Return of Market Risk Exposures
MA(BS)3A

Summary of Proposed Changes

1. Rating agencies and minimum acceptable ratings
(Completion instructions – Section C item 23)

- The list of rating agencies specified by the HKMA is updated: "IBCA Ltd" is replaced by "Fitch Inc." and "Japan Rating and Investment Information, Inc." by "Rating and Investment Information, Inc." while Thomson BankWatch's ratings are no longer acceptable and are excluded from the list of minimum acceptable ratings, following its acquisition by Fitch Inc.

- The minimum acceptable ratings for respective rating agencies are further clarified as follows:
  - Moody's Investors Service, Inc. (from Baa to Baa3)
  - Standard & Poor's Corporation (from BBB to BBB-)
  - Fitch Inc. (from BBB to BBB-)
  - Rating and Investment Information, Inc.(from BBB to BBB-)

2. Euro-participating countries
(Completion instructions – Section C items 25 and 45)

As Greece adopted the Euro currency with effect from 1/1/2001, the country "Greece" is now included in the list of Euro-participating countries.

3. Clarification of the meaning of VAR
(Completion instructions – Section C item 69)

The phrase "equivalent to a 1 day movement in prices" is now added after "…their respective VAR" for clarification purposes.

4. **Credit risk weighted on-balance-sheet exposures eligible for deduction from total net credit risk weighted exposures**
(Return - Part VII items 5(a), (b) & (c))

To clarify that the on-balance-sheet exposures reported under Part VI-Internal Models Approach are also eligible for deduction from total net credit risk weighted exposures.

5. Deduction of credit risk weighted off-balance-sheet exposures from total net credit risk weighted exposures
(Return - Part VII item 5(d); Completion instructions – Section C item 71)

In order to avoid double counting, AIs are allowed to deduct the credit risk weighted exposures of the relevant off-balance sheet items that have been captured in MA(BS)3 when calculating the market risk adjusted risk weighted exposures.

6. Repo and reverse repo where all the risks and rewards of ownership are substantially transferred to the buyer
(Completion instructions – Section C item 22)

Guidance is now given for the reporting of such repos/reverse repos, in line with the accounting treatment under SSAP24.

July 2002

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SECRET

CO. NO. M M Y Y CAT

(For Official Use Only)

under the Banking Ordinance

MARKET RISK EXPOSURES OF AN AUTHORIZED INSTITUTION INCORPORATED IN HONG KONG

COMBINED/CONSOLIDATED RETURN

AS AT .....

Name of Authorized Institution	Date of submission

THE BANKING ORDINANCE

Return required under Section 63(2) of the Banking Ordinance to be submitted to the Monetary Authority not later than 1 month after the end of each period, unless otherwise advised by the Monetary Authority.

Note: This Return is to be read in conjunction with the Guideline on the Maintenance of Adequate Capital Against Market Risks issued by the Monetary Authority under Section 16(10) of the Banking Ordinance, and to be prepared in accordance with the completion instructions issued by the Monetary Authority.

We certify that this return is, to the best of our knowledge and belief, correct.

Chief Accountant	*Chief Executive*
Name	*Name*

Name and telephone number of responsible person who may be contacted by the Monetary Authority in case of any query.

Name	*Telephone Number*

Part I **Interest Rate Exposures (Trading Book)**

1. **Debt securities and other debt related derivatives - specific risk**

(HK$'000)

Item	Nature of Item (Note (1))	Positions	Residual Maturity			Total Exposures	TOTAL SPECIFIC RISK CAPITAL CHARGE
			6 months or less	Over 6 months to 24 months	Over 24 months		
1.1	Debt securities issued by central governments or central banks of Tier 1 countries, and debt securities issued by central governments or central banks of Tier 2 countries where the securities are denominated and funded in domestic currencies	Long					
		Short					
1.2	Debt securities issued by central governments or central banks of Tier 2 countries not included under 1.1	Long					
		Short					
1.3	Debt securities issued by Public Sector Entities of Tier 1 countries	Long					
		Short					
1.4	Debt securities issued by Multilateral Development Banks	Long					
		Short					
1.5	Debt securities issued by banks incorporated in Tier 1 countries, and debt securities issued by banks incorporated in Tier 2 countries where the securities concerned have a residual maturity of 1 year or less	Long					
		Short					
1.6	Other debt securites - rated issues (as defined in the completion instructions)	Long					
		Short					
1.7	All other debt securities in the trading book not included under 1.1 to 1.6 above	Long					
		Short					
	TOTAL (ITEMS 1.2 TO 1.7)	Long					
		Short					
	Risk Weight		0.25%	1.00%	1.60%	8.00%	
	SPECIFIC RISK CAPITAL CHARGE FOR DEBT SECURITIES AND DEBT DERIVATIVES (ON GROSS POSITION - LONG PLUS SHORT)						

Note: (1) 'Debt securities' in items 1.1 to 1.7 include cash positions as well as underlying of derivative contracts.

(2) For debt related options, either the delta weighted positions be reported above or, if the institution engages in purchase of options only as defined in the completion instructions, the options be carved out and reported under Part V.1.

2. Debt securities, debt derivatives and other interest rate derivatives - general market risk

Currency : _____ (separate sheet for each currency)

Maturity Method (Note (1))

(HK$'000)

Zone	Time band		Individual positions						Risk Weight	Weighted positions	
	Coupon 3% or more	Coupon less than 3%	Debt securities & debt derivatives		Interest rate derivatives		Total				
			Long	Short	Long	Short	Long	Short		Long	Short
1	1 month or less	1 month or less							0.00%		
	1 to 3 months	1 to 3 months							0.20%		
	3 to 6 months	3 to 6 months							0.40%		
	6 to 12 months	6 to 12 months							0.70%		
2	1 to 2 years	1.0 to 1.9 years							1.25%		
	2 to 3 years	1.9 to 2.8 years							1.75%		
	3 to 4 years	2.8 to 3.6 years							2.25%		
3	4 to 5 years	3.6 to 4.3 years							2.75%		
	5 to 7 years	4.3 to 5.7 years							3.25%		
	7 to 10 years	5.7 to 7.3 years							3.75%		
	10 to 15 years	7.3 to 9.3 years							4.50%		
	15 to 20 years	9.3 to 10.6 years							5.25%		
	Over 20 years	10.6 to 12 years							6.00%		
		12 to 20 years							8.00%		
		over 20 years							12.50%		
TOTAL											
OVERALL NET OPEN POSITION											

Calculation	Vertical disallowance	Horizontal Disallowance in			Horizontal Disallowance between			Overall net open position	TOTAL GENERAL MARKET RISK CAPITAL CHARGE
		Zone 1	Zone 2	Zone 3	Zones 1 & 2	Zones 2 & 3	Zones 1 & 3		
GENERAL MARKET RISK CAPITAL CHARGE									

Note: (1) All time band classifications include the last day of the period.

(2) For options, either delta weighted positions be reported above, or if the institution engages in purchase of options only as defined in the completion instructions, the options be carved out and reported under Part V.1.

Part II **Equity Exposures (Trading Book)**

(HK$'000)

Item	Nature of item	Positions	Stock Markets						Total
			Hong Kong	Outside HK (Note (1))					
1.	Common stocks	Long							
		Short							
2.	Convertible securities	Long							
		Short							
3.	Commitments to buy or sell equities	Long							
		Short							
4.	Equity swaps (Note (2))	Long							
		Short							
5.	Futures relating to equity indices	Long							
		Short							
6.	Futures relating to individual equities	Long							
		Short							
7.	Options relating to equity indices (note (3))	Long							
		Short							
8.	Options relating to individual equities (note (3))	Long							
		Short							
9.	Others	Long							
		Short							
	TOTAL	**Long**							
		Short							

Calculation

(A)	Gross (long plus short) positions							
	Risk weight	8%	8%	8%	8%	8%	8%	
	Specific Risk Capital Charge							
(B)	Net long or short positions							
	Risk weight	8%	8%	8%	8%	8%	8%	
	General Market Risk Capital Charge							
	TOTAL CAPITAL CHARGE FOR EQUITY EXPOSURES							

Note: (1) Report positions on a market-by-market basis i.e. separate column for each national market, use separate sheet if columns not adequate.

(2) For equity swaps that pay or receive a fixed or floating interest rate against an equity index, the interest rate component should be slotted into Part I, with the equity component being included in item 4 above.

(3) For options, either delta weighted positions be reported above, or if the institution engages in purchase of options only, the options be carved out and reported under Part V.1.

Part III **Foreign Exchange Exposures**

(HK$'000)

Currency		Net long (short) position excluding options			Options	Total net long (short) position
		Hong Kong offices Note (1)	Overseas branches Note (1)	Subsidiaries Note (1)	Net delta-weighted positions of options Note (2)	
US dollars	USD					
Pound Sterling	GBP					
Janpanese yen	JPY					
Euro	EUR					
Canadian dollars	CAD					
Swiss francs	CHF					
Australian dollars	AUD					
Singapore dollars	SGD					
New Zealand dollars	NZD					
Gold	GOL					
Foreign currencies not separately specified above						
Hong Kong dollars	HKD					
Sum of net long / short positions						
USD / HKD position						
Adjusted sum of net long / short positions						

Note: (1) Extracted from Part I Columns 5, 7 and 8 (where appropriate) of Foreign Currency Position Return MA(BS)6 but in HK$'000.

(2) For options, either delta weighted positions be reported above, or if the institution engages in purchase of options only, the options be carved out and reported under Part V.1.

Calculation

1.	Adjusted sum of net long / short positions	
2.	Net position in gold (regardless of sign)	
3.	Overall net open position (3 = 1 + 2)	
4.	Risk weight	8%
5.	**CAPITAL CHARGE FOR FOREIGN EXCHANGE EXPOSURES** (5 = 3 X 4)	

Part IV Commodity Exposures

(HK$'000)

Item	Nature of items	Long position	Short position	Net long or short position (absolute value)	Gross long plus short positions	Risk weight		Capital charge
						Net position	Gross position	
		1	2	3 = 1-2	4 = 1 + 2	5	6	7 = 3x15%+4x3%
1.	Platinum					15%	3%	
2.	Silver					15%	3%	
3.	Other Precious Metals (excluding gold) _____					15%	3%	
4.	Other Precious Metals (excluding gold) _____					15%	3%	
5.	Other Products _____					15%	3%	
6.	Other Products _____					15%	3%	
	TOTAL CAPITAL CHARGE FOR COMMODITY EXPOSURES							

Note: (1) For commodity swaps that pay or receive a fixed or floating interest rate against a commodity, the interest rate component should be slotted into Part I, with the commodity component being included in the respective commodity.

(2) For options, either delta weighted positions be reported above, or if the institution engages in purchase of options only as defined in the completion instructions, the options be carved out and reported under Part V.1.

(3) For other precious metals and other products, use separate sheet if rows not adequate.

Part V **Options**

1. **Simplified approach** (For institutions that purchase options only, as defined in the completion instructions)

1(a) **Long options with related cash positions**

Report the capital charge being the market value of the underlying multiplied by the sum of specific and general market risk charges for the underlying less the amount the option is in the money (if any) bounded at zero, i.e. maximum reduction of the amount to be reported for each option is to zero. Calculation has to be performed on individual option basis and the sum of the amount for each option to be reported below:

(HK$'000)

Item	Underlying of Options	Risk charge		Long cash & Long put	Short cash & Long call	Total
		Specific	General			
1.1	Debt instruments (Note (1))	0.00% (Note(2))	Note (3)			
		0.25% (Note(2))	Note (3)			
		1.00% (Note(2))	Note (3)			
		1.60% (Note(2))	Note (3)			
		8.00% (Note(2))	Note (3)			
1.2	Interest rate, i.e. non-debt related (Note (1))	0.00%	Note (3)			
1.3	Equity (NoteI1))	8.00%	8.00%			
1.4	Foreign exchange	0.00%	8.00%			
1.5	Commodity	0.00%	15.00%			
	TOTAL					

Note: (1) Trading book only
(2) Classification as per Part I.1
(3) General market risk charge to be applied as per risk weights according to time bands in Part I.2.

1(b) **Long call or long put options**

Report the capital charge being the lesser of:
(i) the market value of the underlying multiplied by the sum of specific and general market risk charge for the underlying; and
(ii) the market value of the options
Calculation has to be performed on individual option basis and the sum of the amount for each option to be reported below :

(HK$'000)

Item	Underlying of Options	Risk charge		Long put	Long call	Total
		Specific	General			
1.1	Debt instruments (Note (1))	0.00% (Note(2))	Note (3)			
		0.25% (Note(2))	Note (3)			
		1.00% (Note(2))	Note (3)			
		1.60% (Note(2))	Note (3)			
		8.00% (Note(2))	Note (3)			
1.2	Interest rate, i.e. non-debt related (Note (1))	0.00%	Note (3)			
1.3	Equity (Note(1))	8.00%	8.00%			
1.4	Foreign exchange	0.00%	8.00%			
1.5	Commodity	0.00%	15.00%			
	TOTAL					

Note: (1) Trading book only
(2) Classification as per Part I.1
(3) General market risk charge to be applied as per risk weights according to time bands in Part I.2.

2. **Delta-plus approach - gamma and vega sensitivities**

(For instituions that write options and delta-weighted positions are reported in Part I to IV. Refer to the completion instructions for the amount of capital charge to be reported.)

2(a) **Debt related and interest rates options**

Currency: _____ (separate sheet for each currency)

(HK$'000)

Time band	negative gamma impact	vega
1 month or less		
1 to 3 months		
3 to 6 months		
6 to 12 months		
1 to 2 years		
2 to 3 years		
3 to 4 years		
4 to 5 years		
5 to 7 years		
7 to 10 years		
10 to 15 years		
15 to 20 years		
over 20 years		
Total 2(a)		

2(b) **Equities options**

(HK$'000)

Types of underlying	negative gamma impact	vega
Total 2(b)		

2(c) Foreign Exchange and Gold options

(HK$'000)

Types of underlying	negative gamma impact	vega
Total 2(c)		

2(d) Commodity options

(HK$'000)

Types of underlying	negative gamma impact	vega
Total 2(d)		

Part VI **INTERNAL MODELS APPROACH**

1. **Value-at-risk results**

(HK$'000)

Item	Nature of items	Value-at-Risk (VaR) results		Number of backtesting exceptions		Multiplication factor (Note (2))	Capital charge
		End of quarter VaR	Average VaR over past 60 trading days	Based on actual profit & loss	Based on hypothetical profit & loss		
		(a)	(b)	(c)	(d)	(e)	(f)
1.1	Interest rates						
1.2	Equities						
1.3	Foreign exchange						
1.4	Commodities						
1.5	Aggregate of all risk categories (Note(1))						
1.6	Average VaR x multiplication factor (1.6 = 1.5 (b) x 1.5 (e))						
1.7	**CAPITAL CHARGE FOR GENERAL MARKET RISK CALCULATED BY INTERNAL MODELS** (Note (3))						
1.8	**CAPITAL CHARGE FOR SPECIFIC RISK CALCULATED BY INTERNAL MODELS**						
1.9	**TOTAL CAPITAL CHARGE CALCULATED BY INTERNAL MODELS** (1.9 = 1.7 + 1.8)						

2. **Largest daily losses over the quarter**

(HK$'000)

Date (DD/MM/YYYY)	Amount of loss (absolute value)	VaR

Note: (1) Item 1.5 does not necessarily equal to the aggregate of item 1.1 to item 1.4 because of correlations across the risk categories.

(2) Multiplication factor equals sum of (minimum multiplication factor 3 + "plus" factor based on backtesting results + any additional "plus" factor as agreed with HKMA).

(3) Capital charge for general market risk is item 1.5 column (a) or item 1.6, whichever is larger.

Part VII Capital Adequacy Ratio Incorporating Market Risks Exposures

1. Market Risk Capital Charges For Standardised Approach

Part I.1	Part I.2 (Note 1)	Part II	Part III	Part IV	Part V		Total	
					1(a)			
					1(b)			
					2(a) (Note 1)			
					2(b)			
					2c)			
					2(d)			
								(A)

2.	Market Risk Capital Charges For Internal Models Approach (Part VI Item 1.9)		**(B)**
3.	Market Risk Weighted Exposures (3 = (A + B) x 12.5)		**(C)**
4.	Total Capital Base After Deductions (extracted from MA(BS)3 - Part IV item 1)		**(D)**
5.	Total Net (Credit) Risk Weighted Exposures (extracted from MA(BS)3 - Part IV item 2.5)		
	Less: (Credit) Risk Weighted Exposures (calculated according to MA(BS)3) for -		
	(a) On-Balance Sheet Debt Securities included in Part I or VI of this Return		
	(b) On-Balance Sheet Equities included in Part II or VI of this Return		
	(c) On-Balance Sheet Commodities Positions included in Part IV or VI of this Return		
	(d) Off-Balance Sheet Items included in Part I, II, IV, V and VI of this Return (Note 2)		
	Adjusted Net (Credit) Risk Weight Exposures		**(E)**
6.	Capital Adequacy Ratio Incorporating Market Risk Exposures (6 = D / (C + E) x 100%)		**%**

Note: (1) Report the sum of the market risk capital charges for all currencies.

(2) Report <u>ONLY</u> the credit risk weighted exposures that have been captured in MA(BS)3 Part III, items 1-11.

Completion Instructions

Return of Market Risk Exposures of an Authorized Institution incorporated in Hong Kong Form MA(BS)3A

Introduction

1. This return collects information on the market risk exposures of an authorized institution ("AI") incorporated in Hong Kong. The reported exposures in this return, together with the existing credit risk capital adequacy reporting, will be used in the calculation of the AI's adjusted capital adequacy ratio incorporating market risks exposures**,** which is set out in Part VII of the return. Both the adjusted capital adequacy ratio and the capital adequacy ratio as calculated in the Return of Capital Adequacy Ratio (Form MA(BS)3) should be above the minimum ratio set for the AI.

2. The return and these completion instructions should be read in conjunction with the Guideline on the Maintenance of Adequate Capital Against Market Risks issued by the Hong Kong Monetary Authority (HKMA) under Section 16(10) of the Banking Ordinance. Reference should also be made to the circular on market risks issued by the HKMA on 20 March 1996, in which a copy of the Basel Committee's Amendment to the 1988 Capital Accord to incorporate Market Risks issued in January 1996 was enclosed.

3. These instructions contain 3 sections. Section A gives instructions on the general reporting requirements. Section B provides definitions and clarification of certain items and Section C explains the reporting requirements for individual items in the return.

Section A : General Instructions

4. AIs incorporated in Hong Kong are required to complete this return on a solo basis (combined return) and also on a consolidated basis (consolidated return). The combined return covers the positions of the AI's local and overseas branches (if any), while the consolidated return covers the positions of the AI and its subsidiaries. Unless specified otherwise by the HKMA, the subsidiaries to be included in the consolidated return are the same as those included for the purpose of Form MA(BS)3.

5. The returns should show the position as at the last calendar day of each quarter and should be submitted as follows:

(a) Combined return - within 1 month after the end of each quarter in the case of institutions without overseas branches or within 6 weeks in all other cases; and

(b) Consolidated return - within 6 weeks after the end of each quarter unless otherwise advised by the HKMA.

(c) If the submission deadline falls on a public holiday, it will be deferred to the next working day.

6. Current market value should be used for reporting. This is the valuation of the relevant position with reference to prices quoted by dealers and exchanges or, for over-the-counter contracts for which there are no ready market prices, the valuation based on discounted cash flows using market quoted rates. For leveraged instruments where the apparent notional amount differs from the effective notional amount, the institution should use the effective notional amount in calculating the market value for reporting.

7. Amounts are to be shown to the nearest thousand, in HK$ or HK$ equivalents in the case of foreign currency items. The closing middle market T/T rates prevailing at the reporting date should be used for conversion purposes.

8. The Annex to these instructions contains an example based on a hypothetical portfolio to show how various types of transactions should be reported in the return under the Basel Committee's Standardised Approach. It also illustrates how the market risk capital charges are calculated under this approach.

9. Securities transactions are to be reported on a "trade date" basis.

Section B : Definitions and clarification

10. Market risk is defined as the risk of losses in on- and off-balance sheet positions arising from movements in market prices. The risks subject to this reporting requirement are:

(a) the risks pertaining to interest rate related instruments and equities in the institution's **trading book**;

(b) foreign exchange risk and commodity risk throughout the institution.

The return should include the reporting institution's positions in on-balance sheet financial instruments and off-balance sheet derivatives, the latter being defined as financial contracts whose values depend on the values of one or more underlying assets or indices.

11. For the purpose of this return, the trading book of an institution shall consist of:

(a) its proprietary positions in financial instruments which are taken on with the intention of short-term resale or benefiting in the short term from actual or expected differences between the buying and selling prices or from other price or interest rate variations;

(b) positions which arise from the execution of trade orders from customers and market making; and

(c) positions taken in order to hedge other elements of the trading book.

12. The financial instruments referred to in the preceding paragraph include:

(a) (i) transferable securities;

(ii) units in collective investment undertakings;

(b) certificates of deposit and other similar capital market instruments;

(c) financial futures contracts;

(d) forward contracts including forward rate agreements;

(e) swaps; and

(f) options

13. Institutions are expected to have an established policy for allocating transactions (including internal deals) to the trading or non-trading (i.e. banking) book, as well as procedures to ensure compliance with such policy. There must be a clear audit trail at the time each transaction is entered into and the HKMA will examine the adequacy of such policy and procedures and their consistent implementation when it is considered necessary. For this purpose, AIs which engage in trading activities should submit to the HKMA a policy statement covering:

(a) the definition of trading activities;

(b) the financial instruments which can be traded or used for hedging the trading book portfolios; and

(c) the principles for transferring positions between the trading and the banking books.

14. In general, the HKMA will have regard to the AI's intention in entering into a particular transaction when determining whether such transaction should fall into the trading book. Transactions will likely be considered to carry a trading intent on the part of the AI if:

(a) the positions arising from the transactions are marked to market on a daily basis as part of the internal risk management process;

(b) the positions are not (or not intended to be) held to maturity; and

(c) the positions satisfy other criteria the AI applies to its trading portfolio on a consistent basis.

15. "Tier 1 countries" comprise Hong Kong, countries belonging to the Organization For Economic Co-operation and Development (OECD) as listed below and those countries which have concluded special lending arrangements with the International Monetary Fund associated with the Fund's General Agreements to Borrow (at present only Saudi Arabia) but exclude any country which has rescheduled its external sovereign debt, whether to central government or non-central government creditors, within the previous 5 years. The European Central Bank shall be treated as a central bank of Tier 1 countries.

OECD countries for the time being comprise:

Australia	Germany	Mexico	Sweden
Austria	Greece	Netherlands	Switzerland
Belgium	Hungary	New Zealand	Turkey
Canada	Iceland	Norway	U.S.A.
Czech Republic	Irish Republic	Poland	U.K.
Denmark	Italy	Portugal	
Finland	Japan	South Korea	
France	Luxembourg	Spain	

"Tier 2 countries" comprise all countries other than Tier 1 countries. The terms "multilateral development bank" and "public sector entity" are defined in section 1 of the Third Schedule to the Banking Ordinance.

16. Debt securities include both fixed-rate and floating-rate instruments, negotiable certificates of deposit, non-convertible preference shares, and also convertible bonds (i.e. debt issues or preference shares that are convertible, at a stated price, into common shares of the issuer) which trade like debt securities. Debt related derivatives include bond futures and bond options. Options are subject to special treatments and described in more detail under Part V of Section C.

17. Interest rate derivatives include all derivatives contracts and off-balance-sheet instruments which react to changes in interest rates, e.g. interest rate futures, forward rate agreements (FRAs), interest rate and cross currency swaps, interest rate options and forward foreign exchange positions. As noted above, the treatment for options is described in Part V of Section C.

18. Detailed offsetting rules applicable to the reporting of positions are set out in the relevant parts of Section C. These offsetting rules can be applied on both the combined and consolidated basis, provided that in the latter case there are no obstacles to the quick repatriation of profits from a foreign subsidiary to Hong Kong and the AI performs daily management of risks on a consolidated basis. For the purpose of this return, offsetting means the exclusion of matched positions of an AI from reporting and hence exclusion of such positions from the calculation of the adjusted capital adequacy ratio.

19. For the avoidance of doubt, items that are subjects of deduction from the capital base of the institution in the calculation of the Capital Adequacy Ratio pursuant to paragraph 3(A), (B), (C) and (D) of the Third Schedule to the Banking Ordinance are excluded from reporting in this return.

20. In general, AIs are only required to complete Parts I to V and VII of the Return. AIs which have obtained the HKMA's approval to adopt their internal value-at-risk models to calculate their market risk capital charge (in all or individual risk categories) should complete Part VI. Where the internal model is used to calculate only selected risk categories, the capital charge for the risk categories measured under the Internal Models Approach should be reported in Part VI while that for the other risk categories measured under the Standardised Approach should be reported in the relevant sections of Parts I to V. This combination of the Standardised Approach and the Internal Models Approach is allowed on a transitional basis. AIs which adopt the modelling alternative for selected risk categories will be expected over time to move towards a comprehensive model capturing all market risk categories. AIs which adopt the Internal Models Approach will not be permitted, save in exceptional circumstances, to revert to the Standardised Approach.

AIs allowed by the HKMA to adopt the European Union Capital Adequacy Directive for the purpose of this return should report on the basis agreed with the HKMA.

Section C : Specific Instructions

Part I Interest Rate Exposures

1. Debt securities and debt related derivatives - specific risk

21. Report in this part the long and short positions in debt securities and debt derivatives (e.g. bond futures and bond options) in the trading book by category of the issuer. Offsetting will be allowed between long and short positions in identical issues (including positions in derivatives) with exactly the same issuer, coupon, currency and maturity. For items 1.2 to 1.6, positions should be slotted into the appropriate time bands according to the residual maturities of the debt securities (or the underlying securities in case of debt derivatives).

22. A security which is the subject of a repurchase or securities lending agreement will be treated as if it were still owned by the lender of the security i.e. to be reported by the latter, and this principle applies also in Part I.2. Commitments to buy and sell securities should be reported as a long and a short position respectively.

Where a security is sold subject to a repurchase agreement, the terms of which transfer substantially all risks and rewards of ownership to the buyer (and the transaction is separately accounted for as an outright sale plus a commitment to repurchase), the security sold under such an agreement should not be reported in the return. The commitment to repurchase should be reported as a forward purchase of the security.

Where a security is purchased subject to a resale agreement, the terms of which transfer substantially all risks and rewards of ownership to the reporting institution (and the transaction is separately accounted for as an outright purchase plus a commitment to sell back), the security purchased under such an agreement should be reported as an asset and the commitment to sell back should be reported as a forward sale of the security.

23. Rated issues include securities that are:

- rated investment-grade by at least two credit rating agencies specified by the HKMA; or
- rated by only one of the rating agencies specified by the HKMA in which case it should be rated investment grade by such agency.

The specified agencies and the respective minimum acceptable ratings for the time being are:

Moody's Investors Service, Inc.	Baa***3***
Standard & Poor's Corporation	BBB-
~~IBCA Ltd.~~ ***Fitch Inc.***	BBB-
~~Thomson BankWatch~~	~~BBB~~
~~Japan~~ Rating and Investment Information, Inc*.	BBB-

* Other than those assigned by the agency on debt securities issued or guaranteed by its shareholders and their related companies, the ratings on debt securities are recognised.

2. Debt securities, debt related derivatives and interest rate derivatives - general market risk

24. Report in this part the long and short trading book positions in debt securities and debt derivatives described above as well as interest rate derivatives. Report also interest rate exposures arising from futures contracts and forward positions in equities and commodities. This is described in more detail under Parts II and IV. A Maturity Method is adopted for the reporting of these positions as detailed below. Institutions that possess the necessary capability to calculate the duration and price sensitivity of each position separately and wish to adopt such a duration approach for reporting in this part may discuss with the HKMA.

25. Positions should be reported separately for each currency, i.e. institutions should use separate sheets (Part I.2) to report positions of different currencies. For positions in the Euro and the national currencies of the Euro-participating countries (which now include Austria, Belgium, Finland, France, Germany, ***Greece,*** Ireland, Italy, Luxembourg, Netherlands, Portugal, and Spain), institutions should report all the positions in aggregate and after allowable offsetting, in one page under the "Euro (EUR)". The market risk capital charge is then calculated for each currency according to procedures set out in paragraphs 35 to 38 with no offsetting between different currencies.

26. Under the Maturity Method, positions are slotted into the time bands of the maturity ladder (as shown in Part I.2) by remaining maturity if fixed rate and by the period to the next repricing date if floating rate. Derivatives should be treated as combinations of long and short positions. The maturity of an interest rate future or a forward rate agreement will be the period until delivery or exercise of the contract, plus - where applicable - the life of the underlying instrument. For example, a long position in a June 3-month interest rate future taken in December is to be reported at end of December as a long position in a zero coupon government security in that particular currency with a maturity of 9 months and a short position in a zero coupon government security with a maturity of 6 months. (Refer example (5) in the Annex.) The market values of the two positions should be reported. For forward foreign exchange

positions in the trading book, they should be treated as long and short positions in a zero coupon government security of the two currencies with the same maturity as the forward contract. (Refer example (8) in the Annex.)

27. For a bond future, where a range of deliverable instruments may be delivered to fulfill the contract, the institution has flexibility to elect which deliverable security goes into the maturity ladder but should take account of any conversion factor defined by the exchange. A two-leg approach will be adopted similar to the above. A long bond future will be taken as a long position in a deliverable bond and a short position in a zero coupon security maturing at the future's delivery date. For example, a long futures contract on a 5 year fixed rate security with delivery 3 months from the reporting date will be reported as a long position in say, a 5.25 year security i.e. a specific security which is within the range of deliverables under the futures contract (as opposed to a notional/theoretical security), and a short position in a 3 months zero coupon security. (Refer example (3) in the Annex.)

The amount to be reported in the above example for both legs will be the contract face value divided by the relevant conversion factor and multiplied by the current cash price of the selected deliverable bond. A forward bond transaction (i.e. with a settlement period longer than the market norm) will be treated similarly i.e. a long bond forward will be reported as a long position in the bond and a short position in a zero coupon security up to the forward delivery date. The current market value (at spot price) of the bond should be reported.

28. Swaps will be treated as two positions in securities with the relevant maturities. For example, an interest rate swap under which an institution is receiving floating rate interest and paying fixed will be treated as a long position in a floating rate instrument of maturity equivalent to the period until the next interest fixing and a short position in a fixed-rate instrument of maturity equivalent to the residual life of the swap. The market values of the two instruments should be reported. (Refer example (4) in the Annex.) For swaps that pay or receive a fixed or floating interest rate against some other reference price, e.g. an equity price, the interest rate component should be slotted into the appropriate maturity category, with the equity component being included in the equity framework. The separate legs of cross-currency swaps are to be reported in the relevant maturity ladders for the currencies concerned.

29. As with the reporting under Part I.1, institutions can offset long and short positions in identical instruments with exactly the same issuer, coupon, currency and maturity for general market risk purposes. Similarly, a matched position in a futures or forward contract and its underlying may be fully offset. However, the leg representing the time to expiry of the futures or forward contract should be reported.

For example, an institution has a long position in a particular bond and sells forward (i.e. beyond the normal settlement period for the security) such a bond as at the reporting date. The long and short positions in the bond can be offset but a long position in a (notional) zero coupon security with maturity at the forward delivery date should be reported, at the current market value of the bond. Similarly, if the institution has a short position in a bond future and a long position in the underlying bond, such positions can be offset. A long position up to the future's delivery date should however be reported.

When the futures contract comprises a range of deliverable instruments, offsetting of positions in the futures contract and its underlying is only permissible in cases where there is a readily identifiable underlying security which is most profitable for the trader with a short position to deliver i.e. the "cheapest to deliver". This means that offsetting is only permitted between a short future and a long bond, not between a long future and a short bond; and the long bond must be the "cheapest to deliver" one. The amount to be reported for the remaining long position up to the futures contract's delivery date will be the face value of the contract divided by the relevant conversion factor and multiplied by the current spot price of the "cheapest to deliver" bond.

30. Opposite positions in the same category of derivatives instruments (including the delta-equivalent value of options where the delta-plus approach for options is adopted - see Section C Part V) can in certain circumstances be regarded as matched and allowed to offset fully. The separate legs of different swaps may also be "matched" subject to the same conditions. To qualify for this treatment the positions must relate to the same underlying instruments, be of the same nominal value and be denominated in the same currency. In addition:

(a) for futures: offsetting positions in the notional or underlying instruments to which the futures contract relates must be for identical products and mature within seven days of each other;

(b) for swaps and FRAs: the reference rate (for floating rate positions) must be identical and the coupon closely matched (i.e. within 15 basis points); and

(c) for swaps, FRAs and forwards: the next interest fixing date or, for fixed coupon positions or forwards, the residual maturity must correspond within the following limits:

- If either of the instruments for offsetting has an interest fixing date or residual maturity up to 1 month, the interest fixing date or residual maturity must be the same for both instruments.

- If either of the instruments for offsetting has an interest fixing date or residual maturity greater than 1 month and up to 1 year, those dates or residual maturities must be within 7 days of each other.

- If either of the instruments for offsetting has an interest fixing date or residual maturity over 1 year, those dates or residual maturities must be within 30 days of each other.

For example, a bought and a sold FRA in the same currency with the same face value and settlement date as well as notional deposit maturity date can be offset against each other and excluded from reporting if the contract rates are within 15 basis points of each other. Similarly opposite swaps can be offset if, say, the floating rate in both cases is 6 months HIBOR and the fixed rates are within 15 basis points of each other. The positions can still be offset if the reference dates (i.e. the next interest fixing date or remaining maturity) of the opposite positions are different but within the range as set out in (c) above. Opposite bond futures can, for example, be offset against each other if the deliverable bonds are of the same type and mature within seven days of each other.

31. Institutions with the necessary expertise and systems may use alternative formulae (the so called "pre-processing" techniques) to calculate the positions to be included in the maturity ladder. This applies to all interest rate sensitive positions, arising from both physical and derivative instruments. One method is to first convert the payments required under each transaction into their present values. For that purpose, each cash flow should be discounted using zero-coupon yields. A single net figure of all of the cash flows within each time band may be reported. Institutions wishing to adopt this or other methods for reporting should seek the HKMA's prior consent. The "pre-processing" models would be subject to verification by the HKMA.

Calculation of capital charges for interest rate exposures reported in Part I

32. The minimum capital requirement is expressed in terms of two separately calculated charges, one applying to the "specific risk" of each trading book position in debt securities or debt derivatives; whether it is a short or long position, and the other to the overall interest rate risk in the trading book portfolio (termed "general market risk") where long and short positions in different securities or derivatives can be offset subject to certain "disallowances".

Specific risk

33. The specific risk charge is graduated in 5 broad categories by types of issuer as follows:

Government	0.00%
Qualifying	0.25% (residual maturity 6 months or less) 1.00% (residual maturity over 6 months to 24 months) 1.60% (residual maturity over 24 months)
Others	8.00%

"Government" refers to the issuers as described under item 1.1 in Part I1 of the Return.

"Qualifying" refers to the issuers as described under items 1.2 to 1.6 in Part I.1 of the Return.

34. Interest rate and currency swaps, FRAs, forward foreign exchange contracts and interest rate futures will not be subject to a specific risk charge. In the case of futures contracts where the underlying is a debt security, a specific risk charge will apply according to the issuer (and the remaining maturity) as set out in the above paragraph.

General market risk

35. General market risk applies to positions in all debt securities, debt derivatives and interest rate derivatives, subject only to an exemption for fully or very closely matched positions in identical instruments as described in paragraphs 29 to 30 above. The capital charge is the sum of the following components:

(a) the net short or long weighted position in the whole trading book;

(b) a small proportion of the matched position in each time band (the "vertical disallowance"); and

(c) a larger proportion of the matched positions across different time-bands (the "horizontal disallowance").

36. In the maturity ladder, first calculate the weighted positions by multiplying the positions reported in each time band by a risk factor according to the following table:

Table 1

Maturity method: time bands and weights

Coupon 3% or more	Coupon less than 3%	Risk weight
1 month or less	1 month or less	0.00%
1 to 3 months	1 to 3 months	0.20%
3 to 6 months	3 to 6 months	0.40%
6 to 12 months	6 to 12 months	0.70%
1 to 2 years	1.0 to 1.9 years	1.25%
2 to 3 years	1.9 to 2.8 years	1.75%
3 to 4 years	2.8 to 3.6 years	2.25%
4 to 5 years	3.6 to 4.3 years	2.75%
5 to 7 years	4.3 to 5.7 years	3.25%
7 to 10 years	5.7 to 7.3 years	3.75%
10 to 15 years	7.3 to 9.3 years	4.50%
15 to 20 years	9.3 to 10.6 years	5.25%
over 20 years	10.6 to 12 years	6.00%
	12 to 20 years	8.00%
	over 20 years	12.50%

37. The weighted longs and shorts in each time band will be offset resulting in a single short or long position for each band. A 10% capital charge ("vertical disallowance") will be levied on the smaller of the offsetting positions, be it long or short. Thus, if the sum of the weighted longs in a time band is $100 million and the sum of the weighted shorts is $90 million, the vertical disallowance would be 10% of $90 million (i.e., $9 million).

38. 2 rounds of "horizontal offsetting" will then be conducted, first between the net positions in each of 3 zones (zero to 1 year, 1 year to 4 years and 4 years and over), and subsequently between the net positions in the 3 different zones. The offsetting will be subject to a scale of disallowances expressed as a fraction of the matched positions, as set out in Table 2 below. The weighted long and short positions in each of 3 zones may be offset, subject to the matched portion attracting a disallowance factor that is part of the capital charge. The residual net position in each zone may be carried over and offset against opposite positions in other zones, subject to a second set of disallowance factors.

Table 2

Horizontal disallowances

<table>
<tr><th>Zones</th><th>Time-band</th><th>Within the zone</th><th>between adjacent zones</th><th>Between Zones 1 and 3</th></tr>
<tr><td>Zone 1</td><td>1 month or less
1 to 3 months
3 to 6 months
6 to 12 months</td><td>40%</td><td rowspan="3">40%</td><td rowspan="3">100%</td></tr>
<tr><td>Zone 2</td><td>1 to 2 years
2 to 3 years
3 to 4 years</td><td>30%</td></tr>
<tr><td>Zone 3</td><td>4 to 5 years
5 to 7 years
7 to 10 years
10 to 15 years
15 to 20 years
over 20 years</td><td>30%</td></tr>
</table>

Part II Equity Exposures

39. Report in this part the long and short positions in equities and equity derivatives in the trading book, including instruments that exhibit market behaviour similar to equities. The instruments covered include common stock (whether voting or non-voting), convertible bonds (i.e. debt issues or preference shares that are convertible, at a stated price, into common shares of the issuer) which trade like equities and commitments to buy or sell equity securities. For non-convertible preference shares and those convertible bonds which trade like debt securities, they should be reported under Part I. Equity derivatives includes forwards, futures and swaps on both individual equities and on stock indices. Options should be included subject to the specific instructions set out in Part V. Long and short positions in the same issue may be reported on a net basis.

40. The positions are to be reported on a market-by-market basis, i.e. under separate columns to indicate the exchange where the reported equities are listed/traded. For overseas markets, institutions should indicate the country where the market is located in the space provided. Equities with listing in more than one market should be reported as positions in the market of their primary listing.

41. Equity derivatives are to be converted into positions in the relevant underlying. Futures and forward contracts relating to an individual equity should be reported at current market values. Futures relating to equity indices can be reported either as the current index value times the monetary value of one index point set by the exchange, i.e. the "tick" value (e.g. the Hang Seng Index Future is set at HK$50 per point), or the marked-to-market value of the notional underlying equity portfolio. (Refer example (11) in the Annex.)

42. Matched positions in each identical equity or index (same delivery months) in each market may be fully offset, resulting in a single net short or long position. A future in a given equity may be offset against an opposite cash position in the same equity but the interest rate exposure arising out of the equity futures should be reported in Part I. For example, a short futures contract on a specific stock with delivery 3 months from the reporting date can be offset against a long position in the underlying stock. However, the interest rate exposure arising out of the equity futures should be reported as a long position in the "1 to 3 months" time band of the stock denominated currency in Part I. The position should be reported as the current market value of the stock.

43. An equity swap obligates an institution to receive an amount based on the change in value of a particular equity or equity index and also to pay an amount based on the change in value of a different equity or equity index. Accordingly, the receipt side and the payment side of an equity swap contract should be reported as a long and a short position respectively. For an equity swap contract which involves a leg relating to a financial instrument other than

equities or equity derivatives, for example, receiving/paying a fixed or floating interest rate, that exposure should be slotted into the appropriate maturity band in Part I. Where equities are part of a forward contract (equities to be received or to be delivered) any interest rate exposure from the other leg of the contract should be reported in Part I. The treatment is similar to that set out in paragraph 42. The same arrangement applies for index futures. (Refer example (11) in the Annex.)

44. As with interest rate exposures, the capital charge is levied in two aspects to cover both the specific risk and the general market risk. Calculation is done on an individual market basis. The capital charge for specific risk will be 8% on the gross (i.e. long plus short) positions. (A 4% specific risk charge for liquid and diversified portfolio may be considered in due course.) The general market risk charge will be 8% on the net position. Net long and short positions in different markets cannot be offset for the purpose of calculating the general market risk charge.

Part III Foreign Exchange Exposures

45. Report in this part the amount of net long (short) position in each currency and gold. These amounts should be the same as those reported under columns 5, 7 and 8 of Part I (where appropriate) of the Foreign Currency Position Return (Form MA(BS)6), but reported in HK$ thousand. For positions in the Euro and the national currencies of the Euro-participating countries (which now include Austria, Belgium, Finland, France, Germany, ***Greece,*** Ireland, Italy, Luxembourg, Netherlands, Portugal, and Spain), institutions should report all the positions under "Euro (EUR)". The long and short positions between the Euro and the Euro-participating currencies shall be offset and consolidated into positions in the Euro. The net delta-based equivalent of foreign currency options should also be reported for each currency, subject to the specific instructions in Part V. In addition, structural positions taken deliberately to hedge against the effects of exchange rate movements on the capital adequacy of the reporting institution may be excluded. This should be discussed with the HKMA prior to the reporting.

46. Similar to the reporting in Form MA(BS)6 the HKD position should be a balancing figure to make the total of all net long positions the same as the total of all net short positions. The sum of net long/short positions should be the sum of either the net long or the net short in individual currencies including HKD position, and presented without positive or negative sign.

The USD against HKD position should be reported as follows:

- zero if the net open positions in USD and HKD are of the same sign;
- the smaller of the two positions (ignoring the sign) if the net open positions in USD and HKD are of opposite sign.

47. The overall net open position is measured by aggregating:

- the sum of net long/short positions less the USD against HKD position, and
- the net position (short or long) in gold, regardless of sign.

The capital charge will be 8% of the overall net open position.

Part IV Commodity Exposures

48. Report in this part the holding or taking of positions in commodities. Long and short positions in each commodity may be reported on a net basis for the purposes of calculating open positions. However, offsetting is not allowed for positions in different types of commodities. The gross position (long and short) in each commodity in terms of the standard unit of measurement will be converted at current spot rates into Hong Kong dollar for reporting.

49. A commodity is defined as a physical product which is or can be traded on a secondary market, e.g. precious metals, agricultural products and minerals (including oil) etc. Gold is included under foreign exchange and hence not treated as precious metals.

50. All commodity derivatives and off-balance-sheet positions which are affected by changes in commodity prices should be included. These include forwards, futures and swaps. Options should be reported subject to the specific instructions in Part V below. Futures and forward contracts relating to an individual commodity should be reported as notional amount of the standard measurement unit of that commodity converted at current spot rates. Where a commodity is part of a forward contract (commodities to be received or to be delivered) any interest rate exposure from the other leg of the contract should be reported in Part I. This is the same as for equities as described in paragraph 43.

51. Commodity swaps where one leg is a fixed price and the other the current market price should be incorporated as a series of positions each equal to the notional amount of the contract, with one position corresponding with each payment on the swap. The positions would be long if the institution is paying fixed and receiving floating, and short if the institution is receiving fixed and paying floating. If one of the legs involves receiving/paying a fixed or floating interest rate that exposure should be reported in Part I. This is similar to the treatment for equities as described in paragraph 43.

52. A simple framework is adopted for calculating the commodities risk capital charge. This will be 15% of the net position, long or short, in each commodity; plus an additional capital charge equivalent to 3% of the

institution's gross positions, long plus short, in each commodity, to cover basis risk, interest rate risk and forward gap risk.

Part V Options

Report in this part positions of option contracts which are related to the risk categories reported in Parts I to IV, using either the Simplified Approach or the Delta Plus Approach.

1. For institutions that purchase options only - Simplified Approach

53. Institutions will be considered to be engaging only in purchase of options if at any time all their written option positions (if any) are hedged by perfectly matched long positions in exactly the same options. In this case such perfectly matched options need not be reported and only the outstanding long (purchased) options are covered by the following approach.

54. Treatments for purchased options with and without related cash positions are summarised in Table 3 below. The capital charge should be calculated separately for each individual option (together with the related cash position). Institutions should then report the sum of the capital charges calculated.

Table 3

Simplified approach: capital charge for purchased options only

Position	Treatment
Long cash and Long put or Short cash and Long call	The capital charge will be the market value of the underlying of the option multiplied by the sum of specific and general market risk charges for the underlying less the amount the option is in the money (if any), with the reduced capital charge bounded at zero.* (Refer example (10) in the Annex.)
Long call or Long put	The capital charge will be the lesser of: (a) the market value of the underlying of the option multiplied by the sum of specific and general market risk charges for the underlying; and (b) the market value of the option.**

* For options with a residual maturity of more than six months the strike price should be compared with the forward, not current, price. An institution unable to do this must take the in the money amount to be zero.

** Where the position does not fall within the trading book (i.e., options on certain foreign exchange or commodities positions not belonging to the trading book), it is acceptable to use the book value instead.

55. The market risk capital charges to be applied for the purpose of the above paragraph are indicated in Table 4 below:

Table 4

Underlying	Specific risk charge	General market risk charge
Debt instruments*: Government Qualifying (with residual maturity) 6 months or less Over 6 months to 24 months Over 24 months Others Interest rate (non-debt related)	 0.00% 0.25% 1.00% 1.60% 8.00% 0.00%	As per the risk Weights in Table 1, according to the residual Maturity (fixed rate) or next Repricing (floating rate).
Equity	8.00%	8.00%
Foreign exchange	0.00%	8.00%
Commodity	0.00%	15.00%

* Issuer classifications as per Return Part I1.

56. In some cases such as foreign exchange where it may be unclear which currency is the "underlying" of the option, this should be taken to be the asset which would be received if the option were exercised. In addition the nominal value should be used for items where the market value of the underlying instrument could be zero, e.g. caps and floors, swaptions etc.

2. For institutions that write options - Delta Plus Approach

57. Institutions that write options (apart from those described in paragraph 53) should report in Parts I to IV the relevant delta-weighted positions of all their outstanding options, i.e. the market value of the underlying of the option multiplied by the option delta. The relevant negative gamma and vega sensitivities of these options should be reported in Parts V2(a) to 2(d) in order to capture the delta sensitivity and volatility risk of these options. Institutions wishing to adopt alternate treatments for their options such as a scenario approach should discuss with the HKMA.

58. Delta-weighted option positions with *debt securities or interest rates as the underlying* will be slotted into the interest rate time bands, as set out in Part I.2. A two-legged approach should be used as for other derivatives, requiring one entry at the time the underlying contract takes effect and a second at the time the underlying contract matures. In other words the reporting mechanism would be the same as those for the positions in the underlying instruments of the options as presented in Parts I to IV, except that the market value of the underlying instruments will be adjusted by the delta ratios of the relevant options for reporting under this approach. For instance:

(a) A bought call option on a June three-month interest-rate future will in March be considered, on the basis of its delta-equivalent value, to be a long position with a maturity of six months and a short position with a maturity of three months. The written option will similarly be slotted as a long position with a maturity of three months and a short position with a maturity of six months.

(b) A two months purchased call option on a bond future where delivery of the bond takes place in September would be considered in March as being long the deliverable bond and short a six month government security in the same currency, both positions being delta-weighted.

(c) Floating rate instruments with caps or floors will be treated as a combination of floating rate securities and a series of European-style options, e.g. the holder of a two-year floating rate security indexed to six month LIBOR with a cap of 8% will treat it as:

(i) a debt security that reprices in six months; and

(ii) a series of three written call options on a FRA with a reference rate of 8%, each with a negative sign at the time the underlying FRA takes effect and a positive sign at the time the underlying FRA matures. (The rules applying to closely matched positions set out in paragraph 30 will also apply in this respect.) (Refer example (7) in the Annex.)

59. The reporting for *options with equities as the underlying* will also be based on the delta-weighted positions which will be incorporated in Part II of the return. For purposes of this calculation each national market is to be treated as a separate underlying. For *options on foreign exchange and gold positions,* the net delta-based equivalent of the foreign currency and gold options will be incorporated into the measurement of the exposure for the respective currency (or gold) position. These delta positions will be reported in Part III. *Options on commodities* will be covered in Part IV. The delta-weighted positions will be incorporated into the respective commodity positions reported in that part.

60. The net negative gamma positions and vega positions of all outstanding options (purchased or written) should also be reported in Part V.2. This is in addition to the delta positions being reported in Parts I to IV.

61. The net negative gamma positions should be reported in the following way:

(a) for each individual option a "gamma impact" should be calculated by the following formula:

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

where VU = Variation of the underlying of the option.

(b) VU will be calculated as follows:

- for debt and interest rate options of which the delta-equivalent position is reported in Part I, the market value of the underlying or notional underlying multiplied by the risk weights for the appropriate time bands set out in Table 1;

- for options on foreign exchange and gold: the market value of the underlying multiplied by 8%;

- for options on equities and equity indices: the market value of the underlying multiplied by 8%;

- for options on commodities: the market value of the underlying multiplied by 15%.

(c) For the purpose of this calculation the following positions should be treated as the same underlying:

- for interest rate instruments, each time band as set out in Table 1;

- for equities and equity indices, each national market;

- for foreign currencies and gold, each currency pair and gold;

- for commodities, each individual commodity.

Institutions with options relating to more underlyings than the space provided should report their positions in additional sheets.

(d) Each option on the same underlying will have a gamma impact that is either positive or negative. These individual gamma impacts will be summed, resulting in a net gamma impact for each underlying that is either positive or negative. **Only those net gamma impacts that are negative should be reported.**

62. The vega positions should represent the risk in a proportional shift in volatility of ±25% for the underlying. For example, an increase in volatility carries a risk of loss for a short option of which the assumed current (implied) volatility is 20%. With a proportional shift of 25%, the vega position has to be calculated on the basis of an increase in volatility of 5 percentage points from 20% to 25%. If the vega is calculated as 1.68, i.e. a 1% increase in volatility increases the value of the option by 1.68, then the above change in volatility of

5 percentage points will increase the value of the option by 8.4 (1.68 x 5) which represents the vega position to be reported.

Part VI Internal Models Approach

Only those AIs which have obtained the HKMA's approval to adopt their internal value-at-risk models to calculate their market risk capital charges are required to report in this part.

1. Value-at-risk results

63. Report in this part the value-at-risk results (VaR) as at the last trading day of the reporting quarter in column (a) and the average VaR over the most recent 60 trading days of the reporting quarter in column (b), both for each individual market risk category, i.e. item 1.1 to 1.4 and for the aggregate of all risk categories, i.e. item 1.5.

64. Provided that the HKMA is satisfied with the AI's system for measuring correlations, recognition of empirical correlations across broad risk categories (e.g., interest rates, exchange rates, equity prices and commodity prices, including related options volatilities in each risk factor category) is allowed. The VaR for the aggregate of all risk categories will therefore not necessarily be equal to an arithmetic sum of the VaR for the individual risk category.

65. Report in this part the number of backtesting exceptions for the past 250 trading days (from the reporting quarter end going backwards), based on

- actual daily changes in portfolio value, in item 1.5 column (c), and
- hypothetical changes in portfolio value that would occur were end-of-day positions to remain unchanged during the 1 day holding period, in item 1.5 column (d),

for the aggregate of the broad risk categories.

66. The multiplication factor to be reported in item 1.5 column (e) is the summation of the following three elements:

(a) the minimum multiplication factor of 3;

(b) the "plus" factor ranging from 0 to 1 based on the number of backtesting exceptions (i.e. the larger of item 1.5 column (c) and item 1.5 column (d)) for the past 250 trading days as set out in Table 5 below, or the backtesting "plus" factor agreed with the HKMA; and

(c) any additional "plus" factor as agreed with the HKMA.

Table 5

"Plus" factor based on the number of
backtesting exceptions for the past 250 trading days

	Number of exceptions	"Plus" factor
Green zone	0	0.00
	1	0.00
	2	0.00
	3	0.00
	4	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

67. Capital charge for general market risk calculated by internal models reported in item 1.7 is the larger of:

(a) Item 1.5 column (a), i.e. VaR for the aggregate of all risk categories, as at the last trading day of the reporting quarter; or

(b) Item 1.6, i.e. the average VaR for the last 60 trading days of the reporting quarter (item 1.5 column (b)) times the multiplication factor (item 1.5 column (e)) set out in paragraph 66 above.

2. Specific risk

68. Capital charge for the specific risk of debt securities, other debt related derivatives, equities and equity derivatives is to be reported in either of the following two methods:

(a) For AIs which incorporate the specific risk into their models, report the capital charge for the total specific risk calculated by the models in item 1.8 of Part VI.1; or

(b) For AIs which do not incorporate the specific risk into their models, report the specific risk of debt securities and other debt related derivatives in Part I.1 according to the instructions in paragraphs 21, 22, 23, 33 and 34. Report the specific risk of equities and equity derivatives in Part II according to the instructions in paragraphs 39 to 44. Capital charge for specific risk will be 8% on the gross (i.e. long plus short) position, which is shown as (A) on page 4 of the return.

"General Market Risk Capital Charge" on net long or short positions, which is shown as (B) on page 4 of the return, need NOT be completed. Total capital charge for equity exposures in Part II will therefore only be that of specific risk.

3. Largest daily losses over the quarter

69. Report in this part in descending order (i.e. the largest loss first) the 5 largest daily losses over the reporting quarter and their respective VaR ***equivalent to a 1 day movement in prices*** for the risk exposures which are measured by the internal models approach. If the number of daily losses during the quarter is less than 5, only report all such daily losses.

Part VII "Adjusted" Capital Adequacy Ratio

70. The market risk capital charges arising from Parts I to VI are aggregated and converted to a market risk weighted exposure. The capital base and total (credit) risk weighted exposures are extracted from Form MA(BS)3.

71. For on-balance-sheet debt securities and equities in the trading book as well as on-balance-sheet commodities included in Parts I, II, IV and VI of this return ***and for off-balance-sheet items (that have been captured in MA(BS)3, items 1-11) included in Part I, II, IV, V & VI of this return***, the (credit) risk weighted exposures reported in Form MA(BS)3 should be excluded in calculating the "adjusted" ratio. The market risk capital charges for these positions calculated in this return cover all the capital requirements for absorbing potential losses arising from carrying such positions.

Hong Kong Monetary Authority
(MM/2003)

Annex

Suppose as at 31 December, 199X, Example Bank Ltd. has the following trading book positions:

(1) Long position in US treasury bond (7.5% annual coupon) with face value equivalent to HKD78M and residual maturity of 8 years.
Market value based on quoted price: HKD79,833K equivalent

(2) Long position in an unrated floating rate note (6.25% current annual coupon) issued by a US corporate with face value equivalent to HKD40M and next repricing 9 months after.
Market value based on quoted price: HKD40,732K equivalent

(3) Long 10 5-year US Treasury Note futures (face value USD100,000 per contract) for delivery 3 months after.
Selected deliverable: US Treasury Note (coupon 6.375%) maturing 5.25 years, current price at 100.0625, conversion factor 0.9423.

(4) Single currency interest rate swap with face value HKD150M and residual maturity of 2.5 years, bank receives annual floating rate interest and pays fixed at 8% per annum. The current floating rate is fixed at 5.5% with next repricing after 6 months.

(5) Long 50 3-month HIBOR interest rate future (face value HKD1M per contract) for delivery 6 months after.

(6) A nine against fifteen FRA sold on 6-month HIBOR with nominal amount HKD20M and settlement date 9 months after.

(7) A GBP2M 2 year cap written on GBP 6 month LIBOR at cap rate 8%, next repricing after 6 months and remaining maturity 2 years (i.e. the cap is written on the reporting date).

(8) Forward foreign exchange position of DEM5M (long) against HKD25M equivalent maturing in 3 months.

(9) Long 100,000 shares of a US listed company with current market price at HKD110 equivalent.

(10) Long 50,000 shares of a HK listed company hedged by a long position in 25 put option contracts (each contract represents 1,000 shares) for the same share. The current market price for the share is HKD30 and the exercise price of all the option contracts is HKD33.

(11) Short one Hang Seng Index Futures for delivery 3 months after, current index at 10,000.

Treatments:

(1) Report market value of the long position in Part I.1, item 1.1 and Part I.2, USD ladder, 7 to 10 years time band.

(2) Report market value of the long position in Part I.1, item 1.7 and Part I.2, USD ladder, 6 to 12 months time band.

(3) Report selected Treasury Note (long position) in Part I.1, item 1.1 and Part I.2, USD ladder, 5 to 7 year time band. Report the same amount in short position, 1 to 3 months time band.

Assume spot exchange rate 7.8

Amount to be reported:

USD100,000 x 10 x 100.0625% / 0.9423
=USD1,061,896

=HKD8,283K equivalent

(4) Report the fixed rate leg as a short 2 1/2 year bond in Part I.2, HKD ladder, 2 to 3 years time band. Report the floating rate leg as a long 6 months security in the 3 to 6 months time band.

Assume the HKD zero coupon yields are as follows:

Period	Zero coupon
1M	5.31
3M	5.63
6M	5.81
1Y	6.16
2Y	6.69
3Y	7.07

(Zero coupon yields within 1 year can be taken as cash rates i.e. HIBOR, zero coupon yields beyond 1 year can be constructed from, say, swap rates.)

Cash flows of HKD swap: two legs

Pay - fixed rate bond
8% of HKD150M in 6 months
8% of HKD150M in 18 months
108% of HKD150M in 30 months
Receive - floating rate paper
105.5% of 150M in 6 months

Zero-coupon rates at 18 months can be obtained from the linear interpolation between the 1Y and 2Y zero coupon rates.

ZC(18 months) = (6.16 + 6.69)/2 = 6.425%

Similarly,

ZC(30 months) = (6.69 + 7.07)/2 = 6.88%

PV of the fixed leg (i.e. pay side)

$$= \text{HKD150M} \times \left(\frac{0.08}{(1+0.0581\times 0.5)} + \frac{0.08}{(1+0.06425)^{1.5}} + \frac{1.08}{(1+0.0688)^{2.5}} \right)$$
$$= \text{HKD159,766K}$$

PV of the floating leg (i.e. receive side)

$$= \text{HKD150M} \times \frac{1.055}{(1+0.0581\times 0.5)}$$
$$= \text{HKD153,783K}$$

(5) Report a long 9 months zero coupon security in Part I.2, HKD ladder, 6 to 12 months time band and a short 6 months zero coupon security in 3 to 6 months time band.

Similar to the approach in (4), ZC(9 months) = (5.81+6.16)/2 =5.985%

Amount to be reported:

9 months= HKD50M / (1+ 0.05985 x 0.75)
= HKD50M x 0.957
= HKD47,850K

6 months= HKD50M / (1+ 0.0581 x 0.5)
= HKD50M x 0.9718
= HKD48,589K

(6) Report a long 15 months zero coupon security in Part I.2, HKD ladder, 1.0 to 1.9 years time band and a short 9 months zero coupon security in 6 to 12 months time band.

Calculations similar to (4) above, ZC(15 months) = 6.16 + (6.69-6.16) x 0.25
= 6.2925%

15 months = HKD20M / $(1 + 0.062925)^{1.25}$
= HKD18,532K

9 months = HKD20M x 0.957
= HKD19,140K

(7) Report the cap as 3 written call options on 6-month FRA i.e. 6 against 12, 12 against 18 and 18 against 24.

(The rate for the first 6 months is already set on the reporting date i.e. the option already expires.)

Assume the delta ratios of the options are:

6 against 12	0.055
12 against 18	0.17
18 against 24	0.225

Assume the discounting factors (based on the approach in (5)) are:

6 month	0.9674
12 month	0.9346
18 month	0.9009
24 month	0.8673

Assume spot exchange rate is 12

Report in Part I.2 GBP ladder:

For the first option -

A long position in the 6 to 12 months time band
= GBP2M x 0.055 x 0.9346
= HKD1,234K equivalent

A short position in the 3 to 6 months time band
= GBP2M x 0.055 x 0.9674
= HKD1,277K equivalent

For the second option -

A long position in the 1.0 to 1.9 years time band
= GBP2M x 0.17 x 0.9009
= HKD3,676K equivalent

A short position in the 6 to 12 months time band
= GBP2M x 0.17 x 0.9346
= HKD3,813K equivalent

For the third option -

A long position in the 1.9 to 2.8 years time band
= GBP2M x 0.225 x 0.8673
= HKD4,683K equivalent

A short position in the 1.0 to 1.9 years time band
= GBP2M x 0.225 x 0.9009
= HKD4,865K equivalent

(For simplicity Part V.2 of the return is not presented in this example.)

(8) Report a long 3 months zero coupon security in Part I.2, EUR ladder, 1 to 3 months time band and a short 3 months zero coupon security in the HKD ladder, 1 to 3 months time band.

Calculations similar to (5) above and assume 3 months DEM cash rate at 3.25% and spot exchange rate 5.2

DEM = DEM5M / (1 + 0.0325 x 0.25)
= HKD25,790K equivalent

HKD = HKD25M / (1 + 0.0563 x 0.25)
= HKD24,653K

(For simplicity Part III of the return is not presented in this example.)

(9) Report market value in Part II, item 1 (US column)

(10) Report market value for 25,000 shares in Part II, item 1 (HK column).

Report 25,000 shares covered by put option in Part V 1(a) item 1.3

Amount to be reported
= (25,000 x HKD30 x 16%) - [25,000 x HKD(33 - 30)]
= HKD45K

(11) Report market value for futures (HKD50 per index point) in Part II, item 5 (HK column) and Part I, HKD ladder, 1 to 3 months time band.