MEASURING CAPITAL ADEQUACY FOR MARKET RISK GUIDELINE

1. INTRODUCTION

The Central Bank of Barbados (Bank), in furtherance of its responsibility for the regulation and supervision of licensees under the Financial Institutions Act 1996-16 and the International Financial Services Act 2002-5, has developed this Guideline to provide guidance to licensees on how to calculate the minimum capital requirements for market risk in the trading book which represents a distinct risk against which licensees should set aside capital.

Market risk arises from a licensee's exposure to open positions in financial markets and represents the potential that changes in the market prices in a licensee's on and off-balance sheet positions may have an adverse effect on the licensee's financial condition. The risks captured in this Guideline relate to interest rate and equity position risk in the trading book and commodity risk and foreign-exchange risk throughout the institution.

The market risk associated with individual financial instruments and portfolios of instruments can be very complex and licensees are required to adequately measure, monitor and control the risks involved in their trading activities. Guidance with respect to monitoring and controlling market risks is set out in the companion Guidelines on Managing Market Risk, Interest Rate Risk in the Banking Book[1] and Stress Testing.

2. TRADING BOOK

For the purposes of this Guideline, the trading book includes on- and off- balance sheet positions in financial instruments, commodities and commodity derivatives acquired with trading intent or positions held in order to hedge other elements of the trading book. Positions held with trading intent are those which:

a. Are held intentionally for short-term resale; or
b. are taken on in order to profit from actual or expected short-term price or rate movements or to lock in arbitrage profits; or
c. Arise from broking and market-making.

[1] This Guideline will be issued in the coming months.

Where a non-financial instrument that would not normally qualify for inclusion in the trading book is used to hedge a trading book position, the instrument will be included in the trading book and will be subject to both credit risk capital requirements and to general position risk capital charges.

Positions that are not assigned to the trading book fall into the banking book. Marked to market instruments that are used to hedge banking book instruments will be excluded from the market risk measure and only be subject to credit risk capital charges.

It is important for licensees to establish clearly defined policies and procedures for determining the composition of the trading book for regulatory capital purposes. These need to provide an effective framework for determining the activities and instruments to be included in the trading book and those to be excluded. The policies and procedures need to be operated in a stable and consistent manner and to include, for example, clear criteria governing circumstances in which exposures may be transferred between the banking and trading books.

Trading book positions are expected to be subject to active management at a trading desk, with position limits set by the Board or senior management, regular reporting to senior management as part of the risk management process, and regular monitoring and review to ensure compliance with established limits. There also needs to be a robust framework in place for valuation of trading book positions encompassing daily marked-to-market and, where applicable, daily assessment of marked-to-model parameters. Relevant market information needs to be actively monitored on an on-going basis.

3. APPLICATION

This Guideline on the capital adequacy requirements for market risk applies to all entities that are incorporated in Barbados and that are licensed under the Financial Institutions Act 1996-16 and the International Financial Services Act 2002-5 where:

a. The combined trading book open positions normally **exceed 5% of** total banking and trading book business or the trading book positions normally **exceed $100 million**; **whichever is lowest**; or
b. There is exposure to foreign exchange and/or commodity risk, irrespective of whether these exposures arise from a banking or trading position.

Where a licensee's trading book exceeds the threshold above for a short period only, the Bank may exempt the licensee from complying with the requirements of this Guideline.

For the purpose of calculating the total open position in (a) above:

a. Long and short positions shall be summed, irrespective of their signs;
b. Debt and equity instruments shall be valued at their nominal or market values,
c. Derivatives shall be valued according to the nominal or market values of the underlying instruments. Alternatively, the notional principal amount underlying the derivative should be used, and
d. Forward foreign exchange contracts are (for this purpose only) treated as banking book activity.

Licensees shall include:

a. Exposures due to repurchase/reverse repurchase agreements and securities and commodities lending agreements which are based on securities or commodities included in the trading book;
b. Financial instruments due to underwriting arrangements
c. Exposures due to unsettled transactions, free deliveries and over the counter derivative instruments; and
d. Exposures in the form of fees commission, interest, dividends and margins on exchange –traded derivatives which are directly related to trading book items.

In applying this Guideline, licensees should note that:

a. Where a banking group, subject to consolidated supervision by the Bank, exceeds the trading book threshold at a consolidated level, but it has subsidiaries that do not meet the threshold, **it may apply to have such subsidiaries excluded from the provisions of this Guideline**. However, the Bank will monitor such institutions on a solo basis to ensure that significant imbalances do not go unsupervised;
b. Where a group is subject to consolidated supervision by the Bank, and it manages its market-related activities centrally, it may report short and long positions in the same instrument (including terms) on a net basis, no matter where in the group the transaction was booked. The Bank reserves the right, however, to request that licensees take individual positions into the measurement system without offset. This can occur in instances where there are legal or procedural difficulties limiting the consolidated management of risks;
c. On-balance sheet assets held in the trading book are subject to market risk capital requirements only i.e. debt and equity securities held in the trading book shall be excluded from the credit risk computation;

d. On- balance sheet assets held outside the trading book and funded by another currency are subject to both market risk and credit risk capital requirements; and
e. Derivative**,** repurchase/reverse repurchase, securities lending and other transactions booked in the trading book are subject to both credit and market risk capital requirements. These instruments face the risk of losses both from market fluctuations and the contract counterparty failure. The weights used to assess the credit risk for these instruments must be consistent with the credit risk weights used in the banking book.

4. MEASURING MARKET RISK - STANDARDISED METHOD

For capital adequacy purposes, market risk can be measured using a standardised approach or an internal model approach. This Guideline sets out the requirements using the standardised approach[2].

The standardised method provides a set of pre-specified rules for determining market risk exposure. The standardised method measurement framework comprises five sect**i**ons:

i. Foreign exchange risk;
ii. Interest rate risk;
iii. Equity risk;
iv. Commodity risk; and
v. Options risk on each of these asset classes.

In assessing the capital requirements, licensees will be required to make general and/or specific risk calculations for each class of instruments as set out in Table 1 below. General risk is the risk of a price change in the instrument due for example to a change in the level of interest rates or the price of the equity that are unrelated to the security. Specific risk relates to the risk of a price change in the instrument concerned due to factors related to the issuer or the underlying instrument.

[2] The use of more advanced approaches will be considered after 2015.

Table 1

	Specific	**General**
Foreign Exchange Risk		x
Interest Rate Position Risk	x	x
Equities Positions Risk	x	x
Commodities Risk		x

Specific instruments may be subject to more than one charge. For example:

a. A debt instrument denominated in foreign currency and held in the trading book would be subject to both general market risk charge for interest rate position risk and foreign exchange risk;
b. The same instrument in the banking book would carry a charge for foreign exchange risk and a credit default risk charge; and
c. Derivative, repurchase/reverse repurchase and securities lending transactions in the trading book are subject to both the market risk and credit risk capital requirements.

Annexes I – III provide an illustrative summary of the risk charges that apply to selected instruments.

4.1 Foreign Exchange Risk

Foreign exchange risk is the risk of incurring losses resulting from an adverse change in exchange rates or the price of gold when a licensee has an open foreign exchange position. This risk may arise from foreign currency transactions and services, foreign exchange trading, investments denominated in foreign currencies and investments in foreign subsidiaries and is caused by:

i. Currency mismatches between a licensee's assets and liabilities (both on- and off- balance sheet), **inclusive of capital**; and
ii. Currency cash flow mismatches.

The capital charge in relation to foreign exchange risk is applied to the entire business, both banking book and trading book. Thus, where a licensee falls below the threshold in section 3 at which trading book treatment applies, it is still necessary to calculate and apply a capital charge on its open foreign exchange positions.

The capital charge is assessed on the higher of a licensee's aggregate exposure of long and short positions in different currencies. It is therefore necessary to:

a. Determine the open positions[3] in individual currencies. All currencies involving significant positions need to be reported separately, while those currencies that are individually insignificant should be converted, summed and reported as a single currency position;
b. determine the overall exposure in the portfolio from the mix of currencies; and
c. Apply a capital charge of 8% to the higher of the aggregate of the long and short foreign exchange net open position plus 8% of the net position in gold whatever the sign.

Where a licensee has foreign exchange exposure in only one currency, the capital charge is applied to the open position irrespective of direction.

Where the use of a foreign exchange position exposes a licensee to interest rate risk, such as with forward exchange contracts, the licensee shall also include the relevant interest rate position in the calculation of the interest rate risk charge.

However, in calculating the capital charge certain positions and related hedges may be excluded from the calculation. Any positions related to items which are deducted from a licensee's capital when calculating its capital base are not subject to a foreign exchange risk capital charge. This would be the case, most typically, where a licensee has an investment or other long-term participation in a non-consolidated subsidiary. In addition, the Bank is prepared to approve the exclusion of certain 'structural' foreign exchange positions on a case by case basis. These involve circumstances in which a licensee has taken a long foreign currency position, of a non-dealing nature, with the express purpose of hedging partially or completely against a fall in its capital ratios as a result of an adverse exchange rate move. In giving approval, the Bank will also satisfy itself that the excluded structural position is only of a scale necessary to protect the capital ratios; it will also look to ensure that the exclusion is applied consistently, with the hedge remaining in place for the long term. Licensees may also be permitted, in particular cases, to exclude some other items related to unearned but anticipated future interest and expenses where the amounts remain uncertain and no hedging is in place.

[3] A licensee has an open position where the value of asset/inflow exposures in one currency is not equal to the value of liability/outflow exposures in that currency. Open positions may be either short (liabilities exceed assets) or long (assets exceed liabilities).

4.1.1 The Measurement of Forward Currency and Gold Positions

Forward currency and gold positions will normally be valued at current spot market exchange rates. However, licensees that use net present values in their normal management accounting are expected to use the net present values of each forward position, discounted using current interest rates and translated at current spot rates, for measuring their forward currency and gold positions.

For example, if a licensee contracts to sell USD 106 for CAD 108 in one year's time it should treat the foreign exchange forward[4] as two notional currency positions as follows:

a. A long position in the currency which it has contracted to buy; and
b. A short position in the currency which it has contracted to sell.

Where the notional positions have a value equal to either:

a. The contracted amount of each currency to be exchanged in the case of a forward or future in the banking book; or
b. The present value of the amount of each currency to be exchanged in the case of a forward or future held in the trading book.

Using discount rates of 6% and 8%, the present values of each cash flow are USD 100 and CAD 100, respectively.

In the trading book, this forward would be treated as a combination of a CAD 100 long position and a USD 100 short position.

[4] A foreign exchange swap shall be treated as:

1. a long notional position in the currency which the licensee has contracted to receive interest and principal; and
2. a short notional position in the currency which it has contracted to pay.

where the notional positions have a value equal to either:

1. the nominal amount of each currency underlying the swap if it is held in the banking book; or
2. the present value of all cash flows in the relevant currency if it is held in the trading book.

For example, if a licensee enters into a five year foreign exchange swap where it contracts to pay six month LIBOR on USD 100 in return for receiving 6% fixed on CAD 100, the present values of each cash flow are USD 100 and CAD 98, respectively.

In the trading book, this swap would be treated as a combination of a CAD 98 long position and a USD 100 short position.

In the banking book this forward would be treated as a combination of CAD 100 long position and a USD 100 short position.

In the banking book this forward would be treated as a combination of CAD 108 long position and a USD 106 short position.

Gold is measured as part of foreign exchange risk by valuing all gold positions using the prevailing spot price for gold. The net gold position is obtained by offsetting the corresponding long and short positions.

Where gold is part of a forward or future contract (the quantity of gold to be received or to be delivered), the forward (future) must be treated as notional position in gold with a value equal to the amount of gold underlying the contract multiplied by the current spot price of gold. The interest rate and foreign exchange exposure from the other leg of the contract should be reported as given in the measurement of interest rate risk.

4.1.2 Calculation of Capital Adequacy

The open position in a single currency is calculated as a sum of:

a. Net Spot Position - All assets less liabilities, including accrued interest and other accrued income and accrued expenses, for each currency should be converted to the domestic currency at the spot rate given for that reporting date;
b. Net Forward position - all amounts to be received less all amounts to be paid under forward foreign exchange transactions, including currency futures, the principal on currency swaps not included in the spot position, and interest rate transactions such as futures, swaps, etc. denominated in a foreign currency);
c. Guarantees (and similar instruments) that are certain to be called and likely to be irrecoverable;
d. Net future income/expenses not yet accrued but already fully hedged;
e. Any other item representing a profit or loss in foreign currencies; and
f. The net delta-value of the total book of foreign currency options.

Unearned but expected future interest, income and anticipated expenses may be excluded, provided it is done on a consistent basis, unless the amounts are certain and the licensee has taken the opportunity to hedge them.

The overall net open position is measured by aggregating:

a. The sum of the net short positions or the sum of the net long positions, whichever is the greater; plus
b. The net position (short or long) in gold, regardless of sign.

Table 2

USD	GBP	EUR	CAD	GOLD
+200	+130	-60	-140	-70
	+330		-200	70

For example, from table 2, the capital charge is given as

(330+70)*.08 = 32 million

where 330 represents the sum of the currencies in which the licensee has long positions and 70 represents the net gold position.

4.2 Interest Rate Risk

The holding or taking of positions in debt securities and other interest rate related instruments in the trading book give rise to interest rate risk (IRR)[5] i.e. the risk that a licensee will face adverse changes in its earnings and/or economic value of equity resulting from changes in the absolute level of interest rates, in the spread between two rates, in the shape of the yield curve or in any other interest rate relationship.

Interest rate exposures are reflected in:

a. All fixed-rate and floating-rate debt securities and instruments that behave like them, including non-convertible preference shares;
b. Derivatives based on the movement of interest rates; and
c. Interest rate exposures embedded in derivatives that are based on non-interest related derivatives, including foreign exchange forward contracts.

The minimum capital requirement is expressed in terms of two separately calculated charges:

a. "Specific risk" of each security, whether it is a short or a long position, and
b. "General market risk" where long and short positions in different securities or instruments can be offset.

[5] This section sets out the calculation of capital requirements against interest rate risk in the trading book. Licensees are required, however, to establish systems to monitor and control interest rate risk throughout their operations. The **Interest Rate Risk in the Banking Book Guideline** provides a framework for managing interest rate risk.

4.2.1 Specific Risk

This charge is designed to protect against an adverse movement in the price of an individual security due to factors related to the individual issuer. It is calculated by multiplying the absolute value of the debt position in the trading book by the relevant risk factor in table 3 below.

Matched long and short positions in an identical issue may be offset against each other but no offset will be permitted between different issues, even if the issuer is the same**.**

The specific risk charges are set out in Table 3 for the three broad categories of securities that may give rise to interest rate risk:

Table 3: Computation of the Specific Risk Charge

Category	External Credit Assessment	Specific Risk Charge
Government	AAA to AA-	0.00%
	A+ to BBB-	
	1. 6 months and under to maturity	0.25%
	2. Over 6 months and up to 2 years to maturity	1.0%
	3. Over 2 years maturity	1.6%
	BB+ toB-	8.0%
	Below B-	12.0%
	Unrated	8.0%
Qualifying Securities		
1.	1. 6 months and under to maturity	0.25%
	2. Over 6 months and up to 2 years to maturity	1.00%
	3. Over 2 years maturity	1.60%
Other	BB+ to BB-	8.00%
	Below B-	12.0%
	Unrated	8.0%

'Government' includes all forms of government (and Central Bank) paper including bonds, treasury bills and other short-term instruments, and all paper subject to a direct government guarantee. Barbados Government debt and government guaranteed debt denominated in BDS$ and funded by the licensee in that currency has a weight of 0%.

'Qualifying securities' means:

- Securities issued by public sector entities and multilateral development banks;
- Other securities which are rated investment-grade (i.e. Baa or above by Moody's and BBB or above by Standard and Poor's) by at least two credit rating agencies that have been recognized by the Bank;
- Debt securities issued by banks in countries that have implemented the Basel 2 framework, together with investment firms in those jurisdictions provided they are subject to equivalent regulation; and
- With express approval by the Bank, unrated securities issued by an issuer with securities listed on a recognized stock exchange which the licensee deems to be of comparable investment quality.

Where licensees are unclear as to whether a particular issuer may be treated as a public sector entity, they should approach the Bank for guidance in specific cases. The Bank has published a list of approved high quality multilateral development banks. With regard to credit rating agencies, the Bank currently recognizes Standard and Poor's, Fitch Rating Services, Moody's Investor Services and DBRS. Licensees may approach the Bank to seek recognition for other agencies appearing to them to meet the eligibility criteria.

Instruments issued by non-qualifying issuers receive the same specific risk charge as a non-investment grade corporate borrower under the standardized approach for credit risk. However, the Bank reserves the right to apply higher specific risk charges to instruments which trade at exceptionally high yields relative to corresponding government securities; in such cases, offsetting of such instruments in calculating general market risk may also be disallowed.

The “other” category includes all securities issued by parties other than approved governments and multi-national development banks, that is, debt securities that qualify as neither government nor qualifying securities e.g. private sector issuers.

Credit derivatives should be converted into notional positions in the relevant reference obligations and use the current market value of the principal amount of the reference obligations to calculate its market risk capital requirement for interest rate risk, except in the case of credit linked notes, where the current market value of the notes shall be used.

Specific Charges where Positions are Hedged by Credit Derivatives

For the purpose of calculating the specific risk capital charge for a credit derivative and its hedged position. Licensees may recognise full allowance when the values of two legs (i.e. long and short) always move in the opposite direction and broadly to the same extent. This would be the case in the following situations:

a. The two legs consist of completely identical instruments, or
b. A long cash position is hedged by a total rate of return swap (or vice versa) and there is an exact match between the reference obligation and the underlying exposure (i.e. the cash position).

In these cases, no specific risk capital requirement applies to both sides of the position.

Licensees may recognise an 80% offset when the value of two legs (i.e. long and short) always move in the opposite direction but not broadly to the same extent. This would be the case when:

a. A long cash position is hedged by a credit default swap or a credit linked note (or vice versa);
b. There is an exact match in terms of:

    i. the reference obligation;
    ii. the maturity of both the reference obligation and the credit derivative; and
    iii. the currency of the underlying instrument; and

c. The key features of the credit derivative contract (e.g. credit event definitions, settlement mechanisms) do not cause the price movement of the credit derivative to materially deviate from the price movement of the cash position.

The 80% specific risk offset will be applied to the side of the transaction with the higher capital charge, while the specific risk requirement on the other side will be zero.

Licensees may recognise a partial allowance when the value of the two legs (i.e. long and short) usually moves in the opposite direction. This would be the case in the following situations:

a. Along cash position is hedged by a total rate of return swap (or vice versa) but there is an asset mismatch between the reference obligation and the underlying exposure and the reference obligation ranks pari passu with or is junior to the underlying obligation while the underlying obligation and the reference obligation share the same obligor and legally enforceable cross-default and cross-acceleration clauses are in place;

b. The instruments would otherwise qualify for full or 80% offset but there is a currency or maturity mismatch between the credit protection and the underlying asset; or
c. The instruments would otherwise qualify for 80% offset but there is an asset mismatch between the cash position and the credit derivative but where the underlying asset is included in the (deliverable) obligations in the credit derivative documentation.

Where any of a), b) or c) applies, instead of adding specific risk capital requirements for each side of the transaction (i.e. the credit protection and the underlying asset) only the higher of the two capital requirements will apply. In all other cases, a specific risk capital charge must be assessed against both sides of the position

4.2.2 General Market Risk

This charge is designed to capture the risk of loss arising from changes in market interest rates. There are two principal methodologies – a 'maturity' method' and a 'duration' method. Generally, the Bank expects licensees to report initially using the maturity method. Where licensees see a need to report immediately using the duration approach, they should approach the Bank to explain the rationale. Under each method, the relevant capital charge comprises the sum of four components:

- The net short or long position in the whole trading book;
- A small proportion of the matched positions in each time-band (the 'vertical disallowance');
- A larger proportion of the matched positions across the different time-bands (the 'horizontal disallowance'); and
- Where relevant, a net charge for positions in options.

Licensees should prepare separate worksheets for each currency in which instruments are denominated, with positions converted into BDS$ at the spot rate on the reporting date. The capital charge should be calculated for each currency separately, and then summed, with no offsetting between positions of opposite sign. Where positions in individual currencies are insignificant, a single maturity ladder should be constructed, with the net long or short position in each currency slotted in within each appropriate time-band. These individual net positions must then be summed within each time-band, irrespective of whether they are long or short, to produce a gross position figure.

The positions in each time-band need first to be weighted by a factor reflecting the price-sensitivity of these positions to assumed changes in interest rates, as set out in table 4 below.

Table 4: Maturity Method: Time Bands and Weights

Coupon 3% or more	Coupon less than 3%	Risk Weight	Assumed changes in yield
≤ 1 month	≤ 1 month	0.00%	1.00
1 - 3 months	1 - 3 months	0.20%	1.00
3 - 6 months	3 - 6 months	0.40%	1.00
6 - 12 months	6 - 12 months	0.70%	1.00
1 - 2 years	1.0 - 1.9 years	1.25%	0.90
2 -3 years	1.9 - 2.8 years	1.75%	0.80
3 - 4 years	2.8 - 3.6 years	2.25%	0.75
4 - 5 years	3.6 - 4.3 years	2.75%	0.75
5 - 7 years	4.3 - 5.7 years	3.25%	0.70
7 - 10 years	5.7 - 7.3 years	3.75%	0.65
10 - 15 years	7.3 - 9.3 years	4.50%	0.60
15 - 20 years	9.3 - 10.6 years	5.25%	0.60
> 20 years	10.6 - 12 years	6.00%	0.60
	12 - 20 years	8.00%	0.60
	> 20 years	12.50%	0.60

Next, the weighted longs and shorts in each time-band need to be offset, leaving a single short or long position for each band. A 10% capital charge is levied on the smaller of the offsetting positions in each band, whether long or short, to reflect basis and gap risk on the different instruments and maturities. (For example, if within a band the weighted longs amount to $10 million and the weighted shorts amount to $9 million, the so-called 'vertical disallowance' is 10% of $9 million i.e. $0.9 million.)

This results in two sets of weighted positions – the net long or short in each time band (i.e. $1 million long in the above example) and the vertical disallowances (which have no sign). At that point, licensees can conduct two rounds of 'horizontal offsetting', first between the net positions within each of the Zones specified in the table below and subsequently between the net positions in the three different zones. Offsetting is only partial, expressed as a percentage of the matched positions, set out in the table. The weighted long and short positions in each of the three zones maybe offset, with 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 5

Vertical Disallowances	Matched Weighted Positions in all maturity bands	x 10%
	Matched weighted positions in zone 1	x 40%
	Matched weighted positions in zone 2	x 30%
	Matched weighted positions in zone 3	x 30%
	Matched weighted positions between zone 1 and 2	x 40%
	Matched weighted positions between zone 2 and 3	x 40%
Horizontal Disallowances	Matched weighted positions between zone 1 and 3	X100%
Net Position	Net short or long weighted positions	x 100%

Where the Bank confirms that a licensee may report immediately using the duration method for calculating general market risk, the following provisions apply. Licensees must employ the duration method on a continuous basis and may not revert to a maturity approach without express consent of the Bank. A licensee's reporting system for duration calculations may be subject to review by the supervisors.

The duration method involves the licensee first calculating the price sensitivity of each instrument in terms of a change in interest rates of between 0.6 % and 1.0 %, depending on the maturity of the instrument, as shown in Table 6, below. The resulting sensitivity measures are then slotted into a duration-based ladder of 15 time-bands as set out in the table. Long and short positions in each time-band are then subject to a 5% vertical disallowance to capture basis risk. The net positions in each time-band are then carried forward for horizontal offsetting, using the horizontal disallowances set out in Table 5, above.

Table 6: Duration Method: Time Bands and Assumed Changes in Yield

	Assumed change in yield		**Assumed change in yield**
Zone 1		**Zone 3**	
1 month or less	1.00	3.6 to 4.3 years	0.75
1 to 3 months	1.00	4.3 to 5.7 years	0.70
3 to 6 months	1.00	5.7 to 7.3 years	0.65
6 to 12 months	1.00	7.3 to 9.3 years	0.60
		9.3 to 10.6 years	0.60
Zone 2		10.6 to 12 years	0.60
1.0 to 1.9 years	0.90	12 to 20 years	0.60
1.9 to 2.8 years	0.80	Over 20 years	0.60
2.8 to 3.6 years	0.75		

Positions in currencies that are individually insignificant and have been entered into a single maturity ladder are treated slightly differently under the duration method. For these residual currencies, the gross positions for each time-band are subject to either the risk weightings set out in Table 4 or the assumed changes in yield shown in Table 6, with no further offsets.

4.2.3 Interest Rate Derivatives

A licensee's measurement system must include all interest rate derivatives and off-balance sheet instruments in the trading book which react to changes in interest rates, including forward rate agreements (FRAs), other forward contracts, bond futures, interest-rate and cross currency swaps and forward foreign exchange positions. Derivatives should be converted into positions in the relevant underlying instruments and become subject to specific and general market risk charges as set out above. The amounts reported should be the market value of the principal amount of the underlying or of the notional underlying, based on a prudent valuation.

Futures and forward contracts (including FRAs) are treated as a combination of a long and a short position in a notional government security. The maturity of a future of FRA will be the period until delivery or exercise of the contract plus (where applicable) the life of the instrument. For example, a long position in a June three month interest rate future, taken in April, will be reported as a long position in a government security with a maturity of five months and a short position in a similar security with a maturity of two months. (Where a range of deliverable instruments can be used to fulfil a contract, the licensee may opt, while taking account of any conversion factor defined by the exchange). Swaps are, similarly, treated as two notional positions in government securities with relevant maturities (e.g. an interest rate swap under which the licensee receives floating rate interest and pays fixed rate 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. Where swaps pay or receive a fixed or floating interest rate against some other reference price (e.g. a stock index) the interest rate component should be slotted into the appropriate repricing maturity category, with the equity component 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. A summary of the treatment of interest rate derivatives appears at Annex III to this paper. The treatment of options is set out in section 4.5, below.

Allowable offsetting of matched positions

Licensees may exclude entirely from the interest rate maturity framework (for both specific and general market risk) long and short positions (both actual and notional) in identical instruments with exactly the same issuer, coupon, currency and maturity. A matched position in a future or forward and its corresponding underlying may also be fully offset, and thereby excluded from the calculation. When the future or forward comprises a range of deliverable instruments, offsetting of positions in the future or forward contract and its underlying is only permitted 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). No offsetting is allowed between positions in different currencies; the separate legs of cross-currency swaps or forward foreign exchange deals are to be treated as notional positions in the relevant instruments and included in the relevant calculation for each currency.

Opposite positions in the same category of instruments can in some circumstances be regarded as matched and allowed to offset fully. These must relate to the same underlying instruments, be of the same nominal value and be denominated in the same currency. In addition:

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

  less than one month maturity = same day
  between one month and one year = within seven days
  over one year = within thirty days.

Where a licensee has a large swap book, the Bank may be prepared to give approval for alternative methods may be used to calculate the positions to be included in the maturity or duration ladder. One method involves the conversion of payments required by the swap into their present values. For that purposes, each payment is discounted using zero coupon yields and single net figure for the present value of the cash flows entered into the appropriate time-band using procedures that apply to zero or low coupon bonds; these figures are then slotted into the general market risk framework. Alternatively, calculations can be made of the sensitivity of the net present value implied by the change in yield used in the maturity or duration method, and these sensitivities allocated into the time-bands shown in tables 4 or 6 (as appropriate). Licensees interested in seeking to use alternative treatments must approach the Bank for specific consent which will not be granted unless the Bank is fully persuaded of the accuracy of the systems employed by the licensee.

Calculation of specific and general market risk

Interest rate and currency swaps, FRAs, forward foreign exchange contracts and interest rate futures are not subject to a specific risk charge. Futures on an interest rate index (e.g. LIBOR) are similarly exempt. However, where the underlying for a futures contract is a debt security or an index representing a basket of debt securities, a specific risk charge applies in the normal way, according to the credit risk of the issuer. General market risk applies to positions in all derivative products in the same way as for cash positions, subject only to the limited exemptions for fully or very closely matched positions in identical instruments described under allowable offsetting rules, above. The various categories of instruments are to be slotted into the maturity ladder in the normal way.

4.3 Equity Position Risk

Equity price risk is the risk of loss to earnings or capital due to movements in the value of equity related portfolios. This section applies to long and short positions in all instruments that exhibit market behaviour similar to equities such as:

a. Ordinary shares, whether voting or non-voting;
b. Convertible securities that behave like equities;
c. Convertible securities that convert into equity instruments and trade as equity instruments;
d. Equity derivatives or derivatives based on the above securities.

Non-convertible preference shares are included under the section 4.2.

As with interest rate risk, licensees are required to calculate both the specific risk charges as well as the general market risk charge associated with the position in equity instruments.

The long and short position must be calculated on a market-by-market basis, and so a separate worksheet should be done for each national market in which the reporting institution holds equities. Equity securities listed in more than one country must be allocated to either the country where the issuer is incorporated and listed or the country where the security was purchased or sold, but not both. Calculations should be expressed in the domestic currency equivalent of the denomination of the equity, converted at spot rates at the reporting date.

4.3.1 Specific Risk

Specific risk is the risk that the value of individual equity positions may move against the licensee. The charge is measured as a proportion of the sum of the absolute value of all long equity positions and of all short equity positions (i.e. the licensee's gross equity positions) and a capital charge of 8% must be held against this risk. Long and short positions in issues of the same issuer may be netted.

4.3.2 General Market Risk

General market risk is the risk that the equity market may move against the licensee and will be assessed on the overall net position (the difference between the sum of the long and the sum of the short positions) in an equity market and will carry an 8% charge.

4.3.3 Equity Derivatives

Equity derivatives and other off-balance sheet positions that are affected by changes in equity prices are captured in the measurement system. Equity derivatives should be converted into a notional equity positions in the underlying instrument.

Table 7: Summary of Treatment of Equity Derivatives

Instrument	Specific Risk (Issuer specific but separate charge for counter party credit risk applies)	General Market Risk
Futures, swaps & similar OTC contracts		
Individual equity	Yes	Yes, as current market price of the underlying
Index	2.0%	Yes, as marked- to- market value of notional underlying equity portfolio
Options		
Individual equity	Yes	• Carve out from equity position risk framework, together with the associated hedging positions and apply the rules for options **(5.6)**
Index	2.0%	

A specific risk capital charge of 2% applies to the net long or short position in a contract on an index approved for this purpose. This capital charge is intended to cover factors such as execution risk. Eligible index contracts must comprise a diversified portfolio of equities, and not, for example, to a sectoral index; and the Bank needs to be satisfied that this is the case. Positions in indices that fail to meet the requirements for a well-diversified index the 2% rate will be treated as a single position, based on the sum of current market values of the underlying instruments. The specific risk requirement is the highest specific risk charge that would apply to any of the index's constituent shares.

4.4 Commodity Risk

A commodity is defined as a physical product, which is, or can be traded on a secondary market, e.g., agricultural products, minerals (including oil) and precious metals (excluding gold). For the purposes of this guideline, all commodity derivatives and off-balance sheet positions, which are affected by changes in commodity prices, should be included in the measurement framework. This includes commodity futures, commodity swaps, and options where the "delta plus" method is used.

Licensees which trade commodities face commodity price risk or directional risk i.e. the risk of loss as a result of adverse changes in the spot price. Price risk in commodities is often more complex and volatile than those associated with currencies and interest rates. Markets may also be much less liquid, with price transparency more limited and hedging more difficult. Trading in commodities or using portfolio strategies involving forward or derivative contracts may expose a licensee to:

a. Basis risk i.e. the risk that the relationship between the prices of similar commodities alters through time;
b. Interest rate risk i.e. the risk of a change in the cost of carry for forward positions and options; and
c. Forward gap risk i.e. the risk that the forward price may change for reasons other than a change in interest rates.

Further, the funding of commodities positions may expose a licensee to interest rate or foreign exchange risk and as such any relevant positions should be included in the calculation of interest rate and foreign exchange risk.

The Bank applies the simplified approach in calculating commodity risk. However, where a licensee becomes exposed to significant amounts of commodity risk, the Bank will expect it to move to a more complex and accurate measurement system for these risks.

For the measurement of commodity risk, licensees shall:

a. Express each commodity position (spot plus forward) separately in terms of the standardised unit of measurement and convert at current spot rates the net[6] position in each commodity to BDS. Different grades or brands of the same commodity should be treated as different commodities; and
b. Convert commodity derivatives into notional commodities positions and assigned to maturities as follows:

[6] Institutions may apply to the Bank for permission to net long and short positions between commodities in the same sub group, provided said commodities are deliverable against each other.

- *futures and forward contracts relating to individual commodities* should be incorporated in the measurement system as notional amounts in terms of the standard units of measurement (e.g. barrels, kilos) should be assigned a maturity based on the contract's expiry date;
- *commodity swaps* where one leg is a fixed price and the other is the current market price should be incorporated as a series of positions equal to the notional amount of the contract, with one position corresponding with each payment on the swap and entered into the maturity ladder accordingly. The positions would be long positions if the licensee is paying fixed and receiving floating, and short positions if the licensee is receiving fixed and paying floating[7]; and
- *commodity swaps* where the legs are in different commodities are to be incorporated in the relevant maturity ladder.

Licensees are to:

a. Apply a 15% capital charge to the long or short position in each commodity to deal with price risk; and
b. Apply an additional 3% capital charge on the gross positions (long plus short in each commodity), all valued at current spot prices, as protection against basis risk, interest rate risk and forward gap risk.

4.5 Options

Licensees that engage in options have, dependent on the nature of their activities, two choices in the measurement of options risk.

Licensees which solely use purchased options may use the simplified approach described in Section 4.5.1 below, while institutions which also write options must use the delta-plus (buffer) approach as set out in Section 4.5.2.

Licensees that write options that are perfectly hedged i.e. perfectly matched by long positions in exactly the same option will not be expected to apply a market risk capital charge in respect of those matched positions.

[7] If one of the legs involves receiving/paying a fixed or floating interest rate that exposure should be slotted into the appropriate repricing maturity band in the maturity ladder covering interest rate related instruments.

4.5.1 Simplified Approach

Under the simplified approach purchased options are subject to a capital charge that incorporates both general market and specific risk according to the schedule in table 5 below.

As an example of how this calculation is done, if a licensee holds 100 shares currently valued at $10 each and also hold an equivalent number of put options with a strike price of $11, the associated capital charge will be:

$1,000 x 16% (i.e. 8% specific plus 8% general market risk) = $160,
less ($11 - $10) x 100 = $100 (the amount the option is in the money),
$160 - $100 = $60

Table 8: Capital Charges:- Simplified Approach

Position	**Treatment**
1. Long cash and long put 2. Short cash and long call (i.e., hedged positions)	The capital charge is [Market value of underlying instrument[8] x (Sum of specific and general market risk charges[9] for the underlying)] ***minus*** [Amount, if any, the option is in the money[10]] The capital charge calculated as above cannot fall below zero.
1. Long call 2. Long put (i.e., naked option positions)	The capital charge is the lesser of: i) the market value of the underlying instrument x Sum of specific and general market risk charges for the underlying; and ii) the market value of the option[11].

[8] In some cases such as foreign exchange, it may be unclear which side is the "underlying instrument"; 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.
[9] Some options (e.g., where the underlying is an interest rate, a currency or a commodity) bear no specific risk, but specific risk is present in the case of options on certain interest rate related instruments (e.g., options on a corporate debt security or a corporate bond index), and in the case of options on equities and stock indices. The risk weighting for currency options is 8% and for options on commodities is 15%
[10] For options with a residual maturity of more than six months, the strike price should be compared with the forward, not the current price. A licensee that is unable to do this should take the "in the money" amount to be zero.
[11] Where the position does not fall within the trading book options on certain foreign exchange and commodities positions not belonging to the trading book), it is acceptable to use the book value instead of the market value.

A similar methodology applies for options whose underlying is a foreign currency, an interest rate related instrument or a commodity. However, only general market risk applies to foreign exchange and commodities.

The capital charge generated is then added to the capital charges for the relevant risk category. Purchased options remain subject to the credit risk capital requirements.

4.5.2 Delta-Plus Method

Where licensees are engaged in writing options rather than simply in purchasing them, they cannot employ the simplified method and must use a more accurate system to measure their risks. Initially, the Bank expects such licensees to use the delta-plus method, described below. Other methodologies will be offered at a later stage. Where a licensee sees a need to move immediately to a different method of calculating option risk, this must be discussed with the Bank and full details of the proposed alternative methodology provided.

Under the delta-plus method, options positions are included within the standardized market risk methodology, reported as positions equal to the market value of the underlying multiplied by the delta. However, since delta does not deal fully with the risks associated with options positions, licensees are also required to measure gamma (which captures the rate of change of delta) and vega (which measures the sensitivity of the value of an option with regard to a change in volatility) sensitivities in calculating their total capital charges. These latter sensitivities must be calculated according to an approved exchange model or to the licensee's own proprietary options pricing model. They must first provide the Bank with details of the proprietary model that is to be employed.

Delta-weighted positions involving debt securities or interest rates as the underlying are slotted into the normal interest rate time-bands as follows. A two-legged approach is used, as with other derivatives, involving one entry at the time the underlying contract takes effect and a second at the time the underlying contract matures. (E.g. a bought call option on a June 3 month interest-rate future will in April be considered, on the basis of its delta-equivalent value, to be a long position with a maturity of five months and a short position with a maturity of two months.) The written option will be similarly slotted in as a long position with a maturity of two months and a short position with a maturity of five months. Floating rate instruments with caps or floors will be treated as a combination of floating rate securities and a series of European-style options. For example, the holder of a three-year floating rate bond indexed to six month LIBOR with a cap of 8% will treat it as:

- a debt security that reprices in six months; and
- a series of five 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 capital charge for options involving equities as the underlying are similarly based on the delta-weighted positions and incorporated in the overall market risk measure. In this calculation, each national market must be treated as a separate underlying. The capital charge for options on foreign exchange and gold positions is calculated on the basis set out in section 4.1 above. For delta-risk, the net delta-based equivalent of the foreign currency and gold options is incorporated into the measurement of exposure for the respective currency or gold position. The capital charge for options on commodities is based on the simplified approach set out in section 4.4, above, with the delta-weighted positions incorporated into the measurement system.

In addition to the capital charges arising from the delta risk, further charges apply with regard to gamma and vega risk. Licensees must calculate separately the gamma and vega for each option position (including hedge positions), as follows:

a. for each individual option a 'gamma impact' is to be calculated according to a Taylor series expansion as
   Gamma impact= ½ x Gamma x VU^2
   where VU = variation of the underlying of the option

b. VU is calculated as follows:

   - for interest rate options, if the underlying is a bond, the market value of the underlying is multiplied by the risk weights set out in Table 4 in paragraph 4.4.2, above. An equivalent calculation should be carried out where the underlying is an interest rate, again based on he assumed changes in yield in Table 4;
   - for options on equities and equity indices, the market value of the underlying should be multiplied by 8%;
   - for foreign exchange and gold options, the market value of the underlying should be multiplied by 8%;
   - for options on commodities, the market value of the underlying should be multiplied by 15%.

c. For the purposes of this calculation, the following positions should be treated as the same underlying:

   - for interest rates, each time-band shown in Table 4;
   - for equities and stock indices, each national market;
   - for foreign currencies and gold, each currency pair and gold;
   - for commodities, each individual commodity.

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 are to be included in the capital calculation.

e. The total gamma capital charge is calculated as the sum of the absolute value of the net negative gamma impacts as calculated above.

f. For volatility risk, licensees are required to calculate the capital charges by multiplying the sum of the vegas for all options on the same underlying (as defined in (d) above) by a proportional shift in volatility of ±25%

g. The total capital charge for vega risk will be the sum of the absolute value of the individual capital charges that have been calculated for vega risk.

5.0 CAPITAL MEASUREMENT

The capital charges derived from the different elements of risk under the Standardized Method for measuring market risk – foreign exchange, interest rate, equity, commodities and options – are summed. The resultant capital requirement is multiplied by 12.5% (i.e. the reciprocal of the minimum 8% risk asset ratio) and added to the sum of risk-weighted assets for credit risk. (A separate Basel II charge for operational risk will be factored in similarly to the market risk charge).

6.0 REPORTING REQUIREMENTS

All financial institutions licensed under the International Financial Services Act (IFSA) or under the Financial Institutions Act (FIA) must provide the Bank with reports[12] on their market risk capital charge calculations on the schedule provided on quarterly basis (or more frequently if required.)

[12] Refers to reports on market risk in both the trading and banking book.

GLOSSARY

Credit Risk — The risk that the licensee will suffer a loss due to a claim becoming irrecoverable, partly or wholly. The risk of the licensee incurring a loss due to the value of a (financial or non-financial) fixed asset declining should be weighted according to the same rule.

Position Risk — The risk that the licensee will suffer a loss as a result of changes in the market value of a position in debt instruments etc., or equities etc. The position risk is broken down into:

a) *Specific risk,* which is the risk that the licensee will suffer a loss because the market value of a position changes as a result of factors related to the individual issuer of the debt instrument or equity or the individual debt instrument or equity itself.
b) *General risk,* which is the risk that the licensee will suffer a loss because the position's market value changes due to factors related to the market as a whole.

Commodity Risk — The risk that the licensee will suffer a loss due to changes in commodities prices. Gold is not treated as a commodity.

Counterparty Risk — The risk that the licensee will suffer a loss because a counterparty in a contract for a derivative or a spot transaction fails to fulfil his obligations towards the bank. Counterparty risk is relevant throughout the maturity of the transaction. Counterparty risk is a credit risk, but the designation only covers the cases mentioned.

Settlement Risk — The risk that the licensee will suffer a loss because a securities transaction cannot be completed. Settlement risk is relevant in connection with the performance and completion of transactions.

Delivery Risk — The risk that the licensee will suffer a loss because a counterparty is unable to pay for a debt instrument or equity delivered by the licensee, or because a counterparty fails to deliver a debt instrument or equity for which the license has paid. Delivery risk is relevant when the licensee has met its obligations. Delivery risk is a credit risk, but the designation only covers the cases mentioned.

Foreign Exchange Risk	The risk that the licensee will suffer a loss due to changes in the exchange rates. Gold is to be dealt with as a foreign-exchange position.
Equity Risk	The risk that changes in equity prices might adversely affect a licensee's financial condition.
Basis Risk	The risk that the relationship between the prices of two similar, but not identical, instruments will change. Thus, even if maturities are perfectly matched, basis risk could remain.
Basket	A set of related instruments whose prices or rates are used to create a synthetic (composite) instrument.
Beneficiary, Protection buyer, Credit risk seller	Terms that are used interchangeably when describing the counterparty that owns the asset and benefits from the protection provided by the credit derivative.
Building-block approach	A method for measuring price risk which disaggregates risk specific to a security/issuer and general market risk
Convertible Bond	A bond which gives the investor the option to switch into equity at a fixed conversion price.
Credit Event	Credit default products are structured so that a payout occurs only when a pre-defined credit event (or one of several such events) occurs. Credit events will normally include bankruptcy, liquidation and any payment default on the reference asset, but may also include lesser events such as rescheduling or rating downgrades. In some contracts a pre-determined materiality (or loss) threshold may also trigger payment.
Delta	The expected change of an option's price as a proportion of a small change in the price of the underlying instrument. An option whose price changes by $1 for every $2 change in the price of the underlying has a delta of 0.5. The delta approaches 1.0 or -1.0 for options that are deep in-the-money and approaches 0 for options that are deep out-of-the-money.

Exercise price also Strike price	The fixed price at which an option holder has the right to buy, in the case of a call option, or to sell, in the case of a put option, the financial instrument covered by the option.
Financial Instrument	Any contract that gives rise to both a financial asset of one entity and a financial liability or equity instrument of another entity. Financial instruments include both primary financial instruments (or cash instruments) and derivative financial instruments. A financial asset is any asset that is cash, the right to receive cash or another financial asset; or the contractual right to exchange financial assets on potentially favourable terms, or an equity instrument. A financial liability is the contractual obligation to deliver cash or another financial asset or to exchange financial liabilities under conditions that are potentially unfavourable.
Forward rate agreement (FRA)	A contract in which two counterparties agree on the interest rate to be paid on a notional deposit of specified maturity at a specific future time. Normally, no principal exchanges are involved, and the difference between the contracted rate and the prevailing rate is settled in cash.
Guarantor, protection seller, credit risk buyer	Terms that are used interchangeably when describing the counterparty who is providing the protection against a potential default or taking on the risk of an asset they do not own.
Holding Period	The length of time that a financial institution is assumed to hold a given financial instrument for the purpose of calculating price volatility.
Interest Rate Risk	The risk that changes in market interest rates might adversely affect an institution's financial condition.
Interest Rate Swap	A transaction in which two counterparties exchange interest payment streams of differing character based on an underlying notional principal amount. The three main types are coupon swaps (fixed rate to floating rate in the same currency), basis swaps (one floating rate index to another floating rate index in the same currency) and cross-currency interest rate swaps (fixed rate in one currency to floating rate in another).
Long Option Position	The position of a trader who has purchased an option regardless of whether it is a put or a call.

Long Position	The position of the holder or buyer of a security or other instrument, or a position that appreciates in value when market prices increase.
Marking-to-market	The process of revaluing a portfolio on the basis of prevailing market prices.
Matched Weighted Position	The smaller of the sum of the risk weighted long positions or the sum of the risk weighted short positions within a time band or a zone or between zones.
Recovery Value	The reference asset will normally retain some value after a credit event has triggered the settlement of a contract. Where payment under the contract is based on the recovery value.
Reference asset	The asset or assets whose credit risk is transferred. This may be a loan, security or other obligation, or a basket containing obligations of a single borrower or several borrowers that are named in the credit derivative contract.
Settlement	The completion of a transaction, wherein the seller transfers securities or financial instruments to the buyer and the buyer transfers money to the seller.
Short Option Position	The position of a trader who has sold or written an option. The writer's maximum potential profit is the premium received.
Short Position	A position whereby an investor incurs rights and obligations that mirror the characteristics of another counterparty's asset position, or a position that appreciates in value when the underlying market price decreases.
Simulation	A mathematical technique for measuring the likely performance of a given portfolio for changes in certain parameters such as market interest rates or foreign exchange rates.
Swap	A financial transaction in which two counterparties agree to exchange streams of payments over time according to a predetermined rule.
Underlying asset	The credit derivative may be used to hedge another position in an asset that is the same or similar to the reference asset. The position that the institution is attempting to hedge is referred to as the underlying asset.

Volatility	A measure of the variability of the price of an asset, usually defined as the standard deviation of observed changes in the natural logarithm of the asset price.
Writer	The party that sells an option. The writer is required to carry out the terms of the option at the choice of the holder.
Zero Coupon Bonds	Securities which do not make periodic interest payments and are redeemed at face value at a specified maturity date. These securities are sold at a deep discount, and the return accrues to the buyer as the security gradually appreciates.
Hedge	A position that materially or entirely offsets the component risk elements of another trading book position or portfolio.

ANNEX 1 - SUMMARY OF CAPITAL CHARGES BY INSTRUMENT

Instruments	Specific Risk Charge	General Market Risk Charge	Options Risk Charge	Credit Default Risk Charge
Interest Rate Position risk				
Debt instruments	X	X		
Forward Debt Contracts	X	X		X
Debt Index Forwards contracts		X		X
Equity Position Risk				
Equity Instruments	X			
Equity Forward contracts	X	X		X
Equity Index Forwards contracts	X	X		X
Foreign Exchange spot		X		X
Foreign Exchange forward		X		X
Commodities Risk				
Gold spot		X		X
Gold Forward contracts		X		X
Commodities spot		X		X
Commodities forwards contracts		X		X
Options Portfolios				
Simplified Method			X	X
Debt Options Purchased			X	X
Debt Index options purchased			X	X
Equity Options Purchased			X	X
Equity Index options purchased			X	X
Foreign Exchange Options Purchased			X	X
Gold options purchased			X	X
Commodity options purchased			X	X

ANNEX II – SUMMARY OF CAPITAL CHARGES FOR CREDIT DERIVATIVES

		Guarantor	**Beneficiary**
Total Return Swap	**General Market Risk**	Long or short position in the reference asset and a short or long position in the notional bond (interest rate leg of contract)	Long or short position in the reference asset and a short or long position in the notional bond (interest rate leg of contract)
	Specific Risk	Long position(s) in the reference asset(s)	**Short position(s) in the reference asset(s)**
	Credit Counterparty Risk	**Add-on Factor**	**Add-on factor**
Credit default swap	**General Market Risk**	Normally no risk from market movements	**Normally no risk from market movements**
	Specific Risk	Long position(s) in the reference asset(s)	**Short position(s) in the reference asset(s**
	Credit Counterparty Risk	Normally no counterparty risk, but add-on factor required for some transactions	**Add –on Factor**
Credit-linked note	**General Market Risk**	**Long position in the note**	**No risk from market movements**
	Specific Risk	**Long position(s) in the reference asset(s) plus long position on the note issuer**	**Short position(s) in the reference asset(s)**
	Credit Counterparty Risk	**No counterparty risk**	**No counterparty risk**

ANNEX 111 – SUMMARY OF SPECIFIC AND GENERAL MARKET RISK CHARGES FOR INTEREST RATE DERIVATIVES

INSTRUMENT	**SPECIFIC RISK CHARGE** (Relating to the issuer of the instrument. There is a separate capital requirement for counterparty credit risk)	**GENERAL MARKET RISKCHARGE**
EXCHANGE- TRADED FUTURE		
Government Security	No	Yes, as two positions
Corporate debt security	Yes	Yes, as two positions
Index on short term interest rates	No	Yes, as two positions
OTC FORWARD		
Government Security	No	Yes, as two positions
Corporate debt security	Yes	Yes, as two positions
Index on short term interest rates	No	Yes, as two positions
FRA's, Swaps	No	Yes, as two positions
Forward foreign exchange	No	Yes, as one position in each currency
Options		For each type of transaction, either:
Government Security	No	Carve out together with the associated hedging positions
		- simplified approach
Corporate debt security	Yes	Same as above
Index on short term interest rates	No	Same as above

ANNEX IV – CALCULATION OF GENERAL MAKET RISK FOR INTEREST RATE RELATED INSTRUMENTS

1. A bank may have the following positions:

   • Qualifying bond, $13.33 million market value, residual maturity 8 years, coupon 8%;

   • Government bond, $75 million market value, residual maturity 2 months, coupon 7%;

   • Interest rate swap, $150 million[13], bank receives floating rate interest and pays fixed, next interest fixing after 9 months, residual life of swap 8 years;

   • Long position in interest rate future, $50 million, delivery date after 6 months, and life of underlying government security 3.5 years.

2. Table 9 shows how these positions are slotted into the time-bands and are weighted according to the weights given in Table 4 of Section 4.2.2. After weighting the positions the next steps in the calculation will be:

   (a) The *vertical disallowance* in time-band 7-10 years has to be calculated: The matched position in this time-band is 0.5 (the lesser of the absolute values of the added (weighted) long and (weighted) short positions in the same time-band) which leads to a capital charge of 10% of 0.5 = 0.05 = $50,000. The remaining net (short) position is -5.125.

   (b) The *horizontal disallowances within the zones* have to be calculated: As there is more than one position only in zone 1, a horizontal disallowance can only be calculated in this zone. In doing this, the matched position is calculated as 0.2 (the lesser of the absolute values of the added long and short positions in the same zone). The capital charge for the horizontal disallowance within zone 1 is 40% of 0.2 = 0.08 = $80,000. The remaining net (long) position in zone 1 is +1.00.

   (c) The *horizontal disallowances between adjacent zones* have to be calculated: After calculating the net position within zone 1 the following positions remain: zone 1 +1.00, zone 2 +1.125, zone 3 -5.125. The matched position between

[13] The position should be reported as the market value of the notional underlying. Depending on the current interest rate, the market value of each leg of the swap (i.e. the 8 year bond and the 9 months floater) can be either higher or lower than the notional amount. For sake of simplicity the example assumes that the current interest rate is identical with the one the swap is based on.

zones 2 and 3 is 1.125 (the lesser of the absolute values of the long and short positions between adjacent zones). The capital charge in this case is 40% of 1.125 = 0.45 = $450,000.

(d) The *horizontal disallowance between zones 1 and 3* has to be calculated: The remaining net (long) position in zone 1 is +1.00, in zone 3 the net (short) position is -4.00 If there were no offsetting between zones 1 and 3 allowed the capital charge would be 5.00 = $5,000,000. However, the horizontal disallowance between the distant zones is 100% of the matched position which leads to a capital charge of 100% of 1.00 = 1.00 = $1,000,000.

(e) The overall net position is 3.00 leading to a capital charge of $3,000,000.

Table 9

	Zone 1				Zone 2			Zone 3					
Timeband	0 to 1	1 to 3	3 to 6	6 to 12	1 to 2	2 to 3	3 to 4	4 to 5	5 to 7	7 to 10	10 to 15	15 to 20	over 20
	Months				Years								
Position		+75 Gov.	-50 Fut.	+150 Swap			+50 Fut.			-150 Swap 13.33 Qual.			
Weight(%)	0.00	0.20	0.40	0.70	1.25	1.75	2.25	2.75	3.25	3.75	4.50	5.25	6.00
Position * weight		+0.15	-0.2	+1.05			+1.125			-5.625			
										+0.5			
Vertical Disallowance										0.5 * 10%= 0.05			
Horizontal Disallowance 1	0.20* 40% = 0.08												
Horizontal Disallowance 2					1.125 * 40% = 0.45								
Horizontal Disallowance 3	1.0 * 100% = 1.0												

3. The total capital charge in this example is:

- for the vertical disallowance	$50,000
- for the horizontal disallowance in zone 1	$80,000
- for the horizontal disallowance between adjacent zones	$450,000
- for the horizontal disallowance between zones 1 and 3	$1,000,000
- for the overall net open position	$3,000,000
	$4,580,000

ANNEX V – Allocation of Positions for General Market Risk

Instruments	**Allocation of Positions Across Bands**			
Debt Instruments				
Fixed rate	Remaining term to maturity			
Floating rate	Next re-pricing date			
Callable Bond (above par)	First call date			
Callable Bond (below par)	Remaining time to maturity			
Mortgage backed securities	Final maturity date			
Interest rate derivatives	Converted into two positions: i.e. long and short position in the notional security			
Type	**First position**		**Second position**	
	Amt.	**Allocation**	**Amt.**	**Allocation**
Interest rate swap				
Pay fixed	-NP	Maturity date	+NP	Next settlement
Receive fixed	+NP	Maturity date	-NP	Next settlement
Forward rate agreements (FRA's)				
Buy (short)	-NP	Maturity date	+NP	Value date
Sell (long)	+NP	Maturity date	-NP	Value date
3- Month futures				
Buy (long)	+NP	Maturity + 3mths	-NP	Maturity date
Sell (short)	-NP	Maturity + 3mths	+NP	Maturity date
Government Bonds and notes	+NP	Maturity date		
Cross currency swaps				
Receive floating (long)	+NP	Value + freq**		
Pay floating (short)	-NP	Value + freq**		
Receive fix (long)	+NP	Maturity date		
Pay fix (short)	-NP	Maturity date		
FX Forwards (Buy)	+NP	Value date		
FX Forwards (sell)	-NP	Value date		

NP = notional principal in relevant currency
**value date plus interval determined by frequency of payments, e.g 3 mths, 6 mths etc.

Purchased Future/Forward	A notional long position in the underlying debt security	A notional short position in a zero coupon zero-specific- risk security with a maturity equal to the expiry date of the future/forward.
Sold Future/Forward	A notional short position in the underlying debt security	A notional long position in a zero coupon zero-specific-risk security with a maturity equal to the expiry date of the future/forward.