Chapter 2 Clearing and Settlement Procedures

2.1 General

After the System Input Cutoff Time on each Trading Day, the Clearing House performs the clearing process by computing each HKCC Participant's liabilities such as Clearing House margin, variation adjustment and trading fees. The total of these liabilities are then compared to the cash balance in each HKCC Participant's CCMS Collateral Account, and any sums outstanding that are not covered by other collateral will be collected through the Direct Margin Debiting System ("DMDS").

2.2 Clearing House Margin

The amount of Clearing House margin for each type of Contract is decided by the Board of the Clearing House. The Clearing House retains the right to increase or decrease Clearing House margins either for the whole Market or for individual HKCC Participants, if this is considered necessary. The Clearing House will calculate the margin requirements of each HKCC Participant based on PRiME. HKCC Participants should refer to the PRiME Margining Guide for details of the margin calculation algorithm adopted by the Clearing House.

2.2.1 Components of Gross Margining

2.2.1.1 Risk Array

PRiME evaluates the maximum likely loss of a Contract that may reasonably occur over one trading day under a set of risk scenarios. The specific set of risk scenarios is defined in terms of (a) the Price Scan Range, which is how much the price of the underlying instrument is expected to change over one trading day, and (b) the Volatility Scan Range, which is how much the volatility of that underlying price is expected to change over one trading day. The result of the calculation for each risk scenario, viz. the amount by which the Contract will gain or lose value over one trading day under that risk scenario, is called the Risk Array value for that scenario.

2.2.1.2 Scan Risk

The Scan Risk of a Contract is the largest loss among a set of Risk Array values of that Contract.

2.2.1.2A Spot Month Charge and Physical Delivery Contract Charge

PRiME applies a Spot Month Charge and/or a Physical Delivery Contract Charge to each applicable spot month Contract to cover additional risks that may arise during the period leading up to the Final Settlement Day. Such Spot Month Charge and Physical Delivery Contract Charge and the Contracts to which they shall be applicable shall be as specified by the Clearing House from time to time.

2.2.1.3 Short Option Minimum Charge

PRiME applies a Short Option Minimum Charge to each short Option Contract. It serves as a lower bound of the margin requirement for such short Option Contract.

2.2.2 Clearing House Margin Liability Calculation for Gross Margining

The method of calculating the amount of cover for Clearing House margin for designated Contracts or accounts margined on a gross basis is as follows:

a) The gross open positions are identified. The number of open positions for each type of Contract is multiplied by the Scan Risk for such Contract.

aa) The gross open positions of each applicable spot month Contract are identified. The number of open positions for each applicable spot month Contract is multiplied by the Spot Month Charge and/or the Physical Delivery Contract Charge, as applicable, for such Contract.

b) The gross open positions of short Option Contracts are identified. The sum of the Scan Risk, Spot Month Charge and Physical Delivery Contract Charge is replaced with the Short Option Minimum Charge for a short Option Contract if the Short Option Minimum Charge is higher than the sum of the Scan Risk, Spot Month Charge and Physical Delivery Contract Charge for such short Option Contract.

c) The Clearing House margin requirement is the aggregated sum of the Scan Risk, Spot Month Charge and Physical Delivery Contract Charge (or, for short Option Contracts, the Short Option Minimum Charge if it is higher) for each type of Contract.

2.2.3 Components of Net Margining

2.2.3.1 Risk Array

PRiME evaluates the maximum likely loss of a portfolio under the same Combined Commodity* that may reasonably occur over one trading day under a set of risk scenarios. The specific set of risk scenarios are defined in terms of (a) the Price Scan Range, which is how much the price of the underlying instrument is expected to change over one trading day, and (b) the Volatility Scan Range, which is how much the volatility of that underlying price is expected to change over one trading day. The result of the calculation for each risk scenario, viz. the amount by which the portfolio will gain or lose value over one trading day under that risk scenario, is called the Risk Array value for that scenario.

**A Combined Commodity refers to a set of Futures/Options Contracts with the same underlying commodity and the same Currency of the Contract. For this purpose, a Physically Settled Options on Futures Contract and its underlying Futures Contract shall be considered to have the same underlying commodity if such underlying Futures Contract is a Stock Index Futures Contract.*

2.2.3.2 Scan Risk

The Scan Risk of a portfolio under the same Combined Commodity is the largest loss among a set of Risk Array values of that portfolio.

2.2.3.3 Intracommodity Spread Charge

As PRiME scans underlying prices within a single underlying instrument, it assumes that price moves correlate perfectly across contracts with different expiries. Since price moves across contracts with different expiries do not generally exhibit perfect correlation, PRiME adds an Intracommodity Spread Charge to the Scan Risk associated with each Combined Commodity under net margining. For each spread formed, PRiME assesses a charge per spread at such charge rate as may be specified by the Clearing House from time to time. The total of all of these charges for a particular Combined Commodity constitutes the Intracommodity Spread Charge for that Combined Commodity.

2.2.3.3A Spot Month Charge and Physical Delivery Contract Charge

PRiME applies a Spot Month Charge and/or a Physical Delivery Contract Charge to each applicable spot month

Contract under the same Combined Commodity to cover additional risks that may arise during the period leading up to the Final Settlement Day. Such Spot Month Charge and Physical Delivery Contract Charge and the Contracts to which they shall be applicable shall be as specified by the Clearing House from time to time.

2.2.3.3B Intercommodity Spread Credit

PRiME generates Intercommodity Spread Credits for Combined Commodities that may from time to time be specified and paired by the Clearing House, taking into consideration their price move correlation and such other factors as it may consider relevant.

An Intercommodity Spread is formed between the Combined Commodities of each specified pair at a delta per spread ratio. For each spread formed, PRiME assesses a credit for each of the Combined Commodities based on a credit rate for the spread. The delta per spread ratio and the credit rate for the spread shall be as specified by the Clearing House from time to time. The total of all of these credits for a particular Combined Commodity constitutes the Intercommodity Spread Credit for that Combined Commodity.

2.2.3.4 Short Option Minimum Charge

PRiME applies a Short Option Minimum Charge to each Combined Commodity comprising short call and/or short put Option Contracts. It serves as a lower bound of the margin requirement for such Combined Commodity comprising short Option Contracts.

2.2.3.5 (deleted)

2.2.4 (deleted)

2.2.5 Clearing House Margin Liability Calculation for Net Margining

The method of calculating the amount of cover for Clearing House margin for designated Contracts or accounts of an HKCC Participant margined on a net basis is as follows:

a) The same type of Futures Contract with the same expiry is each assessed to calculate the total net uncovered Contracts for that expiry.

b) The same type of Option Contract in each series is assessed to calculate the total net uncovered Contracts for that Option series.

c) For Futures/Option Contracts within the same Combined Commodity, the long or short net uncovered Futures Contracts for each expiry, together with the long or short net uncovered Option Contracts in each series, are margined on a portfolio basis.

In calculating margin on a portfolio basis, the Scan Risk, the Intracommodity Spread charge, the Spot Month Charge and the Physical Delivery Contract Charge of the portfolio are added together to determine the Commodity Risk. The Commodity Risk is the total risk of all Futures/Option Contracts within the same Combined Commodity.

ca) Other than a Combined Commodity comprising short Option Contracts referred to in paragraph (d) below, the margin requirement of a Combined Commodity is the Commodity Risk less the Intercommodity Spread Credit.

d) For a Combined Commodity comprising short Option Contracts, the margin requirement is (i) the Commodity Risk less the Intercommodity Spread Credit or (ii) the Short Option Minimum Charge of the Combined Commodity, whichever is greater.

e) (deleted)

f) The total Clearing House margin requirement is the aggregate of the margin requirement for each Combined Commodity in the portfolio.

2.2.6 Clearing House Margin for Different Types of Clearing Accounts in DCASS

The Clearing House maintains for each HKCC Participant in DCASS the different types of clearing accounts set forth in section 1.2 of these Clearing House Procedures. The Clearing House margin calculation for each type of account in DCASS is different depending on whether it is margined on a net or gross basis.

The Clearing House margin for an HKCC Participant's Client accounts is the sum of the margin requirements of its Omnibus Client Account, Individual Client Accounts and Client Offset Claim Account.

The Clearing House margin for an HKCC Participant's House accounts is the sum of the margin requirements of its House Account and Sink Account.

The Clearing House margin for an HKCC Participant's Market Maker accounts is the sum of the margin requirements of its Market Maker Accounts.

2.2.6.1 House (not including positions from the Sink Account), Market Maker or Individual Client Account

Each House Account (not including positions from the Sink Account), Market Maker Account or Individual Client Account is margined on a net basis (see the PRiME Margining Guide).

2.2.6.2 Omnibus Client Account, House positions in the Sink Account

Positions in the Omnibus Client Account and House positions in the Sink Account are margined on a gross basis, i.e., the Clearing House margin is calculated for each individual position separately (see the PRiME Margining Guide).

2.2.6.3 Client Offset Claim Account

Positions of individual Clients of an HKCC Participant which are of an offset nature are margined on a net basis (see the PRiME Margining Guide).

Only positions that are of an offset nature and that are allocated by an HKCC Participant from its Omnibus Client Account to its Client Offset Claim Account on the following basis will be eligible for margin offset (please refer to section 1.5.4):

a) Only positions with the same beneficial owner may be allocated;

b) HKCC Participants shall not allocate positions unless they can identify the beneficial owners of such positions;

c) Positions within the same Combined Commodity or positions within specified pairs of Combined Commodities that are eligible for Intercommodity Spread Credits can be offset according to the following list:

Long Futures	+	Short Futures
Long Futures	+	Short Call
Long Futures	+	Long Put

Long Call	+	Short Futures
Long Call	+	Short Call
Long Call	+	Long Put
Short Put	+	Short Futures
Short Put	+	Short Call
Short Put	+	Long Put
Conversions*		
Reversals**		

* A Conversion consists of a short call and long put with the same expiry and strike price and a long Futures with the same expiry.

** A Reversal consists of a long call and short put with the same expiry and strike price and a short Futures with the same expiry.

For positions within the same Combined Commodity, offset positions are claimed on a one-to-one basis except those relating to the offset of positions in the (1) HSI Futures/Options, HSIF Option, Weekly HSI Option and Mini-HSI Futures/Options Contracts or (2) HSCEI Futures/Options, HSCEIF Option, Weekly HSCEI Option and Mini-HSCEI Futures/Options Contracts, which are claimed on the basis of (1) one HSI Futures/Options Contract, one HSIF Option Contract or one Weekly HSI Option Contract against a maximum of five Mini-HSI Futures/Options Contracts or (2) one HSCEI Futures/Options Contract, one HSCEIF Option Contract or one Weekly HSCEI Option Contract against a maximum of five Mini-HSCEI Futures/Options Contracts, as the case may be.

For positions within specified pairs of Combined Commodities between which Intercommodity Spreads may be formed, offset positions are claimed at the relevant delta per spread ratio, where one delta refers to one Futures/Options Contract except those relating to the offset of positions involving Mini-HSI Futures/Options Contracts or Mini-HSCEI Futures/Options Contracts where one delta refers to five Mini-HSI Futures/Options Contracts or five Mini-HSCEI Futures/Options Contracts, as the case may be.

However, only those HKCC Participants which have proved to the Clearing House that they have sufficient risk management capabilities to handle risk involved in Option trading are eligible for making such offsetting claims.

2.2.7 Additional Clearing House Margin– concentration margin

2.2.7.1 An additional Clearing House margin will be imposed on an HKCC Participant in respect of its open Futures and Options Contracts which are based on the same or such similar underlying financial instruments as may be determined by the Clearing House and notified to HKCC Participants from time to time in the event that when assessed by reference to the historical data from each of the realized stressed market conditions and/or hypothetical data for each of the unrealized stressed market conditions as the Clearing House may determine:

(a) the projected aggregate loss (less any Clearing House margin) arising from such open Futures and Options Contracts registered in the Omnibus Client, Individual Client, Client Offset Claim, Sink, House and Market Maker Accounts ("Concentrated Net Projected Loss") of the HKCC Participant is greater than 30 percent of the total Concentrated Net Projected Loss of all HKCC Participants; and

(b) the total Concentrated Net Projected Loss of all HKCC Participants arising from such open Futures and Options Contracts based on the same or similar underlying financial instruments exceeds HK$500 million or such other amount as may be determined by the Clearing House and notified to HKCC Participants from time to time.

In addition, the Chairman may impose on the HKCC Participant an additional Clearing House margin on all Futures and Options Contracts registered in the HKCC Participant's account(s) with the Clearing House under other circumstances as he deems appropriate.

2.2.7.2 The additional Clearing House margin to be imposed pursuant to section 2.2.7.1 above shall be a percentage of the otherwise applicable margin requirement based on the following or such other percentage as the Chairman may consider appropriate.

Concentrated Net Projected Loss of the HKCC Participant vs all HKCC Participants	% of applicable margin requirement
More than 30% and equal to or less than 40%	20%
More than 40% and equal to or less than 50%	25%
More than 50% and equal to or less than 60%	30%

More than 60% and equal to or less than 80%	40%
More than 80%	50%

Notwithstanding the above, an HKCC Participant accounting for greater than 80% of the total Concentrated Net Projected Loss is only required to pay 40% (instead of 50%) of the applicable margin requirement during the first five (5) Business Days when such percentage remains greater than 80%. In the event that an HKCC Participant's Concentrated Net Projected Loss remains at a level greater than 80% of the total Concentrated Net Projected Loss for six (6) consecutive Business Days or more, the HKCC Participant must pay 50% of the applicable margin requirement as additional Clearing House margin from the sixth (6^{th}) Business Days onwards.

For the avoidance of doubt, if additional Clearing House margin is required under two or more stressed market conditions, the higher or highest (as the case may be) additional Clearing House margin rate shall be imposed.

2.2.7.3 Notwithstanding sections 2.2.7.1 and 2.2.7.2, no additional Clearing House margin will be imposed on open Futures and Option Contracts other than Physical Delivery Contracts in the spot week or spot month during the last two Trading Days on such spot week or spot month contracts unless the Chairman or his designee determines otherwise. Additional Clearing House margin will be imposed on a Physical Delivery Contract unless an HKCC Participant has provided the underlying commodity or instrument to the Clearing House as collateral for Clearing House margin in sufficient quantity to cover its positions in the Physical Delivery Contract with upside risk.

2.2.7.4 Where additional Clearing House margin is collected pursuant to this section, interest thereon at such positive or negative rate may be paid or charged, and costs and charges thereon in such amount may be levied, by the Clearing House as it may determine from time to time in accordance with Appendix V to these Clearing House Procedures. Any interest, costs and charges accrued or charged shall be posted to or deducted from the HKCC Participant's CCMS Collateral Account on the first Business Day of the following month.

2.2.8 Additional Clearing House Margin – Reserve Fund additional margin

2.2.8.1 An additional Clearing House margin will be imposed on an HKCC Participant in respect of all its open Futures and Options Contracts and notified to HKCC Participants from time to time in the event that when assessed by reference to the historical data from each of the realized stressed market conditions and/or hypothetical data for each of the unrealized stressed market conditions as the Clearing House may determine:

(a) the projected aggregate loss (less General Collateral (excluding any excess collateral) and any margin except additional Clearing House margin collected under this section 2.2.8) arising from all its open Futures and Options Contracts of the HKCC Participant ("Reserve Fund Net Projected Loss") exceeds the Reserve Fund Risk Predefined Limit; and

(b) the prevailing Reserve Fund size is equal to the Reserve Fund Threshold.

2.2.8.2 The additional Clearing House margin to be imposed pursuant to section 2.2.8.1 above shall be the amount by which the Reserve Fund Net Projected Loss exceeds the Reserve Fund Risk Predefined Limit. For the avoidance of doubt, if the additional Clearing House margin is required under two or more stressed market conditions, the higher or highest (as the case may be) additional Clearing House margin amount shall be imposed.

2.2.8.3 Notwithstanding sections 2.2.8.1 and 2.2.8.2, should HKCC accept the HKCC Participant's request to waive the whole or part of the additional Clearing House margin requirement, the HKCC Participant must close out, hedge or transfer to any other HKCC Participant such positions as may reduce the Reserve Fund Net Projected Loss to an amount which is less than the sum of the Reserve Fund Risk Predefined Limit and additional Clearing House margin set forth in section 2.2.8.2 maintained with the Clearing House if any by the end of the same Trading Day as the additional Clearing House margin collection due date, failing which the Clearing House may subsequently close out, hedge or transfer such positions on behalf of the HKCC Participant.

2.2.8.4 Where additional Clearing House margin is collected pursuant to this section, interest thereon at such positive or negative rate may be paid or charged, and costs and charges thereon in such amount may be levied, by the Clearing House as it may determine from time to time in accordance with Appendix V to these Clearing House Procedures. Any interest, costs and charges accrued or charged shall be posted to or deducted from the HKCC Participant's CCMS Collateral Account on the first Business Day of the following month.

2.3 Variation Adjustment

After Market close on each Trading Day until and including the Trading Day immediately preceding the Last Trading Day or, for those Cash Settled Contracts whose Final Settlement Day is not the first Trading Day after the Last Trading Day, the Last Trading Day, all open positions held at the Clearing House, for the purpose of calculating variation adjustments, are treated as if they were closed out and re-opened at the relevant Closing Quotation. Profits and losses arising from this "mark to market" mechanism are credited to and debited from the relevant HKCC Participant's CCMS Collateral Account each Trading Day as the variation adjustment.

Subject to section 2.6A, variation adjustment arising from trades executed in all Markets shall be settled using cash in the Settlement Currency only, unless otherwise permitted by the Clearing House.

2.3.1 Futures Contracts – Closing Quotation

2.3.1.1 Except for the Closing Quotation of (i) the Mini-Hang Seng Index Futures Contract, which shall be the Closing Quotation set for the Hang Seng Index Futures Contract; (ii) the Mini-Hang Seng China Enterprises Index Futures Contract, which shall be the Closing Quotation set for the Hang Seng China Enterprises Index Futures Contract; and (iii) a Futures Contract on a day which is not a Trading Day for such Futures Contract, which shall be the Closing Quotation set on the previous Trading Day for such Futures Contract, prices of Futures Contracts entered into during the final two minutes of trading prior to the Market close will normally be used by the Clearing House to determine the Closing Quotation for each Futures Contract. Unless otherwise determined by the Clearing House under special circumstances, the Closing Quotation of a Futures Contract, other than the Mini-Hang Seng Index Futures Contract and Mini-Hang Seng China Enterprises Index Futures Contract shall be calculated as follows:

(a) Subject to paragraph (d), if there was a trade during the final two-minute period the following will apply:

(1) if the last trade was at or below the best bid price amongst the last bid price(s) that had any corresponding offer price(s) during the final two-minute period, the Closing Quotation will be such best bid price;

(2) if the last trade was at or above the best offer price amongst the last offer price(s) that had any corresponding bid price(s) during the final two-minute period, the Closing Quotation will be such best offer price;

(3) if the last trade was between the best bid price amongst the last bid price(s) that had any corresponding offer price(s) during the final two-minute period and the best corresponding offer price, then the Closing Quotation will be the price of such last trade; and

(4) if no pairs of bid and corresponding offer prices were available during the final two-minute period, then the Closing Quotation will be the price of such last trade.

(b) If there was no trade during the final two-minute period, the Closing Quotation will be calculated as the midpoint between the best bid price amongst the last bid price(s) that had any corresponding offer price(s) during the final two-minute period and the best corresponding offer price, rounded to the nearest tick. However, if the Clearing House determines that the bid-offer spread is not consistent with those of other expiries, and the resultant Closing Quotation does not reflect the true market conditions, the Clearing House will disregard this Closing Quotation and proceed to the procedures laid down in paragraph (ba).

(ba) If neither a trade nor a pair of bid and offer prices was available during the final two-minute period, or if the Clearing House determines according to paragraph (b) that the procedures laid down in this paragraph (ba) should be followed, the Closing Quotation will be set by the Clearing House with reference to the prices in the final two-minute period of a similar local/overseas instrument or commodity that the Clearing House considers appropriate.

(c) If the Clearing House considers that no similar local/overseas instrument or commodity is appropriate, or there were no appropriate prices in the final two-minute period for the similar local/overseas instrument or commodity that the Clearing House considers appropriate in paragraph (ba), the Closing Quotation will be set by the Clearing House with reference to the prices of the underlying instrument or commodity and the following:

(1) the last trade in the Futures Contract prior to the final two-minute period;

(2) the premiums/discounts of the Futures Contract to the spot month Futures Contract on the previous Trading Day or the closing price of a similar local/overseas instrument or commodity that the Clearing House considers appropriate on its previous trading day, whichever is later, if there was no trade prior to the final two-minute period; and

(3) other information provided by Market Makers in the relevant Market if premiums/discounts of the Futures Contract to the spot month Futures Contract on the previous Trading Day and the closing price of a similar local/overseas instrument or commodity that the Clearing House considers appropriate on its previous trading day were not available.

or if the Clearing House determines that reference to the prices of the underlying instrument or commodity is inappropriate, the Closing Quotation will be set with reference to the following:

(1) the last trade in the Futures Contract prior to the final two-minute period;

(2) the Closing Quotation of the Futures Contract on the previous Trading Day or the closing price of a similar local/overseas instrument or commodity that the Clearing House considers appropriate on its previous trading day, whichever is later, if there was no trade prior to the final two-minute period; and

(3) other information provided by Market Makers in

the relevant Market if the Closing Quotation of the Futures Contract on the previous Trading Day and the closing price of a similar local/overseas instrument or commodity that the Clearing House considers appropriate on its previous trading day were not available.

(d) Block Trade prices and prices in the T+1 Session will not be used by the Clearing House in determining the Closing Quotation.

(da) The Closing Quotation so determined shall be within the Maximum Fluctuation of the Futures Contract where applicable.

(e) Notwithstanding the above, the Clearing House may, in its discretion, adjust or otherwise determine the Closing Quotation of a Futures Contract.

2.3.1.2 [Repealed]

2.3.2 Option Contracts – Closing Quotation

Except for the Closing Quotation of (i) the Mini-Hang Seng Index Option Contract, which shall be the Closing Quotation set for the Hang Seng Index Option Contract; (ii) the Mini-Hang Seng China Enterprises Index Option Contract, which shall be the Closing Quotation set for the Hang Seng China Enterprises Index Option Contract; and (iii) an Option Contract on a day which is not a Trading Day for such Option Contract, which shall be the Closing Quotation determined based on the procedures laid down in paragraph (c), prices of Option Contracts entered into during the final fifteen minutes of trading prior to the Market close will normally be used by the Clearing House to determine the Closing Quotation for each Option Contract. Unless otherwise determined by the Clearing House under special circumstances, the Closing Quotation of an Option Contract, other than the Mini-Hang Seng Index Option Contract and the Mini-Hang Seng China Enterprises Index Option Contract, shall be calculated as follows:

(a) Subject to paragraph (e), if there was a trade during the final fifteen-minute period, the following will apply:

(1) if the last trade was at or below the best bid price amongst the last bid price(s) that had any corresponding offer price(s) during the final fifteen-minute period, the Closing Quotation will be such best bid price;

(2) if the last trade was at or above the best offer price amongst

the last offer price(s) that had any corresponding bid price(s) during the final fifteen-minute period, the Closing Quotation will be such best offer price;

(3) if the last trade was between the best bid price amongst the last bid price(s) that had any corresponding offer price(s) during the final fifteen-minute period and the best corresponding offer price, then the Closing Quotation will be the price of such last trade; and

(4) if no pairs of bid and corresponding offer prices were available during the final fifteen-minute period, the Closing Quotation will be the price of such last trade.

(b) If there was no trade during the final fifteen-minute period, the Closing Quotation will be calculated as the midpoint between the best bid price amongst the last bid price(s) that had any corresponding offer price(s) during the final fifteen-minute period and the best corresponding offer price, rounded to the nearest tick. However, if the Clearing House determines that the bid-offer spread is not consistent with those of other expiries with similar strike prices, and the resultant Closing Quotation does not reflect the true market conditions, the Clearing House will disregard this Closing Quotation and proceed to the procedures laid down in paragraph (c).

(c) If neither a trade nor a pair of bid and offer prices was available during the final fifteen-minute period, or if the Clearing House determines according to paragraph (b) that the procedures laid down in this paragraph (c) should be followed, the Closing Quotation of an Option Contract shall be calculated by the Clearing House using the Black's Model as follows:-

$$C = e^{-rT}\,[FN(d_1) - XN(d_2)]$$

$$P = e^{-rT}\,[XN(-d_2) - FN(-d_1)]$$

$$d_1 = \frac{ln(F/X) + ½\sigma^2 T}{\sigma\sqrt{T}}$$

$$d_2 = d_1 - \sigma\sqrt{T}$$

where C and P are the Closing Quotations of the call and put Options respectively; N(x) is the standard normal distribution function of x; X is the strike price; T is the time to maturity in a 365-day year; r is the annual risk-free rate; F is the price of the *underlying; and σ is the volatility of the price of the underlying.*

(1) The Clearing House will determine the price of the underlying of the Option Contract with reference to the Closing Quotation of the corresponding Futures Contract; or if the Option Contract does not have a Futures Contract with the same expiry, other information provided by Market Makers in the relevant Market; or the premiums/discounts of the corresponding underlying of the Option Contract to the spot month Futures Contract on the previous Trading Day.

(2) The Clearing House will determine the volatility of each option series with reference to the prices of the underlying instrument or commodity and the following:

- the prices of the Futures and Option Contracts with the same expiry during the final fifteen-minute period;

- the prices of the Futures and Option Contracts with the same expiry prior to the final fifteen-minute period if no sufficient prices of the Futures and Option Contracts with the same expiry during the final fifteen-minute period were available to determine the volatility of such option series;

- the volatility and skewness of the Option Contracts with the same expiry on the previous Trading Day if no sufficient prices of the Futures and Option Contracts with the same expiry prior to the final fifteen-minute period were available to determine the volatility of such option series; and

- other information provided by the Market Makers in the relevant Market if no volatility or skewness of the Option Contracts with the same expiry on the previous Trading Day was available.

(d) The Clearing House will adjust, where appropriate, the Closing Quotation of an Option Contract calculated under paragraph (a), (b) or (c) according to the following and rounded to the nearest tick:

(1) if the Closing Quotation so determined is smaller than the intrinsic value of the option series, it will be adjusted to such intrinsic value;

(2) if the Closing Quotation so determined is greater than the

upper boundary set by the Clearing House based on a prescribed percentage of the theoretical price of the option series calculated according to the procedures laid down in paragraph (c), it will be adjusted to such upper boundary;

(3) if the Closing Quotation so determined is smaller than the lower boundary set by the Clearing House based on a prescribed percentage of the theoretical price of the option series calculated according to the procedures laid down in paragraph (c), it will be adjusted to such lower boundary;

(4) starting from the at-the-money to the most in-the-money option series of the same underlying instrument, expiry and call/put type, if the Closing Quotation is smaller than or equal to the Closing Quotation of the preceding option series, it will be adjusted to a value not lower than the Closing Quotation of such preceding option series; and

(5) starting from the at-the-money to the most out-of-the-money option series of the same underlying instrument, expiry and call/put type, if the Closing Quotation is greater than or equal to the Closing Quotation of the preceding option series, it will be adjusted to a value not higher than the Closing Quotation of such preceding option series.

(e) Block Trade prices will not be used by the Clearing House in determining the Closing Quotation.

(f) Notwithstanding the above, the Clearing House may, in its discretion, adjust or otherwise determine the Closing Quotation of an Option Contract.

2.3.3 Physical Delivery Contracts on or after the Last Trading Day

2.3.3.1 For the purpose of calculating realized profits and losses, after Market close on the Last Trading Day, all open positions in Physical Delivery Contracts held at the Clearing House are treated as if they were closed out at the final settlement price (for Futures Contracts) or at zero value (for Option Contracts). Profits and losses arising from this “mark to market” mechanism will be credited to and debited from the relevant HKCC Participant’s CCMS Collateral Account as the variation adjustment. Subject to section 2.6A, such variation adjustment shall be settled using cash in the Settlement Currency only.

2.3.3.2 For the purpose of calculating unrealized profits and losses, after Market close on each Trading Day from and including the Last Trading Day to but excluding, (i) in the case of a Physical

Delivery Contract where the obligations of HKCC Participants to HKCC for the final settlement will complete at or before 9:15 a.m. on the Final Settlement Day, the Trading Day immediately preceding the Final Settlement Day; or (ii) in the case of other Physical Delivery Contract, the Final Settlement Day, such Contract shall be deemed to be closed out and re-opened at the spot price of its underlying commodity or instrument, or at such price with reference to a similar local/overseas commodity or instrument that the Clearing House considers appropriate. If more than one particular type or issue of underlying commodity or instrument is allowed for delivery as specified in the Exchange Rules or prescribed by the Clearing House, reference would be made to the type or issue that would create the greatest variation adjustment for the relevant Physical Delivery Contract.

Profits arising from the above "mark to market" mechanism will be used to offset against, while losses arising from such mechanism will be added to and collected as, Clearing House margin payable in respect of the relevant CCMS Collateral Account of the HKCC Participant. Any profits in excess of the Clearing House margin requirement will not be credited to the relevant CCMS Collateral Account of the HKCC Participant.

2.4 Fees and Charges

All Exchange and Clearing House fees and charges will be calculated after the Market close and debited from HKCC Participants' CCMS Collateral Accounts on a daily basis. Subject to section 2.6A, trading fees arising from trades executed in all Markets shall be settled using cash in the Settlement Currency only.

2.5 Calculation of Daily Cover Required

In determining the amount of daily cover required from an HKCC Participant, the Clearing House will first calculate the HKCC Participant's cash amount in its CCMS Collateral Account as follows:-

cash amount = (confirmed amount) +/- (variation adjustment) - (fees)

where:

(i) variation adjustment may either be a debit or a credit, except that those arising from Physical Delivery Contracts after the Last Trading Day will be treated in accordance with section 2.3; and

(ii) confirmed amount is the cash amount brought forward.

2.5.1 Outstanding Debit

Should the "cash amount" in the above calculation result in a negative figure (hereinafter referred to as "outstanding debit"), the amount of cover required from the HKCC Participant equals:

Amount of cover required = (outstanding debit) + (Clearing House margin liability)

2.5.2 Cash Balance

Should the "cash amount" calculated under section 2.5 show a positive value (hereinafter referred to as "cash balance"), the following comparisons will be made and the consequent actions taken:

(a) If (cash balance) = (Clearing House margin liability), the cash balance will be used as as cover for the HKCC Participant's Clearing House margin liability and there will not be any action required;

(b) If (cash balance) is less than (Clearing House margin liability), amount of cover required = (shortfall); and

(c) If (cash balance) is greater than (Clearing House margin liability), amount that may be redelivered = (cash balance) – (Clearing House margin liability).

The comparisons referred to in paragraphs (a) to (c) above are made on the basis that Clearing House margin liability is not covered by any other acceptable means. To the extent that Clearing House margin liability is covered by other acceptable means, any shortfall in the amount of cover required (as calculated in paragraph (b) above) will be reduced accordingly and any cash amount that may be redelivered will be increased accordingly, provided that (i) it is not used by the Clearing House as cover for the HKCC Participant's Clearing House margin liability; (ii) the amount of Clearing House margin liability that is covered by any acceptable means other than cash in the Settlement Currency will not exceed the maximum level(s) prescribed by the Clearing House; and (iii) the redelivery will not result in any other requirement regarding cover for the HKCC Participant's Clearing House margin liability not being satisfied.

2.6 Methods of Providing Cover for Clearing House Margin

The payment of cover for Clearing House margin is operated through the DMDS as referred to in sections 2.7 and 2.8B. Where the Settlement Currency of a Contract is not the same as the Currency of the Contract, Clearing House margin payable on such Contract will be converted by the

Clearing House from the Currency of the Contract into the Settlement Currency at the exchange rate determined by the Clearing House from such source and on such basis as it shall consider appropriate as soon as practicable after the Clearing House margin liabilities arose. An HKCC Participant may also provide cover for its Clearing House margin liabilities in one or more of the ways set forth in sections 2.6.1, 2.6.2, 2.6.4 and 2.6.6 below ("approved collateral") provided that the amount of Clearing House margin liability that is covered by approved collateral other than cash in the Settlement Currency does not exceed the maximum level(s) prescribed by the Clearing House with respect to the HKCC Participant and/or each CCMS Collateral Account of the HKCC Participant, as the case may be. Normally, an HKCC Participant's margin liabilities will first be satisfied by cash in the Settlement Currency, then cash in any other currency from time to time approved by the Clearing House and then by any non-cash collateral maintained in the HKCC Participant's CCMS Collateral Account, or any other order of application prescribed by the Clearing House from time to time.

2.6.1 Cover provided by means of Cash in the Settlement Currency

Any cash balance in the Settlement Currency in excess of the amount required to cover an HKCC Participant's Clearing House margin liability shall automatically be used by the Clearing House as cover for any subsequent increase in the Clearing House margin liability of the HKCC Participant without the HKCC Participant's prior consent. Interest on cash balance in the Settlement Currency at such positive or negative rate may be paid or charged, and costs and charges thereon in such amount may be levied, by the Clearing House as it may determine from time to time in accordance with Appendix V to these Clearing House Procedures.

If an HKCC Participant delivers cash in the Settlement Currency to cover outstanding debit, the Clearing House will neither pay interest nor levy accommodation charges on such delivered amount.

Any HKCC Participant wishing to deliver cash with the Clearing House as excess cover for Clearing House margin liability or as cover for outstanding debit shall input a delivery order via a CCMS terminal and the amount to be delivered will be forthwith debited from the HKCC Participant's DMDS bank account. The HKCC Participant shall ensure that there are sufficient funds delivered in its relevant DMDS bank account for debiting purpose.

2.6.2 Cover provided by means of Cash in an Approved Currency other than the Settlement Currency

Subject to the prior agreement of the Clearing House, an HKCC Participant may provide cover for its Clearing House margin liabilities by means of a delivery to the Clearing House of cash in an approved currency other than the Settlement Currency or by way of surplus balance on Contracts which are settled in a different Settlement Currency provided that the Clearing House shall have the absolute right to determine the maximum amount of an HKCC Participant's Clearing House margin liability which may be so covered. The types of approved currencies that may be provided by HKCC Participants may be determined by the Clearing House from time to time (see Appendix V – (5) for the current list of approved currencies). The value of any cash in an approved currency other than the Settlement Currency allowed to be used as cover for Clearing House margin liabilities shall be determined on a daily basis based on the prevailing market value as determined by the Clearing House after deducting a haircut of such percentage as determined from time to time by the Clearing House.

Interest on the cash balance in an approved currency other than the Settlement Currency at such positive or negative rate may be paid or charged, and costs and charges thereon in such amount may be levied, by the Clearing House as it may determine from time to time in accordance with Appendix V to these Clearing House Procedures. The rate of interest may be varied from time to time by the Clearing House without prior notice.

No accommodation charge will be levied on Clearing House margin liabilities covered by surplus cash balance in an approved currency other than the Settlement Currency.

Any HKCC Participant wishing to deliver cash in an approved currency other than the Settlement Currency shall notify the Clearing House in writing or by other means acceptable to the Clearing House by 11:00 a.m. or any time specified by the Clearing House.

2.6.3 (deleted)

2.6.4 Exchange Fund Bills/Notes

HKCC Participants may provide cover for their Clearing House margin liabilities by means of Exchange Fund Bills/Notes issued by the Hong Kong Special Administrative Region Government for the account of the Exchange Fund ("Exchange Fund Bills/Notes") provided that the Clearing House shall have the absolute right to determine the maximum amount of an HKCC Participant's Clearing House margin liability which may be so covered.

Any HKCC Participant wishing to use Exchange Fund Bills/Notes to cover calls for Clearing House margin or to request for the redelivery of Exchange Fund Bills/Notes shall notify the Clearing House by 11:00 a.m. on a Trading Day which is a Business Day of its intention in writing or by such other means as may be acceptable to the Clearing House and shall instruct its Recognized Dealer (or its clients' Recognized Dealers in the manner set forth below) to transfer Exchange Fund Bills/Notes to the Clearing House's account with the

Hong Kong Monetary Authority ("HKMA"). The Clearing House will accept Exchange Fund Bills/Notes as cover for Clearing House margin liabilities only when confirmation of the transfer is received by the Clearing House from HKMA. To receive same-day credit for Exchange Fund Bills/Notes, the HKCC Participant must transfer Exchange Fund Bills/Notes to the Clearing House's account with HKMA by such transfer cutoff time as may from time to time be specified by HKMA.

An HKCC Participant may meet its Clearing House margin liabilities through the transfer of Exchange Fund Bills/Notes directly from the HKCC Participant's clients ("direct transfer") provided that the HKCC Participant notifies the Clearing House of the details of the direct transfer in advance. Upon receipt of such direct transfer, the Clearing House will update the HKCC Participant's CCMS Collateral Account and any Exchange Fund Bills/Notes provided under such direct transfer shall be considered to be delivered by the HKCC Participant. In the event any such direct transfer fails to be made with the result that the HKCC Participant fails to meet any margin call, the HKCC Participant shall remain liable to the Clearing House in respect of such margin call and will be placed in default under the Clearing House Rules.

The value of the Exchange Fund Bills/Notes allowed to be used as cover for Clearing House margin liabilities shall be the closing value or the market value of the Exchange Fund Bills/Notes at a specified time published by the HKMA at the close of each Business Day, after deducting a haircut of such percentage as determined from time to time by the Clearing House.

Where an HKCC Participant has made a request for redelivery of Exchange Fund Bills/Notes pursuant to section 2.10, the Clearing House will, on the express instructions of the HKCC Participant, transfer Exchange Fund Bills/Notes to the account of the HKCC Participant or such other account as the HKCC Participant may specify provided that the HKCC Participant provides confirmation to the Clearing House that the holder of such account is a client of the HKCC Participant. The Clearing House will accept such request for redelivery only if and to the extent that it will not result in any requirement regarding cover for the HKCC Participant's Clearing House margin liability not being satisfied. Any Exchange Fund Bills/Notes so transferred by the Clearing House shall be deemed to have been transferred to the HKCC Participant insofar as the satisfaction of any liability of the Clearing House towards the HKCC Participant is concerned.

Where interest or, upon maturity, redemption money, is paid to the Clearing House in relation to Exchange Fund Bills/Notes which are the subject of cover for Clearing House margin liability provided by an HKCC Participant, the Clearing House shall pay to the HKCC Participant, by crediting its CCMS Collateral Account with the Clearing House on the same Trading Day which is a Business Day, a sum equivalent to the amount of such interest or redemption money less any withholding tax that may be required to be deducted pursuant to any applicable tax laws and regulations and/or net of any Withholding Tax (whether withheld by the Clearing House or any other parties). The Clearing House will have no obligation to gross-up any such interest payment or to pay any additional amount as a result of such deduction or Withholding Tax. Without prejudice to the foregoing, to the extent required by the Tax Information Exchange Framework, the Clearing House shall be entitled to deduct or withhold Withholding Tax (whether withheld by the Clearing House or any other parties) from any payment of interest or redemption money (or payment of any other income) received by the Clearing House on the Exchange Fund Bills/Notes to an HKCC Participant (or from any other payment made by the Clearing House to an HKCC Participant) and shall have no obligation to gross-up any such payment or to pay any additional amount as a result of such Withholding Tax.

An HKCC Participant shall be liable for all disbursements and expenses that may be incurred by the Clearing House in respect of or incidental to its acceptance of Exchange Fund Bills/Notes from the HKCC Participant, including its redelivery or delivery of Exchange Fund Bills/Notes and related sums to the HKCC Participant.

Pursuant to Clearing House Rule 404(c), an accommodation charge as determined from time to time by the Clearing House will be imposed on the amount of Exchange Fund Bills/Notes used as cover for margin liabilities.

2.6.5 *(deleted)*

2.6.6 U.S. Government Treasury Bills and Notes

HKCC Participants may also deliver U.S. Government Treasury Bills or Notes (“U.S. Treasuries”) excluding U.S. Treasury Callable Corpus (“TCAL”) and Separate Trading of Registered Interest and Principal of Securities (“STRIPs”) to meet Clearing House margin liabilities provided that the Clearing House shall have the absolute right to determine the maximum amount of an HKCC Participant’s Clearing House margin liability which may be so covered.

Any HKCC Participant wishing to use U.S. Treasuries to cover calls for Clearing House margin liabilities shall notify the Clearing House by 11:00 a.m. on a Trading Day of its intention in writing or by such other means as may be acceptable to the Clearing House and the

Clearing House will, as soon as practicable, upon receipt of such notice process such request. Any delivery of U.S. Treasuries shall be made to the Clearing House's account with any of the banks or depositories approved by the Clearing House from time to time. The Clearing House will update the HKCC Participant's CCMS Collateral Account and accept U.S. Treasuries as cover for Clearing House margin liabilities only when confirmation of the transfer is received by the Clearing House from the approved bank or depository.

An HKCC Participant may meet its Clearing House margin liabilities through the transfer of U.S. Treasuries directly from the HKCC Participant's clients ("direct transfer") provided that details of the direct transfer are given by the HKCC Participant to the Clearing House in advance. Upon receipt of such direct transfer, the Clearing House will update the HKCC Participant's CCMS Collateral Account and any U.S. Treasuries provided under such direct transfer shall be considered to be delivered by the HKCC Participant. In the event any such direct transfer fails to be made with the result that the HKCC Participant fails to meet any margin call, the HKCC Participant shall remain liable to the Clearing House in respect of such margin call and will be placed in default under the Clearing House Rules.

The value of U.S. Treasuries allowed to be used as cover for Clearing House margin liabilities shall be the market value quoted by information vendor(s) selected from time to time by the Clearing House at the close of each Trading Day, after deducting a haircut of such percentage as determined from time to time by the Clearing House.

Where an HKCC Participant has made a request for redelivery of U.S. Treasuries pursuant to section 2.10, the Clearing House will, on the express instructions of the HKCC Participant, transfer U.S. Treasuries to the account of the HKCC Participant or such other account as the HKCC Participant may specify provided that the HKCC Participant provides confirmation to the Clearing House that the holder of such account is a client of the HKCC Participant. The Clearing House will accept such request for redelivery only if and to the extent that it will not result in any requirement regarding cover for the HKCC Participant's Clearing House margin liability not being satisfied. Any U.S. Treasuries so transferred by the Clearing House shall be deemed to have been transferred to the HKCC Participant insofar as the satisfaction of any liability of the Clearing House towards the HKCC Participant is concerned.

Where interest or, upon maturity, redemption money, is paid to the Clearing House in relation to U.S. Treasuries which are the subject of cover for Clearing House margin liability provided by an HKCC Participant, the Clearing House shall pay to the HKCC Participant, by crediting its CCMS Collateral Account with the Clearing House on the same Trading Day, a sum equivalent to the amount of such interest or redemption money less any withholding tax that may be required to be deducted pursuant to any applicable tax laws and regulations and/or net of any Withholding Tax (whether withheld by the Clearing House or any other parties). The Clearing House will have no obligation to gross-up any such interest payment or to pay any additional amount as a result of such deduction or Withholding Tax. Without prejudice to the foregoing, to the extent required by the Tax Information Exchange Framework, the Clearing House shall be entitled to deduct or withhold Withholding Tax (whether withheld by the Clearing House or any other parties) from any payment of interest or redemption money (or payment of any other income) received by the Clearing House on the U.S. Treasuries to an HKCC Participant (or from any other payment made by the Clearing House to an HKCC Participant) and shall have no obligation to gross-up any such payment or to pay any additional amount as a result of such Withholding Tax. In the event that the HKCC Participant's clearing account is not in U.S. dollars, such amount will be credited to a U.S. dollar bank account designated by the HKCC Participant.

An HKCC Participant shall be liable for all disbursements and expenses that may be incurred by the Clearing House in respect of or incidental to its acceptance of U.S. Treasuries from the HKCC Participant, including its redelivery or delivery of U.S. Treasuries and related sums to the HKCC Participant.

Pursuant to Clearing House Rule 404(c), an accommodation charge as determined from time to time by the Clearing House will be imposed on the amount of U.S. Treasuries used as cover for margin liabilities.

2.6.7 (deleted)

2.6A Settlement of Liabilities including Outstanding Debit & Variation Adjustment

Subject to section 2.6, all liabilities arising from trades executed in any Market, including outstanding debit and variation adjustments must be settled by cash in the Settlement Currency, unless otherwise permitted by the Clearing House.

Where the Settlement Currency of any such trade is not the same as the Currency of the Contract, liabilities arising from such trade will be converted by the Clearing House from the Currency of the Contract into the Settlement Currency at the exchange rate determined by the Clearing House from such source and on such basis as it shall consider appropriate as soon as practicable after the liabilities arose. Any exchange rate risk arising from the conversion will be borne by the HKCC Participant.

Where any liabilities arising from trades executed in any Market, including outstanding debit and variation adjustments, are permitted by the Clearing House to be settled in a currency other than the Settlement Currency, the Clearing House shall have the absolute right to determine the maximum amount of such liabilities which may be so covered, the duration for which such liabilities may be so covered and the types of approved currencies that may be provided by HKCC Participants (see Appendix V – (5) for the current list of approved currencies). The value of any cash in an approved currency other than the Settlement Currency allowed to be used as cover shall be determined on a daily basis based on the prevailing market value as determined by the Clearing House after deducting a haircut of such percentage as determined from time to time by the Clearing House. Any exchange rate risk arising from the use of a currency other than the Settlement Currency as cover will be borne by the HKCC Participant.

2.7 Payment of Cover - Direct Margin Debiting System

When an HKCC Participant's Clearing House margin liability exceeds the amount of cover provided and/or an HKCC Participant has outstanding debit, the HKCC Participant shall pay such shortfall and any outstanding debit by the next Business Day * through the Direct Margin Debiting System provided that if the HKCC Participant also clears Holiday Trading Exchange Contracts, the HKCC Participant shall pay such shortfall and any outstanding debit through the Direct Margin Debiting System by the next Trading Day, regardless of whether it is a Business Day.

* *This applies to each Exchange Contract regardless of whether there is trading available in the market on which the underlying instrument or commodity of the Exchange Contract is traded.*

Subject to section 2.6, the DMDS will operate as follows:

a) Each HKCC Participant will need to open two bank accounts for House and Client respectively for each applicable Settlement Currency at one of the Designated Banks, Prime Settlement Banks or Approved Settlement Banks from time to time appointed by the Clearing House. For a Market Maker Account, an HKCC Participant need not have separate bank accounts for debiting purpose. The House bank accounts will be used as the designated bank accounts unless the Market Maker Account is of a Client nature, in which case the Client bank accounts shall be used as the designated bank accounts for the Market Maker Account. Any HKCC Participant wishing to use additional Client bank accounts as the designated bank accounts for a Market Maker Account which is of a Client nature must notify the Clearing House in writing. Each HKCC Participant is required to provide the bank via the Clearing House with separate mandates, in such form as shall be approved by the Clearing House, authorizing the transfer, on the Clearing House's instructions, of funds required to satisfy the daily call for Clearing House margins, loss arising from variation adjustment, outstanding debit and any other liabilities due to the Clearing House. For the avoidance of doubt, an HKCC Participant which has not opened bank accounts in the Settlement Currency of a Contract and provided mandates to the bank as aforesaid will not be allowed to record, register and clear that Contract.

b) The Clearing House will provide to each Designated Bank, Prime Settlement Bank and Approved Settlement Bank, on each Trading Day, a list of amounts due from HKCC Participants having accounts at that bank.

c) On receipt of the list, each Designated Bank and Approved Settlement Bank will debit the amount due from each HKCC Participant from the HKCC Participant's account and transfer the same amount to the Clearing House's account at one of the Prime Settlement Banks designated by the Clearing House.

On receipt of the list, each Prime Settlement Bank will process the transfers internally. Each Prime Settlement Bank will simultaneously debit the amount due from each HKCC Participant from the HKCC Participant's account and credit the same amount to the Clearing House's account maintained with the bank.

d) Each Prime Settlement Bank will notify the Clearing House by 9:15 a.m. (i) of any transfer from the Designated Banks and Approved Settlement Banks and (ii) whether any transfer from the HKCC Participants' accounts maintained with the Prime Settlement Bank cannot be made.

e) HKCC Participants must ensure that their accounts at the Designated Banks, Prime Settlement Banks or Approved Settlement Banks contain sufficient credit balances to meet the Clearing House transfer instructions and/or to negotiate appropriate borrowing facilities with the banks concerned. HKCC Participants maintaining accounts with Designated Banks or Approved Settlement Banks must also ensure that their banks transfer all payments to the designated Prime Settlement Banks by 9:10 a.m. on each payment day.

Written notification to the Clearing House must be given at least 24 hours in advance if HKCC Participants want to nominate another bank or, where applicable, another currency as the medium for the direct debit. Any bank charges arising in connection with the operation of the system shall be borne by HKCC Participants.

2.8 Intra-day Variation Adjustments

At the close of the morning trading session of the Hang Seng Index Futures Market on each Business Day and at such other time as may be specified by the Clearing House on a Trading Day which is not a Business Day, the Clearing House will, unless otherwise determined by the Clearing House, perform an intra-day assessment of the gross and net margin liabilities of all the accounts of each HKCC Participant in DCASS in respect of all open Contracts held by the HKCC Participant in all Markets. Where such gross or net margin liability is determined by the Clearing House to have exceeded the gross or net capital-based position limit imposed on the HKCC Participant and calculated in accordance with section 5.1, the Clearing House may make an intra-day variation adjustment in respect of all open Contracts held by the HKCC Participant in all open Markets.

Furthermore, where the price movements in a Market are particularly volatile such that the applicable Clearing House margin in respect of that Market has been eroded by approximately 25% or where the Clearing House considers appropriate under any other circumstances, the Clearing House may make an intra-day variation adjustment in respect of all open Contracts held by an HKCC Participant in that Market and/or any other Market whose underlying instrument is the same as or similar to the underlying instrument of that Market at the time of the intra-day variation adjustment.

The Clearing House will generate a report, which will set forth the amount which will be debited from or credited to the relevant CCMS Collateral Account of the HKCC Participant as a result of any intra-day variation adjustment.

To the extent that the collateral in the HKCC Participant's relevant CCMS Collateral Account is insufficient, funds required to satisfy an intra-day variation adjustment will be collected via the DMDS. HKCC Participants shall ensure that there are sufficient funds deposited in their DMDS bank accounts for debiting purpose. Unless otherwise permitted by the Clearing House, all margin calls for intra-day variation adjustments must be settled by cash in the Settlement Currency and must be paid by the HKCC Participant on demand and in any event no later than one hour after the abovementioned report is issued to the HKCC Participant or such shorter period as may from time to time be prescribed by the Clearing House. Where the Settlement Currency of a Contract is not the same as the Currency of the Contract, intra-day variation adjustment payable on such Contract will be converted by the Clearing House from the Currency of the Contract into the Settlement Currency at the exchange rate determined by the Clearing House from such source and on such basis as it shall consider appropriate as soon as practicable after the intra-day variation adjustment arose. Any exchange rate risk arising from the conversion will be borne by the HKCC Participant.

No amount arising from an intra-day variation adjustment made pursuant to an intra-day assessment as mentioned above will be credited to an HKCC Participant. In any other case, for each type of Settlement Currency, where an intra-day variation adjustment is made at or before 12:30 p.m. on any day, any amount to be credited to the HKCC Participant as a result of the intra-day variation adjustment will be made by the Clearing House on the same day except that no payment will be made by the Clearing House (i) if the amount to be credited is HK$1 million or less or its non-Hong Kong Dollar currency equivalent based on the exchange rate determined by the Clearing House; or (ii) if the credit arises from Physical Delivery Contracts after the Last Trading Day. Any amount to be credited as aforesaid will be made automatically via the DMDS to the DMDS bank account designated by the HKCC Participant. HKCC Participants shall ensure that standing instructions are given to the Clearing House for this purpose.

Notwithstanding the above, in the case of Physical Delivery Contracts after the Last Trading Day, as long as any cover provided by an HKCC Participant under section 2.6 is sufficient to satisfy an intra-day variation adjustment, no funds will be collected via the DMDS. To the extent that cover provided under section 2.6 is insufficient, the shortfall will be collected via the DMDS. Furthermore, no credit arising from intra-day variation adjustment on Physical Delivery Contracts after the Last Trading Day will be made to any HKCC Participant as mentioned above, or used to offset any Clearing House margin liabilities of the HKCC Participant.

Some of the Markets may remain open on public holidays in Hong Kong. HKCC Participants are advised to arrange additional cover to deal with any potential intra-day variation adjustment call. If an HKCC Participant is unable to meet its intra-day variation adjustment calls by the prescribed deadline for any reason, it shall constitute an event of default. Without prejudice to Rule 510, the Clearing House may restrict such HKCC Participant from opening new positions and may require compulsory close-outs where circumstances warrant such action.

2.8A Special Block Trade Margin

If in the opinion of the Clearing House or the Exchange, the executed price of a Block Trade is not fair and reasonable or a significant deviation exists between the executed price and the prevailing market price or between the executed price and the theoretical price determined by the Clearing House, or if a Block Trade is executed at such a price that an intra-day variation adjustment would have been triggered had the trade been executed or as if it has been executed as a normal trade in the Central Orderbook, the Clearing House may, within 30 minutes after the Block Trade is executed or after a trade adjustment request in respect of such Block Trade is submitted, call for a Special Block Trade Margin from the relevant HKCC Participant.

To the extent that the collateral in the HKCC Participant's relevant CCMS Collateral Account is insufficient to satisfy the Special Block Trade Margin, the Clearing House will generate a Special Block Trade Margin report and any Special Block Trade Margin payable by the HKCC Participant will be debited from its relevant DMDS bank account. The HKCC Participant shall ensure that there are sufficient funds deposited in its DMDS bank account for debiting purpose.

Unless otherwise permitted by the Clearing House, all Special Block Trade Margin must be settled by cash in the Settlement Currency and must be paid by the HKCC Participant on demand and in any event no later than one hour after the abovementioned report is issued to the HKCC Participant or such shorter period as may from time to time be prescribed by the Clearing House. Where the Settlement Currency of a Contract is not the same as the Currency of the Contract, any Special Block Trade Margin payable on such Contract will be converted by the Clearing House from the Currency of the Contract into the Settlement Currency at the exchange rate determined by the Clearing House from such source and on such basis as it shall consider appropriate as soon as practicable after the Special Block Trade Margin arose. Any exchange rate risk arising from the conversion will be borne by the HKCC Participant.

A Block Trade will not be registered with the Clearing House or novated unless the required Special Block Trade Margin and any other criteria applicable to the Block Trade have been satisfied.

For the avoidance of doubt, no amount will be credited to HKCC Participants as a result of any Special Block Trade Margin call.

Some of the Markets may remain open after normal banking hours or on public holidays in Hong Kong. HKCC Participants are advised to arrange additional cover to deal with any potential Special Block Trade Margin.

If an HKCC Participant is unable to pay or otherwise satisfy any Special Block Trade Margin in respect of a Block Trade by the prescribed deadline for any reason (including where the Block Trade is executed during the T+1 Session during which no debit can be made from its relevant DMDS bank account and there is insufficient collateral in its CCMS Collateral Account to satisfy the Special Block Trade Margin), the Block Trade shall, without notice being required to be given to the HKCC Participant, be deleted from HKATS and DCASS as if the Block Trade had never been executed and will not be registered with or novated or cleared by the Clearing House.

If an HKCC Participant is unable to pay or otherwise satisfy any Special Block Trade Margin arising from a trade adjustment request submitted in respect of a Block Trade by the prescribed deadline for any reason (including where the request is submitted between the commencement of the T+1 Session and the T+1 Session Cutoff Time during which no debit can be made from its relevant DMDS bank account and there is insufficient collateral in its CCMS Collateral Account to satisfy the Special Block Trade Margin), the trade adjustment request will be rejected by the Clearing House.

2.8B Mandatory Intra-day Variation Adjustment and Margin

Following Market open of T Session on each Trading Day, the Clearing House will, unless otherwise determined by the Clearing House, call for mandatory intra-day variation adjustment and margin in respect of all open Contracts, including those traded in the preceding T+1 Session, held in all Markets by an HKCC Participant at a time specified by the Clearing House. HKCC Participants are advised to complete all their post-trade adjustments under sections 1.4 and 1.5 for trades executed in the preceding T+1 Session by the time specified by the Clearing House from time to time. Any post-trade adjustments executed thereafter may not be incorporated in the mandatory intra-day variation adjustment and margin calculation.

The amount of cover required to satisfy any call for mandatory intra-day variation adjustment and margin will be determined in accordance with the methodology set forth in section 2.5. The Clearing House will generate a report to each HKCC Participant, which will set forth the amounts of the intra-day variation adjustment component of the mandatory intra-day variation adjustment and margin to be debited from or credited to the relevant CCMS Collateral Account of the HKCC Participant and the amount of liability for the Clearing House margin component for each CCMS Collateral Account of the HKCC Participant.

Funds required to satisfy a mandatory intra-day variation adjustment and margin will be collected via the DMDS. HKCC Participants shall ensure that there are sufficient funds deposited in their DMDS bank accounts for debiting purpose. Unless otherwise permitted by the Clearing House, all margin calls for mandatory intra-day variation adjustment and margin must be settled by cash in the Settlement Currency and must be paid by the HKCC Participant on demand and in any event no later than two hours after the abovementioned report is issued to the HKCC Participant or such shorter period as may from time to time be prescribed by the Clearing House. Where the Settlement Currency of a Contract is not the same as the Currency of the Contract, mandatory intra-day variation adjustment and margin payable on such Contract will be converted by the Clearing House from the Currency of the Contract into the Settlement Currency at the exchange rate determined by the Clearing House from such source and on such basis as it shall consider appropriate as soon as practicable after the mandatory intra-day variation adjustment and margin arose. Any exchange rate risk arising from the conversion will be borne by the HKCC Participant.

For each type of Settlement Currency, any amount of intra-day variation adjustment to be credited to the HKCC Participant, after deducting the additional cover required for Clearing House margin if any, as a result of the mandatory intra-day variation adjustment and margin at or before 12:30 p.m. will be made by the Clearing House on the same day except that no payment will be made by the Clearing House (i) if the amount to be credited, after deducting the additional cover required for Clearing House margin if any, is HK$1 million or less or its non-Hong Kong Dollar currency equivalent based on the exchange rate determined by the Clearing House; or (ii) if the credit arises from Physical Delivery Contracts after the Last Trading Day. Any amount to be credited as aforesaid will be made automatically via the DMDS to the DMDS bank account designated by the HKCC Participant. HKCC Participants shall ensure that standing instructions are given to the Clearing House for this purpose.

Notwithstanding the above, in the case of Physical Delivery Contracts after the Last Trading Day, as long as any cover provided by an HKCC Participant under section 2.6 is sufficient to satisfy a mandatory intra-day variation adjustment and margin, no funds will be collected via the DMDS. To the extent that cover provided under section 2.6 is insufficient, the shortfall will be collected via the DMDS. Furthermore, no credit arising from mandatory intra-day variation adjustment and margin calls on Physical Delivery Contracts after the Last Trading Day will be made to any HKCC Participant as mentioned above, or used to offset any Clearing House margin liabilities of the HKCC Participant.

2.9 Value Date for Delivery and Redelivery of Approved Currencies Other Than Applicable Settlement Currencies

2.9.1 Delivery of Approved Currencies Other Than Applicable Settlement Currencies

In this section 2.9.1 and in section 2.9.2, references to "Currency Amount" means the amount denominated in an approved currency referred to in section 2.6.2 and Appendix V-(5) which is recorded in an HKCC Participant's CCMS Collateral Account or its account in a bank, where appropriate, other than any amount that is denominated in an applicable Settlement Currency referred to in section 2.7(a); and references to the "Relevant Currency" means an approved currency other than an applicable Settlement Currency.

An HKCC Participant wishing to use any Currency Amount to cover calls for Clearing House margin shall notify the Clearing House by 11:00 a.m. or any time specified by the Clearing House on any Trading Day of its intention in writing or by such other means as may be acceptable to the Clearing House. The value date applicable to the transfer of any Currency Amount from an HKCC Participant's account in one bank to the Clearing House's account in another bank is normally the next Trading Day after the date on which the HKCC Participant's bank receives the HKCC Participant's instructions to effect such transfer. If that day is a bank holiday in the country where the HKCC Participant's bank is located or where the Relevant Currency is cleared, the value date shall be on the next Trading Day which is not a bank holiday in that country. Only after the receipt of the funds is confirmed by the Clearing House's bank, will the Clearing

House accept these funds as cover for the HKCC Participant's Clearing House margin liabilities and/or outstanding debit.

If the HKCC Participant's account and the Clearing House's account are maintained with the same bank in Hong Kong, the transfer may be effected within the same day, in which case the value date for the transfer of Relevant Currency amount shall be the day on which such bank receives the HKCC Participant's instructions to effect the transfer.

2.9.2 Redelivery of Approved Currencies Other Than Applicable Settlement Currencies

In this section, references to "Currency Amount" and "Relevant Currency" have the same meaning as set out in section 2.9.1.

Subject to Rule 407A, an HKCC Participant may request the redelivery of any excess Currency Amount provided to the Clearing House by notifying the Clearing House of its intention in writing or by other means acceptable to the Clearing House by 11:00 a.m. on each Business Day. In the event that the Clearing House, in its sole discretion, agrees to redeliver such excess Currency Amount, the requesting HKCC Participant's CCMS Collateral Account with the Clearing House will be debited immediately. The redelivery of the requested amount will not be effected on the same day as the date of the request as set out in sections 2.9.2.1 and 2.9.2.2 and will depend on whether it is a Bank Business Day in the country where the HKCC Participant's bank is located or where the Currency Amount is cleared. Interest on the excess Currency Amount being redelivered at such positive or negative rate may be paid or charged, and costs and charges in such amount may be levied, by the Clearing House as it may determine from time to time in accordance with Appendix V to these Clearing House Procedures until the redelivery is effected.

2.9.2.1 Japanese Yen

The value date for the redelivery of Currency Amount denominated in Japanese Yen is the second Business Day after the date on which the redelivery request is received by the Clearing House. If that day is a bank holiday in Japan, then the value date shall be on the next Bank Business Day in both Japan and Hong Kong.

2.9.2.2 Currency Amounts not denominated in Japanese Yen

The value date for the redelivery of any Currency Amount not denominated in Japanese Yen is the next Business Day after the date on which the redelivery request is received by the Clearing House. If that day is a bank holiday in the country or countries where the HKCC Participant's bank is located and where the Relevant Currency (other than Japanese Yen) is cleared, then the value date shall be on the next Bank Business Day in those countries and Hong Kong.

2.9.3 Substitution for the Settlement Currency

HKCC Participants may elect to deliver cash in a currency other than the Settlement Currency approved by the Clearing House as cover for HKCC Participants' Clearing House margin liabilities provided that the amount of Clearing House margin liabilities that is covered by approved collateral other than cash in the Settlement Currency will not exceed the maximum level(s) prescribed by the Clearing House and provided further the delivery will not result in any other requirement regarding cover for HKCC Participant's Clearing House margin liabilities not being satisfied. If cash in a currency other than the Settlement Currency approved by the Clearing House is delivered by an HKCC Participant as substitution for any Clearing House margin settled by the HKCC Participant using the Settlement Currency, such cash must be received by the Clearing House with finality by 9:30 a.m. on each Trading Day in order for the HKCC Participant to have surplus funds resulting from such cash redelivered to the HKCC Participant in the Settlement Currency for same-day value. If such cash is received after 9:30 a.m. on a Trading Day or any time on a Trading Day which is not a Business Day, any surplus in the Settlement Currency will be redelivered to HKCC Participants for value on the next Business Day.

2.10 Redelivery of Surplus Funds in the Settlement Currency or Non-Cash Collateral

Subject to Rule 407A, an HKCC Participant may request the redelivery of surplus funds in the Settlement Currency in its CCMS Collateral Account by inputting an order for redelivery via a CCMS terminal and may request the redelivery of surplus non-cash collateral in its CCMS Collateral Account by notifying the Clearing House in writing or by other means acceptable to the Clearing House by 11:00 a.m. each Business Day. It should be noted that the Clearing House will not redeliver any surplus funds or non-cash collateral to HKCC Participants on any day which is not a Business Day or if the amount of Clearing House margin liabilities that is covered by approved collateral other than cash in the Settlement Currency will exceed the maximum level(s) prescribed by the Clearing House or if the redelivery will result in any other requirement regarding cover for the HKCC Participant's Clearing House margin liability not being satisfied.

2.11 Final Settlement of Futures Contract

2.11.1 Cash Settled Contracts

All Cash Settled Futures Contracts traded on HKATS are cash settled at the Final Settlement Price on the Last Trading Day or other day as determined in accordance with the Contract Specifications. Any profits or losses on cash settlement will be credited to or debited from the relevant CCMS Collateral Account of the HKCC Participant. If there are excess funds as shown in the CCMS Collateral Account, after considering all other liabilities, a payment will be made to the HKCC Participant upon request. If there are insufficient funds as shown in the CCMS Collateral Account to cover the resulting losses, a call will be made via the DMDS. In addition, a cash settlement fee is charged on every open Futures position on the Final Settlement Day.

In respect of any Cash Settled Futures Contract whose Settlement Currency is different from the Currency of the Contract, the amount required to be settled by the HKCC Participant on the Final Settlement Day shall be converted to the Settlement Currency equivalent. The conversion rate to be applied shall be the exchange rate obtained by the Clearing House at such time on the Last Trading Day or other day and from such source as it shall consider appropriate. The Clearing House will promptly announce these rates after they are determined. HKCC Participants must use these rates for conversions at the Client account level.

2.11.2 Physical Delivery Contracts

Physical Delivery Contracts that are Futures Contracts shall be settled in accordance with the Exchange Rules, the Clearing House Rules and Chapter 2A of these Clearing House Procedures.

2.12 Exercise/Assignment of Option Contracts

2.12.1 Cash Settled Contracts

All the Option Contracts which are Cash Settled Contracts traded on HKATS are settled by cash at the Official Settlement Price on the Expiry Day as determined in accordance with the Contract Specifications. On expiry, any proceeds from the exercise and assignment for the in-the-money Options will be debited from the Option writers' CCMS Collateral Accounts and credited to the Option holders' CCMS Collateral Accounts. If there are excess funds as shown in the CCMS Collateral Account of the relevant HKCC Participant, after considering all other liabilities, a payment will be made to the HKCC Participant upon request. If there are insufficient funds as shown in its CCMS Collateral Account to cover the resulting losses, a call will be made via the DMDS. An exercise and assignment fee is levied on both the Option holder and Option writer for auto-settlement on the Expiry Day.

In respect of any Option Contract whose Settlement Currency is different from the Currency of the Contract, the amount required to be settled by the HKCC Participant on the Final Settlement Day shall be converted to the Settlement Currency equivalent. The conversion rate to be applied shall be the exchange rate obtained by the Clearing House at such time on the Expiry Day or other day and from such source as it shall consider appropriate. The Clearing House will promptly announce these rates after they are determined. HKCC Participants must use these rates for conversions at the Client account level.

2.12.2 Physical Delivery Contracts

Physical Delivery Contracts that are Option Contracts shall be settled in accordance with the Exchange Rules, the Clearing House Rules and Chapter 2A of these Clearing House Procedures.

2.13 Contract Termination

Following the occurrence of an event of default, if the Clearing House reasonably believes that it will not be able to close out, settle, sell, transfer, hedge or conclude a new Contract in respect of all or any open Contracts of the Defaulter within a reasonable time as determined by the Clearing House, the Clearing House may, without prejudice to any other rights under the Rules, invoke the contract termination process as provided for in Rule 515A in consultation with the Commission.

If the Clearing House invokes contract termination in accordance with Rule 515A, it shall determine the Identified Contracts under Rule 515A(b) and notify the relevant HKCC Participants of its determination, including details of the Identified Contracts and the effective date of termination of such Identified Contracts. Notwithstanding the above, at any time during the contract termination process but prior to the effective date of termination of the relevant Identified Contracts, the Clearing House may instead of proceeding with the termination of such open Contracts, declare the occurrence of a Clearing Service Termination Event, and in such case the Identified Contracts shall not be terminated in accordance with the contract termination process but shall be terminated in accordance with Rule 1101.

2.13.1 Calculation of termination value

The termination value for each Identified Contract shall be determined based on the Closing Quotation determined in accordance with section 2.3 of the Clearing House Procedures at the time of contract termination, or if such Closing Quotation is not available, the price shall be such price as the Clearing House may reasonably determine.

On the basis of the termination value established for each Identified Contract, the Clearing House shall, with respect to each relevant clearing account of each relevant HKCC Participant, determine the resulting net sum payable by such HKCC Participant to the Clearing House for such clearing account (the "Termination Value Payable") or the resulting net sum receivable by such HKCC Participant from the Clearing House for such clearing account (the "Termination Value Receivable"). For the avoidance of doubt, an HKCC Participant may have a Termination Value Payable in respect of one clearing account registered in its name, but a Termination Value Receivable in respect of another clearing account registered in its name. There shall be no combining or set-off between any house clearing account (including any clearing account which is not of a Client nature) and Client clearing accounts (including any clearing account which is of a Client nature).

2.13.2 Payment of Termination Value Payable and Termination Value Receivable

2.13.2.1 Termination Value Payable

The Clearing House will notify each relevant HKCC Participant of its Termination Value Payable(s) and each such HKCC Participant shall pay the specified Termination Value Payable(s) to the Clearing House in full within one Business Day or within such other time specified by the Clearing House in the notice. If the relevant HKCC Participant fails to pay the Termination Value Payable(s) within the time specified in the notice, the Clearing House may declare such HKCC Participant as a Defaulter.

In the event that the Clearing House does not receive any part of the Termination Value Payable from an HKCC Participant, the Clearing House shall take reasonable steps to recover such amount. Such HKCC Participant shall be responsible for any costs the Clearing House reasonably incurs in attempting to recover such amounts and accordingly the Termination Value Payable actually received from such HKCC Participant shall be deemed to be decreased by an amount equal to such costs, unless such costs are paid by such HKCC Participant.

2.13.2.2 Termination Value Receivable

The Clearing House will notify each relevant HKCC Participant of its Termination Value Receivable(s) upon determination.

2.13.2.3 Payment

The amount of Termination Value Payable and Termination Value Receivable will be debited from or credited to (as the case may be) the relevant CCMS Collateral Account of the HKCC Participant. To the extent that the collateral in the HKCC Participant's relevant CCMS Collateral Account is insufficient, funds will be collected via the Direct Margin Debiting System. HKCC Participants shall ensure that there are sufficient funds deposited in their DMDS bank accounts for debiting purpose.

The Termination Value Payable and Termination Value Receivable shall be settled in the Settlement Currency. To the extent that the Clearing House determines that it is not possible or reasonably practicable to make payment in the Settlement Currency, the obligations of the Clearing House shall be to make payment, in full or in part, in such other currency or currencies and at such conversion rate(s) as the Clearing House may in its absolute discretion determine to be fair and reasonable, taking into account all relevant circumstances as it may consider appropriate.

2.13.2.4 Liability of the Clearing House

Upon termination of one or more Identified Contracts under Rule 515A, all prevailing obligations of the Clearing House and the relevant HKCC Participant in respect of each such Identified Contract between them (including the obligation to deliver any underlying commodities or instruments under the Identified Contracts) shall cease and be replaced with the obligation of the Clearing House or the relevant HKCC Participant, as the case may be, to pay the other party with respect to each clearing account registered in the name of such HKCC Participant a net sum equal to the aggregate termination value of each Identified Contract between them, as determined by the Clearing House in accordance with Rule 515A and this section of the Clearing House Procedures.