

Chapter 4

Margin and Valuation

4.1 Margin Requirement

A Clearing Member must at all times satisfy its Margin requirements calculated by OTC Clear in respect of all Contracts registered in its name. Except for Participating Margin, the Margin requirements in respect of Contracts recorded to a Clearing Member's House Position Account may be netted against each other, and the Margin requirement in respect of Contracts recorded to a Clearing Member's Client Position Account may be netted against each other, but not against Contracts recorded to such Clearing Member's House Position Account or other Client Position Account(s). With respect to a Clearing Member, Participating Margin is calculated in respect of the Inter-CCP Rates Derivatives Contracts with equal but opposite terms to (and which have been created to correspond to) the Standard Northbound Rates Derivatives Contracts recorded in all Position Accounts of that Clearing Member.

The types of Margin that may be demanded by OTC Clear in respect of each Clearing Member are summarised below:

- (i) Initial Margin (see section 4.2) – which in most circumstances is calculated during the End-of-Day Settlement Process in respect of each Position Account. Initial Margin will be calculated and presented in the Base Currency, and a Clearing Member may satisfy its Initial Margin requirements either in cash in any Eligible Currency or, subject to any Collateral Concentration Limit imposed by OTC Clear, any non-cash assets specified pursuant to section 7.3 of these Clearing Procedures. OTC Clear may, at any time during an OTC Clear Clearing Day and a Northbound Clearing Day, demand ad hoc intra-day Initial Margin from each Clearing Member if it determines that the then market conditions warrant this. Ad hoc intra-day Initial Margin requirement will apply to each Clearing Member with respect to each Position Account then registered in its name (including both its House Position Account and Client Position Account(s), if any). With respect to each such Position Account, ad hoc intra-day Initial Margin will be determined and presented in the Base Currency, and the Clearing Member may satisfy such demand either in cash in any Eligible Currency or any non-cash assets specified in section 7.3 of these Clearing Procedures;
- (ii) Variation Margin
 - (a) End-of-day Variation Margin (see section 4.3) – which is calculated during the End-of-Day Settlement Process in respect of each Contract. End-of-day Variation Margin will be calculated and presented in the Contractual Currency of the Contract, and a Clearing Member shall satisfy the end-of-day Variation Margin requirements in cash in the relevant Contractual Currency;
 - (b) Routine Intra-day VM Call (see section 4.4.2) – which may be made by OTC Clear at the Routine VM Call Time during an OTC Clear Business Day. At regular intervals during an OTC Clear Clearing Day and a Northbound Clearing Day, OTC Clear will determine the aggregate Initial Margin and Additional Margin requirements in respect of all the Contracts then recorded to a Clearing Member's House Position Account, taking into consideration any Variation Margin requirements reflecting intra-day market movements, and compare the same with the then Margin Balance relating to such Clearing Member's House Position Account. If the Initial Margin and Additional Margin

requirements relating to a Clearing Member's House Position Account, taking into consideration any intra-day market movements, exceed the then Margin Balance relating to such Clearing Member's House Position Account by an amount equal to or greater than the Intra-day VM Limit set for such Clearing Member, then OTC Clear will make a Routine Intra-day VM Call with respect to such Clearing Member.

Routine Intra-day VM Call will be determined and presented in the Base Currency, and a Clearing Member may satisfy the Routine Intra-day VM Call either in cash in any Eligible Currency, or any non-cash assets specified pursuant to section 7.3 of these Clearing Procedures under the circumstances described in Clearing Rule 1211.

References to "intra-day market movements" as used in this section 4.1(ii)(b) means, with respect to an OTC Clear Clearing Day, any mark-to-market movements during the period from the completion of the End-of-Day Settlement Process on the immediately preceding OTC Clear Clearing Day to the time preceding the Routine VM Call Time, taking into account the latest market data then available, on such OTC Clear Clearing Day; and

- (c) Ad Hoc Intra-day VM Call (see section 4.4.3) – which may be made by OTC Clear at anytime on an OTC Clear Clearing Day and a Northbound Clearing Day if it determines that the then market conditions warrant an Ad Hoc Intra-day VM Call. The imposition of an Ad Hoc Intra-day VM Call, if applicable, will apply to each Clearing Member with respect to each Contract then registered in its name (including both House Position Account and Client Position Account, if any). With respect to each such Contract, Ad Hoc Intra-day VM Call will be determined and presented in the Contractual Currency of the relevant Contract, and the Clearing Member shall satisfy the Ad Hoc Intra-day VM Call in cash in any Eligible Currency and non-cash assets eligible as Collateral.

(iii) Additional Margin

- (a) Holiday Margin (see section 4.5.1) – OTC Clear may impose Holiday Margin in the circumstances described in section 4.5.1. Holiday Margin will be determined and presented in the Base Currency, and a Clearing Member may satisfy its Holiday Margin requirements either in cash in any Eligible Currency or any non-cash assets specified pursuant to section 7.3 of these Clearing Procedures;
- (b) Others (see section 4.5.2) – OTC Clear may also impose additional Margin in the circumstances described in section 4.5.2. Each of Holiday Margin, Notional Exchange Failure Margin and any additional Margin imposed by OTC Clear in the circumstances described in section 4.5.2 shall be "**Additional Margin**". Additional Margin will be determined and presented in the Base Currency, and a Clearing Member may satisfy its Additional Margin requirements either in cash in any Eligible Currency (provided that if a specific Eligible Currency is demanded by OTC Clear, the relevant Additional Margin requirement may only be satisfied in that Eligible Currency) or any non-cash assets specified pursuant to section 7.3 of these Clearing Procedures. OTC Clear may demand Additional Margin on each OTC Clear Clearing Day: at 08:30 hours Hong Kong time, at 14:15 hours Hong Kong time and at any other time determined by OTC Clear between 08:30 hours Hong Kong time and 15:00 hours Hong Kong time; and
- (c) Notional Exchange Failure Margin (see section 4.5.3) – OTC Clear may also demand Notional Exchange Failure Margin in the circumstances described in section 4.5.3.

(iv) Participating Margin

Participating Margin (see section 4.5A) covers the aggregate of: (i) the potential future exposure that OTC Clear could face in normal market conditions in the interval between its last Variation Margin collection in respect of each Inter-CCP Rates Derivatives Contract recorded to the Special Clearing House Participant's House Position Account and the close-out of such Contracts following the occurrence of a DMP Event with respect to the Special Clearing House Participant and OTC Clear; and (ii) the IM Add-on (as defined in section 11.6.1(i) of these Clearing Procedures).

Pricing and market data for calculating Margin (including construction of curves used in such calculations) will be obtained by OTC Clear from external quotes and third party sources throughout an OTC Clear Clearing Day and a Northbound Clearing Day. Details of the relevant pricing and market data, as well as curve construction methodology, for Rates Derivatives Contracts and FX Derivatives Contracts are set out in sections 5.1 and 5.2 of these Clearing Procedures, respectively.

In respect of any Margin requirements determined and presented in the Base Currency that may be satisfied by a Clearing Member in an Eligible Currency other than the Base Currency or non-cash assets denominated in a currency other than the Base Currency, satisfaction of such Margin requirements will be determined by OTC Clear by reference to relevant exchange rate(s) using third party data sources available on the latest practicable Currency Day.

In respect of Participating Margin requirements which are determined and presented in the Base Currency that may be satisfied by a Clearing Member in another Eligible Inter-CCP Currency, subject to a Collateral Concentration Limit specified in section 7.4A. Satisfaction of such Participating Margin requirements will be determined by OTC Clear by reference to relevant exchange rate(s) using third party data sources available on the latest practicable Currency Day. The relevant exchange rate(s) will be notified to Clearing Members.

4.2 Initial Margin

Initial Margin in respect of a Position Account covers the potential future exposure that OTC Clear could face in normal market conditions in the interval between its last Variation Margin collection in respect of such Position Account and the close-out of all Contracts recorded to such Position Account following the occurrence of a DMP Event with respect to the relevant Clearing Member. Pursuant to Clearing Rule 1205, OTC Clear may, at any time during an OTC Clear Clearing Day and Northbound Clearing Day, demand ad hoc intra-day Initial Margin from each Clearing Member if it determines that the then market conditions warrant this. OTC Clear will, to the extent reasonably practicable, consult with the Risk Management Committee prior to determining whether the market conditions at the relevant time warrant a demand for ad hoc intra-day Initial Margin. If OTC Clear is unable to consult with the Risk Management Committee sufficiently promptly in the circumstances, OTC Clear will consult with the chief executive of OTC Clear. In the event that the chief executive of OTC Clear is unavailable at the time for any reason, OTC Clear will consult with any Representative of OTC Clear designated by the OTC Clear Board from time to time for purposes of the applicable consultation. In determining the amount of Collateral required with respect to each Position Account as a result of a demand for ad hoc intra-day Initial Margin, OTC Clear will perform a process substantially similar to the End-of-Day Settlement Process that relates to the determination of end-of-day Initial Margin. In addition to issuing the relevant call for ad hoc intra-day Initial Margin, OTC Clear will also use reasonable endeavours to notify each Clearing Member of such demand by telephone call or electronic mail.

4.2.1 Initial Margin Calculation Parameters and Methodology

Initial Margin is calculated with respect to each Clearing Member's portfolio of Contracts recorded in each of such Clearing Member's Position Account (for the avoidance of doubt, each Client Position

Account shall be treated separately) using an internally-built value-at-risk margin model based on simulation of historical data. Stress scenarios will be calibrated using historical volatility for yield and FX curves. Please contact OTC Clear for details.

Initial Margin is calculated in a different manner with respect to a Clearing Member's House Position Account and Client Position Account(s):

- (i) in respect of a House Position Account, the Initial Margin calculation will meet single-tailed confidence level of at least 99.0% with respect to a 5-OTC Clear Clearing Day close-out period; and
- (ii) in respect of a Client Position Account, the Initial Margin calculation will meet single-tailed confidence level of at least 99.0% with respect to a 7-OTC Clear Clearing Day close-out period.

4.2.2 Alteration to Initial Margin Calculation Parameters and Methodology

The Initial Margin calculation parameters and methodology are back-tested and reviewed regularly by the OTC Clear. OTC Clear may alter the Initial Margin calculation parameters and methodology where appropriate. Please contact OTC Clear for details.

4.2.3 Risk Multiplier

Save and except for the Liquidity Risk Multiplier described in section 4.2.3.1 which OTC Clear may decide to impose in its sole discretion, OTC Clear may, in consultation with the Risk Management Committee, include different risk multipliers as part of the Initial Margin calculation where appropriate. The applicability of risk multipliers and the relevant thresholds will be reviewed regularly by OTC Clear. OTC Clear will notify Clearing Members if it decides to adopt a risk multiplier.

4.2.3.1 Liquidity Risk Multiplier

Liquidity risk multiplier (the "**Liquidity Risk Multiplier**") is one type of risk multipliers that may be imposed by OTC Clear. OTC Clear will apply the Liquidity Risk Multiplier to the Initial Margin calculation of a Clearing Member's Position Account if a Clearing Member's portfolio of Contracts in its House Position Account or any of its Client Position Accounts have exposures above set thresholds in a particular parameter, including but without limitation to currency, curve or underlying rate or in respect of the aggregate portfolio risk.

In order to determine the calibration of the levels of Liquidity Risk Multiplier to be applied to the Initial Margin calculations of a Clearing Member's Position Account, OTC Clear may solicit bid/ask spread data or request other information from Clearing Members and the Special Clearing House Participant. The level of the Liquidity Risk Multiplier may vary from time to time, and OTC Clear will notify the Clearing Members of the updated level of the Liquidity Risk Multiplier.

As a result of the application of a Liquidity Risk Multiplier to the Initial Margin calculation with respect to a Position Account, additional Initial Margin will be required in respect of such Position Account.

4.2.3.2 Notional Exchange Risk Multiplier

The notional exchange risk multiplier (the "**Notional Exchange Risk Multiplier**") is one type of risk multiplier that may be imposed by OTC Clear. OTC Clear will apply the Notional Exchange Risk Multiplier to the Initial Margin calculation of a Clearing Member's Position Account based on the aggregate of the Initial Exchange Amounts and/or Final Exchange Amounts of the Standard Cross-currency Rates Derivatives Contracts and Notional Amounts of the Deliverable FX Derivatives Contracts in a Clearing Member's House Position Account and its Client Position Accounts.

To calibrate the Notional Exchange Risk Multiplier, OTC Clear may solicit bid/ask spread data or request other information from Clearing Members (including but not limited to market volatility or market liquidity of different currency pair(s) over different time horizons). The level of the Notional Exchange Risk Multiplier may vary from time to time, and OTC Clear will notify the Clearing Members of the revised Notional Exchange Risk Multiplier.

After the application of the Notional Exchange Risk Multiplier, OTC Clear may request additional Collateral from Clearing Members.

4.3 Variation Margin

Variation Margin covers OTC Clear's calculation of the amount that is required to settle the daily or intra-day diminution in the net present value (if any) of the Contracts in each Position Account. Collection of Variation Margin helps to ensure that the risk exposure assumed by OTC Clear is constantly monitored and that OTC Clear remains risk neutral.

4.3.1 Calculation and Valuation Process

OTC Clear will calculate, regularly, during the Margin Process Hours, the net present value and market price movements of each Contract using zero coupon curves constructed in accordance with Chapter 5 of these Clearing Procedures based on the latest market prices available from market sources. The latest market prices utilised in such calculations will be published on the Web Portal on each OTC Clear Clearing Day and Northbound Clearing Day.

4.3.2 Price Alignment Interest

Variation Margin will be adjusted by application of price alignment interest ("**PAI**"). Without a PAI, the pricing of a Contract registered with OTC Clear would be distorted from that of equivalent transactions which are not registered with OTC Clear. PAI is intended to settle the internal rate of return on the cumulative Variation Margin payments transferred in respect of each OTC Clear Clearing Day and Northbound Clearing Day.

In respect of each Clearing Member and its House Position Account and Client Position Account(s) (for such purpose, each Client Position Account shall be treated separately), PAI will be calculated separately in respect of all Contracts (except Standard Northbound Rates Derivatives Contracts) with the same Contractual Currency in each such Position Account during the End-of-Day Settlement Process on each OTC Clear Business Day from (and including) the first OTC Clear Business Day after the trade date of the relevant Contract to (and including) the OTC Clear Business Day prior to the settlement date of the relevant Contract (each, "**T₀**"). PAI is calculated by OTC Clear in accordance with the following formula:

$$PAI_{T_0} = NPV_{T_{-1}} \times PAI \text{ Rate}_{T_{PAI}} \times \text{Accrual Factor}$$

where,

- (i) $NPV_{T_{-1}}$ is the net present value determined as at 19:00 hours Hong Kong time on T_{-1} or such other time on T_{-1} as OTC Clear considers appropriate and notifies to the Clearing Members from time to time, where "**T₀**" is an OTC Clear Business Day and "**T₋₁**" is the OTC Clear Business Day immediately preceding T_0 ;
- (ii) "**PAI Rate**" means the annual percentage rate is determined by OTC Clear by reference to the relevant end-of-day overnight index swap ("**OIS**") curves calculated on T_{PAI} , where "**T_{PAI}**" is the Currency Day (for the relevant Contractual Currency) immediately preceding T_0 if the relevant OIS curves are available on such day (T_{-1}), or if the relevant OIS curves are not available on T_{-1} , the last relevant OIS curves available (for the avoidance of doubt, if T_{PAI} falls on a day other

than a Currency Day, the relevant OIS curves the nearest immediately preceding Currency Day will be used); and

- (iii) **“Accrual Factor”** means the day count fraction that is used by OTC Clear to convert the PAI Rate from an annual rate to a daily rate, on a basis of a year with a number of days equal to:
 - (a) 360 calendar days; or
 - (b) 365 calendar days,

as OTC Clear may, from time to time, determine to be appropriate in accordance with the then market convention for the conversion of the PAI Rate.

PAI will be apportioned to each Standard Northbound Rates Derivatives Contract by OTC Clear from the price alignment interest determined by the Special Clearing House Participant for the relevant Inter-CCP Rates Derivatives Contract with equal but opposite terms to (and which have been created to correspond to) such Standard Northbound Rates Derivatives Contract.

PAI will be notified to each Clearing Member and each Sponsored Settlement Member (where applicable), and will be paid or received by such Clearing Member or Sponsored Settlement Member, as the case may be, as part of the Clearing Member's Variation Margin requirement.

4.4 Intra-day Variation Margin

4.4.1 Intra-day Variation Margin Call and Calculation

There are two types of intra-day Variation Margin calls:

- (i) Routine Intra-day VM Call as set out in section 4.4.2; and
- (ii) Ad Hoc Intra-day VM Call as set out in section 4.4.3.

4.4.2 Routine Intra-day VM Call

Each Clearing Member has its intra-day Variation Margin limit (**“Intra-day VM Limit”**) which is the threshold level at which a Routine Intra-day VM Call will be triggered in respect of such Clearing Member's Contracts recorded to its House Position Account only (for the avoidance of doubt, no Routine Intra-day VM Call shall be made in respect of any Client Position Account(s)). OTC Clear will set an Intra-day VM Limit for each Clearing Member based on, including without limitation, the following factors:

- (i) OTC Clear's determination of the relative change in Margin requirements in respect of such Clearing Member's House Position Account;
- (ii) prevailing market conditions;
- (iii) OTC Clear's evaluation of the financial condition of such Clearing Member and its Affiliates; and
- (iv) OTC Clear's evaluation of the operational capability of such Clearing Member and its Affiliates.

Each Clearing Member will be notified of the Intra-day VM Limit applicable to it, and such Intra-day VM Limit will be reviewed by OTC Clear on a regular basis.

Between the hours of 08:30 hours Hong Kong time and 14:00 hours Hong Kong time on each OTC Clear Business Day, OTC Clear may, at regular intervals, calculate the aggregate Initial Margin and Additional Margin requirements in respect of each Clearing Member's House Position Account, taking into consideration any Variation Margin requirements reflecting intra-day market movements. In the event that the aggregate Initial Margin and Additional Margin requirement in respect of such House

Position Account, taking into account any Variation Margin requirements reflecting intra-day market movements, exceeds the aggregate value of the Margin Balance relating to such Clearing Member's House Position Account by an amount equal to or greater than the Intra-day VM Limit in respect of such Clearing Member, OTC Clear will make a routine intra-day Variation Margin call (a "**Routine Intra-day VM Call**") with respect to such Clearing Member on such OTC Clear Business Day. The time of the Routine Intra-day VM Call will be the same on any OTC Clear Business Day and will be published on the HKEX website (the "**Routine VM Call Time**"). References to "intra-day market movements" as used in this section 4.4.2 means, with respect to an OTC Clear Clearing Day, any mark-to-market movements during the period from the completion of the End-of-Day Settlement Process on the immediately preceding OTC Clear Clearing Day to the time preceding the Routine VM Call Time, taking into account the latest market data then available, on such OTC Clear Clearing Day.

If, prior to OTC Clear making a Routine Intra-day VM Call on an OTC Clear Business Day, the relevant Clearing Member has delivered additional Collateral such that the breach of the Intra-day VM Limit described in the immediately foregoing paragraph has been cured, no Routine Intra-day VM Call will be made on such OTC Clear Business Day.

4.4.3 **Ad Hoc Intra-day VM Call**

In addition to the Routine Intra-day VM Call described in section 4.4.2, OTC Clear may make an ad hoc intra-day Variation Margin call (an "**Ad Hoc Intra-day VM Call**") at any time on an OTC Clear Clearing Day or Northbound Clearing Day if OTC Clear determines that the market conditions at the relevant time requires an Ad Hoc Intra-day VM Call. OTC Clear will, to the extent reasonably practicable, consult with the Risk Management Committee prior to determining whether the market conditions at the relevant time warrant this. If OTC Clear is unable to consult with the Risk Management Committee sufficiently promptly in the circumstances, OTC Clear will consult with the chief executive of OTC Clear. In the event that the chief executive of OTC Clear is unavailable at the time for any reason, OTC Clear will consult with any Representative of OTC Clear designated by the OTC Clear Board from time to time for purposes of the applicable consultation.

Once OTC Clear determines that an Ad Hoc Intra-day VM Call shall be imposed, such imposition of Ad Hoc Intra-day VM Call shall apply to each Clearing Member with respect to each Contract then registered in its name (including its House Position Account and Client Position Account, if any). In determining the amount of Collateral required with respect to each Contract as a result of the Ad Hoc Intra-day VM Call, no PAI adjustment will be made in the determination of an Ad Hoc Intra-day VM Call. Upon imposition of an Ad Hoc Intra-day VM Call in respect of a Position Account, each Clearing Member must deposit Collateral to ensure that it has a Margin Balance on the corresponding Collateral Account that is equal to or greater than the Margin requirement on that Position Account.

In addition to issuing the relevant Ad Hoc Intra-day VM Call on the Web Portal, OTC Clear will also use reasonable endeavours to notify each Clearing Member of the Ad Hoc Intra-day VM Call by telephone call or electronic mail.

Please refer to the Web Portal User Manual for more details on the timing of an Ad Hoc Intra-day VM Call.

4.4.4 **Settlement of Intra-day Variation Margin**

Collateral for satisfaction of any intra-day Variation Margin call (including both the Routine Intra-day VM Call described in section 4.4.2 and Ad Hoc Intra-day VM Call described in section 4.4.3) must be received by OTC Clear within one hour after the call is made.

For the avoidance of doubt, notwithstanding section 4.7, if subsequent to an Ad Hoc Intra-day VM Call, and the delivery of Collateral by a Clearing Member to settle such call, the market price movements of

the relevant Contract results in there being gains recorded to the relevant Collateral Account relating to the Clearing Member, the sum representing such gains will not be paid to the Clearing Member through the End-of-Day Settlement Process on the relevant day as part of the Variation Margin payable by OTC Clear to such Clearing Member, but will be reflected as Excess Margin in the relevant Collateral Account which can be withdrawn or transferred as set out in sections 3.9 and 3.10.

4.5 Additional Margin

Pursuant to Clearing Rules 1208 and 1510, OTC Clear may at its discretion impose Additional Margin requirements on any Clearing Member in the circumstances described in this section 4.5. Any delivery of Collateral for the purpose of satisfying an Additional Margin requirement pursuant to this section 4.5 will be recorded by OTC Clear in the relevant Collateral Account.

4.5.1 Holiday Margin

One such Additional Margin requirement is the temporary Margin adjustment on each Position Account to cover potential market volatility during days which are not OTC Clear Business Days ("**Holiday Margin**"). Such potential market volatility refers to the additional market risk that OTC Clear may have to bear arising from significant overseas market movements during such days. The calculation of Holiday Margin is based on an internally-built exponentially weighted moving average model with reference to the number of days in the relevant period. Details of the Holiday Margin levels will be notified to Clearing Members prior to the beginning of the relevant period. For example, if Monday is not an OTC Clear Business Day, Clearing Members will be notified of the level of Holiday Margin on the second OTC Clear Business Day preceding such Monday (i.e. the immediately preceding Thursday). The relevant Holiday Margin call will be made by OTC Clear at 08:30 hours Hong Kong time on the OTC Clear Business Day preceding such Monday (i.e. the immediately preceding Friday), and Clearing Members shall satisfy in full the Holiday Margin by 09:30 hours Hong Kong time on the same day.

4.5.2 Others

In addition to the Holiday Margin described in section 4.5.1 and Notional Exchange Failure Margin in section 4.5.3, OTC Clear may impose Additional Margin requirements on a Clearing Member at its sole discretion in the following situations:

- (i) if a Clearing Member fails to maintain Capital in an amount at least equal to the greater of its Expected Uncollateralized Loss and Minimum Capital Requirement;
- (ii) if a Clearing Member fails to maintain Capital in an amount required to ensure the value of its then CM Funded Contribution Amount (determined on an OTC Clear Clearing Day as if it was a Rates and FX Contribution Determination Date) is less than 20% of the then total amount of the Capital of such Clearing Member (please see section 2.3.1 of these Clearing Procedures);
- (iii) if a Clearing Member's Membership is being suspended by OTC Clear pursuant to Clearing Rule 601;
- (iv) in the circumstances described under Clearing Rule 1510;
- (v) if the Margin Balance of a Clearing Member decreases due to either market movement affecting the value of such Collateral or change in the applicable Collateral Haircut, or if OTC Clear determines there are wrong-way risk concerns on any of a Clearing Member's Position Account(s);
- (vi) if a Clearing Member has exceeded any Position Limit or Notional Exchange Risk Limit as described in Clearing Rule 1223(2);

- (vii) if a particular Standard Cross-currency Rates Derivatives Contract of a Clearing Member is registered by OTC Clear one day before any forthcoming Initial Exchange Date of that particular Standard Cross-currency Rates Derivatives Contract, where such day is (1) a Currency Day for each Contractual Currency of that particular Standard Cross-currency Rates Derivatives Contract and (2) an OTC Clear Clearing Day;
- (viii) if a particular Deliverable FX Forward Contract or Deliverable FX Swap Contract of a Clearing Member is registered by OTC Clear one day before any forthcoming Settlement Date of that particular Deliverable FX Forward Contract or Deliverable FX Swap Contract, where such day is (1) a Currency Day for each Contractual Currency of that particular Deliverable FX Forward Contract or Deliverable FX Swap Contract and (2) an OTC Clear Clearing Day; or
- (xi) if the days are OTC Clear Business Days but not Northbound Clearing Days.

In all other situations not specifically provided for under section 4.5.1, this section 4.5.2 or section 4.5.3, OTC Clear may impose Additional Margin requirements on a Clearing Member provided that it has first consulted with the Risk Management Committee.

4.5.3 Notional Exchange Failure Margin

OTC Clear may also demand Notional Exchange Failure Margin in the circumstances described in Clearing Rule 1002A. A Clearing Member must satisfy its Notional Exchange Failure Margin requirements in such form, in such amount and at such time as may be requested by OTC Clear pursuant to Clearing Rule 1002A.

4.5A Participating Margin

Participating Margin is calculated at regular intervals on each Northbound Clearing Day. With respect to a Clearing Member, Participating Margin is calculated in respect of the Inter-CCP Rates Derivatives Contracts with equal but opposite terms to (and which have been created to correspond to) the Standard Northbound Rates Derivatives Contracts recorded in all Position Accounts of that Clearing Member, as reduced by a multiplier which reflects the Inter-CCP SHCH Margin contributed by the Special Clearing House Participant and the reduction in the amount of Inter-CCP OTCC Margin from netting benefits.

4.6 Margin Process

Margin Process will be performed in respect of submission of Original Transactions and Original Northbound Transactions for registration, and a de-registration request (see section 3.6 of the Clearing Procedures).

Sections 4.6.1 to 4.6.4 relate to the Margin Process conducted in respect of submission of Original Transactions and Original Northbound Transactions, and section 4.6.5 relates to the Margin Process conducted in respect of a de-registration request.

4.6.1 Position Limits

Original Transactions and Original Northbound Transactions submitted for registration must satisfy, without limitation, the following conditions:

- (i) Position Limits check as set out in this section 4.6.1; and
- (ii) Margin and credit check as set out in sections 4.6.2 and 4.6.3.

Pursuant to Clearing Rule 1222, OTC Clear may prescribe, amend or revoke Position Limits. In addition, unless with the prior written approval from OTC Clear, OTC Clear requires a Clearing Member to impose a House Account Limit or (if applicable) Client Account Limit in respect of its House

Position Account and Client Position Account(s) in accordance with section 4.6.1.1. Each of the limits referred to in this section 4.6.1 is a Position Limit. OTC Clear will not register any Original Transaction if registering such Original Transaction will cause, among others, a Position Limit described herein to be breached. All Position Limits imposed by OTC Clear are subject to changes from time to time and OTC Clear will notify the relevant Clearing Member(s) in respect of any such changes.

4.6.1.1 Account Limits

Unless with the prior written approval from OTC Clear, a Clearing Member shall, as part of its risk management policies and procedures pursuant to section 2.3.3 of these Clearing Procedures, set a limit for all of its House Position Account (“**House Account Limit**”) and/or (if it provides Client Clearing Services) for each of its Client Position Account(s) separately (each a “**Client Account Limit**”, and together with House Account Limit, the “**Account Limits**”) in the Rates and FX Clearing System by utilizing the risk limit functionality. A Clearing Member shall inform OTC Clear in writing prior to making any changes to any Account Limits.

Notwithstanding that a Clearing Member may set any Account Limits, OTC Clear reserves the right to change any Account Limits from time to time if OTC Clear determines in its sole discretion that such Account Limits are not appropriate or commercially reasonable. OTC Clear will provide the relevant Clearing Member with reasonable advance notice, and in any event no less than two OTC Clear Business Days, prior to effecting any changes to the Account Limits, provided that if any such changes are required by Applicable Laws or the rules, regulations or requests of a Regulatory Authority, then OTC Clear may implement such changes without prior notice to the Clearing Member. Under normal circumstances, OTC Clear will most likely only lower an Account Limit. However, OTC Clear may consider increasing such Account Limits during the Default Management Process (for example, to allow porting of Affected Contracts to a Replacement Clearing Member) or for backloading of historical portfolios.

4.6.1.2 Absolute Risk Limit

OTC Clear may impose an absolute risk limit (the “**Absolute Risk Limit**”) in respect of any Position Account. OTC Clear will use reasonable endeavours to provide the relevant Clearing Member with reasonable advance notice prior to imposing any Absolute Risk Limit. The Absolute Risk Limit is essentially a cap on OTC Clear’s risk exposure to the relevant Position Account (for such purpose, each Client Position Account will be treated separately). An Absolute Risk Limit will be established based on Margin, position or risk sensitivities relating to each relevant Position Account.

4.6.1.3 Notional Exchange Risk Limit

OTC Clear will impose notional exchange risk limits (each a “**Notional Exchange Risk Limit**”) in respect of Standard Cross-currency Rates Derivatives Contracts and Deliverable FX Derivatives Contracts on each Position Account. For each Position Account, a separate Notional Exchange Risk Limit shall be set per currency, such that a Notional Exchange Risk Limit shall apply to all Standard Cross-currency Rates Derivatives Contracts and Deliverable FX Derivatives Contracts recorded in each of the relevant Clearing Member’s Position Accounts with the relevant currency as one of the Contractual Currencies. The Notional Exchange Risk Limit is established to limit OTC Clear’s risk exposure in respect of Initial Exchange Amounts and/or Final Exchange Amounts payable to OTC Clear under Standard Cross-currency Rates Derivatives Contracts and Notional Amounts payable to OTC Clear under Deliverable FX Derivatives Contracts. Each Clearing Member will be subject to the aggregate of the Notional Exchange Risk Limits imposed on its Position Accounts. Each Sponsored Settlement Member (where applicable) will be subject to a Notional Exchange Risk Limit that is equivalent to or less than the Notional Exchange Risk Limit imposed on the relevant Clearing Member’s House Position Account. OTC Clear will use reasonable endeavours to provide Clearing

Members and Sponsored Settlement Members (where applicable) with reasonable advance notice prior to imposing or amending a Notional Exchange Risk Limit. In the event that a Notional Exchange Risk Limit is fully utilised, Clearing Member may post additional cash Collateral in the same currency as the Notional Exchange Risk Limit as Additional Margin to reduce the utilisation of the relevant Notional Exchange Risk Limit and to accommodate more trades for registration.

4.6.2 Margin and Credit Check – Real-Time Novation Process

During the Margin Process Hours on each OTC Clear Clearing Day and Northbound Clearing Day, but excluding any period specified by OTC Clear, OTC Clear will repeatedly perform “**Real-Time Novation**”, which is the process set out in this section 4.6.2.

When an Original Transaction or Original Northbound Transaction is submitted to OTC Clear for registration, OTC Clear will determine the incremental Margin required to cover such transaction together with the Margin requirements in respect of the Position Account(s) to which such transaction will be recorded (for such purpose, each Client Position Accounts shall be treated separately).

Once the Margin requirement in respect of such Original Transaction and Original Northbound Transaction and the relevant Position Account(s) is determined, OTC Clear will perform the Position Limits check and check if the Margin Balance in respect of the relevant Position Account(s) is sufficient to cover the incremental Margin requirement. If OTC Clear is satisfied that the Margin Balance in respect of the relevant Position Account(s) is sufficient to cover the incremental Margin requirement in respect of each Contract to be created upon registration of such Original Transaction or Original Northbound Transaction, and provided that the Position Limits of each relevant Position Account(s) would not be breached as a result of the registration of such Original Transaction or Original Northbound Transaction, OTC Clear will accept for registration such Original Transaction or Original Northbound Transaction and two Contracts will be created pursuant to Clearing Rules 806 and 8A07, respectively.

In respect of each Original Transaction, if OTC Clear determines that either the incremental Margin requirement in respect of each Contract to be created upon registration of such Original Transaction is not satisfied, or the Position Limits of the relevant Position Account(s) would be breached, in each case, as a result of the registration of such Original Transaction, such Original Transaction will be put on “pending” status in the Rates and FX Clearing System. “Pending” Original Transactions as at the end of the Margin Process Hours on an OTC Clear Clearing Day will be rejected by OTC Clear pursuant to section 3.3 of these Clearing Procedures.

In respect of each Original Northbound Transaction, if OTC Clear determines that in any one or more of the following conditions: (i) the incremental Margin requirement in respect of each Contract to be created upon registration of such Original Northbound Transaction is not satisfied, (ii) the Position Limits of the relevant Position Account(s) would be breached, in each case, as a result of the registration of such Original Northbound Transaction, or (iii) if such Original Northbound Transaction is not also accepted for clearing by the Special Clearing House Participant under the SHCH Clearing Rules and SHCH Clearing Guidelines, such Original Northbound Transaction will be rejected by OTC Clear pursuant to section 3.3 of these Clearing Procedures.

For the avoidance of doubt, Participating Margin requirements are assessed separately and do not form part of the Margin and credit check process described above. A Clearing Member’s Excess Participating Margin does not form part of its Margin Balance and must be ported into the relevant House Collateral Account or Client Collateral Account in order for such excess Collateral to be reflected as Margin Balance. OTC Clear will calculate Participation Margin requirements at regular intervals throughout a Northbound Clearing Day and if necessary make a demand for Participating Margin at the next scheduled Participating Margin call.

4.6.3 [Deleted]

4.6.4 Pending Trades

In respect of any “pending” Original Transactions to be registered in the name of a Clearing Member as Contracts, the Clearing Member will be notified, via the relevant Approved Trade Registration System, or report via the web portal, of the amount of Collateral required from it in order for all such “pending” Original Transactions to satisfy the Margin Process and be registered as Contracts.

4.6.5 Margin Process in respect of a de-registration request, an Unwind Proposal and a porting of Client Contracts

- (i) In respect of a de-registration request for a Contract and an Unwind Proposal, OTC Clear will process such de-registration request and Unwind Proposal only if, in respect of the Position Account to which the relevant Contract is recorded, subsequent to the de-registration of such Contract and/or Unwind Proposal:
 - (a) there remains sufficient Margin Balance in the corresponding Collateral Account to satisfy the Margin requirement relating to Contracts remaining in such Position Account; and
 - (b) the Position Limits of such Position Account would not be breached
- (ii) In respect of (a) any porting of Client Contracts following a DMP Event or (b) the porting of Contracts relating to Clients pursuant to Clearing Rule 825, OTC Clear will process such porting request only if:
 - (a) (in the case where not all the Contracts recorded in the same Position Account are to be ported) there is sufficient Margin Balance and Participating Margin Balance in the corresponding Collateral Account to satisfy the Margin requirement relating to Contracts remaining in such Position Account;
 - (b) in respect of the Position Account to which the relevant Contract is recorded, subsequent to the porting of such Contract, there is or will be sufficient Margin Balance and Participating Margin Balance in the corresponding Collateral Account to satisfy the revised Margin requirement relating to such Position Account; and
 - (c) the Position Limits of the relevant Position Accounts of the Clearing Member, Transferor Clearing Member, the Transferee Clearing Member and/or the Replacement Clearing Member as applicable would not be breached.

4.7 End-of-Day Valuation and Settlement Process

The end-of-day pricing and market data cut-off time is at or around 16:00 hours Hong Kong time on each OTC Clear Clearing Day and Northbound Clearing Day (the “**End-of-Day Cut Off Time**”). OTC Clear will use the market price at such time to determine the risk exposure and the Margin requirements in respect of each Position Account (together, the “**End-of-Day Margin Requirements**”) in its end-of-day valuation and settlement process, which commences at 19:00 hours Hong Kong time on each OTC Clear Clearing Day and Northbound Clearing Day (the “**End-of-Day Settlement Process**”). The End-of-Day Settlement Process of an OTC Clear Clearing Day and Northbound Clearing Day will end when the end-of-day Margin reports are made available to Clearing Members on such OTC Clear Clearing Day and such Northbound Clearing Day pursuant to section 4.7.1.

The End-of-Day Settlement Process will capture the incremental risk exposure for a Clearing Member on any given OTC Clear Clearing Day and any given Northbound Clearing Day. OTC Clear performs

its regular Variation Margin calculation during the End-of-Day Settlement Process, and any Variation Margin gains determined in favour of a Clearing Member resulting from the market price movements of a Contract on such day will be redelivered to the relevant Clearing Member through the End-of-Day Settlement Process. If an OTC Clear Clearing Day or a Northbound Clearing Day is not a Currency Day for the Contractual Currency in which the Variation Margin is denominated, then OTC Clear will not make, or demand, a Variation Margin payment in respect of such Contract during the End-of-Day Settlement Process on such OTC Clear Clearing Day or Northbound Clearing Day. The relevant Variation Margin will be made, or demanded, by OTC Clear on the immediately following Currency Day for the relevant Contractual Currency. For the avoidance of doubt, whilst any Variation Margin gains as a result of market price movements will be redelivered to a Clearing Member through the End-of-Day Settlement Process, any Collateral constituting the Excess Margin will only be redelivered to a Clearing Member upon its request pursuant to Clearing Rule 1218.

4.7.1 Margin Reporting

Clearing Members can obtain certain information relating to end-of-day settlement curves, market price movements, Initial Margin, Additional Margin, Participating Margin, Variation Margin and net present value, in each case, relating to one or more of its Position Accounts on the Web Portal.

Sponsored Settlement Members (where applicable) can also obtain certain information in respect of Variation Margin (other than Routine Intra-day Variation Margin) relating to the relevant Clearing Member's Position Account on the Web Portal.

The detailed Margin reports will show the End-of-Day Margin Requirements of each Clearing Member in respect of each of its Position Accounts. For information relating to Margin reporting, please refer to section 3.16 of these Clearing Procedures.

The End-of-Day Margin Requirements as shown in such Margin reports reflect the risk exposure of each relevant Contract on the Rates and FX Clearing System at a cut-off time of 19:00 hours Hong Kong time on an OTC Clear Clearing Day and a Northbound Clearing Day. The final Margin reports would be made available to each Clearing Member or Sponsored Settlement Member (where applicable) on each OTC Clear Clearing Day and Northbound Clearing Day.

4.7.2 Settlement of Margin Requirements

The table below summarises the timing and manner in which relevant Margin requirements shall be satisfied by Clearing Members*:

Margin requirements	Demand made by OTC Clear	Latest time in which Margin requirements shall be satisfied	Form of Collateral
End-of-day Initial Margin	At 08:30 hours Hong Kong time on an OTC Clear Clearing Day via Margin call issued on the Web Portal	09:30 hours Hong Kong time on the OTC Clear Clearing Day on which the Margin call is made	Cash in any Eligible Currency and any non-cash assets specified pursuant to section 7.3 of these Clearing Procedures

* Please see Chapter 7 of these Clearing Procedures for more information on the types of eligible cash and non-cash Collateral and any applicable Collateral Haircut.

Margin requirements	Demand made by OTC Clear	Latest time in which Margin requirements shall be satisfied	Form of Collateral
Ad hoc intra-day Initial Margin	At any time between 08:30 hours Hong Kong time and 15:00 hours Hong Kong time determined by OTC Clear on an OTC Clear Clearing Day and a Northbound Clearing Day via Margin call on the Web Portal	Within an hour following demand made by OTC Clear	Cash in any Eligible Currency and any non-cash assets specified pursuant to section 7.3 of these Clearing Procedures
End-of-day Variation Margin	On an OTC Clear Clearing Day and Northbound Clearing Day by publication in the OTC Clear Settlement Report (Report Number STRP01) or "OTC Clear Settlement Report for Client ((Report Number STRP01_C)"	11:00 hours Hong Kong time on the OTC Clear Clearing Day or Northbound Clearing Day immediately following the publication of the end-of-day Margin report, provided that such day is a Currency Day for the currency in which the end-of-day Variation Margin is denominated	Cash only in the Contractual Currency of the relevant Contract
Routine Intra-day VM Call	At the Routine VM Call Time on an OTC Clear Business Day via Margin call on the Web Portal	Within an hour following the Routine Intra-day VM Call	Cash in any Eligible Currency and non-cash assets specified pursuant to section 7.3 of these Clearing Procedures
Ad Hoc Intra-day VM Call	At any time determined by OTC Clear on an OTC Clear Clearing Day and Northbound Clearing Day via Margin call on the Web Portal	Within an hour following demand made by OTC Clear	Cash in any Eligible Currency and non-cash assets specified pursuant to section 7.3 of these Clearing Procedures
Holiday Margin	At 08:30 hours Hong Kong time on the OTC Clear Business Day immediately	By 09:30 hours Hong Kong time on the OTC Clear Business Day immediately	Cash in any Eligible Currency and non-cash assets specified pursuant to

Margin requirements	Demand made by OTC Clear	Latest time in which Margin requirements shall be satisfied	Form of Collateral
	preceding the start of a holiday period via Margin call on the Web Portal	preceding the start of a holiday period	section 7.3 of these Clearing Procedures
Notional Exchange Failure Margin	At any time determined by OTC Clear on an OTC Clear Business Day via Margin call on the Web Portal or Email	Within 90 minutes following demand made by OTC Clear	Cash only in the specified Eligible Currency required by OTC Clear
Other Additional Margin	Up to three times on each OTC Clear Clearing Day: At (1) 08:30 hours Hong Kong time; (2) 14:15 hours Hong Kong time and (3) at any other time between 08:30 hours Hong Kong time and 15:00 hours Hong Kong time determined by OTC Clear, in each case, on an OTC Clear Clearing Day via Margin call on the Web Portal	Within an hour following demand made by OTC Clear	Cash in any Eligible Currency (provided that if a specific Eligible Currency is requested by OTC Clear, the relevant Additional Margin requirement may only be satisfied in that Eligible Currency) and non-cash assets specified pursuant to section 7.3 of these Clearing Procedures
Participating Margin	Up to two times on each Northbound Clearing Day: At (1) 08:30 hours Hong Kong time and (2) 14:15 hours Hong Kong time via Participating Margin call on the Web Portal	Within an hour following demand made by OTC Clear	Cash in any Eligible Inter-CCP Currency

4.7.3 Settlement of SSM Payment Amounts

A Clearing Member's obligations to pay SSM Payment Amounts to OTC Clear and OTC Clear's obligations to pay SSM Payment Amounts to a Clearing Member shall be extinguished, reduced or discharged in accordance with (i) the terms of Clearing Rule 7A01 (in the case of any sponsoring Clearing Member which is incorporated in Hong Kong) or (ii) the terms of the applicable SSM Tripartite

Agreement (in the case of any sponsoring Clearing Member which is incorporated in England or France).