chain these instructions to the extent permitted by the settlement system in question.

13.5 **Place of settlement**

SIX x-clear will participate in settlement at the predefined settlement location on its own or through a Settlement Agent. The member must indicate their settlement preference details as well as provide their standing settlement instructions (SSI) in the static data forms of SIX x-clear.

SIX x-clear’s own settlement arrangements and the operational handling of transactions in relation to the various markets are set out in the User Guide - Market overview (settlement and corporate events) published at www.six-group.com > Existing Members > Settlement information > User Guides - Market overview (settlement and corporate events).

13.6 **Settlement instruction generation**

The settlement of transactions happens at the predefined place of settlement. The Member may choose to receive either a settlement allegation message (MT578) in



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SECOM only or a copy of the settlement instruction (MT54x) from SIX x-clear for the generated net/gross transactions. The instructions from SIX x-clear can be used by the Member to input the settlement instructions at the place of settlement.

SIX x-clear can generate the settlement instruction for the Member for onward transmission to that Member's Settlement Agent in the local market if the Member so requests. The Member must provide an appropriate power of attorney to SIX x-clear. This allows SIX x-clear to send the settlement instruction on behalf of the Member to its Settlement Agent.

The Member is solely responsible and liable for meeting the functional requirements, time deadlines and other requirements with respect to its settlement arrangements at the place of settlement.

SIX x-clear will use SIX SIS as its Settlement Agent for the settlement of transactions in the local markets. SIX SIS, in turn, will use its custodial network or direct links with Central Securities depositories (CSDs) or settlement agents to effect settlement on SIX x-clear's behalf. With the input of the settlement instructions from the Member and/or its Settlement Agent and from the Settlement Agent of SIX x-clear at the place of settlement, Settlement will be sought to be effected on the Intended Settlement Date. Upon settlement of Single Contracts, Members will receive the settlement information through their Settlement Agents only. SIX x-clear will not send any settlement-related information to Members or their Settlement Agents.

Members are solely responsible for:

- reporting transactions appropriately for applicable stamp duty purposes and keeping records if required by local tax authorities; and
- obtaining UK stamp duty reserve tax relief and Irish stamp duty relief.

14.0 Late Settlement & Buy-In

14.1 General

To support the Settlement discipline and fulfil the settlement obligations of Securities in time, SIX x-clear may take the following disciplinary measures with regards to penalties:

a. Late settlement procedure

- Securities lending and borrowing fee
- Late settlement fee

b. Buy-in procedure

- CCP Buy-in administration fee
- Late Matching Buy-in fee

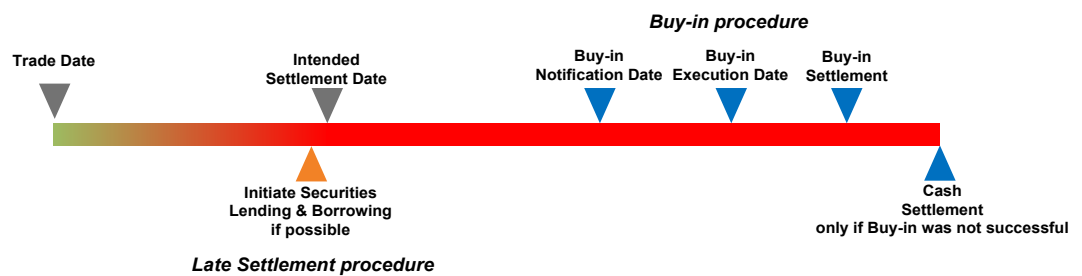


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The Securities lending and borrowing functionality in the Swiss market will be used automatically in case Securities are available. A buy-in regime is in place for all Trading Platforms offered for clearing.

The graphic below depicts the schedule for these procedures.



If Settlement is not anticipated on the Intended Settlement Date (“ISD”), SIX x-clear may engage in Securities lending and borrowing to enable the trade to settle despite the seller's non-delivery. SIX x-clear may charge a late settlement fee to the failing Member (the Selling Member) where it was not possible to borrow the relevant products. There is no compensation scheme in place to credit the buyer.

If the Selling Member has not delivered Securities in time, a buy-in process will be started. SIX x-clear, as the legal counterparty to the Buying Member, will acquire the missing Securities in the market and pass on the costs incurred to the Selling Member that has failed to fulfil the transaction. Additionally, SIX x-clear will charge a buy-in administration fee for manual intervention as well as a late matching buy-in fee in case the counterparty will not match the buy-in instruction in the requested time.

In the event that both SIX x-clear and the Member are late in delivering the same Securities with the same or different due date and the instructions will block one another, the Member may ask for manual netting.

The aim of performing a late settlement and buy-in process is to ensure liquidity in the market and to fulfil the agreed trades in a reasonable timeframe between the counterparties. In the event that Securities lending and borrowing or a buy-in facility are not successful, the transaction that is not performed will be cancelled and replaced by a payment for compensation (cash out).

14.2 Late settlement procedure

Where the contractual delivery of the Securities is not made by the time indicated as “late” (see clause 14.4.4 *Buy-in schedule per market*) on the intended settlement date (ISD), SIX x-clear will use the *Securities Lending and Borrowing procedure* or the *late settlement penalty regime*.



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14.2.1 **Securities Lending and Borrowing procedure**

Where the contractual delivery of the Securities is not made in time, the place of settlement (PSET) is Switzerland and the Member uses SECOM, SIX x-clear uses the Securities Lending and Borrowing service and is entitled to charge, at the selling Member's expense, all external costs (expenses, commissions and other charges) to acquire the Securities that are lacking in order to guarantee delivery to the buying Member. In principle, this option may be taken for all Securities insofar as they are available and the market rules and regulations allow.

The payment obligations of the Member, based on the Securities lending and borrowing effected by SIX x-clear, are due, performable and payable with immediate effect. As a SIX SIS participant, SIX x-clear will acquire the required Securities on SIX SIS's standard terms for Securities lending and borrowing. The cost of borrowing Securities may be charged to those sellers who failed to deliver their Securities to SIX x-clear by 5.00 p.m. (CET) on the intended settlement date (ISD).

14.2.2 **Late settlement penalty regime**

If settlement is not carried out by the ISD, a late settlement fee may be charged to the selling Member. There will be no compensation scheme in place to credit the buyer on the Clearing level.

Late settlement can be caused by the non-delivery of Securities by the seller as well as non-matching instructions in a bilateral input model. SIX x-clear may debit a late settlement fee (see fee schedule) if the Member fails to deliver the Securities in time.

There will be no late settlement fees between interoperable Co-CCPs. Late Settlement fees cannot be passed back to Co-CCPs.

14.3 **Technical CSDR requirements**

As participants of CSDs, CCPs must meet the matching criteria for settlement instructions as laid out by CSDR and the corresponding RTS. CCPs and their clearing Members are particularly impacted by the following matching fields:

- Trade date
- Transaction type
- Place of clearing
- Place of trading

CCPs and their clearing Members are obliged to complete these fields in their settlement instructions. SIX x-clear ensures settlement instructions are completed appropriately with all necessary fields in all of their own settlement instructions as well as in Members' instructions that are created by SIX x-clear under a PoA (Power of Attorney) agreement. For Members that do not have a PoA agreement in place with



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SIX x-clear, the Member itself or the Member's settlement agent will be responsible for populating the appropriate transaction type in the settlement instruction.

As SIX x-clear utilizes a trade date netting model (TDN), Members must populate the trade date field with the day of trading. The full list of values that are and will be used by SIX x-clear as transaction types can be found in the Business Partner Specifications – Volume 5 (SIX SIS Private site > Business Partner Specifications). SIX x-clear will use the BIC to specify the PoC (place of clearing), TRAD for transaction type and VARI for place of trading, unless the PoT is an SME growth market and the change of netting rules applies for the SME growth market accordingly. Settlement instructions related to SME growth market transactions will need the actual segment MIC of that growth market as the PoT.

14.4 Buy-in procedure

14.4.1 Overview

If the selling Member does not deliver Securities after a certain market-specific amount of days beyond the intended settlement date (ISD), a buy-in procedure will be started. The schedules detailing when a buy-in notification will be sent to the selling party and when the execution of the buy-in will be started is market-specific as summarized in clause 14.4.4 *Buy-in schedule per market*.

SIX x-clear is also entitled to charge the selling Member external and internal costs (expenses, commissions and other charges) where buy-ins are used. The payment obligations of the Member, based on the buy-in effected by SIX x-clear, are due, performable and payable with immediate effect.

Buy-ins cannot be initiated against a selling CCP, but the selling CCP will initiate a buy-in against its members based on their procedures in place. In the event that Securities lending and borrowing or the buy-in facility are not successful, the transaction that is not performed will be cancelled and replaced by a payment for compensation. In case SIX x-clear and the Member are late in delivery of the same Securities, no buy-in will be instigated against the Member.

14.4.2 Buy-in process

A separate SIX x-clear administration fee (see price schedule) per buy-in will be charged to the failing seller. After the buy-in has been executed, the failing seller must match the instruction from SIX x-clear by the settlement date of the buy-in. If the buy-in instruction from SIX x-clear remains unmatched against the failing Member until Settlement day EOD, a late matching buy-in fee is charged. This fee is charged for each additional day on which the buy-in instruction remains unmatched by EOD of the respective day.

If the buy-in is not successful due to a lack of liquidity in the market, the buy-in will be repeated according to market-specific schedules. If the buy-in attempts of SIX x-clear



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are not successful after a market-specific time, the two Single Contracts in which there is a lack of Securities are to be cancelled, i.e. the Single Contracts between the selling Member and SIX x-clear, and SIX x-clear and the buying Member with respect to the Securities that are lacking, become void and an additional cash compensation claim is due as described below (cash out). This will only happen if Securities lending in the late settlement process was not used. The standard Cash settlement process (cash out) will be initiated on ISD+20 for all markets.

The additional cash compensation to be paid by the selling Member to SIX x-clear will be claimed at 20% of the last publicly available closing price for such an eligible instrument on the principal stock exchange where it is listed and is forwarded in full to the buying Member or interoperable CCP. No further claims arise for the buying Member towards SIX x-clear from the respective Single Contract. Once the cash compensation has been finalized, no deliveries will be accepted for the compensated trade.

Where settlement or a buy-in cannot take place because of a court, administrative or regulatory order, or because of an insolvency or Default affecting the issuer of the securities or a Member, the transactions in such securities will be Cash settled immediately or by the standard cash settlement process at such a price as may be set at reasonable discretion and agreed between SIX x-clear and the counterparty. In such circumstances the reference price may be null.

14.4.3 Consequences of non-payment of buy-in transactions

The payment obligations of the Member arising from the buy-in effected by SIX x-clear shall be due and payable immediately upon notification by SIX x-clear. If the Member fails to satisfy such a payment obligation, SIX x-clear may at its discretion treat such a failure as a Default event pursuant to the Rulebook.

14.4.4 Buy-in schedule per market

In the event of a purchase and sale between SIX x-clear and the same counterparty in the same ISIN, regardless of the value date and during the late settlement phase, netting can be instigated and no buy-in will take place.

So-called “buy-backs”, which are used to avoid buy-ins, can only be taken into account if they are carried out by EOD on the notification date. Any buy-backs performed by the failing seller on the buy-in date cannot be taken into account.

Place of settlement (market)	Intended settlement date (ISD)	Notification	Execution (CET)	Cash settlement
Austria	T+2	ISD+4	ISD +5 16:00	ISD +20
Belgium	T+2	ISD+4	ISD +5 16:00	ISD +20
Czech Republic	T+2	ISD+4	ISD +5 16:00	ISD +20
Denmark	T+2	ISD+4	ISD +5 16:00	ISD +20
Finland	T+2	ISD+4	ISD +5 16:00	ISD +20



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Place of settlement (market)	Intended settlement date (ISD)	Notification	Execution (CET)	Cash settlement
France	T+2	ISD+4	ISD +5 16:00	ISD +20
Germany	T+2	ISD+4	ISD +5 16:00	ISD +20
Hungary	T+2	ISD+4	ISD +5 16:00	ISD +20
Ireland	T+2	ISD+4	ISD +5 16:00	ISD +20
Italy	T+2	ISD+4	ISD +5 16:00	ISD +20
Netherlands	T+2	ISD+4	ISD +5 16:00	ISD +20
Norway	T+2	ISD+4	ISD +5 16:00	ISD +20
Portugal	T+2	ISD+4	ISD +5 16:00	ISD +20
Spain**	T+2	ISD+4	n/a	ISD + 5
Sweden	T+2	ISD+4	ISD +5 16:00	ISD +20
Switzerland	T+2	ISD+4	ISD +5 16:00	ISD +20
United Kingdom	T+2	ISD+4	ISD +5 16:00	ISD +20
SWX & LSE market makers*	T+2	ISD+10	ISD +11 16:00	ISD +20

* Concessions have been introduced for market maker activities in registered ISINs which have correspondingly been taken over by SIX x-clear due to the special function of the LSE & SWX market makers.

** The Spanish CSD Iberclear does not allow trades which remain open for more than five days. On the 5th day after the "intended settlement", all "failing trades" must be settled. Therefore, no buy-ins will be carried out in the Spanish market. Should there be any trades unsettled at 17:00 (CET) on ISD + 5, the relevant trades will be cancelled by SIX x-clear and the cash-out will immediately be initiated. All members are obliged to complete the cash-out payment in EUR by no later than 16:30 (CET) on ISD + 6. SIX x-clear will closely monitor these cash-out payments and reserves the right to impose a penalty fee if the members fail to meet their requirements.

T = Trade date

ISD = Intended settlement date

SWX = SIX Swiss Exchange

LSE = London Stock Exchange

14.5 Buy-in schedule for Single Contracts for market makers on SIX Swiss Exchange (SWX) and London Stock Exchange (LSE)

Due to their special function, market makers benefit from a later introduction of the buy-in process and reduced failed settlement costs. The corresponding fees are reimbursed at the end of the month.

The market maker rule will be applied if the relevant ISIN and the Member of a trade had been registered at SWX/LSE as an SWX/LSE market maker on the trade date of the trade in question. If registered market makers on SWX and/or LSE have also opted for cross-venue netting, these counterparties benefit similarly across all MTF Trading Platforms for those specific securities (ISINs).



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15.0 Corporate actions

15.1 General remarks

The execution of corporate actions for Securities that are already held in a custody account ("**existing positions**") differs from the execution for Securities that have been purchased but not yet delivered ("**open transactions**"). Distributions on existing positions are made in accordance with the rules of the approved settlement system with which the Securities are deposited.

With respect to distributions on open transactions, two types of corporate actions may apply:

- Mandatory corporate actions
- Voluntary corporate actions

These distributions are made in accordance with the applicable laws and local market practices.

As a general rule, SIX x-clear offers corporate claims processing, reorganization processing as well as buyer protection throughout the markets cleared by it. SIX x-clear mandates the local Settlement Agent or Account Operator of SIX x-clear in the home market of the security to handle any corporate actions processing on outstanding contracts which are eligible for corporate action benefits. Where no local agent or Account Operator is mandated, SIX x-clear processes corporate actions on its own. SIX x-clear always acts as the counterparty for corporate action transactions in relation to Members, and therefore these transactions fall under SIX x-clear's risk management until they are booked or settled.

The basis for initiating a claim or compensation procedure can be on an ex-date or record-date basis. Both the initiation and booking of corporate action transactions are dependent on the local market practices and applicable laws.

Reorganization events which result in a transformation of the underlying instructions and/or compensation, will be initiated on the underlying instructions of the holders registered in the CSD at the end of the Record Date or Effective Date in accordance with the local market practices and applicable laws.

SIX x-clear's corporate action service levels in relation to the various markets are set out in the country-specific User Guides published on the website at: www.six-group.com > Existing Members > Settlement information > User Guides - Market overview (settlement and corporate events). Additional market-specific details are described in the User Guide of SIX SIS.



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15.2 **Timeline for the settlement of compensation payments and claims**

Compensation payments will be booked on either the settlement date of open transactions or the payment date of the corporate action, whichever is later. SIX x-clear applies bookings only after relevant bookings have been credited/debited with the local Settlement Agent or Account Operator. Compensation payments related to fund transfers outside a CSD will be performed upon bilateral agreement.

15.3 **Withholding tax on compensation payments and claims**

SIX x-clear applies the standard withholding rate for compensation payments (tax rate without consideration of any double taxation treaty).

15.4 **Buyer election**

The Member has to inform SIX x-clear two hours prior to the market deadline about their election by means of a Liability Request Notice by e-mail. SIX x-clear will forward the Members choice with a Liability Allocation Notice to the failing seller by no later than one hour prior to the election deadline. If the Member sends their election after the stated time, SIX x-clear will process the election on a best-effort basis only.

Additional information on the process is published in the market-specific User Guides available on the website at: www.six-group.com > Existing Members > Settlement information > User Guides - Market overview (settlement and corporate events).

15.5 **Stamp Duty and Capital Gains Tax**

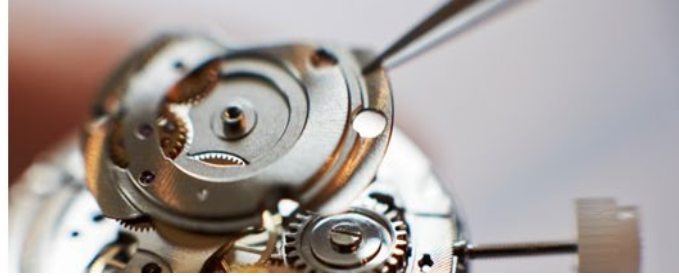
If a liability to pay any tax relating to dividends or other income and/or benefits from Securities arises or any liability to pay tax due to corporate events arises, SIX x-clear will have the right to require compensation for such tax liabilities and for any related costs or expenses from the relevant Member. SIX x-clear is entitled to debit the amount of such compensation from the relevant Member's Cash Collateral Account. Upon entry into the contractual relationship, the Members confirm that they are familiar with all relevant applicable laws, requirements and procedures of the place of settlement regarding withholding and taxes.

15.6 **Distribution in collateral positions**

Distributions on Securities deposited with SIX x-clear as collateral are directly credited by the main paying agent to the Members (and not via SIX x-clear).

16.0 **Amendments to the Operational Manual**

This Operational Manual may be amended unilaterally and at any time by SIX x-clear in accordance with the Basic Agreement. Members will be given appropriate advance notification of any such amendments.



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17.0 SIX x-clear contacts and escalation points

Name	E-mail	Contact	Escalation
SIX x-clear Risk Operations Team ZH/Swiss & International Clearing	xclearops@sisclear.com	To be added in any communication	
SIX x-clear Risk Operations Team Norwegian Branch Clearing	xclearops.no@six-securities-services.com	To be added in any communication	
Simon Haab Head Risk Operations Zurich	simon.haab@six-group.com	First contact	Escalation step 1
Bettina Bakke Head Clearing Operations Oslo	bettina.bakke@six-group.com	First contact	Escalation step 1
Markus Heiniger Head Clearing Operations	markus.heiniger@six-group.com	Second contact	Escalation step 2
Laura Bayley CEO SIX x-clear AG	laura.bayley@six-group.com	Third contact	Escalation step 3

The contact addresses for SIX x-clear are:

SIX x-clear AG
Hardturmstrasse 201
CH-8005 Zurich
Switzerland
xclearops@sisclear.com

SIX x-clear AG
Rosekrantzgate 20
NO-0160 Oslo
Norway
xclearops.no@six-securities-services.com

Further contact details are mentioned in the list of SIX x-clear AG contacts published at www.six-group.com > Securities Services > Clearing Services > Info Center > Sales Contacts.

In this context, SIX x-clear AG draws the Members' attention to **clause 7.7, chapter 14 and 15** of the Rulebook of SIX x-clear AG stipulating that the Member is responsible for compliance with the applicable laws (in particular domestic and foreign tax, foreign exchange and stock market regulations as well as with company law and articles of association) with respect to the Clearing services obtained from SIX x-clear AG.



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18.0 Annex: Regulations related to the technical connectivity to the SIX x-clear Web Services

18.1.1 Scope of regulations

The following regulations govern the technical conditions for using the electronic platform SIX x-clear Web Services.

18.1.2 Access and authorised users

The electronic platform SIX x-clear Web Services may be accessed and used exclusively by the employees of the Member designated by the Member (hereinafter referred to as “users”). The Member can set up a personal user profile for each user.

SIX x-clear is entitled to block or delete the access rights of one or more users to individual or to all SIX x-clear Web Services at any time without prior notice should it have any material reasons for doing so. If possible, SIX x-clear informs the Participant without delay.

18.1.3 Administrator rights

The Member must assign administrator rights to at least one user. Based on a special agreement and on an exceptional basis, SIX x-clear may exercise these administrator rights in line with the instructions of the Member.

Users with administrator rights have the right and the obligation to set up, modify or delete authorisation profiles for the other users.

Furthermore, users with administrator rights may set specific parameters for the individual SIX x-clear Web Services in line with the Member’s needs. More details can be found in the relevant Annex of the Operational Manual. The risks incurred by parameterisation are borne by the Member.

18.1.4 Means of authentication

The means to authenticate the user (“means of authentication”) are determined by SIX x-clear. It is entitled to use other means of authentication at any time, which means shall be binding on the Member. The Member becomes the owner of the means of identification as soon as the latter are dispatched.

Each user will be provided with a means of authentication, which may be used by several users simultaneously.

The Member and its users treat the authentication and identification information (PIN, password and other identification features) with the strictest of confidentiality and only make them accessible to authorised persons. Persons that have legitimised themselves by means of the above-mentioned criteria shall be regarded as authorised users by



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SIX x-clear. All risks arising from the use of the above-mentioned criteria are borne by the Member. All activities and legal actions carried out using the Member's means of authentication will be attributed to the respective Member and regarded as binding on the same.

18.1.5 **Internet**

All electronic communication takes place via the Internet. The Member is responsible for putting in place the necessary infrastructure (hardware and software) required for technical connectivity to SIX x-clear Web Services.

Use of the Internet carries significant risks and dangers (data exchange over an open, cross-border network, incomplete transmission, errors in selecting a connection, covert misuse by unauthorized third parties, transmission of computer viruses, hacker attacks, network availability, phishing etc.).

18.1.6 **Security**

Confidentiality of the transmitted data is currently secured in SIX x-clear Web Services via SSL encryption.

SIX x-clear reserves the right to at any time interrupt or suspend the availability of the platform SIX x-clear Web Services, or the Member's access to the platform, should SIX x-clear identify any security risks or other material reasons for doing so.

18.1.7 **SIX x-clear Signing Service**

The data contained in the orders placed with SIX x-clear via SIX x-clear Web Services are assigned a hash total and are digitally signed (SIX x-clear Signing Service) upon receipt. Subsequently, the order is sent to the Member together with the corresponding signature and serves as confirmation of receipt.

The Member is obliged to verify the digital signatures on the confirmations of receipt or the respective digitally signed status intimations SIX x-clear sends to the Member via SWIFT or C/C link. The Member must notify SIX x-clear of any discrepancies immediately. The corresponding SIX x-clear certificate for verifying the digital signatures and the algorithms used to create the signature can be found in the Private area, published at www.six-group.com > Login > Securities Services Private > Services.

The SIX x-clear Signing Service guarantees the non-repudiation of data transmitted via the SIX x-clear Web Services electronic platform.

18.1.8 **Rights to the electronic platform SIX x-clear Web Services**

The Member shall only be entitled to the rights granted under the Contractual Framework. Rights to the electronic platform SIX x-clear Web Services, in particular ownership, copyright and patents, shall remain the exclusive property of SIX x-clear.



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18.1.9 Outsourcing

The following rules apply for Members which have either outsourced the technical operation of their IT infrastructure to a third party or mandated a third party to process their Trading Party Transactions.

The Member shall notify SIX x-clear in writing of the company name and address of any such third parties. SIX x-clear grants the third party access rights to the electronic platform SIX x-clear Web Services on the basis of the Contractual Framework in place with the Member.

The Member is responsible for ensuring that this third party is aware of the regulations in this Annex 3 and that it uses the electronic platform SIX x-clear Web Services in accordance with these regulations.

By notifying SIX x-clear of the company name and address, the Member authorises SIX x-clear:

- a. to grant this third party access to the electronic platform SIX x-clear Web Services;
- b. to accept orders from this third party that it receives via the electronic platform SIX x-clear Web Services;
- c. to contact this third party; and
- d. to make available to this third party all information related to the daily business activities of the Member.

The Member is entitled to revoke this authorisation at any time by sending a written notice to SIX x-clear. If SIX x-clear receives the notice of revocation by no later than 5:00 p.m. (bank working day), the revocation shall take effect on the next bank working day. If SIX x-clear receives the notice of revocation after 5:00 p.m. (Business Day), the revocation will take effect on the day after the next Business Day.

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