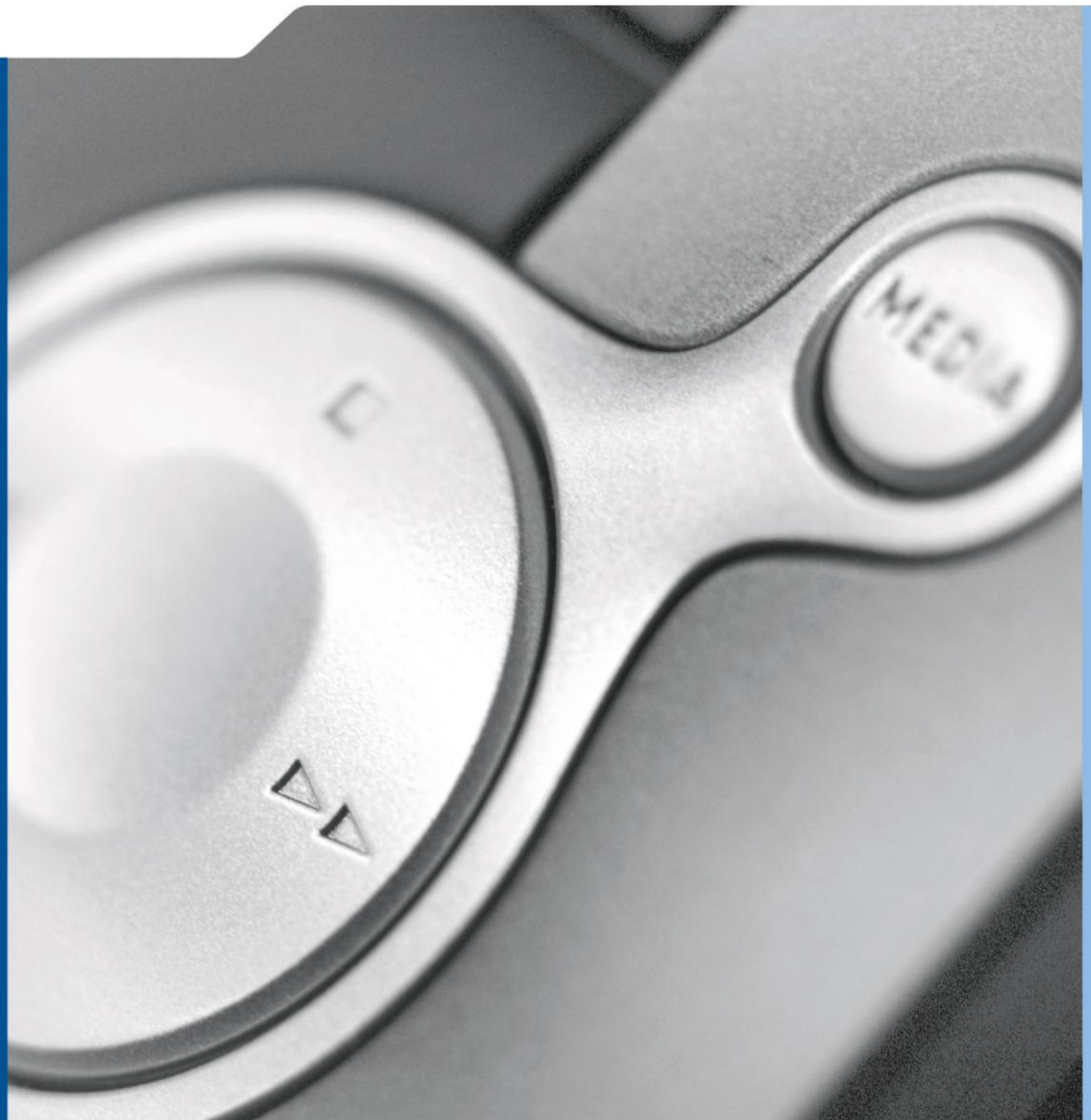


Service Description SIX x-clear Ltd

Central Counterparty (CCP) for greenmarket

June 2011





Service Description SIX x-clear Ltd

Central Counterparty (CCP) for greenmarket

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1.0 General Information

With the need to implement climate protection measures, the Kyoto Protocol introduced incentives and targets for emission reductions for developed countries and placed restrictions on the production of CO₂ emissions. In order to meet this commitment, in January 2005 the European Union Greenhouse Gas Emission Trading System (EU ETS) commenced operation as the largest multi-country, multi-sector Greenhouse Gas Emission Trading System world-wide. The aim of the EU ETS is to help EU Member States achieve compliance with their commitments to the Kyoto Protocol. Emissions trading does not imply new environmental targets, but allows for cheaper compliance with existing targets under the Kyoto Protocol. Letting participating companies buy or sell emission allowances means that the targets can be achieved at a lesser cost. This created a wave of emission trading systems in the European Market.

SIX x-clear provides clearing and settlement services for emission allowances and emission reductions for participants trading on greenmarket of Bayerische Börse. The scope of SIX x-clear services is for spot and futures emission instruments trading. SIX x-clear will extend counterparty clearing services for off-order book trades and on-order book traded European Union Allowance (EUA) and Certified Emission Reduction (CER) (only spot market) instruments.

The primary functions of the central counterparty (CCP) are:

- To ensure post-trade anonymity in order to prevent market distortions.
- To eliminate bilateral counterparty risks from trade date to settlement of trade.
- To permit settlement netting and, in consequence, reduce settlement volumes and costs.

The degree of importance attached to these three functions differs between market participants and depends on the developments in the emission trading markets. Along with the netting functionality, settlement risk minimization is key value-add to Emission trading market. In view of the continued opening up of markets, participants find it increasingly difficult to assess the counterparty risk since they no longer form part of a local, manageable group.

This document covers the SIX x-clear service description for the provision of clearing services to the greenmarket emissions trading on the spot and futures markets. This document highlights overall model, membership requirements, margining and settlement details.

2.0 Service scope

As a post-trade process, clearing is the efficient handling of risks inherent in concluded, but yet unfulfilled contracts. The CCP steps into the contracts as intermediary and represents the buyer to each seller and the seller to each buyer to eliminate the counterparty risk.

A small, partially visible image of a steering wheel on the left side of the page.

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SIX x-clear provides counterparty clearing services for European Union Allowance Certificates (EUA) and Certificated Emission Reduction Certificates (CER) certificates traded both on-order book and off-order book. Current products cleared by SIX x-clear are limited to spot contracts on EUA and CER Certificates and futures contracts on EUA. Settlements for spot contracts are carried out either on a T+0 or T+1 basis; for futures contracts, settlement is effected as per the contract specification defined by greenmarket. SIX x-clear uses real-time risk management to evaluate the risk margins for trades received from greenmarket. SIX x-clear is counterparty to every trade, i.e. buyer to every seller and seller to every buyer. SIX SIS is the place of settlement for all contracts cleared via SIX x-clear.

3.0 Concept of the CCP

3.1 Clearing and settlement model

Each trade received from greenmarket is accepted by SIX x-clear. SIX x-clear is counterparty for every transaction, regardless of whether it is off-order book or on-order book traded. Members are able to query their current open positions and margin details and also subscribe to margin requirement notifications.

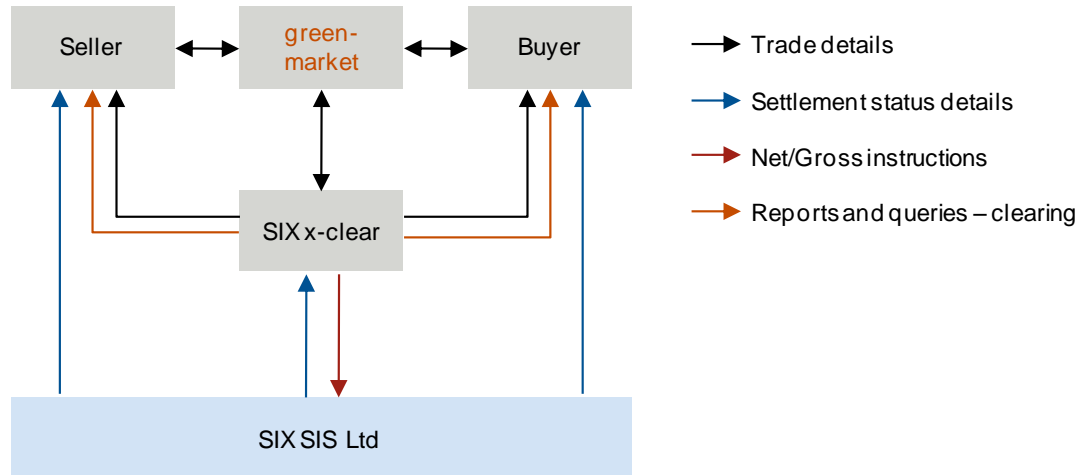
Spot market trades are netted based on trade-date netting and forwarded for settlement to SIX SIS. Spot market trades with T+0 settlement will not be considered for netting and will be settled on gross basis.

Futures contracts are positioned in SIX x-clear when the trade is accepted. Upon expiry of the futures contract, the contract will be settled as per the contract definition. The carbon certificate debits or credits are booked from the SIX x-clear account to the member account maintained at SIX SIS.

The diagram below explains the overview of the clearing and settlement model for carbon certificates. For simplicity, the member is presented as acting as both the clearing member at SIX x-clear and settlement agent at SIX SIS. It is the responsibility of the member to move the positions to/from the DE registry from/to the accounts at SIX SIS. Both the spot market trades and futures contracts (after futures expiration) are physically settled at SIX SIS.

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3.2 SIX x-clear as CCP

SIX x-clear has been recognized by the Financial Services Authority (FSA) in the UK under the Financial Services and Market Act 2000 (FSMA) as a Recognised Overseas Clearing House (ROCH) since 2004. The company also has a banking license under Swiss law and is thus regulated and supervised by the Swiss Financial Market Supervisory Authority (FINMA) and under the oversight of the Swiss National Bank. SIX x-clear started business operations in May 2003.

SIX x-clear offers clearing services for different national stock exchanges, such as London Stock Exchange (LSE) and SIX Swiss Exchange (SSX) and the Multilateral Trading Facilities (MTFs). Integrated clearing services across different European markets enable SIX x-clear to provide cost efficient services for its clearing members without the need to have additional interfaces. New members can choose from one of the interface options to avail SIX x-clear's services.

SIX x-clear performs the following functions:

- **Counterparty risk:** SIX x-clear automatically acts as the counterparty for all its members trading clearing-eligible securities.
- **Post-trade anonymity:** As a clearing house, the CCP occupies an intermediary position between the trading parties. This ensures full post-trade anonymity.
- **Settlement netting:** Settlement netting allows for the offsetting of delivery and payment obligations and the reduction of the overall settlement volume and the number of delivery instructions. The netting service is optional.
- **Risk management:** Central risk management serves to determine the members' individual risk positions and margin requirements by considering trades originating from different exchanges. Compared to calculation on a gross basis, net exposure – i.e. the offsetting of risk positions – reduces the total collateral to be pledged.



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4.0 Membership of SIX x-clear

4.1 General requirements

The general membership requirements are published on the SIX x-clear website at www.six-x-clear.com > Clients > Membership requirements.

To have trades effected on greenmarket and cleared by SIX x-clear, members must have a trading arrangement with the exchange and a clearing arrangement with SIX x-clear. Members must also hold settlement arrangements (custody and money accounts) with SIX SIS.

Each member must comply with the infrastructure requirements of greenmarket, SIX x-clear, and SIX SIS, as applicable.

4.2 Member structure

Two categories of clearing membership are available at SIX x-clear:

- Individual clearing member (ICM): These clearing participants are allowed to clear only their own trades
- General clearing member (GCM): These clearing participants are allowed to clear their own trades and other member's trades

GCMs may provide clearing services for other participants that do not have clearing membership (non-clearing members, NCMs). Members who do not maintain a clearing relationship with SIX x-clear could also be identified in the system, so as to provide any NCM-level Risk Management services for GCMs. The GCM is responsible for its NCMs' compliance with all rules and regulations of SIX x-clear.

ICMs provide clearing for both their own transactions and transactions effected by their clients. ICMs clear trades by having contractual relationships with the CCP on a principal basis.

Membership details are captured using a static data form and are published on the SIX x-clear website at www.six-x-clear.com > Forms.

4.3 Minimum rating

An external, long-term counterparty rating of A-/A3 or better is required. The second highest rating available from the rating agencies is considered. If no external rating is available, SIX x-clear carries out an internal rating by means of key financial figures (benchmarking).

Although the rating represents no criterion for exclusion, it has an impact on the transaction fee pricing and the determination of the amount of collateral to be provided (margining).



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4.4 Default Fund

One key line of defense for SIX x-clear is the default fund collected from member to support any member default and every price fluctuation of the instrument. The default fund requirements are defined at start of the clearing relationship with exchange and the member. Default fund requirements are re-evaluated for coverage strength every week and new requirements are established every month that could result in a margin call raise to the member.

Further details on the default fund computation model are provided in default fund section of this document.

4.5 Margining

SIX x-clear collects two margins from members, namely initial margin (IM) and intra-day variation margin (VM). Initial margin is collected to cover the price fluctuation that might arise during the close-out period and intra-day variation margin is collected to cover the price fluctuation that might arise between the trade date and settled date for the spot trades and during a trading day for the futures trades.

Both the initial margin and intra-day variation margin of all the asset classes that can be cleared by a clearing member are used to determine the total margin requirements from the member.

The initial margin is calculated in real-time on the basis of the net positions of all open contracts per instrument and the currency combination held by the member in a clearing account. The open positions are computed by considering the open trades on different exchanges in the case of multiple listed stocks. Margin requirement is calculated based on the market-specific risk factors and the member-specific risk factor. Market specific risk is measured according to a Value-at-Risk (VaR) based risk model, using a historical approach. The member's risk rating is used to calculate the member specific risk factor. For the calculation of the initial margin, the instruments are allocated to different risk buckets, depending on an instrument's VaR. Opposing positions within and across a risk bucket are netted using intra-risk and inter-risk bucket coefficients respectively. The process of computing the initial margin is explained in detail later.

Additionally, the intra-day variation margin is calculated hourly during market hours on the basis of the mark-to-market valuation of the net positions of all open contracts per instrument and the currency combination held by a member in a clearing account.

In addition to the real-time initial margin and intra-day variation margin, futures contracts are also subject to the EOD variation margin, where the open futures contract are marked-to-market using the daily settlement price of the futures contract. Members could be in profit or loss positions. A cash credit is provided for members in profit positions and a debit for the member in the case of a loss position.

Initial margin, intra-day variation margin and EOD variation margin will apply both for on-order book and off-order book future contracts of greenmarket.

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The GCM is obliged to demand margins that equals or exceeds its own margins from its NCMs.

4.6 **Operational capabilities**

As GCMs are also responsible for clearing transactions of third parties (i.e. for its NCMs), they must ensure smooth operation of their trading, operating and settlement systems as well as availability of sufficient human resources.

4.7 **Duty of disclosure**

The GCM is obliged to disclose the identity of the NCMs to SIX x-clear.

5.0 **Product Information**

Refer to the exchange website for details on the contract/product: www.bayerische-boerse.de/en/greenmarket.html.

6.0 **Cash/Custody account structure**

6.1 **Clearing**

6.1.1 **Clearing accounts**

The member's open positions are recorded in clearing accounts. The members have the option to clear their own trades in a "house" clearing account and client trades in a "client" clearing account.

6.2 **Margining**

Members must maintain cash and custody accounts for collateral management to clear trades via SIX x-clear. This allows for the management of collateral for margin and Default Fund requirements. The members can use the same collateral accounts for clearing of all trades executed on the different trading venues supported by SIX x-clear. The cash and custody accounts listed below are to be kept with SIX SIS on behalf and for account of SIX x-clear for collateral management purposes.

6.3 **Collateral accounts for margins (initial and variation margin)**

SIX x-clear opens collateral accounts with SIX SIS in the name of SIX x-clear for members using the collateral management facility at SIX SIS to meet the margin requirements. These accounts are used to transfer the margins provided. The collateral is transferred to SIX x-clear as an irregular pledge with the right of SIX x-clear to re-use it.

The member can use the following collateral accounts:

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6.3.1 Custody collateral account for margin-eligible securities

Securities collateral can be provided by transferring from the member's custody account at SIX SIS.

6.3.2 Cash collateral account for margin-eligible currencies

- Cash can be provided from a GBP or EUR account opened/held by a clearing member at a UK Protected Payment System bank (PPS bank).
- Cash can be provided from accounts held at SIX SIS or at SIC.

6.4 **Default Fund collateral account**

To enable members to meet the Default Fund requirements, SIX x-clear opens a collateral account (custody and/or money) with SIX SIS for Default Fund. These accounts are held in the name of the member and are used to transfer the collateral provided. SIX SIS is pledge holder. The contents of these collateral accounts will be pledged to SIX x-clear by means of a regular pledge.

The member can use the following collateral accounts:

6.4.1 **Custody Default Fund collateral account**

Securities collateral can be provided by transferring from the member's custody account at SIX SIS.

6.4.2 **Cash Default Fund collateral account**


- Cash can be provided from a GBP or EUR account opened/held by a clearing member at a UK Protected Payment System bank (PPS bank).
- Cash can be provided from accounts held at SIX SIS or at SIC.

6.5 **Settlement accounts**

All carbon emission certificate (EUA and CER) settlements will be at SIX SIS. Apart from the cash and custody account requirements at SIX x-clear, the member should also maintain a custody account at SIX SIS that allows settlement of the carbon certificates. Settlements will be booked from SIX x-clear's custody account maintained at SIX SIS and booked to the member's custody account.

7.0 **Risk Management**

As CCP for greenmarket, SIX x-clear assumes the risk on the buy/sell side and is liable towards the respective members for the fulfillment of obligations (both on the cash and the certificates side) arising from trades. SIX x-clear guarantees the fulfillment of these

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obligations even in the event of default of a member; however, it does not guarantee timely execution of the transactions on the settlement date.

Clearing information such as open positions, margin details and the collateral placed for margins as well as the collateral utilizations can be viewed via online queries sent from the user's SIX x-clear interface. The clearing members also have the option of receiving this information using different reporting options available at SIX x-clear.

7.1 Objectives/Overview

The primary objective is to minimize potential risks through effective and accurate risk management. In the event of the default of a member, the risk should be primarily borne by the defaulting member itself. Correspondingly, the following measures are employed to minimize risk:

- Safeguarding against the market risk to be expected subsequent to any default of a member by means of the collateral deposited by the member for margins.
- Pledging of collateral in the Default Fund to cover unpredictable losses.

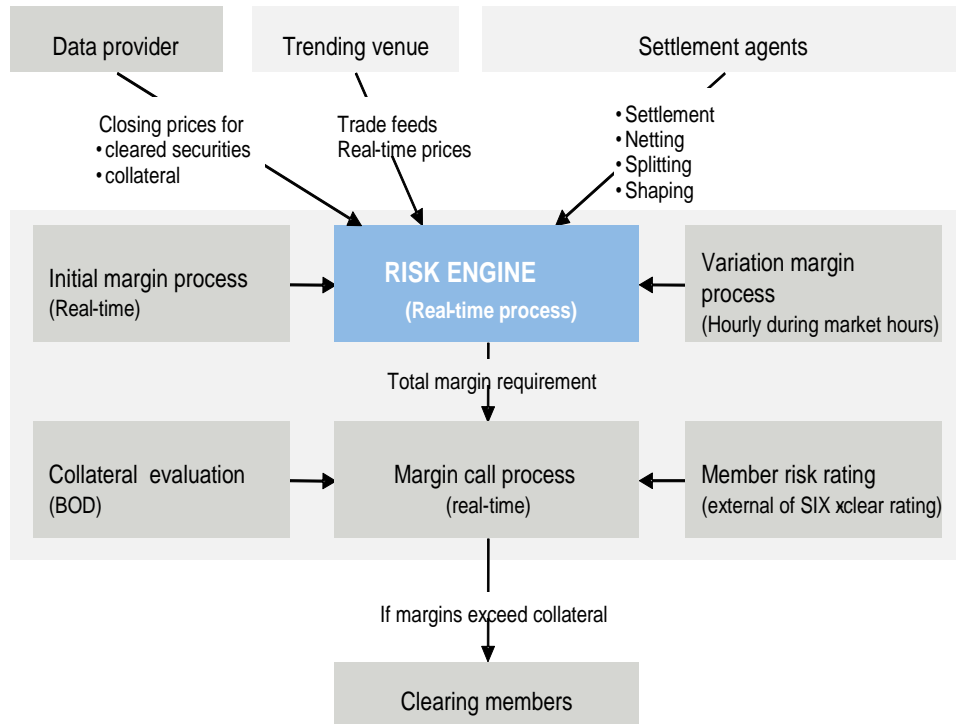
7.2 Risk Management process

SIX x-clear employs an efficient real-time risk management system that provides the member with details on current open position and margin requirements. Clearing members that clear trades across the asset classes can obtain a consolidated view of their margin requirements.

The diagram below presents an overview of the risk management process for greenmarket.

Both on-order book and off-order book trades will follow same risk management process: To avoid any distortion of the trade price used, off-order book trade prices are not included.

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7.3 Open positions

SIX x-clear clears spot contracts on EUA and CER certificates and futures contracts on EUA certificates that are on-order-book or off-order-book traded. All unsettled trades and related obligations on a member's clearing account are summarized per instrument (spot and futures) and currency (of trade) into one position called the "open position". The open position consolidation is done for a clearing account. The open quantity for a trade is measured in tonnes for the spot market and in lots (contracts) for the futures market and the open amount is determined in the trading currency at ISIN level and in CHF at Asset class level. Open positions are computed in real time by SIX x-clear and no differentiation is made between the off-order-book trades and on-order-book trades of spot and futures contracts.

The following transactions impact a clearing account's open positions:

- A new clearing-eligible trade received from greenmarket
- Settlement of such trades
- Cancellation of settlement order (e.g. due to netting or exchange initiated cancellation)
- Expiry of the futures contract and creation of delivery orders

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The process of computing open positions nets all unsettled trades, provided they are on the same instrument, clearing account and currency. Hence, the open positions for a clearing account are the same whether a member opts for settlement netting or not.

7.4 **Open positions revaluation**

This is applicable only for futures contracts. Since the variation margins are cash settled at EOD, the risk exposure of the CCP against a member due to the intra-day price fluctuations are nullified. Hence the open positions of the member are revalued to the current exposure, which is the open quantity (in lots) * daily settlement price * lot size.

7.5 **Margins**

The total margin required is the sum of the initial margin multiplied by the risk rating coefficient, plus the intra-day variation margin. Intra-day Variation margins are nullified, for the futures contracts alone, using the EOD variation margin that has been cash settled at end of day.

Risk Management consists of the following processes:

- Calculation of margin requirements
- Valuation of collateral
- Checking of margin coverage
- Margin call in case of insufficient margins
- Margin call for settlement of EOD variation margin

The daily valuation of the collateral is normally based on the previous day's closing price.

The initial margin is an estimate of the market risk inherent in a clearing member's open positions. It is designed to cover the CCP for the market risk it becomes exposed to for the period between the last margin cycle prior to a member's default and the close-out of the defaulting member's unsettled positions by the CCP.

The intra-day variation margin covers the mark-to-market fluctuations for a clearing member's open positions. The intra-day variation margin helps a CCP to protect itself against losses to a clearing member's open positions. In case of gains to a clearing member's open positions due to favorable price movements, the intra-day variation margin offsets the initial margin requirement.

Due to the longer duration of futures contracts and the high risk, the mark-to-market fluctuations in the futures contracts are cash settled at end of day. This eliminates the CCP risk exposure/member risk exposure due to intra-day price fluctuations.



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The margin requirement of the member is computed in CHF for the intra-day VM and IM; for the EOD VM, it is computed using the contract base currency (no currency risk element is considered). SIX x-clear takes into account the currency risk during the intra-day mark-to-market process and applies the latest foreign exchange rates to compute the total margin requirement of members. The foreign exchange rates are received using near real-time feed with a periodicity of once in an hour. The total margins are recomputed with a periodicity of once in an hour using the latest foreign exchange rates.

7.6 Initial margin (IM)

SIX x-clear uses risk-based margining method to determine the margin requirements from members. Calculation of the initial margin is based on the VaR of the underlying securities. According to this model, margins are computed in real-time using the VaR of the instrument. SIX x-clear adopts cross-margining for EUAs and CERs in the spot market and cross-asset margining with the trades on the futures market.

VaR is defined as the maximum possible loss for a given financial portfolio with a given confidence level. For example, if the CER's 2-day VaR is 8.9% with 99% confidence level, the CER's 2-day price changes are expected to exceed 8.9% in only 1 out of 100 instances.

For each clearing-eligible instrument, 2-day VaR is periodically computed using the "historical simulation" method, by choosing the higher of either the long term VaR based on a 1-year price history, or the short term VaR based on the 3-month price history, which reflects short term changes in a volatile emission trading market.

7.7 Risk buckets

Securities are grouped in risk buckets based on the VaR values. There are 6 risk buckets with the defined parameters per asset class. (However, this setup could undergo changes based on the back testing results and the confidence level achieved.). Spot market and futures market trades are categorized under different asset classes. The clearing scope in the carbon certificates market is currently limited to spot contracts in EUA, CER and futures contracts on EUA. Despite the high level of correlation between the futures contract and spot markets, future contracts carry specific risks; futures contracts are therefore treated as different asset class. Futures contracts with different expiry dates are treated as different instruments and their risk characteristics are measured independently. The greenmarket products are categorized into different risk buckets or the same bucket based on their VaR. Each of these risk buckets is defined by an initial margin percentage that is also used to determine the margin requirements.

Example of the risk bucket definition:

| Risk bucket | min. VaR (in %) | max. VaR (in %) | Initial margin in % |
|-------------|-----------------|-----------------|---------------------|
| BU01 | 0% | 5% | 5% |
| BU02 | 5% | 10% | 10% |
| BU03 | 10% | 15% | 15% |
| BU04 | 15% | 20% | 20% |

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| | | | |
|------|-----|------|-------|
| BU05 | 20% | 25% | 25% |
| BU06 | 25% | 100% | 27.5% |

The process of forming the risk buckets always follows the computation of VaR, which is calculated weekly under normal market conditions and ad hoc runs under nonstandard market conditions.

SIX x-clear uses two coefficients – intra-bucket netting coefficient (intra-BNC) and inter-bucket netting coefficient (inter-BNC) – to handle the margin requirements from the member efficiently: Intra-BNC is used to net the open positions within a risk bucket and inter-BNC to net the open position across the risk bucket.

Risk netting coefficient I – intra-BNC

To account for the benefit in the opposing initial margin position within a risk bucket, SIX x-clear uses an intra-BNC that provides flexibility to the clearing house to handle the margin collection efficiently. This netting coefficient is only applicable if the greenmarket products are allocated to the same risk bucket.

The following example uses an intra-BNC value of 0.80:

| Risk bucket | Security | Long or short | Net open amount | Initial margin (%) | Initial margin CHF 1) | Bucket margin 2) |
|-------------|----------|---------------|-----------------|--------------------|-----------------------|--------------------------|
| BU01 | A | Long | 1000 | 5.00% | 50.00 | 50 – 0.8 x 35.00 = 22.00 |
| | B | Short | -700 | | -35.00 | |

1) For simplicity, the initial margin is computed on the open amount. In general, the initial margin is computed as a product of (open quantity, latest trade price and the initial margin percentage).

2) In this example, 35 is smallest of absolute value of long initial margin and short initial margin.

Bucket initial margin = (higher of "bucket IM_{Long} " or "bucket IM_{Short} ") less "intra-bucket margin offset", where

- bucket IM_{Long} is the absolute sum of IM for all long positions within a risk bucket;
- bucket IM_{Short} is the absolute sum of IM for all short positions within a risk bucket;
- "intra-bucket margin offset" is the reduction of margin due to opposing positions within a risk bucket. This is equal to (the lower of bucket IM_{Long} or bucket IM_{Short}) X Intra BNC.

Risk netting coefficient II – inter-BNC

Similar to opposing positions within a risk bucket, opposing net positions across buckets also has the effect of reducing the market risk. Inter-BNC is applied to net positions across risk buckets and has the effect of reducing the initial margin in the case of opposing net positions across different risk buckets. Inter-BNC is applied at the level of margins. The objective of introducing inter-BNC is to reduce margins to account for the existence of predominantly

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opposing positions in different risk buckets. This coefficient is applicable only when greenmarket products have been allocated to different risk buckets.

The following example uses an inter-BNC value of 0.40:

| Risk bucket | Security | Long oder Short | Open amount (CHF) | Initial Margin (%) | Initial Margin (CHF) | Bucket initial Margin (CHF) | Net bucket IM (CHF) | Inter-bucket margin offset (CHF) | Total initial Margin (CHF) |
|-------------|----------|-----------------|-------------------|--------------------|-----------------------|------------------------------|---------------------|----------------------------------|----------------------------|
| BU01 | A | Long | 1000 | 5.00% | 50.00 | 50- (35.0 x 0.80) = | 15.00 | 15.00 x 0.40 = 6.00 | |
| | B | Short | -700 | | -35.00 | 22.00 | | | |
| BU03 | C | Long | 400 | 15.00% | 60.00 | 120 – (60 x 0.80) = | -60.00 | | |
| | D | Short | -800 | | -120.00 | 72.00 | | | |

Each bucket would have one "net bucket IM" which could be either positive or negative. Positive values of "net bucket IM" should be added across all risk buckets to arrive at the "total net long IM". Similarly, negative values of "net bucket IM" should be added across all risk buckets to arrive at the "total net short IM". The smaller of these two figures (in absolute terms) multiplied by the inter-BNC is the value by which margins would have to be offset (inter-bucket reduction).

Total IM = \sum (IM for each bucket) less "inter-bucket margin offset", where

- " \sum (IM for each bucket)" is the sum of margins for all risk buckets. "IM for each bucket" incorporates the effect of intra-BNC.
- "inter-bucket margin offset" is the amount by which margins would be reduced to account for the opposing nature of net positions across buckets = (lesser of "total net long IM" or "total net short IM") X inter-BNC;
- "total net long IM" is the absolute sum of the net bucket IM where the net bucket IM is positive;
- "total net short IM" is the absolute sum of the net bucket IM where the net bucket IM is negative;
- "net bucket IM" is the arithmetic sum of the IM of all securities within a risk bucket (with plus/minus sign).

7.8 Risk rating coefficient

Risk rating of the clearing member is also critical for the clearing house to manage the margin requirements for cleared trades. This risk rating coefficient is applied to the initial margin to determine the final margin requirements of a member.



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A risk rating coefficient of 1.0 is usually applied, provided that the rating of the clearing member has at least an A- in market-supplied rating data or another rating defined by the risk manager. The risk rating coefficient may be increased for members with a lower rating. It may also be temporarily increased

- for members who have substantial open positions across all the cleared products for a clearing member; and/or
- for all members during periods with extraordinary market conditions or due to instructions from regulators.

7.9 **Intra-day Variation margin (VM)**

The intra-day variation margin is calculated hourly during the trading day and also during end of day processing. Intraday VM cycles use the latest market prices while the end of day VM cycle for futures contracts is based on daily settlement prices received from greenmarket as well as on the net positions of all open future contracts per instrument.

7.10 **Offset between futures and spot market trades**

Futures and spot market trades are risk categorized under different asset classes at SIX x-clear. Due to the high correlation between the futures and spot markets, SIX x-clear offers cross-asset margining between the futures and spot markets, which helps to reduce the overall margin requirements for the member.

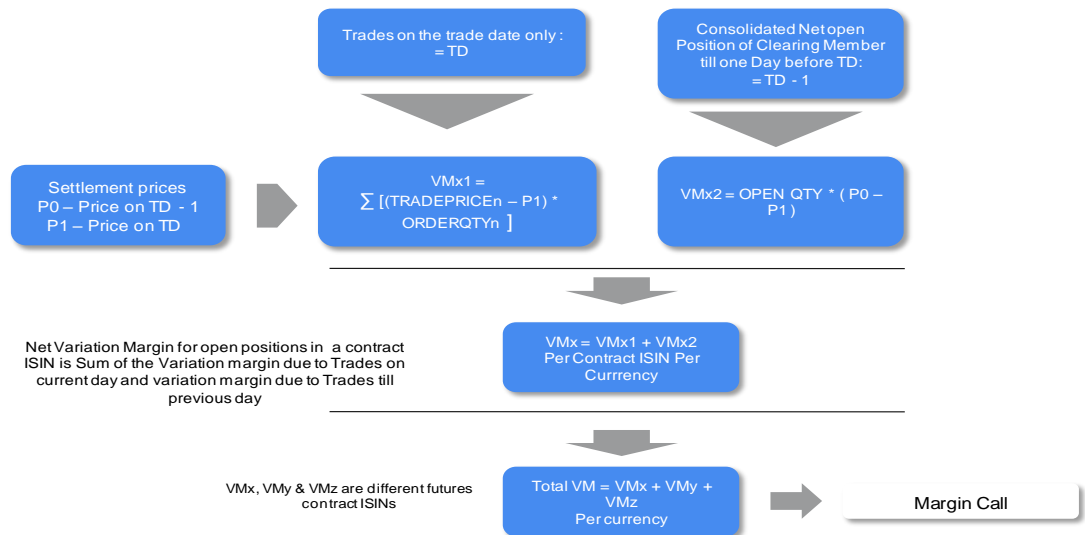
Cross-asset margining for members is provided using a CAM coefficient, which is defined by the risk manager based on the prevailing market conditions. This CAM coefficient is used to offset positions when the member is long in spot and short in futures, or vice versa.

7.11 **EOD variation margin**

SIX x-clear marks-to-market the futures contract open positions using the settlement price of the futures contract to determine the profit/loss positions of the member for every trading day. This profit/loss position is cash settled at end of day (EOD) on the clearing member accounts using a margin call. Clearing member accounts used for the execution of margin calls are defined by the member.

The following example explains the application process of the EOD mark-to-market (MTM) variation margin calculation methodology.

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7.12 Daily settlement price

This is only applicable for futures contracts. At the end of every trading day, the exchange computes the settlement price and sends it to SIX x-clear. SIX x-clear uses this settlement price to determine the marked-to-market (EOD variation margin) profit/loss position of the member. Additionally, the settlement price on the final trading day is used to determine the settlement amount for the delivery of open EUA certificates on expiry of the contract.

7.13 Margin calls

If a member's calculated margin requirements exceed the member's deposited collateral value, a margin call is automatically triggered in real time to settle the difference. A margin call must be met within

- 60 minutes after a margin call was issued to the clearing member as a consequence of insufficient collateral to meet margin requirements; and
- 2 days after the collateral for the Default Fund becomes insufficient.

Margin calls are also raised to settle the EOD variation margin amount. This is an automatic debit/credit on the margin money account provided by the clearing member.

Such debit is effected by SIX SIS (on behalf of SIX x-clear) by directly debiting the clearing member's GBP or EUR account at its UK payment bank in favor of the cash collateral account at SIX SIS held in the name of SIX x-clear. Before clearing can be initiated, SIX SIS (on behalf of SIX x-clear) requires a direct debit authority/mandate mutually signed between the clearing member and its UK payment bank. Members are required to provide a margin account in the contract currency to meet the needs of EOD variation margin.



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Upon a clearing member's request for the withdrawal of cash collateral, subject to the availability of sufficient underlying collateral to meet margin and Default Fund requirements, SIX x-clear returns cash owned by the clearing member to the clearing member's account denominated in GBP or EUR at its UK payment bank. Such available cash collateral is transferred/paid by SIX SIS (on behalf of SIX x-clear) via its UK payment bank (concentration/correspondent) bank in London.

Regarding the required margin call settlement services, SIX x-clear has agreed to co-operate with several financial institutions whose names are published on the SIX x-clear website. Each clearing member may choose its UK payment bank (for margin call settlement purposes) at its own discretion. Such margin call settlement services are only required if a clearing member decides that neither its SIC account nor an account at SIX SIS is to be used to settle margin calls (money side) and to withdraw cash collateral.

7.14 **Total margin**

A clearing member may clear trades across additional asset classes currently supported by SIX x-clear, namely equities and bonds. Initial margin for the respective asset classes is determined based on the process defined above for a single asset class. Total initial margin for a member is determined as the sum of the initial margin for each asset class.

Total IM = IM of equities + IM of bond + IM of carbon market (spot and futures)

The total margin requirement for each clearing account is calculated as follows:

Total margin = risk rating – coefficient x total IM + VM of equities + VM of bonds + VM of the spot carbon market + VM of the futures carbon market

Hence, if a member has a "gain" from the variation margin due to favorable market movements, this has the effect of reducing the total margin, provided that the total margin does not sink below zero.

Please note that the VM of the futures carbon market is nullified in the EOD variation margin settlement.

7.15 **Margining and settlement – futures contract**

This section contains an example explaining the revaluation of open positions, EOD variation margining and the settlement of futures contracts.

Assuming that Member A has bought 10 lots of 2011Dec Futures at EUR 13.00/tonne. 1 lot = 100 tonnes

| Contract | Quantity in lots | Purchase | Settlement price | Open amount |
|-----------------|------------------|----------|------------------|-------------|
| 2011Dec Futures | 10 | 13.00 | NA | 13,000 |

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At EOD, greenmarket exchange provides the settlement price information as EUR 13.50. As a buyer, Member A is in profit position when his purchase has been marked-to-market.

| Contract | Quantity in lots | Purchase | Settlement price | Open amount | VM MTM |
|-----------------|------------------|----------|------------------|-------------|-----------------------|
| 2011Dec Futures | 10 | 13.00 | 13.50 | 13,000 | 13,500 – 13,000 = 500 |

SIX x-clear provides a credit of EUR 500 to clearing account at EOD (SIX x-clear would have received a credit of EUR 500 from the other member in the loss position).

The open position vis-à-vis the member is then revalued to reflect the exposure since the intra-day price fluctuation has been cash settled.

| Contract | Quantity in lots | Purchase | Settlement price | Open amount |
|-----------------|------------------|----------|------------------|-------------|
| 2011Dec Futures | 10 | 13.50 | NA | 13,500 |

The following day, the futures contract has expired and the exchange has provided a final settlement price as EUR 14.00. Open positions are marked-to-market and a final settlement instruction is generated for the physical delivery of netted positions.

| Contract | Quantity in lots | Purchase | Settlement price | Open amount | VM MTM |
|-----------------|------------------|----------|------------------|-------------|-----------------------|
| 2011Dec Futures | 10 | 13.50 | 14.00 | 13,500 | 14,000 – 13,500 = 500 |

EUR 500 is cash settled using a margin call (i.e. the member is credited with another EUR 500) and then the settlement instruction is generated for netted position of 10 lots (equivalent to 1000 tonnes).

| ISIN | Quantity in tonnes | Settlement amount |
|------|--------------------|-------------------|
| EUA | 1,000 | 14,000 |

The member is debited EUR 14,000 and the EUA positions are credited to the member account at SIX SIS from SIX x-clear's accounts (which would have received credits from the selling member's account).

8.0 Default Fund for greenmarket

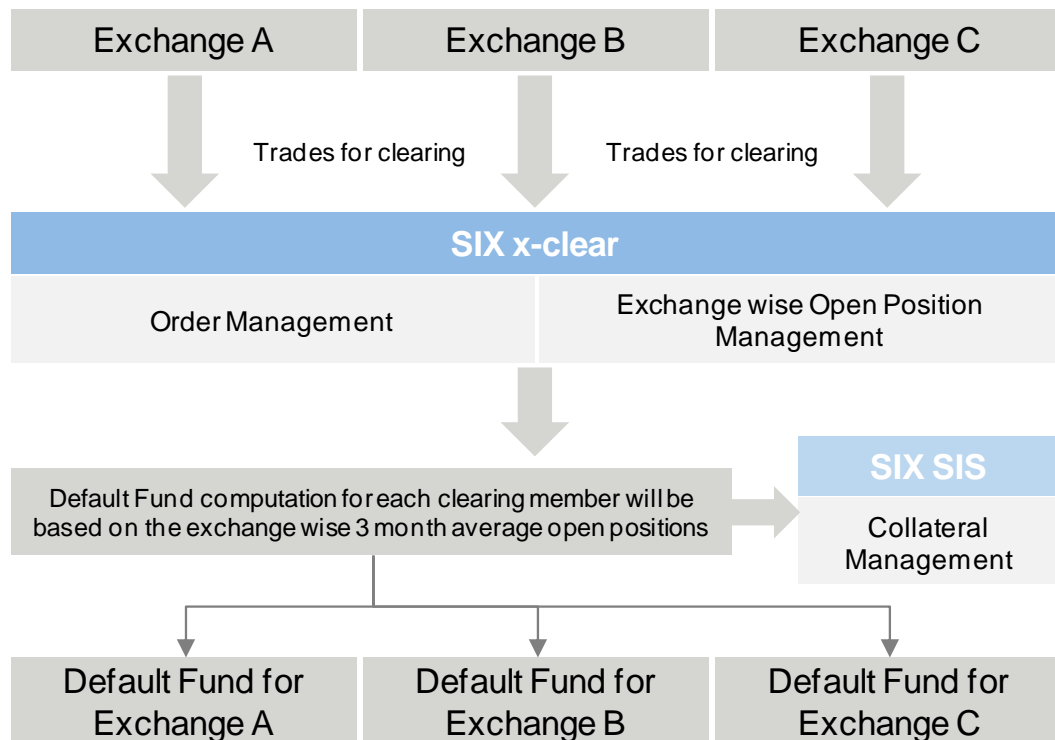
The initial margin and the variation margin combined should cover all expected market risks that may arise due to the default of a member. However, there is no guarantee that an initial margin calculated from historic data will withstand all future price developments under extreme market conditions. Therefore, a Default Fund for greenmarket is also used to cover unpredictable risks and losses. This Default Fund serves in particular to cover any systemic risk (domino effect). SIX x-clear will maintain a separate default fund for different trading venues where SIX x-clear is a CCP. A single default fund is defined for greenmarket which will cover both the spot market and futures market.



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The Default Fund for greenmarket is supported by contributions from members who use SIX x-clear clearing services. The amount to be contributed is determined by the membership category (ICM/GCM) and by the Risk Management definition of exposure coverage requirements which will be based on 3-month average open positions; (in some cases, contributions from a member could be different in the initial phase of greenmarkets clearing services) and re-adjusted with a monthly periodicity based on the open position created on this exchange.

The diagram below depicts SIX x-clear's approach with regard to Default Fund distribution. If a member uses clearing services only for greenmarket, a Default Fund contribution is required solely for greenmarket. The default of a member on one trading venue does not have any impact on the Default Fund maintained for another trading venue. The diagram below highlights the fundamental principles of Default Fund computation at SIX x-clear.



Contributions to the SIX x-clear Default Funds are to be made in the form of money or securities. Members must meet the Default Funds requirement within the specified number of days from the date and time of the Default Fund requirement notice. If the member does not maintain the required Default Fund contribution, a direct debit is executed on the member's UK payment bank account, SIC account or an account held with SIX SIS.

Contributions to the Default Funds can be made by depositing securities eligible as collateral in a separate custody account. The securities are subject to daily mark-to-market valuation and must not fall below the value of the contributions required. The value of the deposited



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securities is calculated on the basis of their market value less a haircut, and not on the basis of their par value. Default Fund contributions are secured by means of a regular pledge.

8.1 **Adjustment duty**

SIX x-clear also performs a reassessment of the Default Fund requirement at the beginning of every month. The member is required to replenish the Default Fund contribution before a given deadline, usually two days. If the member fails to provide an additional contribution, SIX x-clear issues a margin call for a direct debit.

Each member is obliged to make additional contributions to the Default Fund for greenmarket. On the one hand, changes in the average gross open position of the last three months entail adjustments to the Default Fund contributions. On the other hand, price fluctuations resulting in a negative value change entail the member's obligation to make additional contributions.

Furthermore, each member is obliged to replenish the Default Fund up to the amount of its current contribution. These additional contributions may be claimed in one payment or, if required, in installments. SIX x-clear may demand that members make additional contributions if the Default Fund for greenmarket has been utilized once or more than once. The additional contribution is calculated on a proportional basis (membership contribution as a percentage of the total Default Fund volume).

8.2 **Defense lines**

Initial margin, variation margin and Default Fund are not the only means for SIX x-clear to absorb losses.

The defense lines of SIX x-clear are applied in the following order:

- Margins, i.e. the collateral provided by the defaulting member itself
- Contributions, i.e. the collateral provided by the defaulting member in favor of the Default Fund
- Per calendar year, a maximum of 50% of the provisions/reserves made in SIX x-clear's balance sheet
- Default Fund (i.e. contributions from other clearing members)
- Provision of additional collateral to the Default Fund
- Remaining provisions/reserves, profit and surplus capital from SIX x-clear

The defense lines and the Default Fund are intended to help prevent systemic risks (domino effect) for the entire financial market.



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9.0 Accepted collateral types

Eligible collateral to be provided within the framework of the overall risk management for margins and the Default Fund must be deposited with SIX x-clear.

The lending values and the eligible collateral are published on the SIX x-clear website www.six-x-clear.com > Services > Risk Management > Lending norms.

The deposited collateral is accounted for at market value less a haircut. Due to IRS regulations, US securities cannot be accepted as collateral.

10.0 Settlement

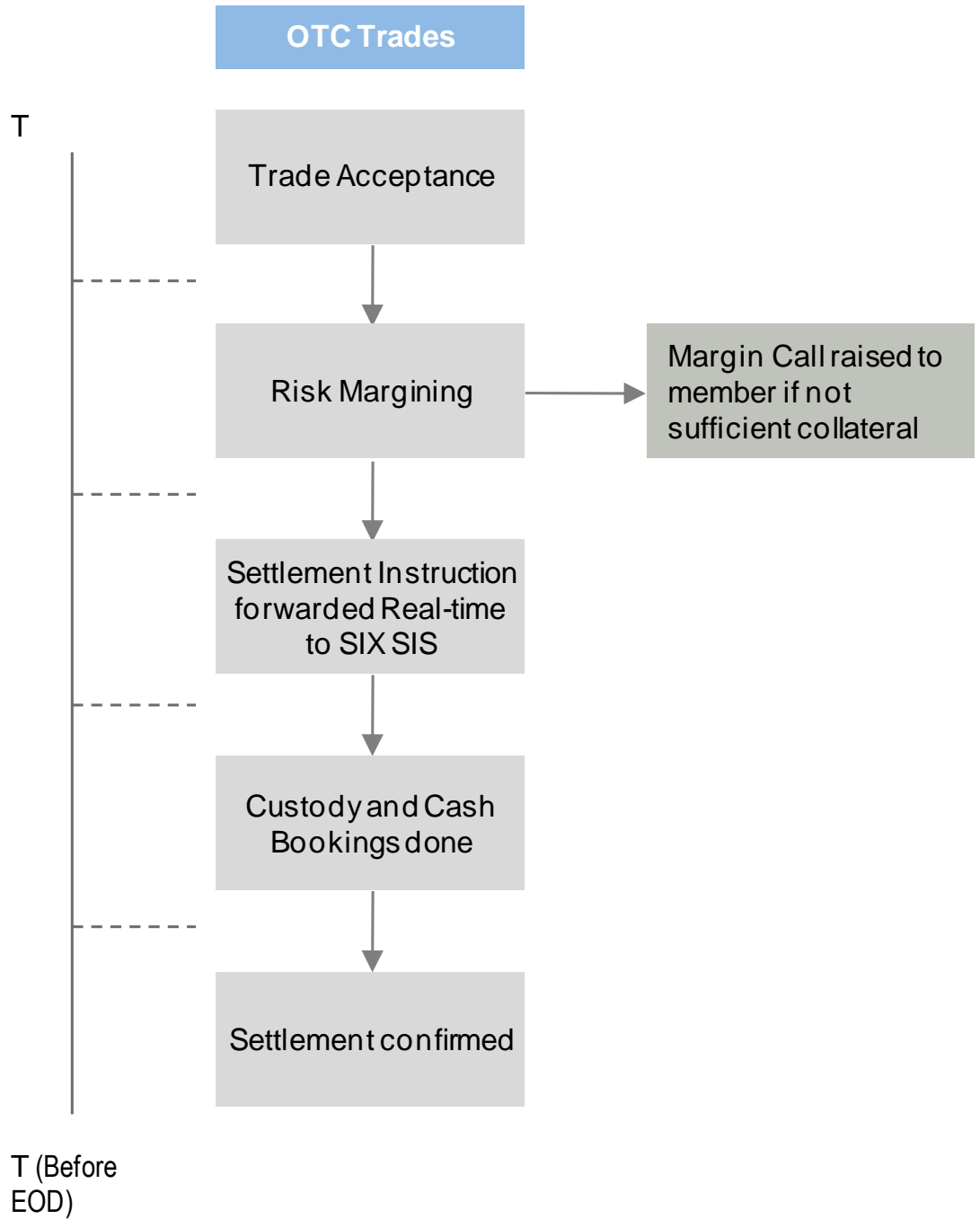
Settlement of the spot contracts executed on greenmarket will be at SIX SIS and settled either on a T+0 or T+1 basis.

Each greenmarket transaction cleared by SIX x-clear has an intended settlement date (ISD) and trades are attempted for settlement on that ISD.

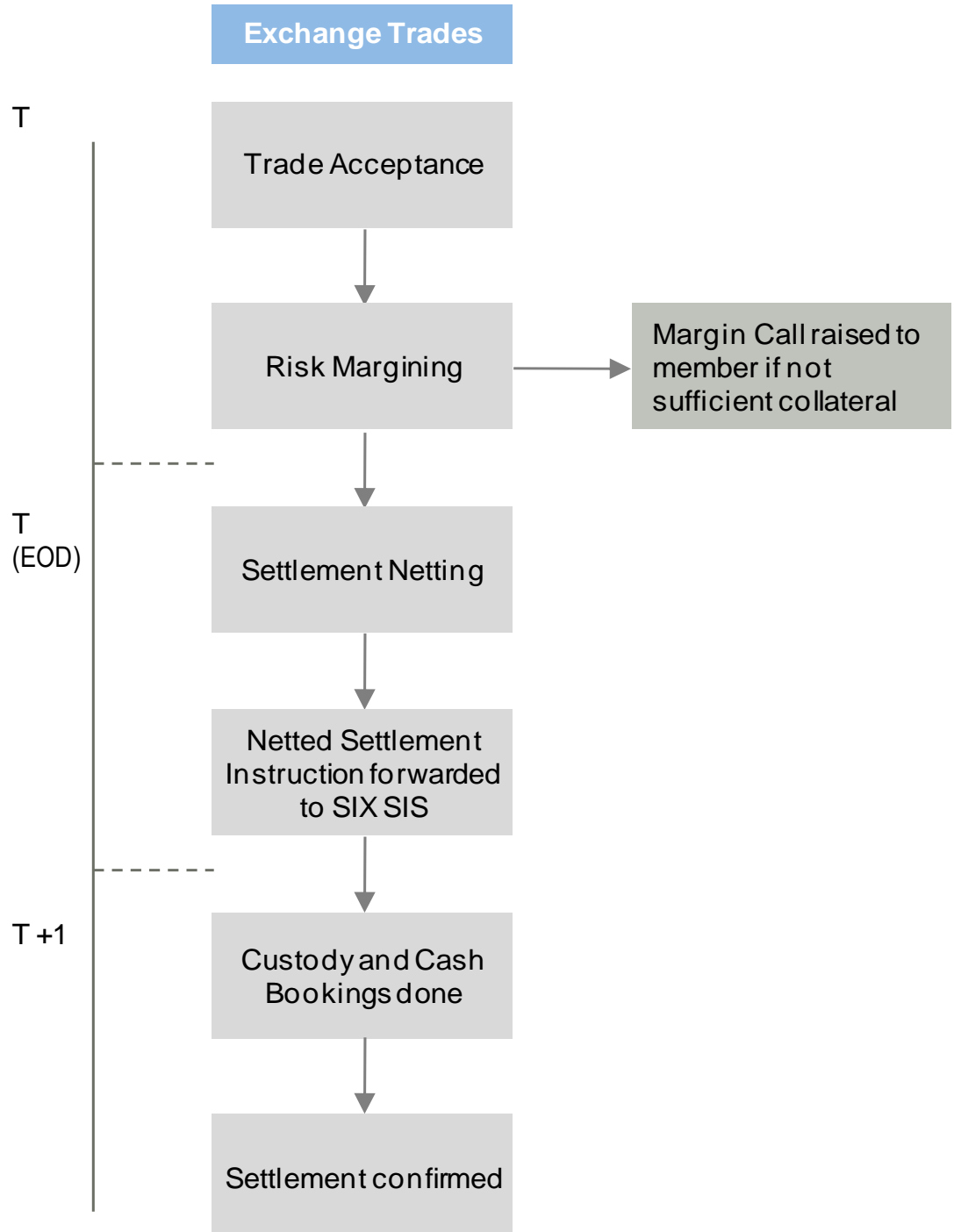
On expiry of the future contract, instructions will be issued to SIX SIS for settlement of the delivery of the underlying instrument/certificates on a net basis. The settlement cycle of the futures contract will be as per the greenmarket contract definition.

The member must ensure that a sufficient amount of funds or securities as required is available on the ISD in the accounts at SIX SIS.

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10.1 Settlement amount

In the spot market, the amount provided by the exchange in the input trade is used for settlement. In addition, a VAT amount is also applied based on the prevailing VAT regime.

Settlement amount in spot market = Qty in tonnes * trade price (per tonne) + VAT

In the futures market, the amount provided by the exchange in the input trade is used for initial open position only. On expiry, the settlement amount is recomputed using the final settlement price provided by the exchange on the last trading day. In addition, a VAT amount is also applied based on the prevailing VAT regime.

Settlement amount in futures market = Qty in lot * No of tonnes/lot * Final settlement price (per tonne) + VAT

10.2 Settlement mode

SIX x-clear offers optional net settlement to its members for the transactions on greenmarket for on-order book trades that follow T+1 settlement, in the spot market only. Trades with T+0 settlement will settle on a gross basis only. For the futures market, the settlement is effected as per the contract specification.

Settlement netting or gross settlement will have no impact on the margining of the open positions. The member must indicate its netting preference details in SIX x-clear's static data form.

10.3 Settlement location

The settlement of transactions for both off order book and on-order book trades is effected at SIX SIS. SIX x-clear routes the settlement instruction on behalf of the member to SIX SIS. To this end, SIX x-clear requires a power of attorney (POA) from the member.

10.4 Settlement standing instructions

Every clearing member eligible to have cleared trades on greenmarket needs to provide SIX x-clear with its clearing and settlement standing instruction details (CSSI). SIX x-clear maintains a CSSI form for each trade to be concluded by the member. SIX x-clear uses these standing instructions to generate the member's clearing and settlement preference.

The CSSI details contain the following information:

1. Clearing Details

- Clearing member ID at SIX x-clear
- Default clearing account preference (client/house)

2. Netting preference – gross/net



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3. Settlement details for each cleared market

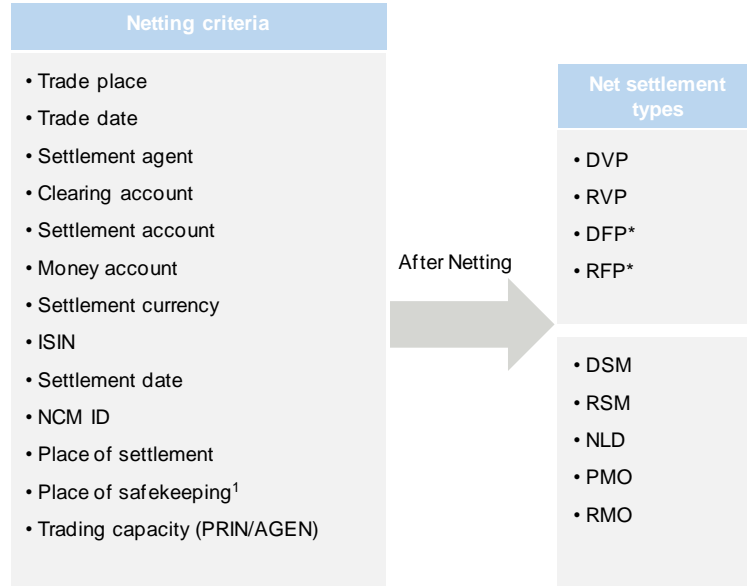
- Settlement account details – stock and/or cash
- Power of attorney to route the settlement instruction to the settlement agent

11.0 Settlement netting

In the spot market, the trades with T+1 settlement cycle will be considered for netting if the member has opted for netting. The settlement netting model offered by SIX x-clear to its clearing members is Trade Date Netting (TDN) in the spot market. For the futures market, the open contracts will be settled on a net basis only. On expiry of the futures contract, the delivery on futures is initiated; this is allowed to net with the spot market trades (provided the netting criteria matches between the delivery instruction and spot market instruction). This provides an opportunity for members to square-off their naked futures positions in the spot market. The TDN model used by SIX x-clear is explained below.

11.1 Trade date netting

SIX x-clear offers optional TDN to its clearing members for the trades on greenmarket spot market. The netting parameters used for trades of greenmarket are as follows:



* DFP/RFP will be instructed as DVP/RVP with settlement amount as zero

¹ Applicable if member is using custodian services for the market.

For spot trades, netting is performed after the clearing window at the exchange closed for the trading day. Since all net settlement types are supported at SIX SIS, no strange net processing is applied on the net settlements.



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11.2 Reconciliation at the member's end

SIX x-clear offers various messages and reports that can be used by members for their reconciliation. Members can opt to receive the messages/reports either intra-day or at EOD based on their stated preference.

The list of trade reports available for SIX x-clear members is available at www.six-sis.com > Private > SECOM > Business Partner Specifications > SIX x-clear Business Partner Specifications - Volume 5.

12.0 Late delivery and buy-in

The introduction of the late settlement regime starts at the go-live date and assesses settlement performance related to the trading platform and the consequent need to establish a settlement regime.

The buy-in matrix for greenmarket is published at www.six-x-clear.com > Clearing > Guides.

13.0 Default

The default procedure applied by SIX x-clear corresponds to the existing regulations and is summarized as follows:

A member that fails to fulfill its obligations under conditions defined in the General Terms and Conditions of Business (GTCB) can be declared a "defaulting member" by SIX x-clear upon consultation with the trading venue, or else declared in default by the trading venue itself. After having declared a member a "defaulting member", SIX x-clear issues a default notice and transmits it to the member. The consequences of a default notice take immediate effect.

After issuance of the default notice or the occurrence of an automatic close-out event, SIX x-clear does not register any new contracts of the defaulting member. In order to liquidate existing positions, close-out netting is effected.

To compensate for any losses caused by the default of a member, the collateral of SIX x-clear is used according to defense lines.

14.0 Operating calendar

SIX x-clear accepts trades for clearing purposes on all days on which greenmarket is open for trading.

Margins are calculated and margin calls sent on all operating days of SIX x-clear.

15.0 Member interface with SIX x-clear

Members can use the following different interfaces to perform online queries and receive clearing reports and margin call notices:

A small, square decorative image showing a close-up of a steering wheel with a blue vertical bar to its left.

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- SIS Web Services
- webMAX
- Swift

SIS Web Services is a portal which integrates SIX SIS' different web-based services. This way the participant only has to log in once to be able to use the different services. SIS Web Services supports all SECOM queries.

The webMAX product family (**M**aximal **A**ccess to **eX**tended settlement and custody services) is based on the most recent java applications that exclusively support IP technology and is installed at the participant's location once the license agreement has been concluded.

SIS Web Services and webMAX are organized in line with participants' needs. The participant selects each service as and when required. The functions displayed to the user reflect the services the user has subscribed to.

For receiving the settlement instructions, the members or the settlement agent of the member can also use SWIFT connectivity or any existing messaging interface with SIX SIS Ltd.

Further details are published on the SIX SIS website www.six-sis.com > Private > Technological connectivity.

16.0 Tariff

The SIX x-clear tariff structure for post-trade can be accessed on the SIX x-clear website at www.six-x-clear.com > Services > Pricing SIX x-clear.

Please note that links to websites of third parties are provided solely for information purposes and do not imply any recommendations whatsoever. SIX x-clear Ltd has neither provided nor processed the contents of the websites in question. Furthermore, SIX x-clear Ltd has not verified, reviewed or updated the contents of these websites and therefore disclaims all liability for the information contained therein

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