First draft (Third batch – Market Risk)

CAPITAL RULES

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CAPITAL RULES

(Made by the Monetary Authority under section 98A of the Banking Ordinance (Cap. 155)

as amended by the Banking (Amendment) Ordinance 2005)

PART 1

PRELIMINARY

1. Commencement

These Rules shall come into operation on a day to be appointed by the Secretary

for Financial Services and the Treasury by notice published in the Gazette.

2. Interpretation

[(1)]   In these Rules, unless the context otherwise requires -

"back-testing" (   ), in relation to the use by an authorized institution of

the IMA to calculate its market risk, means a process whereby the actual daily

changes in the value of a portfolio of exposures of the institution are compared

with the daily VaR measures generated from the institution's internal model

applicable to that portfolio;

"bonds" (   ), in relation to the calculation of an authorized institution's

market risk, means interest-bearing or zero-coupon debt securities -

> (a)   which are acknowledgements of a debt promising payment of a
>
>   specified sum to the holder of the debt securities; and
>
> (b)   which describe a time to maturity which is, or will become,
>
>   definite;

"commodities" (   ), in relation to the calculation of an authorized

institution's market risk, means any precious metals (other than gold), base metals,

non-precious metals, energy or agricultural assets, or any other physical products

which are, or can be, traded on an exchange;

"commodity-related derivative contract" (   ), in relation to the

calculation of an authorized institution's market risk, means a futures contract,

forward contract, swap contract, option contract or similar derivative contract the

value of which is derived from the value of an underlying commodity;

"confidence interval" (   ) means a statistical range with a specified

probability that a given parameter lies within the range;

"conversion factor" (   ) means a number published by a futures

exchange for determining the price for each debt security deliverable against a

bond futures contract;

"credit-linked note" (   ) means a form of structured note with an

embedded credit default swap which allows the issuer of the note ("protection

buyer") to transfer credit risk to the buyer of the note ("protection seller");

"debt-related derivative contract" (   ), in relation to the calculation of an

authorized institution's market risk, means a futures contract, forward contract,

swap contract, option contract or similar derivative contract the value of which is

derived from the value of an underlying debt security or index representing a

basket of debt securities;

"debt securities" (   ), in relation to the calculation of an authorized

institution's market risk, means -

> (a)   fixed and floating rate bonds;
>
> (b)   negotiable certificates of deposit;
>
> (c)   non-convertible preference shares;
>
> (d)   convertible bonds, preference shares, or other instruments, which trade like bonds, certificates or shares falling within *paragraph (a)*, *(b)* or *(c)*; and
>
> (e)   commitments to buy or sell any bonds, certificates, shares or instruments falling within *paragraph (a)*, *(b)*, *(c)* or *(d)*;

"delta" (   ), in relation to an option contract, means a measure of the sensitivity of the option contract's value to changes in the value of the underlying exposure of the option contract;

"delta-plus approach" (   ), in relation to the calculation of an authorized institution's market risk capital charge for its option exposures in debt securities, interest rates, equities, foreign exchange (including gold) and commodities, means the approach set out in *Division 9* of *Part 6*;

"delta-weighted position" (   ), in relation to an option contract, means the value of the underlying exposure of the option contract multiplied by the corresponding delta;

"derivative contract" (   ) means a financial instrument the value of which depends on the value of one or more than one underlying exposure;

"equities" (   ), in relation to the calculation of an authorized institution's market risk, means -

      (a)   ordinary shares (whether voting or non-voting);

      (b)   convertible bonds, preference shares, or other instruments, which trade like shares falling within *paragraph (a)*; and

      (c)   commitments to buy or sell any shares, bonds or instruments falling within *paragraph (a)* or *(b)*;

"equity-related derivative contract" (   ), in relation to the calculation of an authorized institution's market risk, means a futures contract, forward contract, swap contract, option contract or similar derivative contract the value of which is derived from the value of an underlying equity or a stock index;

"exceptions" (   ), in relation to back-testing by an authorized institution, means those instances in which the actual daily losses in the value of a portfolio of exposures of the institution are above the daily VaR measures generated from the institution's internal model applicable to that portfolio;

"exchange rate-related derivative contract" (   ), in relation to the calculation of an authorized institution's market risk, means a futures contract, forward contract, swap contract, option contract or similar derivative contract the value of which is derived from the value of an underlying currency (including gold);

"exempt" (   ), in relation to an authorized institution, means the institution is not required to calculate its market risk in accordance with *Part 6* or *6A* by virtue of an exemption under *section 10(1)*;

"fair value" (   ), in relation to a position of an authorized institution for the calculation of market risk, means -

    (a)   subject to *paragraph (b)*, the valuation by the institution of the position with reference to current market prices;

    (b)   in so far as the position relates to derivative contracts for which there are no readily available current market prices, the valuation by the institution of the derivative contracts based on -

        (i)   appropriate models; or

        (ii)   discounted cash flows using current market data;

"gamma" (   ), in relation to an option contract, means a measure of the rate of change in delta of the option contract to changes in the value of the underlying exposure of the option contract;

"general market risk" (   ), in relation to an authorized institution, means the risk of loss, arising from changes in interest rates, exchange rates, equity prices or commodity prices, to the institution's portfolio of exposures arising from its -

    (a)   trading book positions in debt securities, debt-related derivative contracts, interest rate derivative contracts, equities and equity-related derivative contracts; and

    (b)   positions in foreign exchange, exchange rate-related derivative contracts, commodities and commodity-related derivative contracts;

"HKD" (   ) means Hong Kong dollar;

"IMA" (   ), in relation to the calculation of an authorized institution's market risk, means the internal models approach;

"interest rate derivative contract" (   ), in relation to the calculation of an authorized institution's market risk, means a futures contract, forward contract, swap contract, option contract or similar derivative contract -

    (a)   the value of which varies in response to changes in interest rates; but

    (b)   the underlying exposure of which is neither a debt security nor an index representing a basket of debt securities;

"internal model" (   ), in relation to the use by an authorized institution
    of the IMA to calculate its market risk, means a statistical model used by the
    institution to measure the institution's market risk exposures;

"internal models approach" (   ), in relation to the calculation of an
    authorized institution's market risk, means the method of calculating that risk set
    out in *Part 6A*;

"investment grade" (   ) means credit quality grade 3 or lower derived
    from mapping the ECAI issuer rating of an issuer, being a sovereign, of any debt
    security, or from mapping the ECAI issue specific rating of any debt security
    issued by a bank, securities firm or corporate, to a scale of uniform credit quality
    grades set out in the tables in *Schedule [..]*;

"market risk capital charge" (   ), in relation to an authorized institution,
    means the amount of the institution's capital required to cover specific risk and
    general market risk;

"marking-to-model" (   ) means an approach to valuing an exposure, or a
    portfolio of exposures, where the value is benchmarked, extrapolated or
    calculated from an internal model based on a set of market data;

"matched positions" (   ), in relation to the calculation of an authorized
    institution's market risk, means 2 opposite positions held by the institution where
    the risk of loss arising from either position can be offset by the other position;

"maturity method" (   ) means the approach set out in *sections 20* and
    20A for the calculation of the market risk capital charge for general market risk in
    respect of interest rate exposures;

"parent bank" (   ), in relation to an authorized institution, means that

bank, falling within *paragraph (b)* of the definition of "bank", of which the

institution is a subsidiary;

"position" (   ), in relation to an authorized institution, means the holding

or disposal by the institution of an exposure, or a portfolio of exposures, resulting

in risk being taken by the institution on market price movements in respect of that

exposure, or portfolio of exposures, as the case may be;

"recognized exchange" (   ) means -

    (a)   a recognized stock exchange; or

    (b)   a recognized futures exchange;

"recognized futures exchange" (   ) means a futures exchange listed in

Part 2 of Schedule 1 to the Securities and Futures Ordinance (Cap. 571);

"recognized stock exchange" (   ) means a stock exchange listed in Part

3 of Schedule 1 to the Securities and Futures Ordinance (Cap. 571);

"reference entity" (   ), in relation to a credit derivative contract, means

the entity upon whose credit status that contract is based;

"reference obligation" (   ), in relation to a credit derivative contract,

means the specified obligation -

    (a)   of a specified reference entity in that contract; and

    (b)   pursuant to which the basis of the settlement concerned is

           determined;

"risk category" (   ), in relation to the use by an authorized institution of

the STM to calculate its market risk, means the category of the institution's

market risk exposures which are at risk from -

      (a)   changes in debt security prices or interest rates;

      (b)   changes in exchange rates;

      (c)   changes in equity prices; or

      (d)   changes in commodity prices;

"simplified approach" (   ), in relation to the calculation of an authorized

institution's market risk capital charge for its option exposures in debt securities,

interest rates, equities, foreign exchange (including gold) and commodities, means

the approach set out in *Division 8* of *Part 6*;

"specific risk" (   ), in relation to an authorized institution, means the

risk of loss, arising from changes in the price of debt securities, debt-related

derivative contracts, equities or equity-related derivative contracts, owing to

factors relating to the issuers of debt securities or equities, or the issuers of the

underlying debt securities or equities, as the case may be, to the institution's

portfolio of exposures arising from it's trading book positions in those debt

securities, debt-related derivative contracts, equities or equity-related derivative

contracts, as the case may be;

"specific risk-free security" (   ) means a hypothetical debt security, free

of specific risk, used for the calculation of the market risk capital charge for

general market risk relating to derivative contracts;

"standardized approach" (   ), in relation to the calculation of an

    authorized institution's market risk, means the method of calculating that risk set

    out in *Part 6*;

"STM" (   ), in relation to the calculation of an authorized institution's

    market risk, means the standardized approach;

"stress-testing" (   ), in relation to an authorized institution, means the

    use by the institution of a risk management technique to evaluate the potential

    impact on the institution of a specific event, or movements in a set of financial

    variables, or both, under stressed market conditions;

"trading day" (   ), in relation to the use by an authorized institution of

    the IMA to calculate its market risk, means a day on which a financial market is

    open for trading;

"USD" (   ) means United States dollar;

"value-at-risk" (   ), in relation to a portfolio of exposures, means a

    measure of the worst expected loss on the portfolio resulting from market

    movement over a period of time within a given confidence interval;

"VaR" (   ) means value-at-risk;

"vega" (   ), in relation to an option contract, means a measure of the

    sensitivity of the option contract's value to changes in the volatility of the value of

    the underlying exposure of the option contract.

PART 2

APPLICATION OF THESE RULES

3.   Calculation of market risk

An authorized institution (other than an exempt authorized institution) shall -

(a)   subject to *paragraphs (b)* and *(c)*, only use the STM to calculate its market risk;

(b)   subject to *paragraph (c)* and *section 5*, only use the IMA to calculate its market risk if it has the approval to do so under *section 4(2)(a)*;

(c)   if the institution is the subsidiary of a bank referred to in *paragraph (b)* of the definition of "bank", only use the approach adopted by its parent bank to calculate its market risk if it has the approval to do so under *section 7(2)(a)*.

4. **Application by authorized institution for approval to use IMA to calculate its market risk**

(1)   An authorized institution may make an application to the Monetary Authority for approval to calculate its market risk by using the IMA.

(2)   Subject to *subsection (3)* and *section 5*, the Monetary Authority shall determine an application under *subsection (1)* from an authorized institution by -

    (a)   granting approval to the institution to calculate its market risk by using the IMA; or

    (b)   refusing to grant such approval.

(3)   Without limiting the generality of *subsection (2)(b)*, the Monetary Authority shall refuse to grant approval to an authorized institution to use the IMA to calculate its market risk if any one or more of the criteria specified in *Schedule 1* applicable to or in relation to the institution are not fulfilled with respect to the institution.

(4)   Where an authorized institution uses the IMA to calculate its market risk, then the institution shall not, without the prior consent of the Monetary Authority, make any significant change to any internal model which was the subject of the approval under *subsection (2)(a)* which gave rise to the institution using the IMA to calculate its market risk.

5. **Monetary Authority may grant approval to authorized institution to use IMA to calculate its market risk for parts only of its business, etc.**

(1) The Monetary Authority may grant an approval under *section 4(2)(a)* to an authorized institution to use the IMA to calculate its market risk -

      (a) in respect of general market risk, specific risk, or general market risk and specific risk, for -

            (i) such risk categories as are specified in the approval; or

            (ii) such local or overseas business of the institution as is specified in the approval; and

      (b) beginning on such date, or the occurrence of such event, as is specified in the approval.

(2) For the avoidance of doubt, it is hereby declared that an authorized institution which has an approval under *section 4(2)(a)* falling within *subsection (1)* must use the STM to calculate its market risk in every case where it does not have approval to use the IMA to calculate its market risk.

6. **Action that may be taken by Monetary Authority if authorized institution using IMA to calculate its market risk no longer fulfils criteria specified in *Schedule 1***

(1) Where -

   (a) an authorized institution uses the IMA to calculate its market risk ; and

   (b) the Monetary Authority is satisfied that, if the institution were to make a fresh application under *section 4(1)* for approval to use the IMA to calculate its market risk, such approval would be refused by virtue of *section 4(3)*,

then the Monetary Authority may, by notice in writing given to the institution -

   (c) require the institution to use the STM to calculate its market risk instead of the IMA -

      (i) in respect of all of its business, or parts of its business, as specified in the notice; and

      (ii) beginning on such date, or the occurrence of such event, as is specified in the notice;

   (d) advise the institution that the Monetary Authority is considering exercising the Monetary Authority's power under section 101 of the Ordinance to vary the capital adequacy ratio of the institution by increasing it;

(e) require the institution to calculate its market risk capital charge by the use of such higher multiplication factor as the Monetary Authority specifies pursuant to *section 41(2)*; or

(f) require the institution to adopt such measures specified in the notice which, in the opinion of the Monetary Authority, will cause the institution to cease to fall within *paragraph (b)* or will otherwise mitigate the effect of the institution falling within that paragraph.

(2) An authorized institution shall comply with a requirement referred to in *subsection (1)(c)*, *(e)* or *(f)* of a notice given to it under *subsection (1)*.

(3) For the avoidance of doubt, it is hereby declared that the criteria specified in *Schedule 1* are also applicable to and in relation to an authorized institution using the IMA to calculate its market risk in respect of the use by it of an internal model the subject of a significant change referred to in *section 4(4)* (and whether or not the institution has, in respect of that change, been given the prior consent referred to in *section 4(4)*), and *subsection (1)(b)* and the other provisions of this section shall apply to the institution accordingly.

7. **Application by authorized institution for approval to use approach adopted by parent bank to calculate market risk**

(1) An authorized institution which is the subsidiary of a bank referred to in *paragraph (b)* of the definition of "bank" may make an application to the Monetary Authority for approval to calculate its market risk by using the approach adopted by its parent bank to calculate market risk.

(2) Subject to *subsection (3)*, the Monetary Authority shall determine an application under *subsection (1)* from an authorized institution by -

      (a) granting approval to the institution to calculate its market risk by using the approach adopted by its parent bank to calculate market risk; or

      (b) refusing to grant such approval.

(3) Without limiting the generality of *subsection (2)(b)*, the Monetary Authority shall refuse to grant approval to an authorized institution to calculate its market risk by using the approach adopted by its parent bank to calculate market risk unless the institution satisfies the Monetary Authority that -

      (a) that approach is not materially different from the STM or IMA, or any combination of both, to calculate the market risk of an authorized institution; and

      (b) the parent bank is adequately supervised on a consolidated basis by the relevant banking supervisory authority (including so supervised in respect of capital adequacy, concentration of exposures and liquidity).

8. **Action that may be taken by Monetary Authority if Monetary Authority ceases to be satisfied as specified in *section 7(3)*, etc.**

(1)   Where -

      (a)   an authorized institution is using the approach of its parent bank to calculate market risk; and

      (b)   the Monetary Authority is satisfied that, if the institution were to make a fresh application under *section 7(1)* for approval to use that approach to calculate its market risk, such approval would be refused -

            (i)   by virtue of *section 7(3)*; or

            (ii)   because the entity which was the parent bank of the institution has ceased to be the parent bank of the institution,

then the Monetary Authority may, by notice in writing given to the institution, revoke the approval concerned under *section 7(2)(a)* beginning on such date, or the occurrence of such event, as is specified in the notice.

(2)   Immediately upon the revocation under *subsection (1)* of an approval under *section 7(2)(a)* granted to an authorized institution, *section 3(a)* and *(b)* shall apply to the institution.

9.	**Authorized institution which uses IMA to calculate market risk requires Monetary Authority's prior consent to use STM instead of IMA**

Subject to *section 6(1)(c)*, an authorized institution which uses the IMA to calculate its market risk in respect of all or any part of its business pursuant to an approval under *section 4(2)(a)* shall not, in respect of such business, use the STM to calculate its market risk instead of the IMA except with the prior consent of the Monetary Authority.

10. **Exemption from** *section 3*

(1)   The Monetary Authority shall exempt an authorized institution (other than an authorized institution using the IRB to calculate its credit risk) from *section 3* if the institution satisfies the Monetary Authority that -

(a)   the institution's positions -

(i)   never exceed 5% of its total on-balance sheet and off-balance sheet items; or

(ii)   only sporadically exceed 5%, and never exceed 6%, of its total on-balance sheet and off-balance sheet items; and

(b)   the institution's positions -

(i)   never exceed $50 million; or

(ii)   only sporadically exceed $50 million and never exceed $60 million.

(2)   For the purposes of *subsection (1)* -

(a)   the amount of an authorized institution's positions is calculated by aggregating -

(i)   the institution's total gross (long plus short) positions in debt securities and debt-related derivative contracts;

(ii)   the mean average of the institution's total long and total short positions in interest rate derivative contracts;

(iii)   the institution's total gross (long plus short) positions in equities and equity-related derivative contracts;

(iv) the total net open position of the institution in foreign exchange exposures as set out in *section 28(1)*; and

(v) the institution's total gross (long plus short) positions in commodities and commodity-related derivative contracts; and

(b) an authorized institution's total on-balance sheet and off-balance sheet items are derived by -

(i) aggregating the institution's total liabilities, total on-balance sheet assets less specific and collective provisions, and the principal amount of all of the institution's off-balance sheet exposures; and

(ii) deducting therefrom the institution's paid-up capital, reserves, current profit and loss, and perpetual or term subordinated debt.

(3) The positions applicable to an authorized institution for the purposes of *subsections (1)* and *(2)* shall be those positions as on -

(a) subject to *paragraph (b)*, the last calendar day of each of the 4 consecutive calendar quarters of the same calendar year; or

(b) the last calendar day of such other period, being not more than 4 consecutive calendar quarters, as the Monetary Authority specifies in writing in respect of the institution.

[(4) Where an authorized institution is exempted under this section from *section 3*, the institution -

(a)   shall not, except with the prior consent of the Monetary Authority, include market risk in the calculation of its capital adequacy ratio (and the definition of "capital adequacy ratio" shall be construed accordingly);

(b)   shall give notice in writing to the Monetary Authority of -

   (i)   an increase in its positions which causes it, or may cause it, to cease to fall within *paragraphs (a)* and *(b)* of *subsection (1)*; or

   (ii)   an intention to increase its positions which will cause it, or may cause it, to cease to fall within *paragraphs (a)* and *(b)* of *subsection (1)*; and

(c)   shall, in the case of any of its market risk exposures that can also be treated as credit risk exposures of the institution, apply the provisions of [*Part 4*] to those market risk exposures.]

11. **Revocation of exemption from** *section 3*

    (1)   Where -

        (a)   an authorized institution is exempted under *section 10(1)* from *section 3*; and

        (b)   the Monetary Authority is satisfied that, if the institution were not already so exempted, such exemption would be refused by virtue of the institution failing to satisfy the Monetary Authority as specified in *section 10(1)*,

then the Monetary Authority may, by notice in writing given to the institution, revoke the exemption concerned under *section 10(1)* beginning on such date, or the occurrence of such event, as is specified in the notice.

    (2)   *Section 3* shall apply to an authorized institution immediately upon the revocation under this section of an exemption under *section 10(1)*.

PART 3

DETERMINATION OF CAPITAL BASE

(Not included in this set)

PART 4

CALCULATION OF CREDIT RISK

(Not included in this set)

PART 5

CALCULATION OF OPERATIONAL RISK

(Not included in this set)

PART 6

STANDARDIZED APPROACH TO CALCULATION OF MARKET RISK

Division 1 - **General**

11A. Application of *Part 6*, etc.

(1)   This Part shall apply to an authorized institution which uses the STM to calculate its market risk.

(2)   *Divisions 3*, *4*, *5* and *6* shall not apply to an authorized institution's option exposures in debt securities, interest rates, equities, foreign exchange (including gold) and commodities except to the extent, if any, specified in *Division 7*, *8* or *9*.

12.   Positions to be used to calculate market risk

(1)   Subject to *subsections (2)* and *(4)*, an authorized institution shall calculate its market risk to take into account the risk of losses arising from fluctuations in the value of its positions held -

> (a)   for trading purposes in -
>
>> (i)   debt securities;
>>
>> (ii)   debt-related derivative contracts;
>>
>> (iii)   interest rate derivative contracts;
>>
>> (iv)   equities; and
>>
>> (v)   equity-related derivative contracts; and
>
> (b)   in -
>
>> (i)   foreign exchange;
>>
>> (ii)   exchange rate-related derivative contracts;
>>
>> (iii)   commodities; and
>>
>> (iv)   commodity-related derivative contracts.

(2)   An authorized institution shall not include a position in the calculation of its market risk if the position is -

> (a)   a recognized credit derivative contract in the institution's trading book as a hedge to a credit exposure in the banking book; or
>
> (b)   an exposure required to be deducted from the institution's capital base pursuant to *Part 3*.

(3)   An authorized institution shall value its positions, whether based on a marking-to-market or marking-to-model methodology -

(a) in a prudent manner; and

(b) without prejudice to the generality of *paragraph (a)*, by taking into account the liquidity of the positions.

(4) Where the Monetary Authority is satisfied that an authorized institution has contravened *subsection (3)*, the Monetary Authority may, by notice in writing given to the institution, require the institution to reduce its positions -

(a) in respect of all of its positions, or such class of its positions, as specified in the notice;

(b) to the limit, if any, specified in the notice; and

(c) beginning on such date, or the occurrence of such event, as is specified in the notice.

[(5) Provision not used.]

(6) An authorized institution shall comply with the requirement of a notice given to it under *subsection (4)*.

(7) Where a position of an authorized institution does not fall into *subsection (1)* by virtue of *subsection (2)(a)*, then the institution shall include that position in the calculation of its credit risk.

(8) For the avoidance of doubt, it is hereby declared that nothing in this section shall operate to prejudice the generality of the Monetary Authority's powers under Part XVII of the Ordinance (including any case where the Monetary Authority is considering exercising the power under section 101 of the Ordinance in respect of an authorized institution that the Monetary Authority is satisfied has contravened *subsection (3)*).

[13.   Provision not used]

14. **Calculation of market risk capital charge for each risk category**

(1) An authorized institution shall calculate in accordance with this Part the market risk capital charge for its exposures falling into each risk category.

(2) Subject to *subsection (3)*, an authorized institution shall use the fair value of its positions to calculate the market risk capital charge.

(3) Where the apparent notional amount of a leveraged instrument held by an authorized institution is different from the actual exposure amount of the instrument, then the institution shall use the actual exposure amount of the instrument for the purposes of this Part.

15.   Calculation of risk-weighted amount

An authorized institution shall calculate its risk-weighted amount for market risk by multiplying the aggregate of the market risk capital charge as calculated pursuant to *section 14* by 12.5.

[*Division 2* - Division not used]

Division 3 - **Calculation of market risk capital charge for interest rate exposures**

[16.   Calculation of market risk capital charge

An authorized institution shall, for the purposes of calculating the market risk capital charge for interest rate exposures -

(a)   calculate in accordance with *section 17* the market risk capital charge for the specific risk of each of its trading book positions (whether long or short) in debt securities and debt-related derivative contracts; and

(b)   calculate in accordance with *section 20* the market risk capital charge for the general market risk of -

(i)   its trading book positions (whether long or short) in debt securities, debt-related derivative contracts and interest rate derivative contracts;

(ii)   the interest rate exposures arising from its trading book positions (whether long or short) in equity-related derivative contracts; and

(iii)   the interest rate exposures arising from its positions (whether long or short) in commodity-related derivative contracts.

17. Calculation of market risk capital charge for specific risk

(1) Subject to *subsections (2)* to *(8)*, an authorized institution shall for the purposes of calculating the market risk capital charge for specific risk for its positions (whether long or short) in debt securities and debt-related derivative contracts -

(a) assign those positions into the categories specified in *column 1* of *Table 1*, the credit quality grades specified in *column 2* of that table and, if applicable, the residual maturities specified in *column 3* of that table;

(b) multiply those positions by the appropriate market risk capital charge percentage for specific risk specified in *column 3* of that table; and

(c) calculate the total market risk capital charge for specific risk as the sum of the market risk capital charge for specific risk for each of those positions.

Table 1

Market risk capital charge for specific risk

Column 1	Column 2	Column 3
Categories	**Credit quality grade**	**Market risk capital charge percentage for specific risk**
Sovereign	1	0%
	2 or 3	0.25% (residual maturity 6 months or less)
		1.00% (residual maturity over 6 months and up to and including 24 months)
		1.60% (residual maturity over 24 months)
	4 or 5	8.00%
	6	12.00%
	Unrated	8.00%
Qualifying		0.25% (residual maturity 6 months or less)
		1.00% (residual maturity over 6 months and up to and including 24 months)
		1.60% (residual maturity over 24 months)
Non-qualifying	4	8.00%
	5	12.00%
	Unrated	8.00%

(2)   An authorized institution shall not offset between positions referred to in

subsection (1) for the purposes of that subsection except long and short positions in

identical issues (including positions in derivative contracts) with the same issuer, coupon, currency and maturity.

(3)   For the purposes of *subsection (1)*, an authorized institution -

(a)   if -

(i)   the issuer of any debt securities referred to in that subsection or, in the case of debt-related derivative contracts referred to in that subsection, the issuer of the underlying debt securities, has a current ECAI issuer rating; or

(ii)   any debt securities referred to in that subsection or, in the case of debt-related derivative contracts referred to in that subsection, any underlying debt securities, have a current ECAI issue specific rating,

shall, subject to *paragraphs (b)*, *(c)* and *(d)*, map the ECAI issuer rating or the ECAI issue specific rating, as the case may be, to a scale of uniform credit quality grades in accordance with the tables set out in *Schedule [..]*;

(b)   [subject to *paragraph (f)*,] in the case of debt securities referred to in that subsection issued by a sovereign or, in the case of debt-related derivative contracts referred to in that subsection where the underlying debt securities are issued by a sovereign, shall determine the credit quality grade to be used by reference to the current ECAI issuer rating of that sovereign;

(c)   [subject to *paragraph (e)*,] in the case of debt securities or debt-related derivative contracts referred to in that subsection that do not fall within *paragraph (b)*, shall determine the credit quality grade to be used by reference to, in the case of debt securities, the current ECAI issue specific rating of the debt securities or, in the case of debt-related derivative contracts, the current ECAI issue specific rating of the underlying debt securities;

(d)   may only assign a risk-weight of 0% to -

    (i)   debt securities referred to in that subsection issued by a sovereign with a credit quality grade of 2 or 3 as determined under *paragraph (b)*; or

    (ii)   debt-related derivative contracts referred to in that subsection in respect of which the underlying debt securities are issued by a sovereign with a credit quality grade of 2 or 3 as determined under *paragraph (b)*,

if, and only if, those debt securities or, in the case of those debt-related derivative contracts, those underlying debt securities, are denominated in the domestic currency of that sovereign and funded by the institution in that currency;

(e)   shall treat as unrated any debt securities or, in the case of debt-related derivative contracts, the underlying debt securities, referred to in *paragraph (c)* which do not have a current ECAI issue specific rating;

(f)   shall treat as unrated the issuer of any debt securities or, in the case of debt-related derivative contracts, the issuer of any underlying debt securities, referred to in *paragraph (b)* which does not have a current ECAI issuer rating.

(4)   An authorized institution may only include in the qualifying category in

Table 1 -

(a)   debt securities issued by multilateral development banks and debt-related derivative contracts where the underlying debt securities are issued by multilateral development banks;

(b)   debt securities, not falling within *paragraph (a)*, that are rated investment grade and debt-related derivative contracts where the underlying debt securities, not falling within *paragraph (a)*, are rated investment grade; and

(c)   if the institution uses the IRB to calculate its credit risk, unrated debt securities, and debt-related derivative contracts if the underlying debt securities are unrated, where -

(i)   the debt securities, or the underlying debt securities, as the case may be, are assessed as equivalent to investment grade under the institution's internal rating system on the basis that the debt securities, or the underlying debt securities, as the case may be, have a one-year probability of default of not more than the one-year probability of default implied

by the long-run average one-year probability of default of a debt security rated investment grade; and

(ii) the issuer of the debt securities, or the issuer of the underlying debt securities, as the case may be -

(A) has any debt or equity securities listed on a recognized stock exchange; or

(B) is subject to supervisory arrangements regarding the maintenance of adequate capital to support its business activities comparable to those prescribed for authorized institutions under the Ordinance and these Rules.

(5) Where any debt securities referred to in this section or, in the case of any debt-related derivative contracts referred to in this section, any underlying debt securities, have more than one current ECAI issue specific rating assigned to them, then an authorized institution shall, for the purposes of this section, apply *section [..]*, with all necessary modifications, to the ECAI issue specific ratings concerned to ascertain which one of them shall be used for those purposes.

(5A) Where the issuer of any debt securities referred to in this section or, in the case of any debt-related derivative contracts referred to in this section, the issuer of any underlying debt securities, has more than one current ECAI issuer rating assigned to the issuer, then an authorized institution shall, for the purposes of this section, apply *section [..]*, with all necessary modifications, to the ECAI issuer ratings concerned to ascertain which one of them shall be used for those purposes.

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[(6)   Where the Monetary Authority is satisfied that any of an authorized institution's market risk capital charge for specific risk is underestimated for any non-qualifying debt securities (being debt securities not falling within *subsection (4)*) or debt-related derivative contracts (being debt-related derivative contracts not falling within *subsection (4)*) referred to in this section that have a high yield to redemption relative to debt securities or debt-related derivative contracts falling within *subsection (3)(b)*, then the Monetary Authority may, by notice in writing given to the institution -

(a)   require the institution to apply a higher market risk capital charge for specific risk to the first-mentioned debt securities or debt-related derivative contracts, as the case may be, as specified in the notice;

(b)   prohibit offsetting, for the purposes of calculating the institution's market risk capital charge for general market risk, between the first-mentioned debt securities or debt-related derivative contracts and any other debt securities or debt-related derivative contracts.]

(7)   An authorized institution shall comply with the requirements of a notice given to it under *subsection (6)*.

(8)   This section shall not apply to interest rate derivative contracts.

[(9)   In this section, "sovereign" (   ) includes a sovereign foreign public sector entity.]

[18. Provision not used.]

[19.   Provision not used.]

20.   Calculation of market risk capital charge for general market risk

(1)   An authorized institution shall calculate the market risk capital charge for general market risk by -

(a)   multiplying its long and short positions in interest rate exposures in each time band within the maturity ladder constructed in accordance with *section 20A* by the appropriate risk-weight as set out in *Table 3*;

(b)   offsetting the total risk-weighted long and short positions in each time band to produce a single net risk-weighted long or short position for each time band;

(c)   levying a 10% market risk capital charge ("vertical disallowance") on the matched position (being the lesser of the absolute values of the total risk-weighted long and short positions) of each time band, whether long or short;

(d)   subject to *subsection (2)* -

(i)   first conducting a round of horizontal offsetting between the net risk-weighted positions for the time bands in each of the 3 zones subject to a scale of disallowance factors, expressed as a fraction of the matched positions, as set out in *Table 2*;

(ii)   then conducting a round of horizontal offsetting between the total net risk-weighted positions for each zone across the 3 zones (being between adjacent zones and between

zone 1 and zone 3) subject to a scale of disallowance factors, expressed as a fraction of the matched positions, as set out in *Table 2*; and

(e) applying 100% market risk capital charge for general market risk to the remaining net risk-weighted long or short position in interest rate exposures after carrying out the offsetting referred to in *paragraphs (b)* and *(d)*.

Table 2

Horizontal disallowance

Zones	Time band		Horizontal disallowance factors		
	Coupon of not less than 3% per annum	Coupon of less than 3% per annum	Within the zone	Between adjacent zones	Between zones 1 and 3
Zone 1	≤ 1 month > 1 to 3 months > 3 to 6 months > 6 to 12 months	≤ 1 month > 1 to 3 months > 3 to 6 months > 6 to 12 months	40%	40%	100%
Zone 2	> 1 to 2 years > 2 to 3 years > 3 to 4 years	> 1.0 to 1.9 years > 1.9 to 2.8 years > 2.8 to 3.6 years	30%		
Zone 3	> 4 to 5 years > 5 to 7 years > 7 to 10 years > 10 to 15 years > 15 to 20 years > 20 years	> 3.6 to 4.3 years > 4.3 to 5.7 years > 5.7 to 7.3 years > 7.3 to 9.3 years > 9.3 to 10.6 years > 10.6 to 12 years > 12 to 20 years > 20 years	30%	40%	

(2)   For the purposes of -

(a)　　an authorized institution conducting horizontal offsetting under *subsection (1)(d)(i)*, the institution shall -

　　(i)　　calculate the net risk-weighted long or short position of each time band by separately adding -

　　　　(A)　　long positions to long positions; and

　　　　(B)　　short positions to short positions;

　　(ii)　　in the case of long and short positions in the same zone, subject the matched position (being the lesser of the absolute values of the total net risk-weighted long and short positions for the zone) to a market risk capital charge based on a horizontal disallowance factor of 40% for zone 1 and 30% for zone 2 and zone 3; and

　　(iii)　　offset the positions of time bands within the same zone to arrive at a total net risk-weighted long or short position for each zone;

(b)　　an authorized institution conducting horizontal offsetting under *subsection (1)(d)(ii)*, the institution shall -

　　(i)　　in the case of opposite positions between adjacent zones (being one zone having a total net risk-weighted long position while another zone has a total net risk-weighted short position), subject the matched position (being the lesser of the absolute values of the total net risk-weighted long position in one zone and the total net risk-weighted

short position in another zone) to a market risk capital charge based on a horizontal disallowance factor of 40%;

(ii)   net off any offsetting positions between adjacent zones creating a matched position to which the horizontal disallowance factor has been applied and a total net risk-weighted long or short position;

(iii)   subject to *subparagraph (iv)*, in the case of opposite positions between zone 1 and zone 3, subject the matched position (being the lesser of the absolute values of the total net risk-weighted long or short position in zone 1 and the total net risk-weighted short or long position respectively in zone 3) to a market risk capital charge based on a horizontal disallowance factor of 100%; and

(iv)   in order to calculate the horizontal disallowance between zone 1 and zone 3 for the purposes of *subparagraph (iii)* -

(A)   if the total net risk-weighted positions of zone 1 and zone 2 are netted, treat the net position as the remaining position of zone 1;

(B)   if the total net risk-weighted positions of zone 2 and zone 3 are netted, treat the net position as the remaining position of zone 3.

(3)   An authorized institution shall derive the market risk capital charge for general market risk for its portfolio of interest rate exposures by aggregating -

(a)   the market risk capital charge for the remaining net risk-weighted long or short position calculated in accordance with *subsection (1)(e)*;

(b)   the total market risk capital charge for vertical disallowance for all time bands calculated in accordance with *subsection (1)(c)*; and

(c)   the total market risk capital charge for horizontal disallowance for individual zones and across different zones calculated in accordance with *subsection (1)(d)*.

(4)   An authorized institution shall calculate the market risk capital charge for general market risk for each currency separately and then aggregate them for different currencies.

20A. Construction of maturity ladder

(1)   Subject to *subsections (2)* to *(6)*, for the purposes of making the calculation required by *section 20(1)*, an authorized institution shall -

    (a)   slot all of its long or short positions in debt securities, debt-related derivative contracts, interest rate derivative contracts and interest rate exposures arising from equity-related derivative contracts and commodity-related derivative contracts with a coupon of not less than 3% per annum into a maturity ladder comprising the 13 time bands set out in *columns 1* and *2* of *Table 3*; and

    (b)   slot all of its long or short positions in debt securities, debt-related derivative contracts, interest rate derivative contracts and interest rate exposures arising from equity-related derivative contracts and commodity-related derivative contracts with a coupon of less than 3% per annum into a maturity ladder comprising the 15 time bands set out in *columns 1* and *3* of *Table 3*.

Table 3

Time bands and risk-weights

Column 1	Column 2	Column 3	Column 4
Time band	**Coupon of not less than 3% per annum**	**Coupon of less than 3% per annum**	**Risk-weight**
1	≤ 1 month	≤ 1 month	0.00%
2	> 1 to 3 months	> 1 to 3 months	0.20%
3	> 3 to 6 months	> 3 to 6 months	0.40%
4	> 6 to 12 months	> 6 to 12 months	0.70%
5	> 1 to 2 years	> 1.0 to 1.9 years	1.25%
6	> 2 to 3 years	> 1.9 to 2.8 years	1.75%
7	> 3 to 4 years	> 2.8 to 3.6 years	2.25%
8	> 4 to 5 years	> 3.6 to 4.3 years	2.75%
9	> 5 to 7 years	> 4.3 to 5.7 years	3.25%
10	> 7 to 10 years	> 5.7 to 7.3 years	3.75%
11	> 10 to 15 years	> 7.3 to 9.3 years	4.50%
12	> 15 to 20 years	> 9.3 to 10.6 years	5.25%
13	> 20 years	> 10.6 to 12 years	6.00%
14		> 12 to 20 years	8.00%
15		> 20 years	12.50%

(2) For the purposes of *subsection (1)*, an authorized institution shall -

    (a) slot fixed rate exposures into the time bands set out in *Table 3* in accordance with their respective residual maturities;

(b)   slot floating rate exposures into the time bands set out in *Table 3* in accordance with their respective residual term to the next interest fixing date;

(c)   regard interest rate exposures arising from derivative contracts as long and short positions and slot such positions into the time bands set out in *Table 3* such that -

    (i)   interest rate futures contracts, interest rate forward contracts and forward rate agreements are treated as a combination of the long and short positions in a zero coupon specific risk-free security whereby -

        (A)   a long or short position in an interest rate futures contract or interest rate forward contract is to be regarded as -

            (I)   a short or long position respectively with a maturity being the remaining period up to and including the delivery date of the underlying interest rate contract; and

            (II)   a long or short position respectively with a maturity being the remaining period up to and including the delivery date of the underlying interest rate contract plus the contract period of the underlying interest rate contract; or

(B)   a sold or purchased forward rate agreement is to be regarded as -

    (I)   a long or short position respectively with a maturity being the remaining period up to and including the settlement date of the agreement plus the contract period of the agreement; and

    (II)   a short or long position respectively with a maturity being the remaining period up to and including the settlement date of the agreement;

(ii)   bond futures contracts and bond forward contracts are treated as a combination of the long and short positions in a zero coupon specific risk-free security and the underlying bond whereby -

    (A)   a long or short position in a bond futures contract or bond forward contract is to be regarded as -

        (I)   a short or long position respectively in a zero coupon specific risk-free security with a maturity being the remaining period up to and including the delivery date of the underlying bond; and

(II)   a long or short position respectively in the

underlying bond with a maturity being the

remaining period up to and including the

delivery date of the underlying bond plus the

tenor of the underlying bond;

(iii)   interest rate swap contracts under which the institution

receives or pays floating rate interest and pays or receives

respectively fixed rate interest are regarded as -

(A)   a long or short position respectively in a floating

rate instrument with a maturity being the remaining

period up to and including the next interest fixing

date; and

(B)   a short or long position respectively in a fixed rate

instrument with a maturity being the remaining

period up to and including the maturity date of the

swap contract concerned.

(3)   For the purposes of *subsection (1)*, an authorized institution -

(a)   may exclude from the maturity ladder long and short positions in

identical instruments having the same issuer, coupon, currency and

maturity;

(b)   may fully offset a matched position in a futures contract or forward

contract and the underlying exposure except that the position in a

zero coupon specific risk-free security referred to in *subsection*

(2)(c)(ii)(A)(I) shall be included in the calculation of the institution's market risk capital charge for general market risk.

[(4)   For the purposes of *subsection (1)*, an authorized institution -

(a)   in the case of a futures contract or forward contract comprising a range of deliverable bonds, may only offset positions in the contract and the underlying bond which is readily identifiable as the most profitable for the institution with a short position to deliver;

(b)   shall, after offsetting a futures contract or forward contract and the underlying bond pursuant to *paragraph (a)*, record the amount of the remaining long position of the contract, up to and including the delivery date of the contract, as the face value of the contract divided by the conversion factor applicable to the contract and multiplied by the current market price of that bond.]

(5)   Subject to *subsection (6)*, for the purposes of *subsection (1)*, an authorized institution may treat opposite positions in the same type of derivative contract (including the delta-weighted position of option contracts calculated in accordance with *section 35*) as matched and may fully offset them.

(6)   For the purposes of *subsection (5)*, positions in the same type of derivative contract are only opposite if -

(a)   the positions relate to the same underlying exposures, are of the same nominal value and denominated in the same currency;

(b)   in the case of futures contracts, the offsetting positions in the underlying interest rate exposures to which the futures contracts relate are for identical exposures and mature within 7 days of each other;

(c)   in the case of swap contracts and forward rate agreements, the reference rates (for floating rate positions) are identical and the coupons are within 15 basis points; and

(d)   in the case of swap contracts, forward rate agreements and forward contracts, the next interest fixing date or, for fixed coupon positions or forward contracts, the residual maturity, corresponds within the following limits -

(i)   if either of the contracts to be offset has an interest fixing date or residual maturity up to one month, the interest fixing date or residual maturity, as the case may be, is the same for both contracts;

(ii)   if either of the contracts to be offset has an interest fixing date or residual maturity greater than one month and up to and including one year, the dates or residual maturities, as the case may be, are within 7 days of each other; and

(iii)   if either of the contracts to be offset has an interest fixing date or residual maturity of more than one year, those dates or residual maturities, as the case may be, are within 30 days of each other.

[21.   Provision not used.]

22. **Use of alternatives requires Monetary Authority's prior consent**

An authorized institution -

    (a)   shall use the methodology prescribed in this Division to calculate its positions to be included in the maturity ladder unless it has the prior consent of the Monetary Authority to use different methodology; and

    (b)   shall use the maturity method to calculate the market risk capital charge for general market risk for its portfolio of interest rate exposures unless it has the prior consent of the Monetary Authority to use a different method.

Division 4 - **Calculation of market risk capital charge for equity exposures**

23.   Calculation of market risk capital charge

An authorized institution shall, for the purposes of calculating the market risk capital charge for its positions (whether long or short) in equities and equity-related derivative contracts in its trading book -

(a)   calculate the market risk capital charge for specific risk for each of those positions; and

(b)   calculate the market risk capital charge for general market risk for those positions.

24. **Preliminary steps to calculating market risk capital charge**

(1)   For the purposes of *section 23*, an authorized institution shall -

(a)   subject to *paragraph (b)*, make a separate calculation for each of its positions in equity exposures for each exchange where the equities concerned are listed or traded ("exchange-by-exchange basis");

(b)   if an equity is listed on more than one exchange, make the calculation referred to in *paragraph (a)* only in respect of that exchange which is the primary listing of the equity;

(c)   convert its equity-related derivative contracts into positions in the underlying equity by -

(i)   valuing its futures contracts and forward contracts relating to an individual equity at the fair value of the underlying equity;

(ii)   valuing its futures contracts relating to equity indices as -

(A)   the current index value multiplied by the monetary value of one index point set by the futures exchange where the futures contract is traded ("tick value"); or

(B)   the fair value of the underlying equity portfolio;

(d)   regard each of its equity swap contracts as long and short positions such that -

(i)   in the case of an equity swap contract in which the institution -

(A)   is receiving an amount based on the change in value of a particular equity or equity index; and

(B)   is paying an amount based on the change in value of a different equity or equity index,

the position in *sub-subparagraph (A)* is the long position, and the position in *sub-subparagraph (B)* is the short position, of the equity swap contract; and

(ii)   in the case of an equity swap contract which involves a position requiring the receipt or payment of fixed or floating rate interest, the institution treats the position under the maturity method;

(e)   if equities are to be received or delivered under a forward contract, treat any interest rate exposure arising out of the contract under the maturity method; and

(f)   in the case of an equity futures contract or an equity index futures contract, treat any interest rate exposure arising out of the contract under the maturity method.

(2)   For the purposes of *section 23*, an authorized institution may -

(a)   offset fully its matched positions in each identical equity or equity index with the same delivery month in each exchange in order to produce a single net short or long position;

(b)   offset a futures contract in a given equity against an opposite

position in the same equity.

25.   Calculation of market risk capital charge for specific risk

Subject to *section 24*, an authorized institution shall calculate the market risk capital charge for specific risk for its trading positions in equities and equity-related derivative contracts as 8% on the total gross (long plus short) position.

26. Calculation of market risk capital charge for general market risk

(1) Subject to *section 24* and *subsection (2)*, an authorized institution shall calculate the market risk capital charge for general market risk for its trading positions in equities and equity-related derivative contracts as 8% on its total net position in equities and equity-related derivative contracts (being the difference between the sum of the institution's long positions and the sum of the institution's short positions).

(2) An authorized institution shall not, for the purposes of *subsection (1)*, offset net long and short positions on different exchanges.

Division 5 - Calculation of market risk capital charge for foreign exchange exposures (including gold)

27.   Preliminary steps to calculating market risk capital charge

An authorized institution shall, for the purposes of calculating the market risk capital charge for its positions in foreign exchange (including gold) and exchange rate-related derivative contracts -

(a)   determine the amount of its net open position (being the sum of the net spot position and the net forward position) in each currency and in gold;

(b)   convert each amount determined under *paragraph (a)* into HKD at current market rates;

(c)   [subject to [*Division 7*],] in relation to those positions arising from foreign currency option contracts, apply *paragraphs (a)* and *(b)* to each currency to which the option contracts relate; and

(d)   not exclude any of its structural positions from such calculation except after consultation with the Monetary Authority.

28.   **Calculation of market risk capital charge**

(1)   Subject to *section 27* and *subsection (2)*, an authorized institution shall calculate the market risk capital charge for its foreign exchange exposures as 8% of the institution's total net open position derived by aggregating -

(a)   the sum of the institution's net long or short positions less its USD position against its HKD position; and

(b)   the institution's net position in gold (whether long or short).

[(2)   For the purposes of *subsection (1)(a)* -

(a)   the sum of an authorized institution's net long or short positions is the sum of -

(i)   its total net long or short position in each foreign currency (including, if applicable, the net delta-weighted position of option contracts in each such currency); and

(ii)   its HKD position to ensure that the total of all net long positions is the same as the total of all net short positions;

(b)   the USD position against the HKD position in respect of an authorized institution is -

(i)   zero if the institution's net open positions in USD and HKD are both long or both short;

(ii)   the smaller of the 2 positions (expressed as the absolute value) if the institution's net open positions in USD and HKD are opposite positions.

Division 6 - **Calculation of market risk capital charge for commodity exposures**

29.   **Preliminary steps to calculating market risk capital charge**

(1)   An authorized institution shall, for the purposes of calculating the market risk capital charge for its positions in commodities and commodity-related derivative contracts -

(a)   convert its gross (long plus short) position in each commodity to which those positions relate (measured in barrels, kilos or grams or such other standard unit of measurement as is applicable to the commodity concerned) into monetary terms at the current market price of the commodity;

(b)   subject to *Division 7*, treat positions arising from commodity option contracts as commodity exposures;

(c)   value a futures contract or forward contract relating to a commodity by reference to the notional amount of the standard unit of measurement of the commodity converted into monetary terms at current market price and apply the maturity method to any interest rate exposure arising out of that contract;

(d)   in the case of a commodity swap contract under which one leg of the swap contract relates to a position or series of positions referenced to a fixed price and the other leg of the swap contract relates to a position or series of positions referenced to the current market price of a reference commodity or commodities -

(i) for each payment under the swap contract, value each of the positions at the notional amount of the swap contract;

(ii) treat each such position -

    (A) as long if the institution is paying at a fixed price and receiving at a floating market price; and

    (B) as short if the institution is receiving at a fixed price and paying at a floating market price; and

[(iii) treat any such leg which involves receiving or paying at a fixed or floating interest rate as an interest rate exposure to which the maturity method applies].

(2) An authorized institution -

(a) subject to *paragraph (b)*, may, for the purposes referred to in *subsection (1)*, offset long and short positions in each commodity when calculating its open positions;

(b) shall not so offset for its positions in different types of commodities.

30. **Calculation of market risk capital charge**

An authorized institution shall calculate the market risk capital charge for its commodity exposures as the sum of -

> (a)   15% of the institution's net position in each commodity; and
>
> (b)   3% of the institution's gross position (long plus short) in each commodity.

Division 7 - **Calculation of market risk capital charge for option exposures**

31.   **Approaches that authorized institution may use to calculate market risk capital charge for option exposures**

An authorized institution shall, for the purposes of calculating the market risk capital charge for its option exposures in debt securities, interest rates, equities, foreign exchange (including gold) and commodities -

>   (a)   subject to *section* 32 and *paragraph (c)*, use the simplified approach;

>   (b)   subject to *section 34* and *paragraph (c)*, use the delta-plus approach; or

>   (c)   with the prior consent of the Monetary Authority, use another approach.

Division 8 - **Simplified approach**

32. **Application of** *Division 8*

(1)   An authorized institution shall not use the simplified approach to calculate the market risk capital charge for its option exposures unless the institution -

      (a)   purchases option contracts but does not write option contracts; or

      [(b)   purchases option contracts and only writes option contracts that are fully hedged by matched long positions in the same option contracts.]

(2)   An authorized institution which uses the simplified approach to calculate the market risk capital charge for its option exposures shall -

      (a)   exclude from that calculation -

            (i)   option contracts written by it; and

            (ii)   the corresponding purchased option contracts fully hedged by the option contracts referred to in *subparagraph (i)*; and

      (b)   only use its outstanding purchased option contracts for that calculation.

33. **Calculation of market risk capital charge for outstanding purchased option contracts**

(1)   An authorized institution shall calculate the market risk capital charge for its outstanding purchased option contracts (with and without related positions in the underlying exposures) -

(a)   as set out in *Table 4*; and

(b)   such that -

(i)   the market risk capital charge is calculated separately for individual option contracts but together with the related position in the underlying exposure;

(ii)   the institution uses the sum of the market risk capital charge for individual option contracts to calculate the total market risk capital charge for its portfolio of option exposures.

Table 4

Simplified approach

Position	Treatment
Long underlying exposure and long put option contract or Short underlying exposure and long call option contract	The market risk capital charge is the fair value of the underlying exposure of the option contract multiplied by the sum of the market risk capital charge percentages for general market risk and specific risk for the underlying exposure as specified in *Table 5* less the amount by which the option contract is in-the-money (if any). The market risk capital charge shall be zero if the above calculation produces a negative figure.
Long call option contract or long put option contract	The market risk capital charge shall be the lesser of - (a) the fair value of the underlying exposure of the option contract multiplied by the sum of the market risk capital charge percentages for general market risk and specific risk for the underlying exposure as specified in *Table 5*; or (b) the fair value of the option contract.

(2)   Where it is unclear to an authorized institution which side of an option contract purchased by it is the underlying exposure, the institution shall take the exposure which would be received by it if the option under the contract were exercised.

(3)   An authorized institution shall, for the purpose of calculating the market risk capital charge for an option contract purchased by it which has a residual maturity of more than 6 months -

(a)   subject to *paragraph (b)*, compare the strike price of the option contract with the forward price, and not the current market price, of the underlying exposures of the option contract;

(b)   if it is not practicable for the institution to comply with *paragraph (a)*, take the amount by which the option contract is considered to be in-the-money as zero.

(4)   An authorized institution shall use the market risk capital charge percentages specified in *Table 5* for calculating the market risk capital charge of an option contract purchased by it.

Table 5

Market risk capital charge for each risk category

Risk category	Market risk capital charge percentage for specific risk	Market risk capital charge percentage for general market risk
Interest rate	As per the market risk capital charge percentages for specific risk in *Table 1* according to the issuer category, credit quality grade and residual maturity	As per the risk-weights in *Table 3* according to the residual maturity (for fixed rate instruments) or residual term to next interest fixing date (for floating rate instruments)
Equity	8.00%	8.00%
Foreign exchange	0.00%	8.00%
Commodity	0.00%	15.00%

(5)   An authorized institution shall add the market risk capital charge calculated under this Division to the market risk capital charge calculated for the risk category concerned.

Division 9 - **Delta-plus approach**

34.   **Application of *Division 9***

An authorized institution which writes option contracts (other than such an authorized institution which, by virtue of *section 32(1)(b)*, uses the simplified approach to calculate the market risk capital charge) shall -

(a)   incorporate the delta-weighted positions of its outstanding option contracts into their respective risk categories; and

(b)   subject those positions to -

(i)   market risk capital charge for general market risk and specific risk to cover delta risk;

(ii)   market risk capital charge for gamma risk; and

(iii)   market risk capital charge for vega risk.

35. **Delta risk**

An authorized institution shall, for the purposes of calculating its delta risk -

  (a) slot its delta-weighted option positions which have debt securities or interest rates as the underlying exposures of the relevant option contracts into the time bands set out in *Table 3*;

  (b) treat its interest rate option contracts as having long and short positions such that -

    (i) one position is referenced to the time the option contract concerned takes effect; and

    (ii) the other position is referenced to the time that the option contract matures;

  (c) subject to *paragraph (d)*, calculate its market risk capital charge for option contracts with equities or equity indices as the underlying exposure by applying the calculation treatment under *Division 4* to the delta-weighted positions of those option contracts;

  (d) for the purposes of *paragraph (c)*, treat equities or equity indices on each exchange as a separate underlying exposure;

  (e) incorporate the net delta-weighted positions (being the difference between the institution's total delta-weighted long positions and its total delta-weighted short positions) of its foreign exchange and gold option contracts into the calculation of its market risk exposures for the respective foreign exchange and gold positions by applying the calculation treatment under *Division 5*; and

(f)	incorporate the delta-weighted positions of its commodity option contracts into the calculation of its market risk exposures for the respective commodity positions by applying the calculation treatment under *Division 6*.

36.   Gamma risk

(1)   An authorized institution shall calculate the gamma impact of each of its option contracts by the use of *Formula 1*.

Formula 1

Calculation of gamma impact of option contracts

Gamma impact = $^1/_2$ x Gamma x VU^2

Where:

VU = variation of the underlying exposure of the option contract calculated as -

(a)   for debt-related and interest rate option contracts, the fair value of that underlying exposure multiplied by the risk-weight for the appropriate time band set out in *Table 3*;

(b)   for option contracts relating to equities and equity indices, the fair value of that underlying exposure multiplied by 8%;

(c)   for option contracts relating to foreign exchange and gold, the fair value of that underlying exposure multiplied by 8%; and

(d)   for option contracts relating to commodities, the fair value of that underlying exposure multiplied by 15%.

(2)   For the purposes of *subsection (1)*, an authorized institution shall treat the following positions as the same underlying exposure -

(a)   for interest rate exposures, positions within each time band as set out in *Table 3*;

(b)   for equities and equity indices exposures, positions on each exchange;

(c)   for foreign exchange and gold exposures, positions in each currency pair and gold; and

(d)   for commodities exposures, positions in each individual commodity.

(3)   An authorized institution shall -

(a)   set-off the positive and negative gamma impacts for each option contract on the same underlying exposure to produce a positive or negative net gamma impact for that exposure; and

(b)   only use negative net gamma impacts to calculate the market risk capital charge for gamma risk.

(4)   An authorized institution shall calculate the total market risk capital charge for gamma risk as the sum of the absolute value of the net negative gamma impacts.

37.   **Vega risk**

(1)   An authorized institution shall calculate the market risk capital charge for vega risk by multiplying the sum of the vegas for all its option contracts on the same underlying exposure falling within *section 36(2)* by a proportional shift in volatility of ± 25%.

(2)   An authorized institution shall calculate the total market risk capital charge for vega risk as the sum of the absolute value of the individual market risk capital charge for vega risk calculated under *subsection (1)*.

Division 10 - Capital treatment of credit derivative contracts in authorized institution's trading book

37A. **Application of *Division 10***

This Division applies to credit derivative contracts in an authorized institution's trading book.

37B. Specific risk

(1)   Where an authorized institution -

(a)   has entered into a total return swap or credit default swap as the protection seller, the institution shall record a long position in the reference obligation specified in the contract;

[(b)   has entered into a total return swap or credit default swap as the protection buyer, the institution shall record a short position in the reference obligation specified in the contract;]

(c)   has purchased a credit-linked note, the institution shall record a long position in -

(i)   the reference obligation of the note; and

(ii)   the note issuer;

(d)   has issued a credit-linked note, the institution shall record a short position in the reference obligation of the note;

(e)   is -

(i)   the protection buyer of a first-to-default credit derivative or the issuer of a credit-linked note and

(ii)   does not hold any long position in an underlying exposure of the derivative contract or note, as the case may be,

the institution shall record a short position in one of the reference obligations in the basket of reference obligations under the derivative contract or under the note only (being the reference obligation with the highest market risk capital charge for specific

risk among the various reference obligations in the basket of reference obligations under the derivative contract or under the note);

(f)   is the protection buyer of a first-to-default credit derivative or the issuer of a credit-linked note, the institution may offset the market risk capital charge for specific risk for the institution's long position in the underlying exposure against the market risk capital charge for specific risk for the institution's short position in that one of the reference obligations in the basket of reference obligations under the derivative contract or under the note, as the case may be, that yields the lowest market risk capital charge for specific risk for all of the reference obligations in the derivative contract or under the note, as the case may be;

(g)   subject to *subsection (2)*, is the protection seller of a first-to-default credit derivative or the purchaser of a credit-linked note, the institution shall record long positions in each of the reference obligations in the basket of reference obligations under the derivative contract or under the note, as the case may be, with the total market risk capital charge for specific risk for the derivative contract or the note, as the case may be, [capped] at the maximum liability under the derivative contract or the value of the note, as the case may be;

(h)   enters into a credit default swap, total return swap or credit-linked note which provides for payment to be made by reference to multiple

reference obligations under a proportionate structure in specified

proportions, the institution shall record its positions in the reference

obligations according to their respective proportions in the credit

default swap or total return swap, or under the note, as the case may

be;

(i)   has purchased or issued a credit-linked note which is referenced to

multiple reference obligations and meets the conditions for a

qualifying debt security or debt-related derivative contract set out in

section 17(4), the institution may -

(i)   if it has purchased the note, record the specific risk arising

from its long positions in the multiple reference obligations

under the note as a single long position in the note;

(ii)   if it has issued the note, record the specific risk arising from

its short positions in the multiple reference obligations under

the note as a single short position in the note.

(2)   An authorized institution is not required to comply with *subsection (1)(g)*

in respect of a first-to-default credit derivative or credit-linked note if it demonstrates to

the satisfaction of the Monetary Authority that there is a very strong correlation among

the reference obligations in the basket of reference obligations under the derivative

contract or under the note, as the case may be.

37C.   Use of credit protection provided by credit derivative contracts to offset

(1)   Subject to *subsection (2)*, an authorized institution may use credit

protection provided by a credit derivative contract in the institution's trading book to

offset the market risk capital charge for specific risk calculated for the institution's

trading book position in the underlying exposure of the credit derivative contract, or in

another credit derivative contract, in accordance with *sections 37D*, *37E* and *37F*.

(2)   Where *section 37D*, *37E* or *37F* does not permit an authorized institution to

use credit protection provided by a credit derivative contract in the institution's trading

book to offset the market risk capital charge for specific risk calculated for the institution's

trading book position in the underlying exposure of the credit derivative contract, or in

another credit derivative contract, then the institution shall provide the market risk capital

charge against both trading book positions.

37D. Offsetting in full

(1) An authorized institution may offset in full its position under a credit derivative contract against a position in the underlying exposure of the derivative contract, or against a position in another credit derivative contract, for the purpose of calculating the market risk capital charge for specific risk if the values of the 2 positions, being the long or short position in the derivative contract, and the short or long position respectively in the underlying exposure of the derivative contract or the short or long position respectively in the other credit derivative contract, always move in the opposite direction and broadly to the same extent due to -

(a) the 2 positions consisting of identical exposures; or

(b) a long position in the underlying exposure being hedged by a total return swap (or vice versa) and there being a match between the reference obligation and the underlying exposure in every respect, and notwithstanding that the maturity of the total return swap may be different from that of the underlying exposure.

(2) Where an authorized institution has offset in full its position under a credit derivative contract against a position in the underlying exposure of the derivative contract, or against a position in another credit derivative contract, pursuant to *subsection (1)*, then no market risk capital charge [for specific risk] is required in respect of those positions.

37E.   Offsetting by 80%

(1)   An authorized institution may offset 80% of the market risk capital charge for specific risk for its position in a credit derivative contract against a position in the underlying exposure of the derivative contract where -

(a)   the values of the 2 positions, being a long or short position in the derivative contract and a short or long position respectively in the underlying exposure of the derivative contract, always move in the opposite direction but not broadly to the same extent; and

(b)   the institution has demonstrated to the Monetary Authority's satisfaction that the derivative contract can provide credit protection to the institution effectively.

(2)   For the purposes of the demonstration referred to in *subsection (1)(b)* -

(a)   subject to *paragraphs (b)*, *(c)* and *(d)*, an authorized institution falls within that subsection in any case where the institution's long position in the underlying exposure referred to in that subsection is effectively hedged by a credit default swap or credit-linked note (or vice versa);

(b)   there is a match between -

(i)   the reference obligation and the underlying exposure;

(ii)   the maturity of the reference obligation and the credit derivative contract and of the underlying exposure; and

(iii)   the denominated currency of the reference obligation and of the underlying exposure;

(c)   the credit event definitions and settlement mechanisms and other key factors of the credit derivative contract do not cause the price movement of the contract to materially deviate from the price movements of the underlying exposure; and

(d)   the credit derivative contract transfers risk effectively taking account of restrictive payout provisions (including fixed payouts and materiality thresholds).

(3)   Where an authorized institution offsets its positions in a credit derivative contract pursuant to *subsection (1)* -

(a)   only 20% of the market risk capital charge for specific risk is required for the position with the higher market risk capital charge for specific risk; and

(b)   the market risk capital charge for specific risk for the other position shall be 0%.

37F. Other offsetting

(1)   An authorized institution may offset partially the market risk capital charge for specific risk for its position under a credit derivative contract against a position in the underlying exposure of the derivative contract where the values of the 2 positions, being the long or short position in the derivative contract and the short or long position respectively in the underlying exposure of the derivative contract, usually move in the opposite direction in any case where -

      (a)   the position falls within *section 37D(1)(b)* but for there being an asset mismatch between the reference obligation and the underlying exposure (being that the reference obligation and the underlying exposure are similar but not identical) and -

          (i)   the reference obligation of the derivative contract ranks for payment or repayment pari passu with, or junior to, the underlying exposure; and

          (ii)   the obligor in respect of the underlying exposure is the same legal entity as the obligor for the reference obligation and legally enforceable cross default or cross acceleration clauses are included in the terms of both the underlying exposure and the reference obligation;

      (b)   the position falls within *section 37D(1)(a)* or *37E* but for there being a currency or maturity mismatch between the derivative contract and the underlying exposure; or

(c)   the position falls within *section 37E* but for there being an asset mismatch between the underlying exposure and the reference obligation under the derivative contract, being that the reference obligation and the underlying exposure, although similar, are not identical and the underlying exposure is included in one of the deliverable obligations in the derivative contract.

(2)   Where an authorized institution offsets its positions in a credit derivative contract pursuant to *subsection (1)* -

(a)   the position with the higher market risk capital charge for specific risk shall be subject to a partial allowance to reflect the extent of the offsetting but, in any case, not higher than 80%; and

(b)   the market risk capital charge for specific risk for the other position shall be 0%.

37G. General market risk

Where an authorized institution -

(a) has entered into a total return swap as the protection seller, the institution shall -

(i) record a long position in the reference obligation specified in the swap contract;

(ii) where there are periodic interest payments under the swap contract, record a short position in a specific risk-free security with fixed or floating rate interest according to the payment terms of the swap contract;

(b) has entered into a total return swap as the protection buyer, the institution shall -

(i) record a short position in the reference obligation specified in the swap contract;

(ii) where there are periodic interest payments under the swap contract, record a long position in a specific risk-free security with fixed or floating rate interest according to the payment terms of the swap contract;

(c) has entered into a credit default swap with no periodic premiums or interest payments under the swap contract, the institution is not required to calculate the market risk capital charge for general market risk for the swap contract;

(d)   has entered into a credit default swap as the protection seller with periodic premiums or interest payments under the swap contract, the institution shall record a long position in a specific risk-free security with fixed or floating rate interest according to the payment terms of the swap contract;

(e)   has entered into a credit default swap as the protection buyer with periodic premiums or interest payments under the swap contract, the institution shall record a short position in a specific risk-free security with fixed or floating rate interest according to the payment terms of the swap contract;

(f)   has purchased a credit-linked note, the institution shall record a long position in the note itself;

(g)   has issued a credit-linked note, the institution shall record a short position in the note itself.

[37H. Counterparty credit risk

(1)   An authorized institution which has entered into a total return swap as the protection buyer or the protection seller shall calculate the amount of capital required to cover the counterparty credit risk ("credit risk capital charge") for its position under the swap contract.

(2)   Where an authorized institution -

(a)   has entered into a credit default swap as the protection buyer, the institution shall calculate the credit risk capital charge for its position under the swap contract;

(b)   has entered into a credit default swap as the protection seller with no periodic premiums or interest payments under the swap contract, the institution is not required to have any credit risk capital charge for the swap contract;

(c)   has entered into a credit default swap as the protection seller with periodic premiums or interest payments under the swap contract, the institution shall calculate the credit risk capital charge for the outstanding amount of the premiums or interest payments, as the case may be, of the swap contract.

(3)   For the avoidance of doubt, it is hereby declared that -

(a)   there is no counterparty credit risk for an authorized institution as the purchaser or issuer of a credit-linked note;

(b)   *section [..]* [of STC, IRB or BSA, as the case may be,] applies in

the case of an authorized institution's counterparty credit risk under

credit derivative contracts in the institution's trading book.]

37I.   Foreign exchange risk

Where an authorized institution has entered into a credit derivative contract denominated in a currency other than HKD, the institution shall apply the capital requirements of *Division 5* to its [foreign exchange] position under the contract.

PART 6A

INTERNAL MODELS APPROACH TO CALCULATION OF MARKET RISK

Division 1 - **General**

38. **Application of *Part 6A***

This Part shall apply to an authorized institution which uses the IMA to calculate its market risk.

38A. Positions to be used to calculate market risk

(1)   Subject to *subsections (2)* and *(4)*, an authorized institution shall calculate its market risk to take into account the risk of losses arising from fluctuations in the value of its positions held -

   (a)   for trading purposes in -

      (i)   debt securities;

      (ii)   debt-related derivative contracts;

      (iii)   interest rate derivative contracts;

      (iv)   equities; and

      (v)   equity-related derivative contracts; and

   (b)   in -

      (i)   foreign exchange;

      [(ii)   exchange rate-related derivative contracts;]

      (iii)   commodities; and

      (iv)   commodity-related derivative contracts.

(2)   An authorized institution shall not include a position in the calculation of its market risk if the position is -

   (a)   a recognized credit derivative contract in the institution's trading book as a hedge to a credit exposure in the banking book; or

   (b)   an exposure required to be deducted from the institution's capital base pursuant to *Part 3*.

(3)   An authorized institution shall value its positions, whether based on a marking-to-market or marking-to-model methodology -

(a)   in a prudent manner; and

(b)   without prejudice to the generality of *paragraph (a)*, by taking into account the liquidity of the positions.

(4)   Where the Monetary Authority is satisfied that an authorized institution has contravened *subsection (3)*, the Monetary Authority may, by notice in writing given to the institution, require the institution to reduce its positions -

(a)   in respect of all of its positions, or such class of its positions, as specified in the notice;

(b)   to the limit, if any, specified in the notice; and

(c)   beginning on such date, or the occurrence of such event, as is specified in the notice.

[(5)   Provision not used.]

(6)   An authorized institution shall comply with the requirement of a notice given to it under *subsection (4)*.

(7)   Where a position of an authorized institution does not fall into *subsection (1)* by virtue of *subsection (2)(a)*, then the institution shall include that position in the calculation of its credit risk.

(8)   For the avoidance of doubt, it is hereby declared that nothing in this section shall operate to prejudice the generality of the Monetary Authority's powers under Part XVII of the Ordinance (including any case where the Monetary Authority is considering exercising the power under section 101 of the Ordinance in respect of an authorized institution that the Monetary Authority is satisfied has contravened *subsection (3)*).

39. **[General]**

(1) An authorized institution shall calculate the risk-weighted amount of its market risk exposures as the sum of -

(a) the market risk capital charge for general market risk calculated by the institution's internal model; and

(b) [where applicable,] the market risk capital charge for specific risk calculated by the institution's internal model,

multiplied by 12.5.

(2) Where an authorized institution uses one internal model to calculate the market risk capital charge for general market risk and specific risk, then the institution shall, in that calculation -

(a) subject to *subsection (3)*, use the higher of -

(i) the institution's VaR amount for all risk categories as at the last trading day; or

(ii) the average VaR amount for the last 60 trading days times the multiplication factor set out in *section 41*; and

(b) if applicable, apply a capital surcharge for default risk calculated in accordance with *section 40(2)*, *(3)* and *(4)* [as read with *section 4(e)* of *Schedule 1*].

(3) Where an authorized institution uses one internal model to calculate the market risk capital charge for general market risk and another internal model to calculate the market risk capital charge for specific risk, then the institution shall apply *subsection (2)(a)* separately to the VaR amount generated from each model.

40.   **Market risk capital charge for specific risk**

[(1)   Provision not used.].

(2)   An authorized institution -

[(a)   *paragraph* not used.]

(b)   may, to avoid double counting, when calculating the [default risk in its positions], take into account the extent to which default risk has already been incorporated into the institution's internal model (in particular, for positions that would be closed out within 10 trading days in the event of adverse market conditions or other indications of deterioration in the credit environment).

(3)   The default risk referred to in *section 4(e)* of *Schedule 1* shall not be treated as having been captured through a surcharge unless the authorized institution concerned satisfies the Monetary Authority that the surcharge provides sufficient capital to cover that default risk in respect of the institution's positions.

(4)   Where an authorized institution captures the default risk referred to in *section 4(e)* of *Schedule 1* through a surcharge, then the surcharge shall not be subject to -

(a)   a multiplication factor; or

(b)   back-testing.

41.   Multiplication factor

(1)   The multiplication factor to be used by an authorized institution shall be the sum of -

(a)   the value of 3;

(b)   the plus factor, ranging from zero to one, based on -

(i)   the number of back-testing exceptions for the last 250 trading days derived from *Table 6*; or

(ii)   considerations which satisfy the Monetary Authority that any increase in back-testing exceptions is temporary; and

(c)   any additional plus factor assigned to the institution pursuant to *subsection (2)*.

(2)   Where -

(a)   an authorized institution uses the IMA to calculate its market risk; and

(b)   the Monetary Authority is satisfied that the institution has ceased to fulfil any of the criteria specified in *Schedule 1* applicable to or in relation to the institution,

then the Monetary Authority may, by notice in writing given to the institution, assign an additional plus factor to the institution.

Table 6

Plus factor for back-testing exceptions

Zone	Number of exceptions out of 250 observations	Plus factor
Green zone	Fewer than 5	0.00
Yellow zone	5	0.40
	6	0.50
	7	0.65
	8	0.75
	9	0.85
Red zone	10 or more	1.00

[42 to 48. Provisions not used.]

Division 2 - Capital treatment of credit derivative contracts in authorized institution's trading book

[49. **IMA to calculation of market risk**

(1)   An authorized institution shall comply with *Division 1* and *Schedule 1* to apply the IMA to calculate the market risk capital charge for credit derivative contracts in its trading book.

(2)   An authorized institution which does not use the IMA to calculate the market risk capital charge for credit derivative contracts in its trading book shall use the STM to calculate those charges as set out in *Division 10* of *Part 6*.]

[50. Counterparty credit risk

(1) An authorized institution which has entered into a total return swap as the protection buyer or the protection seller shall calculate the amount of capital required to cover the counterparty credit risk ("credit risk capital charge") for its position under the swap contract.

(2) Where an authorized institution -

(a) has entered into a credit default swap as the protection buyer, the institution shall calculate the credit risk capital charge for its position under the swap contract;

(b) has entered into a credit default swap as the protection seller with no periodic premiums or interest payments under the swap contract, the institution is not required to have any credit risk capital charge for the swap contract;

(c) has entered into a credit default swap as the protection seller with periodic premiums or interest payments under the swap contract, the institution shall calculate the credit risk capital charge for the outstanding amount of the premiums or interest payments, as the case may be, of the swap contract.

(3) For the avoidance of doubt, it is hereby declared that -

(a) there is no counterparty credit risk for an authorized institution as the purchaser or issuer of a credit-linked note;

(b)   *section [..]* [of STC, IRB or BSA, as the case may be,] applies in

        the case of an authorized institution's counterparty credit risk under

        credit derivative contracts in the institution's trading book.]

[51. Foreign exchange risk

Where an authorized institution has entered into a credit derivative contract denominated in a currency other than HKD, the foreign exchange risk of the institution under the contract shall be subject to the capital requirements set out in *Division 1* of *Part 6A*.]

SCHEDULE 1

MINIMUM CRITERIA FOR APPROVAL UNDER *SECTION 4* OF THESE RULES TO USE IMA TO CALCULATE MARKET RISK OF AUTHORIZED INSTITUTION

General

1. The Monetary Authority is satisfied that the authorized institution's market risk management system is -

     (a)   suitable for the purpose of identifying, measuring and controlling the institution's market risk taking into account the characteristics and extent of the institution's market risk exposures; and

     (b)   operated in a prudent and consistently effective manner.

Qualitative criteria

2. Without [limiting] the generality of *section 1*, the Monetary Authority is satisfied that -

     (a)   the board of directors and senior management of the authorized institution exercise sufficient oversight of the institution's market risk control process as will enable them to ensure that the process will achieve its objectives;

     (b)   regular reports on the authorized institution's market risk profile are submitted to the institution's board of directors and senior management for review purposes;

(c)   the authorized institution has a risk control unit, functionally independent from the institution's personnel and management responsible for originating and trading market risk exposures, which -

(i)   is responsible for -

(A)   designing and implementing, or selecting, the institution's risk management system;

(B)   producing and analysing daily reports based on the output of the institution's internal models the subject of the application ("relevant models");

(C)   conducting a regular back-testing programme to verify the accuracy and reliability of the relevant models; and

(D)   conducting the initial and ongoing validation of the relevant models; and

(ii)   reports directly to the institution's senior management;

(d)   the authorized institution has a sufficient number of staff with experience and expertise in the use of the relevant models in the institution's trading, risk control, audit and back office units as will enable the units to function effectively in identifying, measuring and controlling the institution's market risk exposures;

(e)   the use of the relevant models forms an integral part of the authorized institution's daily risk management process, the VaR

measures generated from the relevant models are used in determining the institution's trading and exposure limits and the relationship between the relevant models and those limits is consistent over time and understood by the institution's staff engaged in trading activity and its senior management;

(f)   the authorized institution undertakes a regular and comprehensive stress-testing programme and the results of stress tests are -

(i)   reported routinely to the institution's senior management and periodically to the institution's board of directors or its designated committee; and

(ii)   taken into account in -

(A)   setting the institution's policies and trading and exposure limits; and

(B)   performing the institution's internal assessment of adequacy of the capital held by the institution, or other financial resources available to the institution, to withstand future events, or changes in market conditions, that could have adverse effects on its market risk exposures;

(fa)   the authorized institution properly documents its internal policies, controls and procedures relating to the operation of the relevant models;

(g)   the authorized institution has -

(i)   a system for monitoring and ensuring compliance with its documented internal policies, controls and procedures concerning the operation of the relevant models; and

(ii)   a well-documented manual on the relevant models that describes the basic principles of the institution's risk management system and provides an explanation of the empirical techniques used to measure market risk;

(h)   the authorized institution has policies and procedures to ensure that the valuation of its positions is prudently made whenever there are uncertainties affecting the accuracy of valuation estimates;

(i)   an independent review of the market risk management system is carried out regularly in the authorized institution's internal auditing process and covers both the activities of the institution's trading units and of the risk control unit;

(j)   the relevant models have a proven track record of acceptable accuracy in measuring market risk;

(k)   the authorized institution has processes in place to ensure that the relevant models are adequately validated -

(i)   by parties -

(A)   who possess relevant experience and expertise and who are independent of the development of the relevant models; and

(B) whose aim is to ascertain whether or not the relevant models are conceptually sound and able to capture all material market risk;

(ii) when a relevant model is initially developed and when any significant changes are made to the relevant model; and

(iii) on a periodic basis or when there have been significant structural changes in the market or changes to the composition of the institution's portfolio of exposures which might lead to the relevant model concerned no longer being adequate to capture all material market risk;

(l) the authorized institution has -

(i) adequate model validation procedures to assess the relevant models;

(ii) procedures to ensure that both the assumptions and approximations underlying the relevant models are appropriate for the measurement of the institution's market risk exposures; and

(iii) appropriate methods of assessing the validity of the performance of, and the results generated by, the relevant models and does not rely purely on the results of back-testing; and

(m)   the relevant models capture and accurately reflect, on a continuing basis, all material market risk factors inherent in the authorized institution's market risk exposures.

Quantitative criteria

3.   Without limiting the generality of *section 1*, the Monetary Authority is satisfied that -

        (a)   in respect of the relevant models -

                (i)   VaR is computed on a daily basis;

                (ii)   a one-tailed 99% confidence interval is used in calculating VaR;

                (iii)   the minimum holding period used by, or assumed by, the relevant models is 10 trading days in respect of the authorized institution's portfolio of exposures;

                (iv)   subject to *subparagraph (va)*, the historical observation period for calculating VaR is not less than 250 trading days;

                (v)   if the institution uses a weighting scheme to the historical observations for the calculation of VaR, a higher weighting is assigned to recent observations;

                [(va)   the institution is able to use a shorter observation period for the calculation of VaR if the Monetary Authority requests it to do so on the ground that the Monetary Authority is of the opinion that the request is justified due to a significant

increase in volatility in the price of the institution's

portfolio of exposures;]

(vi)   data used are updated at least once every 3 months and are

reassessed whenever market prices are subject to material

changes;

(vii)   the relevant models only recognize empirical correlations

within and across risk categories if the institution's system

for identifying and measuring correlations is effective for

its purpose and implemented in a prudent manner; and

(viii)   the relevant models accurately capture the unique risks

associated with options exercisable under option contracts

and, in particular -

(A)   the relevant models are able to estimate the non-

linear price movements of the institution's positions

under those contracts;

(B)   in calculating VaR, a price shock (being an

instantaneous 10-day movement in prices) is

applied to the institution's option positions or

positions that display option-like characteristics or,

if the institution is unable to perform a full 10-day

price shock, the institution is able to use periodic

simulation or stress-testing to adjust the capital

requirement for such positions;

[(C)   paragraph not used.]

(D)   the relevant models are able to estimate the vega

risk of the institution's option positions; and

(E)   if the institution's portfolio of option exposures is

relatively large or complex, the institution is able to

estimate in detail the volatility of option positions at

different maturities; and

[(b)   paragraph not used.]

Additional criteria relating to models for the calculation of market risk capital charge for specific risk

4.   Without [limiting] the generality of *section 1*, the Monetary Authority is satisfied that, if the authorized institution uses the relevant models to calculate the market risk capital charge for specific risk, then -

(a)   the relevant models capture all material components of market risk

and are responsive to changes in market conditions and the

composition of the institution's portfolios of exposures and, in

particular -

(i)   are capable of providing a justification for the historical

price variation in the portfolios;

(ii)   are sensitive to changes in portfolio construction and

require higher market risk capital charge for portfolios that

have increased concentrations in particular issuers or

sectors of exposures;

(iii)　are able to signal rising market risk in an adverse environment;

(iv)　are sensitive to material idiosyncratic differences between similar but not identical positions (including debt positions with different levels of subordination, maturity mismatches, or credit derivative contracts with different credit events);

(v)　are able to capture events that are reflected in large changes in prices ("event risk"); and

(vi)　are validated through back-testing aimed at assessing whether specific risk is being captured adequately;

(b)　if the institution is subject to event risk that is not reflected in its VaR measure because it is outside the 10-day holding period and 99% confidence interval, the institution has ensured that the impact of event risk is factored into its internal assessment process through stress-testing as referred to in *section 2(f)*;

(c)　the relevant models conservatively assess the risk arising from less liquid positions and positions with limited price transparency under realistic market scenarios;

(d)　proxies are only used, for positions referred to in *paragraph (c)* -

(i)　where available data are insufficient or not reflective of the true volatility of an exposure or portfolio of exposures;

(ii)　which are conservative; and

(iii)　conservatively;

(e) the institution has, for the purposes of calculating the market risk capital charge, an approach -

    (i) to separately capture the default risk of its trading book positions if the institution cannot capture, or adequately capture, such risk in the relevant models; and

    (ii) comprised within the relevant models or in the form of a surcharge separately calculated by the institution; and

(f) the institution is able to demonstrate that it meets the qualifying standards comparable to those of the IRB for the calculation of credit risk, with any necessary adjustments to reflect the impact of liquidity, concentrations and hedging on, and the option characteristics of, its exposures.

EXPLANATORY NOTE

(Market Risk only)

Part 2 - **Application of these Rules**

1.   *Section 3* specifies that an authorized institution must use the standardized

approach ("STM") to calculate its market risk (see *Part 6*) unless it has the

approval of the MA to use the internal models approach ("IMA") to calculate its

market risk (see *Part 6A*). However, *section 3* also provides that if an authorized

institution is a subsidiary of a bank ("parent bank") referred to in *paragraph (b)* of

the definition of "bank", then it may use the approach adopted by the parent bank

to calculate its market risk if it has the MA's approval to do so. Finally, *section 3*

does not apply to an exempt authorized institution (see the definition of "exempt"

in *section 2(1)*).

2.   *Section 4* specifies that the MA shall refuse to grant approval to an authorized

institution to use the IMA to calculate its market risk if any of the criteria

specified in *Schedule 1* are not fulfilled with respect to the institution. *Section 5*

provides that an approval under *section 4* to use the IMA may be given to an

authorized institution in respect of, *inter alia*, the institution's general market risk

or specific risk (see the definitions of "general market risk" and "specific risk", in

section 2(1)) or all of the institution's market risk. *Section 6* specifies the action

that may be taken by the MA where an authorized institution using the IMA no longer fulfils the criteria specified in *Schedule 1*.

3.   *Section 7(3)* specifies the 2 matters in respect of which the MA must be satisfied before granting approval to an authorized institution to calculate its market risk by using the approach adopted by its parent bank. *Section 8* specifies the action that may be taken by the MA where the MA ceases to be satisfied in respect of those matters in the case of any authorized institution which calculates its market risk by using the approach adopted by its parent bank.

4.   *Section 9* prohibits, *inter alia*, an authorized institution which uses the IMA to calculate its market risk in respect of all or any part of its business to use the STM to calculate its market risk in respect of such business unless it has the prior consent of the MA to do so.

5.   *Section 10(1)* and *(2)* specifies the market risk positions which an authorized institution must have before the MA will exempt it from *section 3*. The specific effect of an exemption is set out in *section 10(4)(a)* and *(c)*. *Section 11* empowers the MA to revoke an exemption under *section 10* where the market risk positions of the authorized institution concerned fall outside the limits specified in *section 10*.

Part 6 - **Standardized approach to calculation of market risk**

Division 1 - **General**

6.   *Section 11A* specifies that *Part 6* applies to authorized institutions which use the STM to calculate their market risk, and makes it clear that *Divisions 3, 4, 5* and *6* of *Part 6* do not apply to such institutions' option exposures in debt securities, interest rates, equities, foreign exchange (including gold) and commodities except to the extent specified in *Division 7*, *8* or *9* of *Part 6*. (The calculation of market risk for such option exposures is dealt with in *Divisions 7*, *8* and *9* of *Part 6*). *Section 12* specifies the positions that an authorized institution shall include in the calculation of its market risk. *Section 14* specifies that an authorized institution shall calculate its market risk capital charge by reference to its exposures falling within the various risk categories and by using the fair value of its positions (see the definitions of "fair value", "position" and "risk category" in *section 2(1)*). *Section 15* provides that an authorized institution shall calculate its risk-weighted amount for market risk by multiplying the aggregate of the market risk capital charge (as calculated pursuant to *section 14*) by 12.5.

***Divisions 3*, *4*, *5* and *6* - calculation of market risk capital charge for interest rate exposures (*Division 3*), equity exposures (*Division 4*), foreign exchange exposures (including gold) (*Division 5*) and commodity exposures (*Division 6*)**

7.   *Divisions 3* to *6* set out the technical requirements with which an authorized institution must comply for the purposes of calculating the market risk capital charge for the 4 kinds of market risk exposures falling within the definition of "risk category" in *section 2(1)*.

***Divisions 7*, *8* and *9* - Calculation of market risk capital charge for option exposures (*Division 7*) using the simplified approach (*Division 8*) or the delta-plus approach (*Division 9*) or another approach that has the prior consent of the MA**

8.   *Divisions 7*, *8* and *9* set out the technical requirements with which an authorized institution must comply for the purposes of calculating the market risk capital charge for the institution's option exposures in debt securities, interest rates, equities, foreign exchange (including gold) and commodities.

Division 10 - Capital treatment of credit derivative contracts in authorized institution's trading book

9.   *Division 10* sets out the technical requirements with which an authorized institution must comply in the capital treatment of its credit derivative contracts in the institution's trading book. *Section 37C* provides that an authorized institution may use credit protection provided by a credit derivative contract in the institution's trading book to offset the market risk capital charge for specific risk calculated for the institution's trading book position in the underlying exposure of the credit derivative contract or in another credit derivative contract. *Sections 37D*, *37E* and *37F* specifies the various degrees or types of offsetting which may be carried out, and the requirements which must be met before that offsetting can be carried out. *Section 37H* specifies, *inter alia*, how an authorized institution shall calculate the amount of capital required to cover the counterparty credit risk arising from a total return swap or credit default swap entered into by the institution (see the definitions of "total return swap" and "credit default swap" in *section 2(1)*). *Section 37I* specifies how an authorized institution shall calculate the amount of capital required to cover the foreign exchange risk arising from a credit derivative contract entered into by the institution which is denominated in a currency other than the Hong Kong dollar.

Part 6A **- Internal models approach to calculation of market risk**

Division 1 **- General**

10.   *Section 38* specifies that *Part 6A* shall apply to authorized institutions which use the IMA to calculate their market risk. *Section 38A*, similarly to *section 12*, specifies the positions that an authorized institution shall include in the calculation of its market risk. *Section 39(1)* specifies that an authorized institution shall calculate the risk-weighted amount of its market risk exposures as the sum of the market risk capital charge for general market risk calculated by the institution's internal model, and (if applicable) the market risk capital charge for specific risk calculated by the institution's internal model, multiplied by 12.5. *Section 40* provides greater elaboration on how an authorized institution should deal with default risk in respect of its trading book positions. *Section 41(2)* empowers the MA to increase the multiplication factor should an authorized institution which uses the IMA to calculate its market risk cease to fulfil any of the criteria specified in *Schedule 1* applicable to it.

Division 2 - **Capital treatment of credit derivative contracts in authorized institution's trading book**

11.   *Section 49* requires an authorized institution to comply with *Division 1* of *Part 6A* and *Schedule 1* to apply the IMA to calculate its market risk capital charge for credit derivative contracts in its trading book. (An authorized institution which does not use the IMA to calculate its market risk capital charge for such credit derivative contracts must use the STM, as set out in *Division 10* of *Part 6*, to calculate those charges). *Sections 50* and *51* are parallel provisions in *Part 6A* to *sections 37H* and *37I* respectively in *Part 6*.