Financial Services Commission

Guidance Note

Capital Requirements Directive

Market Risk

Issued : 18 December 2007

Revised: 13 March 2013

V3

Please be advised that this Guidance Note is dated and does not take into account any changes arising from the Capital Requirements Directive (2013/36/EU), transposed into local legislation as the Financial Services (Capital Requirements Directive IV) Regulations ("Gibraltar Regulations"), or the Capital Requirements Regulations (575/2013) ("EU Regulations") of the European Parliament and of the Council of 26 June 2013. Where there is a discrepancy between the contents of the Guidance Note and the requirements set in the Gibraltar and/or EU Regulations, the entity is to refer to and comply with the requirements set in the Gibraltar Regulations and the EU Regulations.

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1. Application, purpose, general provisions and non-standard transactions

1.1 This Guidance Note applies to all locally incorporated credit institutions and investment firms who operate a trading book for the purposes of the Capital Adequacy Directive, comprising Directive 2006/48/EC and Directive 2006/49/EC which have been implemented in Gibraltar via the Banking (Capital Adequacy of Credit Institutions) Regulations, 2007 and Financial Services (Capital Adequacy of Investment Firms) Regulations 2007. The aim of the Guidance Note is to supplement the Regulations in setting the standards for the measurement of market risk and how firms must calculate this.

1.2 A firm must calculate a Position Risk Requirement (PRR) in respect of:

1.2.1 all its trading book positions:

1.2.2 all positions falling within paragraph 5.3 (Scope of the foreign exchange PRR calculation), whether or not in the trading book; and

1.2.3 all positions in commodities (including physical commodities whether or not in the trading book;

1.3 even if no treatment is provided for that position in the other sections of this Guidance Note.

1.4 A firm must calculate a PRR for any position falling into paragraph 1.3 using;

1.4.1 the PRR calculations contained in this Guidance Note; or

1.4.2 another method provided the firm is able to demonstrate that in all circumstances the calculation being employed results in a higher PRR for the position than would be required under 1.4.1 above.

Non-trading book items

1.5 Positions in instruments which are non-trading book items should be treated in accordance with the Guidance Notes on Credit Risk Standardised Approach, the IRB Approach or Financial Derivatives, SFTs and Long Settlement Transactions, unless deducted as an illiquid asset. If they fall under paragraphs 1.2.2 or 1.2.3 they also give rise to a PRR charge.

Frequency of calculation

1.6 A firm must be able to monitor its total PRR on an intra-day basis, and, before executing any trade, must be able to re-calculate PRR to the level of detail necessary to ensure that the firm's capital resources requirement does not exceed the firm's capital resources.

Instruments for which no PRR treatment has been specified

1.7 Where a firm has a position for which no PRR treatment has been specified, it must calculate the PRR for that position in accordance with paragraph 1.9 or 1.10.

1.8 If paragraph 1.7 is applied, a firm must also immediately notify the FSC of the details of the position, the PRR calculated and the reasons for the calculation.

1.9 A firm may calculate the PRR for a position falling into paragraph 1.7 by applying the analogy of the Guidance Note relating to the calculation of the interest rate PRR, the equity PRR, the commodity PRR, the foreign exchange PRR, the option PRR or the collective investment undertaking PRR if doing so is appropriate and if the position and PRR item are sufficiently similar to those that are covered by that guidance.

1.10 Where a firm has a position for which no PRR treatment has been specified and it is not applying paragraph 1.9, it must calculate a PRR of an appropriate percentage of the current value of the position calculated under Valuation.

Instruments in non-standard form

1.11

1.11.1 If a firm has a position:

1.11.1.1 in a PRR item in non-standard form; or

1.11.1.2 that is part of a non-standard arrangement; or

1.11.1.3 that, taken together with other positions (whether or not they are subject to PRR charges under this Guidance Note) gives rise to a non-standard market risk;

the firm must notify the FSC of that fact and of details about the position, PRR item, arrangements and type of risk concerned.

1.11.2 Except as 1.11.1 provides to the contrary, 1.11.1 applies to a position that gives rise to a PRR charge under paragraph 1.3

1.11.3 The question of what is non-standard for the purposes of 1.11.1 must be judged by reference to the standards:

1.11.3.1 prevailing at the time this Guidance Note is being applied; and

1.11.3.2 of firms generally who carry on business which gives rise to PRR charges under this Guidance Note rather than merely by reference to the firm's own business.

1.12 If a firm has a position or combination of positions falling into paragraph 1.11 and the PRR charge relating to that position or positions materially underestimates the market risk incurred by the firm to which they give rise, the firm must calculate the PRR for that position or positions under paragraph 1.10.

Meaning of appropriate percentage for non-standard transactions

1.13

1.13.1 In paragraph 1.10 and, to the extent that this Guidance Note applies in paragraph 1.10, paragraph 1.12, "an appropriate percentage" is:

1.13.1.1 100%; or

1.13.1.2 a percentage which takes account of the characteristics of the position concerned and of discussions with the FSC.

1.13.2 Compliance with 1.13.1 may be relied on as tending to establish compliance with paragraph 1.10 or, insofar as it incorporates the requirements relating to an appropriate percentage, paragraph 1.12.

1.13.1 Contravention of 1.13.1 may be relied on as tending to establish contravention with paragraph 1.10 or, insofar as it incorporates the requirements relating to an appropriate percentage, paragraph 1.12.

Netting for non-standard transactions

1.14 A position whose PRR is calculated under paragraph 1.9 and 1.10 may not be netted with a position treated under the other paragraphs of this Guidance Note.

Purpose of Guidance Note for non-standard transactions

1.15 The methodologies which have been developed for calculating PRR charges assume instruments with standard characteristics. There are many examples, however, of instruments which, although based on a standard contract, contain structural features which make the guidance, as stated, inappropriate. There will also be examples of instruments that have novel characteristics.

2. Interest Rate PRR

2.1

2.1.1 A firm must calculate its interest rate PRR by:

2.1.1.1 identifying which positions must be included within the interest rate calculation;

2.1.1.2 deriving the net position in each debt security in accordance with paragraphs 2.36 to 2.41;

2.1.1.3 including these net positions in the interest rate PRR calculation for general market risk and the interest rate PRR calculation for specific risk; and

2.1.1.4 summing all PRRs calculated for general market risk and specific risk.

2.1.2 A firm must calculate its interest rate PRR by adding the amount calculated under 2.1.1 to the amount calculated under the basic interest rate PRR calculation under paragraph 3.45.

2.1.3 All net positions, irrespective of their signs, must be converted on a daily basis into the firm's base currency at the prevailing sport exchange rate before their aggregation.

2.2 The interest rate PRR calculation divides the interest rate risk into the risk of loss from a general move in market interest rates, and the risk of loss

from an individual debt security's price changing for reasons other than a general move in market interest rates. These are called general market risk and specific risk respectively.

Scope of the interest rate PRR calculation

2.3 A firm's interest rate PRR calculation must:

2.3.1 include all trading book positions in debt securities, preference shares and convertibles, except:

2.3.1.1 positions in convertibles which have been included in the firm's equity PRR calculation;

2.3.1.2 positions fully deducted as a material holding under the calculations under the capital resources table, in which case the firm may exclude them; or

2.3.1.3 positions hedging an option which is being treated under paragraph 6.26; and

2.3.2 include notional positions arising from trading book positions in the instruments listed in the table in paragraph 2.4

2.4 Instruments which result in notional positions

Instrument	Refer to
Futures, forwards or synthetic futures on debt securities	Paragraph 2.13
Futures, forwards or synthetic futures on debt indices or baskets	Paragraph 2.14
Interest rate futures of forward rate agreements (FRAs)	Paragraph 2.18
Interest rate swaps or foreign currency swaps	Paragraph 2.21
Deferred start interest rate swaps or foreign currency swaps	Paragraph 2.24
The interest rate leg of an equity swap (unless the firm calculates the interest rate PRR on the instrument using the basic interest rate PRR calculation in paragraph 3	Paragraph 2.27
The cash leg of a repurchase agreement or a reverse repurchase agreement	Paragraph 2.30
Cash borrowings or deposits	Paragraph 2.31
Options or warrants on a debt security, a basket of debt securities, a debt security index, an interest rate or an interest rate future or swap (including an option or warrant on a future on a debt security)(unless the firm calculates a PRR on the option under paragraph 6	Paragraph 2.32
Dual currency bonds	Paragraph 2.33
Foreign currency futures or forwards	Paragraph 2.34
Gold futures or forwards	Paragraph 2.34
Forwards, futures or options (except cliquets) on an equity, basket of equities or equity index (unless the firm calculates the interest rate PRR on the instrument using the basic interest rate PRR calculation in paragraph 3)	Paragraph 2.34

Credit derivatives	Paragraph 11

2.5 Paragraph 2.3.1 includes a trading book position in debt security, preference share or convertible that is subsequently repaid under a repurchase agreement or lent under a stock lending agreement. Clearly, if the security had initially been obtained via a reverse repurchase agreement or stock borrowing agreement, the security would not have been included in the PRR calculation in the first place.

2.6 Paragraph 2.3.1 includes net underwriting positions or reduced net underwriting positions in dept securities.

2.7 Firms are reminded that the table in paragraph 6.5 divides options and warrants on interest rates, debt securities and interest rate futures and swaps into;

2.7.1 those which must be treated under paragraph 6; and

2.7.2 those which must be treated under either paragraphs 2 or 6, the firm being able to choose whether paragraph 2 or 6 is used.

2.8 Cliquets on equities, baskets of equities or equity indices do not attract an interest rate PRR. The table in paragraph 2.4 excludes them from the scope of the interest rate PRR calculation in paragraph 2 and paragraph 3.45 excludes them from the basic interest rate PRR calculation in 3.

2.9 The table in paragraph 2.4 shows that equity derivatives are excluded from paragraph 2.7's PRR calculation if they have been included in the basic interest rate PRR calculation in Section 3 (see also paragraph 3.45).

2.10 Paragraphs 2.11 to 2.35 convert the instruments listed in the table in paragraph 2.4 into notional positions in:

2.10.1 the underling debt security, where the instrument depends on the price (or yield) of a specific debt security; or

2.10.2 notional debt securities to capture the pure interest rate risk arising from future payments and receipts of cash (including notional payments and receipts) which, because they are designed to represent pure general market risk (and not specific risk), are called zero specific securities; or

2.10.3 both 2.10.1 and 2.10.2.

2.11

2.11.1 for the purposes of calculating interest rate PRR, unless specified otherwise, a firm must derive the value of notional positions as follows:

2.11.1.1 notional positions in actual debt securities must be valued as the nominal amount underlying the contract at the current market price of the debt security; and

2.11.1.2 positions in zero-specific-risk securities must be valued using one of the two methods in 2.11.2.

2.11.2 A firm must use one of the following two methods for all positions arising under 2.11.1.2 and must use the same method for all positions denominated in the same currency:

2.11.2.1 the present value approach, under which the zero-specific-risk security is assigned a value equal to the present value of all the future cash flows that it represents; or

2.11.2.2 the alternative approach, under which the zero-specific-risk security is assigned a value equal to:

2.11.2.2.1 the market value if the underlying notional equity position in the case of an equity derivative;

2.11.2.2.2 the notional principle amount in the case of an interest rate or foreign currency swap; or

2.11.2.2.3 the notional amount of the future cash flow that it represents in the case of any other CRD financial instrument.

2.12 A firm must use 2.11.2.1 in respect of any positions that it includes in the interest rate duration method.

Derivation of notional positions: Futures, forwards or synthetic futures on a debt security

2.13 Futures, forwards or synthetic futures on a single debt security must be treated as follows:

2.13.1 a purchased future, synthetic future or forward is treated as:

2.13.2 a notional long position in the underlying debt security ((or the cheapest to deliver (taking into account the conversion factor) where the contract can be satisfied by delivery of one from a range of securities)); and

2.13.3 a notional short position in a zero coupon zero-specific-risk security with a maturity equal to the expiry date of the future or forward; and

2.13.2 a sold future, synthetic future or forward is treated as :

2.13.2.1 a notional short position in the underlying security (or the cheapest to deliver (taking into account the conversion factor) where the contract can be satisfied by delivery of one from a range of securities); and

2.13.2.2 a notional long position in a zero coupon zero-specific-risk security with a maturity equal to the expiry date of the future, synthetic future or forward.

Derivation of notional positions: Futures, forwards or synthetic futures on a basket or index of debt securities

2.14 Futures, forwards or synthetic futures on a basket or index of debt securities must be converted into forwards on single debt securities as follows (and then the resulting positions must be treated under 2.13):

2.14.1 futures, synthetic futures or forwards on a single currency basket or index of debt securities must be treated as either:

2.14.1.1 a series of forwards, one for each of the constituent debt securities in the basket or index, of an amount which is a proportionate part of the total underlying the contract according to the weighting of the relevant debt security in the basket; or

2.14.1.2 a single forward on a notional debt security; and

2.14.2 futures, synthetic futures or forwards on multiple currency baskets or indices of debt securities must be treated as either:

2.14.2.1 a series of forwards (using the method described in 2.14.1.1); or

2.14.2.2 a series of forwards, each one on a notional debt security to represent one of the currencies in the basket or index, of an amount which is a proportionate part of the total underlying the contract according to the weighting of the relevant currency in the basket.

2.15 Under paragraph 2.14.2.2, a forward on a basket of three Euro denominated debt securities and two Dollar denominated debt securities would be treated as a forward on a single notional Euro denominated debt security and a forward on a single notional Dollar denominated debt security.

2.16 The notional debt securities in paragraph 2.14 are assigned a specific risk Position Risk Amount (PRA) and a general market risk PRA equal to the highest that would apply to the debt securities in the basket or index.

2.17 The debt security with the highest specific risk PRA within the basket might not be the same as the one with the highest general market risk PRA. Paragraph 2.16 requires a firm to select the highest percentages even where they relate to different debt securities in the basket or index, and regardless of the proportion of those debt securities in the basket or index.

Derivation of notional positions: Interest rate futures and forward rate agreements (FRAs)

2.18 Interest rate futures or FRAs must be treated as the two notional positions (one long, one short) shown in the table in paragraph 2.19.

2.19 Interest Rate Futures and FRAs

	A short position in a zero coupon zero-specific-risk security	**A long position in a zero coupon zero-specific-risk security**
Where the firm buys an interest rate future or sells an FRA.	Maturity equals the expiry date of the future (or settlement date of the FRA).	Maturity equals the expiry date of the future (or settlement of the FRA) plus the maturity of the notional borrowing/deposit.
Where the firm sells an interest rate future or buys an FRA.	Maturity equals the expiry date of the future (or settlement date of the FRA) plus the maturity of the notional borrowing/deposit.	Maturity equals the expiry date of the future (or settlement date of the FRA).

2.20

2.20.1 The following example illustrates paragraph 2.18 and paragraph 2.19 in conjunction with paragraph 2.11 (the last rule determines

the value of notional positions). A firm sells £1mn notional of a 3v6 FRA at 6%. This results in:

2.20.1.1 a short position in a zero-specific-risk-security with a zero coupon, three month maturity, and a nominal amount of £1million; and

2.20.1.2 a long position in a zero-specific-risk-security with a zero coupon, six month maturity, and nominal amount of £1,015,000 (i.e. notional plus interest at 6% over 90 days).

2.20.2 If a firm were to apply the approach in paragraph 2.11.2 the two nominal amounts would have to be present valued.

Derivation of notional positions: Interest rate swaps of foreign currency swaps

2.21 Interest rate swaps or foreign currency swaps without deferred starts must be treated as the two notional positions (one long, one short) shown in the table in paragraph 2.22.

2.22 Interest rate and foreign currency swaps

	Paying leg (which must be treated as a short position in a zero-specific-risk security	**Receiving leg (which must be treated as a long position in a zero-specific-risk security)**
Receiving fixed and paying floating.	Coupon equals the floating rate and maturity equals the reset date.	Coupon equals the fixed rate of the swap and maturity equals the maturity of the swap.
Paying fixed and receiving floating.	Coupon equals the fixed rate of the swap and maturity equals the maturity of the swap.	Coupon equals the floating rate and maturity equals the reset date.
Paying floating and receiving floating.	Coupon equals the floating rate and maturity equals the reset date.	Coupon equals the floating rate and maturity equals the reset date.

2.23 For a foreign currency swap, the two notional zero-specific-risk securities would be denominated in different currencies. A foreign currency swap is also included in the foreign exchange PRR calculation.

Derivation of notional positions: Deferred start interest rate swaps or foreign currency swaps

2.24 Interest rate swaps or foreign currency swaps with a deferred start must be treated as the two notional positions (one long, one short) shown in the table in paragraph 2.25.

2.25 Deferred start interest and foreign currency swaps

	Paying leg (which must be treated as a short position in a zero-specific-risk security with a coupon	**Receiving leg (which must be treated as a long position in a zero-specific-risk security with a coupon**

	equal to the fixed rate of the swap)	**equal to the fixed rate of the swap)**
Receiving fixed and paying floating.	Maturity equals the start date of the swap.	Maturity equals the maturity of the swap.
Paying fixed and receiving floating.	Maturity equals the maturity of the swap.	Maturity equals the start date of the swap.

2.26 An example of paragraph 2.24 is as follows. A firm enters into a five year swap which starts in two years' time. The firm has contracted to receive 6% and pay six month Libor on a principal amount of £1million. This results in a long position in a 7 year debt security and a short position in a 2 year debt security. Both have a coupon of 6%. Paragraph 2.24 deals with the capital treatment of the delayed start date; once the swap has started, paragraph 2.21 applies.

Derivation of notional positions: Swaps where only one leg is an interest rate leg (e.g. equity swaps)

2.27 A firm must treat a swap with only one interest rate leg as a notional position in a zero-specific-risk security:

2.27.1 with a coupon equal to that on the interest rate leg;

2.27.2 with a maturity equal to the date that the interest rate will be reset; and

2.27.3 which is a long position if the firm is receiving interest payments and short if making interest payments.

2.28 Paragraph 2.27 includes equity swaps, commodity swaps and any other swap where only one leg is an interest rate leg.

Derivation of notional positions: Cash legs of repurchase agreements and reverse repurchase agreements

2.29 Firms are reminded that for the purposes of paragraph 2.30, a repurchase agreement includes a sell/buy back or stock lending; and a reverse repurchase agreement includes a buy/sell back or a stock borrowing.

2.30 The forward cash leg of a repurchase agreement or reverse repurchase agreement must be treated as a notional position in a zero-specific-risk security which:

2.30.1 is a short notional position in the case of a repurchase agreement; and a long position in the case of a reverse repurchase agreement;

2.30.2 has a value equal to the market value of the cash leg;

2.30.3 has a maturity equal to that of the repurchase agreement or reverse repurchase agreement; and

230.4 has a coupon equal to:

230.4.1 zero, if the next interest payment date coincides with the maturity date; or

230.4.2 the interest rate on the contract, if any interest is due to

Derivation of notional positions: Cash borrowings and deposits

2.31 A cash borrowing or deposit must be treated as a notional position in a zero coupon zero-specific-risk security which:

2.31.1 is a short position in the case of a borrowing and a long position in the case of a deposit;

2.31.2 has a value equal to the market value of the borrowing or deposit;

2.31.3 has a maturity equal to that of the borrowing or deposit, or next date the interest rate is reset (if earlier); and

2.31.4 has a coupon equal to:

2.31.4.1 zero, if the next interest payment date coincides with the maturity date; or

2.31.4.2 the interest rate on the borrowing or deposit, if any interest is due to be paid before the maturity date.

Derivation of notional positions: Options and warrants

2.32

2.32.1 Where included in the PRR calculation in paragraph 2.32.1 (see the table in paragraph 2.4), options and warrants must be treated in accordance with this Guidance Note.

2.32.2 An option or warrant on a debt security, a basket of debt securities or a debt index must be treated as a position in that debt security, basket or index.

2.32.3 An option on an interest rate must be treated as a position in a zero coupon zero-specific-risk security with a maturity equal to the sum of time to expiry of the option and the length of the period for which the interest rate is fixed.

2.32.4 An option on a future – where the future is based on an interest rate or debt security – must be treated as:

2.32.4.1 A long position in that future for purchased call options and written put options; and

2.32.4.2 A short position in that future for purchased put options and written call options.

2.32.4.3 An option on a swap must be treated as a deferred starting swap.

Derivation of notional positions: Bond where the coupons and principle are paid in different currencies

2.33 Where a debt security pays coupons in one currency, but will be redeemed in a different currency, it must be treated as:

2.33.1 a debt security denominated in the coupon's currency; and

2.33.2 a foreign currency forward to capture the fact that the debt security's principle will be repaid in a different currency from that in which it pays coupons, specifically:

2.33.2.1 a notional forward sale of the coupon currency and purchase of the redemption currency, in the case of a long position in the debt security; or

2.33.2.2 a notional forward purchase of the coupon currency and sale of the redemption currency, in the case of a short position in the debt security.

Derivation of notional positions: Interest rate risk on other futures, forwards and options

2.34 Other futures, forwards, options and swaps treated under paragraph 2 must be treated as positions in zero-specific-risk securities, each of which:

2.34.1 has a zero coupon;

2.34.2 has a maturity equal to that of the relevant contract; and

2.34.3 is long or short according to the table in paragraph 2.35

2.35 Interest rate risk on other futures, forwards options and swaps

Instrument	**Notional positions**		
Foreign currency forward of future	A long position denominated in the currency purchased	and	A short position denominated in the currency sold .
Gold forward or future	A long position if the forward or future involves an actual (or notional) sale of gold	or	A short position if the forward or future involves an actual (or notional purchase of gold).
Equity forward or future, or option (unless the interest rate PRR is calculated under the basic interest rate PRR calculation in paragraph 3)	A long position if the contract involves an actual (or notional) sale of the underlying equity	or	A short position if the contract involves an actual (or notional) purchase of the underlying equity.

Deriving the net position in each debt security: General

2.36 The net position in a debt security is the difference between the value of the firm's long positions (including notional positions) and the value of its short positions (including notional positions) in the same debt security.

2.37

2.37.1 A firm must not net positions (including notional positions) unless those positions are in the same debt security. This Guidance Note sets out the circumstances in which debt securities may be treated as the same for these purposes.

2.37.2 Subject to 2.37.3 long and short positions are in the same debt security, and debt security is the same as another if and only if:

2.37.2.1 they enjoy the same rights in all respects; and

2.37.2.2 are fungible with each other.

2.37.3 Long and short positions in different tranches of the same debt security may be treated as being in the same debt security for the purpose of 2.37.1 where:

2.37.3.1 The tranches enjoy the same rights in all respects; and

2.37.3.2 The tranches become fungible within 180 days and thereafter the debt security of one tranche can be delivered in settlement of the other tranche.

Deriving the net position in each debt security: Netting the cheapest to deliver security with other deliverable securities

2.38 A firm may net a short notional position in the cheapest to deliver security arising from a short future or forward (see paragraph 2.13(2)(a)) under which the seller has a choice of which debt security it may use to settle its obligations against a long position in any deliverable security up to a maximum of 90% of the common notional amounts. The residual long and short nominal amounts must be treated as separate long and short positions.

2.39 The netting permitted by paragraph 2.38 only relates to where the firm has sold the future of forward. It does not relate to where the firm has bought a future or forward.

Deriving the net position in each debt security: Netting zero-specific-risk securities with different maturities

2.40 A firm may net a notional long position in a zero-specific-risk security against a notional short position in a zero-specific-risk security if:

2.40.1 they are denominated in the same currency;

2.40.2 their coupons do not differ by more than 15 basis points; and

2.40.3 they mature:

2.40.3.1 on the same day, if they have residual maturities of less than one month;

2.40.3.2 within 7 days of each other, if they have residual maturities of between one month to one year; and

2.40.3.3 within 30 days of each other, if they have residual maturities in excess of one year.

Deriving the net position in each debt security: Reduced net underwriting positions in debt securities

2.41 A firm must not net a reduced net underwriting position in a debt security with any other debt security position.

2.42 Paragraph 2.41 only relates to reduced net underwriting positions.

Specific risk calculation

2.43

2.43.1 A firm must calculate the specific risk portion of the interest rate PRR for each debt security by multiplying the market value of the individual net position (ignoring the sign) by the appropriate PRA from the table in paragraph 2.43 or as specified by paragraphs 2.44 to 2.46.

2.43.2 Notional positions in zero-specific-risk securities do not attract specific risk in paragraph 2.43 Specific Risk PRAs

Issuer	Residential Maturity	PRA
Debt securities issued or guaranteed by central governments, issued by central banks, international organisations, multilateral development banks or Member States regional government or local authorities which would qualify for credit quality assessment step 1 or which would receive a 0% risk weight under the standardised approach to credit risk	Any	0%
(A) Debt securities issued or guaranteed by central governments, issued by central banks, international organisations, multilateral development banks or EEA States' regional governments or local authorities which would qualify for credit quality assessment step 2 or 3 under the standardised approach to credit risk	Zero to six months	0.25%
	Over 6 and up to and including 24 months	1%
(B) Debt securities issued or guaranteed by institutions which would qualify for credit quality assessment step 1 or 2 under the standardised approach to credit risk. (C) Debt securities issued or guaranteed by institutions which would qualify for credit quality assessment step 3. (D) Debt securities issued or guaranteed by corporates which would qualify for credit quality assessment step 1 or 2 under the standardised approach to credit risk. (E) Other qualifying debt securities (see paragraph 2.48)	Over 24 months	1.6%
(A) Debt securities issued or guaranteed by central governments, issued by central banks, international organisations, multilateral development banks or EEA States' regional governments or local authorities or institutions which would qualify for credit quality assessment step 4 or 5 under the standardised approach to credit risk. (B) Debt securities issued or guaranteed by institutions which would qualify for credit quality assessment step 3. (C) Debt securities issued or guaranteed by corporates which would qualify for credit quality assessment step 3 or 4 under the standardised approach to credit risk.	Any	8%

(A) Debt securities issued or guaranteed by central governments, issued by central banks, international organisations, multilateral development banks or EEA States' regional governments or local authorities or institutions which would qualify for credit quality assessment step 6 under the standardised approach to credit risk. (B) Debt securities issued or guaranteed by corporates which would qualify for credit quality assessment step 5 or 6 under the standardised approach to credit risk (C) An instrument that shows a particular risk because of the insufficient solvency of the issuer of liquidity.	Any	12%

2.44 To the extent that a firm applies the IRB approach, to qualify for a credit quality assessment step for the purpose of the table in paragraph 2.43 the obligor of the debt security must have an internal rating with a PD equivalent to or lower that the associated with the appropriate credit quality assessment step under paragraph 3.

2.45 A debt security issued by a non-qualifying issuer will receive a specific risk PRA of 8% or 12% according to the table in paragraph 2.43. However a firm must apply a higher specific risk PRA to such a debt security and/or not recognise offsetting for the purposes of defining the extent of general market risk between such a security and any other debt securities to the extent that doing otherwise would not be a prudent treatment of specific or general market risk.

2.46 Securitisation exposures that would be subject to a deduction treatment under the treatment set out in section 9 or risk weighted at 1250% as set out in Section 9 is subject to a capital charge that is no less than that set out under those treatments. Unrated liquidity facilities are subject to a capital charge that is no less than that set out in Section 9.

2.47 Paragraph 2.43 includes both actual and notional positions. However, notional positions in zero-specific-risk securities do not attract specific risk.

For example:

2.47.1 interest rate swaps, foreign currency swaps, FRAs, interest rate futures, foreign currency forwards, foreign currency futures, and the cash leg of repurchase agreements and reverse repurchase agreements create notional positions which will not attract specific risk; whilst

2.47.2 futures, forwards and swaps which are based on the price (or yield) of one or more debt securities will create at least one notional position that attracts specific risk.

Definition of a qualifying debt security

2.48 A debt security is a qualifying debt security if:

2.48.1 it qualifies for a credit quality step under the standardised approach to credit risk corresponding at least to investment grade; or

2.48.2 it has a PD, because of the solvency of the issuer, which is not higher than that of the debt securities referred to under (1) under the IRB approach; or

2.48.3 it is a debt security for which a credit assessment by a nominated ECAI is unavailable and which meets the following conditions:

2.48.3.1 it is considered by the firm to be sufficiently liquid;

2.48.3.2 it is of investment quality, according to the firm's own discretion, at least equivalent to that of the debt securities referred to under 2.48.3.1; and

2.48.3.3 it is listed on at least one regulated market or designated investment exchange; or

2.48.4 it is a debt security issued by an institution subject to the capital adequacy requirements set forth in the Banking Consolidation Directive 2006/48/EC that satisfies the following conditions:

2.48.4.1 they are considered by the firm to be sufficiently liquid;

2.48.4.2 its investment quality is, according to the firm's own discretion, at least equivalent to that of the assets referred to under 2.48.4.; or

2.48.5 it is a debt security issued by an institution that it deemed to be of equivalent or higher credit quality than that associated with credit quality step 2 or above under the standardised approach to credit risk and that is subject to supervision and regulatory arrangements comparable to those under the Capital Adequacy Directive.

2.49 A firm must not treat a debt security as a qualifying debt security if it would be prudent to consider that the debt security concerned is subject to too high a degree of specific risk for it to be treated as a qualifying debt security.

2.50 The manner in which a firm assesses a debt security for the purpose of treatment as a qualifying debt security will be subject to scrutiny by the FSC. The FSC may take action to overturn the firm's judgement if it considers that the debt security should not be treated as a qualifying debt security.

General market risk calculation: General

2.51 A firm must calculate the general market risk portion of the interest PRR for each currency using either:

2.51.1 the interest rate simplified maturity method;

2.51.2 the interest rate maturity method; or

2.51.3 the interest rate duration method.

2.52 Paragraph 2.51.3 is subject to paragraph 2.53

2.53 A firm must not use the interest rate duration method for index-linked securities. Instead, these securities must:

2.53.1 be attributed a coupon of 3%; and

2.53.2 treated separately under with the interest rate simplified maturity method or the interest rate maturity method.

General market risk calculation: Simplified maturity method

2.54 The interest rate simplified maturity method weights individual net positions to reflect their price sensitivity to changes in interest rates. The weights are related to the coupon and the residual maturity of the instrument (or the next interest rate re-fix date for floating rate items).

2.55 Under the interest rate simplified maturity method, the portion of the interest rate PRR for general market risk equals the sum of each individual net position (long or short) multiplied by the appropriate PRA in the table in paragraph 2.56.

2.56 General market risk PRAs ≥

Zone	Maturity band		PRA
	Coupon of 3% or more	Coupon of less than 3%	
One	0 ≤ 1 month	0 ≤ 1 month	0.00%
	> 1 ≤ 3 months	> 1 ≤ 3 months	0.20%
One	> 3 ≤ 6 months	> 3 ≤ 6 months	0.4%
	> 6 ≤ 12 months	> 6 ≤ 12 months	0.7%
Two	> 1 ≤ 2 years	> 1.0 ≤ 1.9 years	1.25%
	> 2 ≤ 3 years	> 1.9 ≤ 2.8 years	1.75%
	> 3 ≤ 4 years	> 2.8 ≤ 3.6 years	2.25%
Three	> 4 ≤ 5 years	> 3.6 ≤ 4.3 years	2.75%
	> 5 ≤ 7 years	> 4.3 ≤ 5.7 years	3.25%
	> 7 ≤ 10 years	> 5.7 ≤ 7.3 years	3.75%
	> 10 ≤ 15 years	> 7.3 ≤ 9.3 years	4.5%
	> 15 ≤ 20 years	> 9.3 ≤ 10.6 years	5.25%
	> 20 years	> 10.6 ≤ 12.0 years	6.00%
		> 12.0 ≤ 20.0 years	8.00%
		> 20 years	12.50%

General market risk calculation: The maturity method

2.57 The interest rate maturity method builds on the interest rate simplified maturity method by partially recognising offsetting positions. Paragraph 2.60 provides an illustration of the interest rate maturity method.

2.58 Under the interest rate maturity method, the portion of the interest rate PRR for general market risk is calculated as follows:

2.58.1 Step 1: each net position is allocated to the appropriate maturity band in the table in paragraph 2.56 and multiplied by the corresponding PRA;

2.58.2 Step 2: weighted long and short positions are matched within:

2.58.2.1 The same maturity band;

2.58.2.2 The same zone (using unmatched positions from (a)); and

2.58.2.3 Different zones (using unmatched positions from (b)); and

2.58.3 Step: 3 the portion of the interest rate PRR for general market risk is the sum of:

2.58.3.1 10% of the total amount matched with maturity bands:

2.58.3.2 40% of the amount matched within zone 1 under 2.58.2.2;

2.58.3.3 30% of the amount matched within zones 2 & 3 under 2.58.2.2;

2.58.3.4 40% of the amounts matched between zones 1 and 2, and between zones 2 and 3;

2.58.3.5 150% of the amount matched between zones 1 and 3; and

2.58.3.6 100% of the weighted positions remaining unmatched after 2.58.2.3.

2.59 The table in paragraph 2.56 distinguishes between debt securities with a coupon of less than 3% and those with a coupon in excess of 3%. However, this does not mean that the firm has to do a separate general market risk calculation for each; if it merely ensures that when allocating debt securities to a particular band, their coupons are taken into account as well as their maturities.

2.60 So for example, a 21 year 6% debt security falls into the same band as an 11 year 2% debt security. They are both weighted at 6%, and can be matched under paragraph 2.58.2.1 (the first part of step two of the interest rate maturity method calculation) because they fall within the same band.

General market risk calculation: Duration method

2.61 The interest rate duration method produces a more accurate measure of interest rate risk than the maturity methods but it is also more complex to calculate.

2.62

2.62.1 A firm must use the following formula to calculate modified duration for the purpose of the interest rate duration method:

Modified duration =

$$\frac{D}{(1+r)}$$

2.62.2 For the purposes of the formula in 2.62.1:

$$D = \frac{\sum_{t=1}^{m} \frac{tC_t}{(1+r)^t}}{\sum_{t=1}^{m} \frac{C_t}{(1+r)^t}}$$

2.62.3 For the purposes of the formulae in 2.62.1 and 2.62.2:

2.62.3.1 C_t = cash payment at time t

2.62.3.2 m = total maturity

2.62.3.3 r = yield to maturity, based on the current mark to market of the debt security, which is the implied discount rate for that instrument, this is calculated on the assumption that the principle is due on the date that the interest rate can next be changed

2.62.3.4 t = time

2.63 Under the interest rate duration method, the portion of the interest rate PRR for general market risk is calculated as follows:

2.63.1 Step 1: allocate each net position to the appropriate duration zone in the table in paragraph 2.64 and multiply it by:

2.63.1.1 its modified duration (using the formula in paragraph 2.62)

2.63.1.2 the appropriate assumed interest rate change in the table in paragraph 2.64;

2.63.2 Step 2: match weighted long and short positions:

2.63.2.1 within zones; and

2.63.2.2 across zones (using unmatched positions from 2.63.2.1; and

2.63.3 Step 3: calculate the portion of the interest rate PRR for general market risk as the sum of:

2.63.3.1 100% of the weighted positions remaining unmatched after 2.63.2.2;

2.63.3.2 2% of the matched weighted position in each zone;

2.63.3.3 40% of the matched weighted position between zones 1 and 2, and between zones 2 and 3; and

2.63.3.4 150% of the matched weighted positions between zones 1 and 3.

2.64 Assumed interest rate change in the interest rate duration method

Zone	Modified duration	Assumed interest rate change (percentage points)
1	0 ≤ 12 months	1.00
2	> 12 months ≤ 3.6 years	0.85
3	> 3.6 years	0.70

2.65 If a firm uses the interest rate duration method it must do so on a consistent basis.

3. Equity PRR and basic interest rate PRR for equity derivatives

3.1

3.1.1 A firm must calculate its equity PRR by;

3.1.1.1 identifying which positions must be included within the PRR calculation (see paragraph 3.2);

3.1.1.2 deriving the net position in each equity in accordance with paragraph 3.23

3.1.1.3 including each of those net positions in either the simplified equity method (see paragraph 3.29) or, subject to paragraph 3.27, the standard equity method (see paragraph 3.32);

3.1.1.4 summing the PRR on each net position as calculated under the simplified equity method and standard equity method

3.1.2 All net positions, irrespective of their signs, must be converted on a daily basis into the firm's base currency at the prevailing spot exchange rate before their aggregation.

Scope of the equity PRR calculation

3.2 A firm's equity PRR calculation must:

3.2.1 Include all trading book positions in equities, unless:

3.2.1.1 the position is fully deducted as a material holding under the calculations under the capital resources table, in which case the firm may exclude it; or

3.2.1.2 the position is hedging an option or warrant which is being treated under paragraph 6.26; and

3.2.2 include notional positions arising from trading book positions in the instruments listed in the table in paragraph 3.3

3.3 Instruments which result in notional positions

Instrument		**Refer to**
Depository receipts		
Convertibles where:	(a) the convertible is trading at a market price of less than 110% of the underlying equity; and the first date at which conversion can take place is less than three months ahead, or the next such date (where the first has passed) is less than a year ahead; or	Paragraph 3.12
	(b) the conditions in (a) are not met but the firm include the convertible in its equity PRR calculation rather than in including it in its interest rate PRR calculation set out it 2	Paragraph 3.13
Futures, forwards, CFDs and synthetic futures on a single equity		Paragraph 3.14

Futures, forwards, CFDs and synthetic futures on a basket of equities or equity index	Paragraph 3.15
Equity legs of an equity swap	Paragraph 3.19
Options or warrants on a single equity, an equity future, a basket of equities or an equity index (unless the firm calculates a PRR on the option or warrant under 6	Paragraph 3.21

3.4 Paragraph 3.2.1 includes a trading book position in an equity that is subsequently repossessed under a repurchase agreement or lent under a stock lending agreement. Clearly, it the equity had initially been obtained via a reverse repurchase agreement or stock borrowing agreement, the equity would not have been included in the trading book in the first place.

3.5 Paragraph 3.2.1 includes net underwriting positions pr reduced net underwriting positions in equities. Paragraph 3.27 requires a firm to us the simplified equity method in the case of reduced net underwriting positions. In the case of net underwriting positions that have not been reduced according to paragraph 8.25, there is no such restriction; a firm can choose which of the two equity methods to use.

3.6 Firms are reminded that the table in paragraph 6.5 divides equity options and warrants into:

3.6.1 those which must be treated under Section 6; and

3.6.2 those which must be treated under either Section 3 or Section 6, with the firm being able to choose whether Section 3 or 6 is used.

3.7 The table in paragraph 3.3 does not require every convertible to be included in section 3's PRR calculation. Where a convertible is not included in this PRR calculation, paragraph 2.3.1 requires that it be included in Section 2 PRR calculation.

3.8 Some of the instruments listed in the table in paragraph 3.3 are also included in a firm's interest rate PRR calculation. For simplicity, a firm may use the interest rate PRR calculation in Section 3 rather than the calculation in Section 2. Paragraph 3.44 explains this in more detail.

Derivation of notional positions: General approach

3.9 Paragraph 3.10 to 3.21 convert the instruments listed in the table in paragraph 3.3 into notional positions in individual equities, equity baskets or equity indices.

3.10 Unless specified otherwise, the value of each notional equity position equals the quantity of that equity underlying the instrument multiplied by the current market value of the equity.

3.11

3.11.1 An example of paragraph 3.10 is as follows. The current market value of a particular equity is £2.50. If a firm contracts to sell this equity in five years' time for £3 it would treat the notional short equity position as having a value of £2.50 when calculating the equity PRR.

3.11.2 In effect, the forward position has been treated as being equivalent to a spot position for the purposes of calculating equity PRR. To capture the risk that the forward price changes

relative to the spot price, forward equity positions are included in the firm's interest rate PRR calculation (see paragraph 3.45 or the table in paragraph 2.4).

Derivation of notional positions: Depository receipts

3.12 A depository receipt must be treated as a notional position in the underlying equity.

Derivation of notional positions: Convertibles

3.13 Where a convertible is included in Section 3's PRR calculation (see the table in paragraph 3.3):

3.13.1 it must be treated as a position in the equity into which it converts; and

3.13.2 the firm's equity PRR must be adjusted by making:

3.13.2.1 an addition equal to the current value of any loss which the firm would make if it did convert to equity; or

3.13.2.2 a deduction equal to the current value of any profit which the firm would make if it did convert to equity (subject to a maximum deduction equal to the PRR on the notional position underlying the convertible).

Derivation of notional positions: Futures, forwards and CFDs on a single equity

3.14 A future, forward or CFD on a single equity must be treated as a notional position in that equity.

Derivation of notional positions: Futures, forwards and CFDs on equity indices or baskets

3.15 A future, forward or CFD on an equity index or basket must be treated as either:

3.15.1 a position in each of the underlying equities; or

3.15.2 the positions shown in the table in paragraph 3.16.

3.16 Instruments which result in notional positions

	Under the simplified equity method (paragraph 3.29)	**Under the standard equity method (paragraph 3.32)**		
Only one country in the index or basket (see paragraph 3.32)	One position in the index or basket	One position in the index or basket		
	Under the simplified equity method (paragraph 3.29)	Under the standard equity method (paragraph 3.32)		
More than one country in the index or basket	One position in the index or basket	Several notional basket positions, one for each country	or	One notional basket position in a separate

				notional country

3.17 An example of paragraph 3.16 is as follows. A firm decides to treat a FTSE Euro top 300 future under the standard equity method, and furthermore, chooses to treat it as one notional position. The table in paragraph 3.16 requires that this notional position be treated as if it were from a separate notional country rather than any of the countries to which the underlying equities are from.

3.18 The notional positions created under paragraph 3.15 have the following values:

3.18.1 where only one notional position is created, it has a value equal to the total market value of the equities underlying the contract; or

3.18.2 where more than one notional position is created, each one has a value which reflects the relevant equity's or country's contribution to the total market value of the equities underlying the contract.

Derivation of notional positions: Equity legs of equity swaps

3.19 The equity leg of an equity swap must be treated as a position in the underlying equity, equity basket or equity index, which is:

3.19.1 long, if the firm has contracted to receive any increase and pay any decrease in the value of the underlying equities or equity index; and

3.19.2 short, if the firm has contracted to receive any decrease and pay any increase in the value of the underlying equities or equity index.

3.20 The interest rate leg of an equity swap is included in a firm's interest rate PRR calculation (see the table in paragraph 2.4 unless it is treated under paragraph 3.45).

Derivation of notional positions: Options

3.21 If included in paragraph 3's PRR calculation (see the table in paragraph 3.3), options must be treated as follows:

3.21.1 an option on a single equity must be treated as a notional position in that equity;

3.21.2 an option on a basket of equities or equity index must be treated as a future on that basket or index; and

3.21.3 an option on an equity future must be treated as:

3.21.3.1 a long position in that future, for purchased call options and written put options; and

3.21.3.2 a short position in that future, for purchased put options and written call options.

Deriving the net position in each equity

3.22 The net position in each equity is the difference between the value of the firm's long positions (including notional positions) and the value of its short positions (including notional positions) in the same equity.

3.23

3.23.1 When deriving the net position in each equity, a firm must not net long and short positions except in accordance with this Guidance Note.

3.23.2 Subject to 3.23.3, a firm may net long and short positions in the same equity. Two equities are the same if and only if they:

3.23.2.1 enjoy the same rights in all respects; and

3.23.2.2 are fungible with each other.

3.23.3 Long and short positions in different tranches of the same equity may be treated as being in the same equity for the purpose of (1), where:

3.23.3.1 the tranches enjoy the same rights in all respects; and

3.23.3.2 the tranches become fungible with each other within 180 days, and thereafter the equity of one tranche can be delivered in settlement of the other tranche.

3.24 A firm must not net a reduced net underwriting position with any other equity position.

3.25 Paragraph 3.24 only relates to reduced net underwriting positions.

Simplified and standard equity methods

3.26 Paragraph 3.1.1 requires that the net position in each equity be included in either the simplified equity method or the standard equity method, subject to the restriction in paragraph 3.27. A firm does not have to use the same method for all equities.

3.27 A firm must use the simplified equity method for reduced net underwriting positions.

3.28 A firm may use either method for a net underwriting position; paragraph 3.27 only relates to reduced net underwriting positions.

Simplified equity method

3.29 Under the simplified equity method, the PRR for each equity, equity index, or equity basket equals the market value of the net position (ignoring the sign) multiplied by the appropriate PRA from the table in paragraph 3.30. The result must be converted into the firm's base currency at current spot foreign currency rates.

3.30 Simplified equity method PRAs

Instrument	PRA
Single equities	12%
Qualifying equity indices (see paragraph 3.38)	8%
All other equity indices or baskets	12%
If it is necessary to distinguish the specific risk PRA and the general market risk PRA, the specific risk PRA for the first and third rows is 4% and that for the second row is 0%. The rest of the PRA in the second column is the general market risk PRA.	

Standard equity method

3.31 The standard equity method divides the risk of loss from a firm's equity positions into the risk of loss from a general move in a country's equity market and the risk of loss from an individual equity's price changing relative to that country's equity market. These are general market risk and specific risk respectively.

3.32 Under the standard equity method, a firm must:

3.32.1 group equity positions into country portfolios as follows:

3.32.1.1 a position in an individual equity belongs to:

3.32.1.2 the country it is listed in;

3.32.1.3 any of the countries it is listed in, if more than one; or

3.32.1.4 the country it was issued from, if unlisted:

3.32.1.2 a position in an equity basket or index that is treated under 3.15.2, is allocated to one or more country portfolios based on the countries to which underlying equities belong to under 3.31.1.1 or a notional country provided for in the table in 3.16; and

3.32.2 sum:

3.32.2.1 the PRRs for specific risk calculated under paragraph 3.33; and

3.32.2.2 the PRRs for general market risk for each country portfolio as calculated under paragraphs 3.41 and 3.42.

Standard equity method: Specific risk

3.33 Under the standard equity method, a firm must calculate a PRR for specific risk based on the net position in each equity, equity index or equity basket by multiplying its market value (ignoring the sign) by the appropriate PRA from the table in 3.34.

3.34 Table: PRAs for specific risk under the standard equity method, as per paragraph 7.3.33.1.

Instrument	**PRA**
Qualifying equities	2%
Qualifying equity indices (see paragraph 3.38)	0%
All other equities, equity indices or equity baskets	4%

Definition of a qualifying equity

3.35 A qualifying equity is one that satisfied the following conditions:

3.35.1 it belongs to a country portfolio that satisfies the following conditions:

3.35.1.1 no individual position exceeds 10% of the portfolio's gross value; and

3.35.1.2 the sum of positions (ignoring the sign) which individually represent between 5% and 10% of the portfolio's gross value, does not exceed 50% of the portfolio's gross value.;

3.35.2 it is not of an issuer that has issued only traded debt instruments that attract an 8% or 12% PRA in the table in paragraph 2.43 (Specific risk PRA) or that attract a lower requirement only because they are guaranteed or secured; and

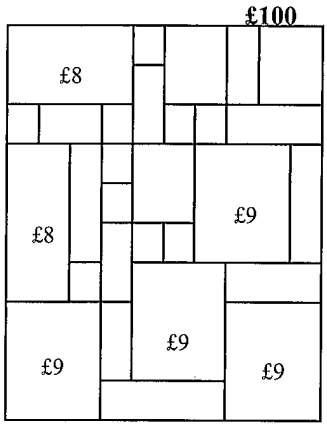
3.35.3 it is a constituent of an index in the table in paragraph 3.39.

3.36

3.36.1 The following examples illustrate paragraph 3.35.1.

3.36.2 A country portfolio has a gross value of £100 and is made up of positions in 29 different equities (some are long positions, others are short positions). Not all the equities are constituents of an index used to create the FT All-World Index (this criterion only becomes relevant once a firm has determined whether the country portfolio meets the test in paragraph 3.35.1).

3.36.3 Six positions exceed the 5% threshold. The following diagram shows the composition of the portfolio.



3.36.4 Under paragraph 3.35.1.1: the portfolio meets the first part of the test because no individual position is worth more than 10% of the portfolio's value.

3.36.5 Under paragraph 3.35.1.2: the portfolio fails the second part of the test because the sum (ignoring the sign) of the six relevant position is £52; this exceeds 50% of the portfolio's value.

3.37

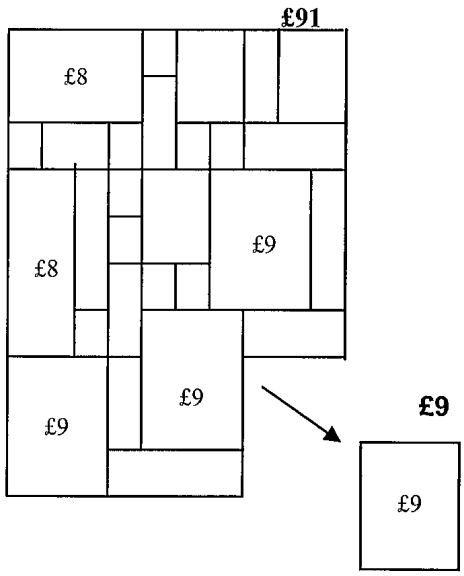
3.37.1 A country portfolio can be split into two sub-portfolios if this enables one sub-portfolio to meet the requirements in paragraph 3.35.1. Individual positions may be sub-divided between sub-portfolios.

3.37.2 Continuing the example above, one of the largest positions is taken out of the portfolio and put into a new portfolio. The new

portfolio fails the two tests, but the amended portfolio meets both tests:

3.37.2.1 Under paragraph 3.35.1.1: no single remaining position exceeds £9.10.

3.37.2.2 Under paragraph 3.35.1.2: the sum of the five relevant positions is £43, this is less than 50% of the new portfolio's value £91.



Definition of a qualifying equity index

3.38 A qualifying index is one which is traded on a recognised investment exchange or a designated investment exchange and:

3.38.1 Is listed in the table in paragraph 3.39; or

3.38.2 Is not listed in the table in paragraph 3.39, but is constructed in such a way that:

3.38.1.1 it contains at least 20 equities;

3.38.1.2 no single equity represents more than 20% of the total index; and

3.38.1.3 no five equities combined represent more than 60% of the total index.

3.39

Country or territory	Name of index
Australia	All Ordinaries
Austria	Austrian Traded Index
Belgium	BEL 20
Canada	TSE35, TSE 100, TSE 300
France	CAC 40, SBF 250
Germany	DAX
European	Dow Jones Eurotop 300, Stoxx 50 Index, FTSE MSCI Euro
Hong Kong	Hang Seng 33
Italy	MIB30
Japan	Nikkei 225, Nikkei 300, TOPIX
Korea	Kospi
Netherlands	AEX
Singapore	Straits Times Index
Spain	IBEX 35
Sweden	OMX
Switzerland	SMI
UK	FTSE 100, FTSE Mid 250, FTSE All Share
US	S&P 500, Dow Jones Industrial Average, NASDAQ Composite, Russell 2000

Standard equity method: General market risk: General

3.40 Under the standard equity method, a firm must apply approach one, as set out in paragraph 3.41, to each country portfolio (or part portfolio) unless the conditions in paragraph 3.42.3 are met, in which case the firm may instead apply approach two, as set out in paragraph.3.42, to the relevant country portfolios (or part portfolios).

Standard equity method: General market risk: Approach One: No offset between different country portfolios

3.41 Under approach one as referred to in paragraph 3.40, the PRR for general market risk equals the net value (ignoring the sign) of the country portfolio multiplied by 8%.

Standard equity method: General market risk: Approach Two: Limited offset between different country portfolios

3.42

3.42.1 Under approach two as referred to in paragraph 3.40, the PRR for general market risk is calculated using the following formula:

$$\sqrt{(8\% * CP_1)^2 + (8\% * CP_2)^2 + (8\% * CP_3)^2 \ldots\ldots\ldots\ldots (8\% * CP_n)^2}$$

3.42.2 In the formula in 3.42.1 CPi denotes the net value of i the country portfolio (converted to the firm's base currency using current spot foreign currency rates)

3.42.3 The conditions referred to in paragraph 3.40 that must be met for a firm to be able to use approach two as referred to in paragraph 3.40 are as follows:

3.42.3.1 at least four country portfolios are included (that is: n≥ 4):

3.42.3.2 only country portfolios for countries which are full members of the OECD, Hong Kong or Singapore are included;

3.42.3.3 no individual country portfolio comprises more than 30% of the total gross value of country portfolios included; and

3.42.3.4 the total net value of country portfolios included equals zero, that is:

$$\sum_{1}^{n} CP_i = 0$$

3.43 In order to meet paragraph 3.42.3.4, it is likely that part of a country portfolio will have to be excluded from approach two under paragraph 3.42 (and therefore included in approach one under paragraph 3.41), even if that country portfolio meets paragraph 3.42.3.1 to 3.42.3.3.

Basic interest calculation for equity instruments

3.44 A basic interest rate PRR calculation is included in Section 3 for a firm that does not wish to use the calculation in Section 2. However, it tends to result in higher charges than the methods in Section 2, largely because the interest rate PRR is calculated on each notional equity position separately and then summed without offsetting long and short positions.

3.45 This rule applies to a firm that does not include a forward, future, option or swap on an equity, basket of equities or equity index in the calculation of its interest rate PRR calculation under Section 2. However it does not

apply to cliquet as defined in Section 6. A firm must calculate the interest rate PRR for a position being treated under this rule as follows:

3.45.1 multiply the market value of the notional equity position underlying the instrument by the appropriate percentage from the table in paragraph 3.47; and

3.45.2 sum the results from 3.45.1, ignoring the sign.

3.46 Cliquets on equities, baskets of equities or equity indices do not attract an interest rate PRR. Paragraph 3.45 excludes them from the basic interest rate PRR calculation and the table in paragraph 2.4 excludes them from the scope of the interest rate PRR calculation in Section 2.

3.47 Percentages used in the basic interest rate PRR calculation for equity instruments

Time to expiration	Percentage (%)
0 < 3 months	0.20
> 3 < 6 months	0.40
>6< 12 months	0.70
> 1 < 2 years	1.25
> 2 < 3 years	1.75
> 3 < 4 years	2.25
> 4 < 5 years	2.75
> 5 < 7 years	3.25
> 7 < 10 years	3.75
> 10 < 15 years	4.50
> 15 < 20 years	5.25
> 20 years	6.00

Additional capital charge in relation to equity indices

3.48 If a firm nets off position in one or more of the equities constituting an equity index future, forward or CFD against one or more positions in the equity index future, forward of CFD itself, the firm must apply an additional equity PRR to the netted position to cover the risk of loss caused by the value of the future, forward or CFD not moving fully in line with that of its constituent equities. The same applies if a firm hold opposite positions in a future, forward or CFD on an equity index that are not identical in respect of either their maturity or their composition or both.

3.49 Where a firm nets off positions as described in paragraph 3.48 it may, when considering whether an additional equity PRR is required,

undertake a periodic assessment of whether the value of an equity index future, forward or CFD has not moved fully in line with that if its constituent equities, over a preceding period of at least one year. Where a material difference in value is observed, an additional equity PRR proportionate to that difference should be applied to current positions.

4. Commodity PRR

4.1 A firm must calculate its commodity PRR by:

4.1.1 identifying which commodity positions must be included within the scope of the PRR calculation (see paragraph 4.2);

4.1.2 expressing each such position in terms of the standard unit of measurement of the commodity concerned;

4.1.3 calculating an individual PRR for each commodity (see paragraph 4.20);

4.1.4 converting each PRR to the firm's base currency at current spot foreign exchange rates; and

4.1.5 summing the resulting individual PRRs.

Scope of the commodity PRR calculation

4.2 A firm's commodity PRR calculation must, regardless of whether the positions concerned are trading book or non-trading book positions:

4.2.1 include physical commodity positions;

4.2.2 (if the firm is the transferor of commodities or guaranteed rights relating to the title to commodities in a repurchase agreement or the lender of commodities in a commodities lending agreement) include such commodities;

4.2.3 include notional positions arising from positions in the instruments listed in the table in paragraph 4.4; and

4.2.4 exclude positions constituting a stock financing transaction.

4.3 Gold positions are excluded from the scope of the commodity PRR. Instead, they are included within the scope of the foreign exchange PRR (Section 5).

4.4 Instruments which result in notional positions

Instrument	Refer to
Forwards, futures, CFDs, synthetic futures and options on a single commodity (unless the firm calculates a PRR on the option under 7.6)	Paragraph 4.8
A commitment to buy or sell a single commodity at an average of spot prices prevailing over some future period	Paragraph 4.10
Forwards, futures, CFDs, synthetic futures and options on a commodity index (unless the firm calculates an PRR on the option under 7.6)	Paragraph 4.13 to 4.14

Commodity swaps	Paragraph 4.16 to Paragraph 4.17

4.5 Paragraph 4.2 includes a trading book position in a commodity that is subsequently repossessed under a repurchase agreement or lent under a stock lending agreement. Clearly, if the commodity had initially been obtained via a reverse repurchase agreement or stock borrowing agreement, the commodity would not have been included in the trading book in the first place.

4.6 Firms are reminded that the table in paragraph 6.5 divides commodity options into:

4.6.1 those which must be treated under Section 6; and

4.6.2 those which must be treated under either Sections 4 or 6, the firm being able to choose whether Sections 4 or 6 is used.

Derivation of notional positions: General

4.7 Paragraphs 4.8 to 4.19 convert the instruments listed in the table in paragraph 4.4 into notional positions in the relevant commodities. These notional positions are expressed in terms of quantity (tonnes, barrels, etc.), not value. The maturity of the position is only relevant where the firm is using the commodity maturity ladder approach or the commodity extended maturity ladder approach.

Derivation of notional positions: Futures, forwards, CFDs and options on a single commodity

4.8 Where a forward, future, CFD, synthetic future or option (unless already included in the firm's option PRR calculation) settles according to:

4.8.1 the difference between the price set on trade date and that prevailing at contract expiry, the notional position:

4.8.1.1 equals the total quantity underlying the contract; and

4.8.1.2 has a maturity equal to the expiry date of the contract; and

4.8.2 the difference between the price set on trade date and the average of prices prevailing over a certain period up to contract expiry, there is a notional position for each of the reference dates used in the averaging period to calculate the average price, which:

4.8.2.1 equals a fraction share of the total quantity underlying the contract; and

4.8.2.2 has a maturity equal to the relevant reference date.

4.9

4.9.1 The following example illustrates paragraph 4.8.2.

4.9.2 A firm buys a Traded Average Price Option (TAPO – a type of Asian option) allowing it to deliver 100 tonnes of Grade A copper and receive $1,750 in June. If there were 20 business days in June the short notional positions will each:

4.9.2.1 equal 5 tonnes per day (1/20 of 100 tonnes); and

4.9.2.2 have a maturity equal to one of the business days in June (one for each day).

4.9.3 In this example as each business day in June goes by the quantity per day for the remaining days does not change (5 tonnes per day) only the days remaining changes. Therefore, halfway through June there are ten, 5 tonne short notional positions remaining each for the ten remaining business days in June.

Derivation of notional positions: Buying or selling a single commodity at an average of spot prices prevailing in the future

4.10 Commitments to buy or sell at the average spot price of the commodity prevailing over some period between trade date and maturity must be treated as a combination of:

4.10.1 a position equal to the full amount underlying the contract with a maturity equal to the maturity date of the contract which is:

4.10.1.1 long, where the firm will buy at the average price; or

4.10.1.2 short, where the firm will sell at the average price; and

4.10.2 a series of notional positions, one for each of the reference dates where the contract price remains unfixed, each of which:

4.10.2.1 in long if the position under 4.10.1 is short, or short if the position under 4.10.1 is long;

4.10.2.3 equals a fraction share of the total quantity underlying the contract; and

4.10.2.4 has a maturity date of the relevant reference date.

4.11 The following guidance provides an example of paragraph 4.10. In January, a firm agrees to buy 100 tonnes of copper for the average spot price prevailing during the 20 business days in February, and will settle on 30 June. After entering into this agreement, the firm faces the risk that the average price for February increases relative to that for 30 June. Therefore, as highlighted in the table below:

4.11.1 the short positions reflect the fact that this could occur because any one of the remaining forward prices for February increase; and

4.11.2 the long position reflects the fact that this loss could occur because the forward price for 30 June falls.

4.12 Example of buying at the average spot price prevailing in the future

	Application of paragraph 4.10.1	**Application of paragraph 4.10.2**
From trade date to start of averaging period	Long position in 100 tonnes of copper with a maturity date of 30 June	A series of 20 notional short positions each equal to 5 tonnes of copper. Each position is allocated a maturity equal to one of the business days in February (one for each day).
During averaging period	Long position in 100 tonnes of copper with a maturity	As each business day goes by in February the price for

	date of 30 June	5 tonnes of copper is fixed and so there will be one less notional short position.
After averaging period	Long position in 100 tonnes of copper with a maturity of 30 June	No short positions.

Derivation of notional positions: CFDs and options on a commodity index

4.13 Commodity index futures and commodity index options (unless the options is included in the firm's option PRR calculation), must be treated as follows:

4.13.1 Step 1: the total quantity underlying the contract must be either:

4.13.1.1 treated as a single notional commodity position (separate from all other commodities); or

4.13.1.2 divided into notional positions, one for each of the constituent commodities in the index, of an amount which is a proportionate part of the total underlying the contract according to the weighting of the relevant commodity in the index;

4.13.2 Step 2: each notional position determined in Step 1 must then be included:

4.13.2.1 when using the commodity simplified approach (paragraph 4.24), without adjustment; or

4.13.2.2 when using the commodity maturity ladder approach (paragraph 4.25) or the commodity extended maturity ladder approach (paragraph 4.30), with the adjustments in the table in 4.14.

4.14 Treatment of commodity index futures and commodity index options

Construction of index	**Notional position (or positions and maturity**
Spot level of index is based on the spot price of each constituent commodity	Each quantity determined in Step 1 as referred to in paragraph 4.13 is assigned a maturity equal to the expiry date of the contract.
Spot level of index is based on an average of the forward prices of each constituent commodity	Each quantity determined in Step 1as referred to in paragraph 4.13 is divided (on a pro-rata basis) into a series of forward positions to reflect the impact of each forward price on the level of the index. The maturity of each forward position equals the maturity of the relevant forward price determining the level of the index when the contract expires.

4.15

4.15.1 A example of using paragraph 4.13 and the table in paragraph 4.14 is as follows:

4.15.2 A firm is long a three-month commodity index future where the spot level of the index is based on the one, two and three month forward prices of aluminium, copper, tin, lead, zinc and nickel (18 prices in total).

4.15.3 Step 1: the firm should decide whether to treat the full quantity underlying the contract as a single notional commodity position or disaggregate it into notional positions in aluminium, copper, tin, lead, zinc and nickel. In this case the firm decides to disaggregate the contract into notional positions in aluminium, copper, tin, lead, zinc and nickel.

4.15.4 Step 2: if the firm used the commodity simplified method, nothing more need be done to arrive at the notional position. In this case the firm uses the commodity maturity ladder approach and so subdivides each position in each metal into three because the level of the index is based on the prevailing one, two and three month forward prices. Since the future will be settled in three months' time at the prevailing level of the index, the three positions for each metal will have maturities of four, five and six months respectively.

Derivation of notional positions: Commodity swaps

4.16 A firm must treat a commodity swap as a series of notional positions, one position for each payment under the swap, each for which:

4.16.1 Equals the total quantity underlying the contract;

4.16.2 Has a maturity corresponding to the payment date; and

4.16.3 Is long or short according to the table in 4.17.

4.17 Treatment of commodity swaps

	Receiving amounts which are unrelated to any commodity's price	**Receiving the price of commodity 'b'**
Paying the amount which are unrelated to any commodity's price	N/A	Long positions in commodity 'b'
Paying the price of commodity 'a'	Short positions in commodity 'a'	Short positions in commodity 'a' and long positions in commodity 'b'

4.18 The table in paragraph 4.17 shows that where the legs of the swap are in different commodities, a series of forward positions are created for each commodity (that is, a series of short positions in commodity 'a' and a series of long positions in commodity 'b').

4.19 The table in paragraph 4.17 also covers the case where one leg is unrelated to any commodity's price. This leg may be subject to a PRR under another part of Section 7; for example, an interest rate based leg would have to be included in a firm's interest rate PRR calculation.

Calculating the PRR for each commodity: General

4.20 A firm must calculate a commodity PRR for each commodity separately using either the commodity simplified approach (paragraph 4.24), the commodity maturity ladder approach (paragraph 4.25) or the commodity extended maturity ladder approach (paragraph 4.32).

4.21 A firm must use the same approach for a particular commodity but need not use the same approach for all commodities.

4.22

4.22.1 A firm must treat positions in different grades or brands of the same commodity class as different commodities unless they:

4.22.1.1 can be delivered against each other; or

4.22.1.2 are close substitutes and have price movements which have exhibited a stable correlation coefficient of at least 0.9 over the last 12 months.

4.22.1 If a firm on 4.21.2 it must then monitor compliance with the conditions in that paragraph on a continuing basis.

4.23 If a firm intends to rely on the approach in paragraph 4.22.1.2:

4.23.1 It must notify the FSC in writing at least 20 business days prior to the date the firm starts relying on it; and

4.23.2 The firm must, as part of the notification under 4.23.1, provide to the FSC the analysis of price movements on which it relies.

Calculating the PRR for each commodity: Simplified approach

4.24 A firm which calculates a commodity PRR using the commodity simplified approach must do so by summing:

4.24.1 155 of the net position multiplied by the spot price for the commodity; and

4.24.2 3% of the gross position (long plus short, ignoring the sign) multiplied by the spot price for the commodity.

Calculating the PRR for each commodity: Maturity ladder approach

4.25 A firm using the commodity maturity ladder approach must calculate the commodity PRR following the steps in paragraph 4.26 and then sum all spread charges, carry charges and outright charges that result.

4.26

4.26.1 A firm must calculate the charges referred to in paragraph 4.25 as follows.

4.26.2 Step 1: offset long and short positions maturing:

4.26.2.1 on the same day; or

4.26.2.2 (in the case of positions arising under contracts traded in markets with daily deliver dates) within 10 business days of each other.

4.26.3 Step 2: allocate the position remaining after step 1 to the appropriate maturity band in the table in paragraph 4.28 (physical commodity positions are allocated to band 1).

4.26.4 Step 3: match long and short positions within each band. In each instance, calculate a spread charge equal to the matched amount multiplied first by the spot price for the commodity and then by the spread rate of 3%.

4.26.5 Step 4: carry unmatched positions remaining after step 3 to another band where they can be matched, then match them. Do this until all matching possibilities are exhausted. In each instance, calculate:

4.26.5.1 A carry charge equal to the carried position multiplied by the spot price for the commodity, the carry rate of 0.6% and the number of bands by which the position is carried; and

4.26.5.2 A spread charge equal to the matched amount multiplied by the spot price for the commodity and the spread rate of 3%.

4.26.6 Step 5: calculate the outright charge on the remaining positions (which will either be all long positions or all short positions). The outright charge equals the remaining position (ignoring the sign) multiplied by the spot price for the commodity and the outright rate of 15%.

4.27 The matched amount in paragraph 4.26 is the lesser (ignoring the sign) of either the total long position or the total short position. For example, a band with 1000 long and 700 short results in a matched amount of 700. The unmatched amount would be 300.

4.28 Maturity bands for the maturity ladder approach

Band	Maturity of position
Band 1	0 ≤ 1 month
Band 2	> 1 month ≤ 3 months
Band 3	> 3 months ≤ 6 months
Band 4	> 6 months ≤ 1 year
Band 5	> 1 year ≤ 2 years
Band 6	> 2 years ≤ 3 years
Band 7	> 3 years

4.29 Paragraph 4.30 is an example illustrating the calculation of the commodity PRR on an individual commodity using the commodity maturity ladder approach (paragraph 4.26). After the firm has carried out the pre-processing required by paragraph 4.26.2 (that is, step 1), it follows steps 2 to 5 as shown below. Because the firm us using the commodity maturity ladder approach the spread rate is 3%, the carry rate is 0.6% and the outright rate is 15%. The example assumes that the spot price for the commodity is £25.

4.30 Example illustrating the commodity maturity ladder approach

Band	Step 2 Allocate remaining	Step 3 Match within	Step 4a Carry across bands. Each	Step 4b Match within	Step 6 Remaining position(s)

	positions to appropriate maturity bands	bands. Each matched amount incurs a spread charge	carried amount incurs a carry charge	band. Each matched amount incurs a spread charge	incur an outright charge.
0 ≤ 1 month			300 carried		
>1 month ≤ 3 months	1000 long 700 short	700 matched			
>3 months ≤ 6					
> 6 months ≤ 1 year					
> 1 year ≤ 2 years	600 short	Nothing matched		400 matched	200 short remains
> 2 years ≤ 3 years					
> 3 years	100 long	Nothing matched	100 carried		
Spread charges	700*£25*3% + 400*£253%		= £825		
Carry charges	300*£25*0.6%*3 + 100*£25*0.6%*2		= £165		
Outright charge	200*£25*15%		= £750		
			= £1740		

Calculating the PRR for each commodity: Extended maturity ladder approach

4.31 A firm may use the commodity extended maturity ladder approach to calculate the commodity PRR for a particular commodity provided the firm:

4.31.1 has diversified commodities portfolio;

4.31.2 undertakes significant commodities business;

4.31.3 is not yet in a position to use the VaR model approach to calculate commodity PRR; and

4.31.4 at least twenty business days before the date the firm intends to use that approach notifies the FSC in writing of:

4.31.4.1 its intention to use the commodity extended maturity ladder method; and

4.31.4.2 the facts and matters relied on to demonstrate that the firm meets the criteria in 4.31.1 to 4.31.3.

4.32 A firm using the commodity extended maturity ladder approach must calculate its commodity PRR by:

4.32.1 following the same steps as in paragraph 4.26 but using the rates from the table in paragraph 4.33 rather than those in paragraph 4.26; and

4.32.2 summing all spread charges, carry charges and outright charge that result.

4.33 Alternative spread, carry and outright rates

	Precious metals (excluding gold)	**Base metals**	**Softs (agricultural)**	**Other (including energy)**
Spread rate (%)	2	2.4	3	3
Carry rate (%)	0.3	0.5	0.6	0.6
Outright rate (%)	8	10	12	15

4.34 For the purposes of paragraph 4.31.1 a firm has a diversified commodity portfolio where it holds positions in more than one of the commodities falling in any of the categories set out in the table in paragraph 4.33 and holds positions across different maturities in those individual commodities. A firm would not have a diversified commodity portfolio if it held positions in only one commodity in each of the categories set out in the table in paragraph 4.33. This is because the rates in the table in paragraph 4.33 assume firms have positions in more than one of that category's commodities. Different commodities within a given category are likely to exhibit different volatilities, so where a firm does not have a diversified commodity portfolio in that category, the rates applying to that category might underestimate the regulatory capital required for a certain commodity at certain times.

4.35 What constitutes significant business in paragraph 4.31.2 will vary from firm to firm. The more regularly the firm undertakes trades in commodities and the more consistently it has positions in the relevant commodity, the more likely it is to be undertaking significant business for the purposes of paragraph 4.31.2.

4.36 Where a firm is:

4.36.1 treating a commodity index derivative as if it was based on a single separate commodity (see paragraph 4.13.1.1); and

4.36.2 using the commodity extended maturity ladder approach to calculate the commodity PRR for that commodity;

it must determine which index constituent incurs the highest rate in the table in paragraph 4.33 and apply that rate to the notional position for the purposes of paragraph 4.32.

4.37 Where an index is only based on precious metals, paragraph 4.13 allows the firm to treat the single notional position as precious metal for the purposes of paragraph 4.32. However, if the index contained a mix of precious metals and base metals the firm would have to treat the notional position under paragraph 4.36 as a base metal because base

metals attract a higher rate than precious metals in the table in paragraph 4.33.

Liquidity and other risks

4.38 If a short position to which Section 4 applies falls due before a long position to which paragraph 4 applies, a firm must also guard against the risk of a shortage of liquidity which may exist in some markets.

4.39 In particular, where paragraph 4.38 applies and the short position constitutes a material position compared to a firm's total commodity positions, it should consider a further commodity PRR charge in respect of that position depending on the likelihood of a shortage of liquidity in that market.

4.40 A firm must safeguard against other risks, apart from the delta risk, associated with commodity options.

4.41 The interest-rate and foreign-exchange risks not covered by other provisions of Section 4 must be included in the calculation of general market risk for traded debt instruments and in the calculation of foreign-exchange risk.

5. Foreign currency PRR

5.1 A firm must calculate its foreign currency PRR by:

5.1.1 identifying which foreign currency and gold positions to include in the PRR calculation

5.1.2 calculating the open currency position and net gold position; and

5.1.3 multiplying the sum of the absolutes of the open currency position and the net gold position by 8%.

5.2 An example of the operation of paragraph 5.1 is as follows. A firm has an open currency position of £100 and net gold position of £50. The sum (ignoring the sign) is £150, and so the foreign currency PRR is £12.

Scope of the foreign currency PRR calculation

5.3 A firm's foreign currency PRR calculation must include the following items regardless of whether they are trading book or non-trading book positions:

5.3.1 all gold positions;

5.3.2 all spot positions in foreign currency (including accrued interest);

5.3.3 all forward positions in foreign currency;

5.3.4 all CRD financial instruments which are denominated in a foreign currency;

5.3.5 irrevocable guarantees (and similar instruments) that are certain to be called and likely to be irrevocable to the extent they give rise to a position in gold or foreign currency; and

5.3.6 notional positions arising from the instruments listed in the table in paragraph 5.5.

5.4

5.4.1 The following are excluded from a firm's foreign currency PRR calculation:

5.4.1.1 foreign currency assets which have been deducted in full from the firm's financial resources under the calculations under the capital resources table;

5.4.1.2 positions hedging 5.4.1.1;

5.4.1.3 positions that a firm has deliberately taken in order to hedge against the adverse effect of the exchange rate on the ratio of its capital resources to its capital resources requirement; and

5.4.1.4 transactions to the extent that they fully hedge net future foreign currency income or expenses which are known but not yet accrued.

5.4.2 If a firm uses an exclusion under 5.4.1 it must:

5.4.2.1 notify the FSC before it makes use of it;

5.4.2.2 include in the notification in 5.4.2.1 the terms on which the relevant item will be excluded;

5.4.2.3 not change the terms of the exclusion under 5.4.2.2; and

5.4.2.4 document its policy on the use of that exclusion in its trading book policy statement.

5.4.3 A position may only be excluded under 5.4.1.2 or 5.4.1.3 if it is of a non-trading or structural nature.

5.5 Instruments which result in notional foreign currency positions.

Instruments	Refer to
Foreign currency futures, forwards, synthetic futures and CFDs	Paragraph 5.11
Foreign currency swaps	Paragraph 5.13
Foreign currency options or warrants (unless the firm calculates a PRR on the option or warrant under paragraph 6).	Paragraph 5.15
Gold futures, forwards, synthetic futures and CFDs	Paragraph 5.16
Gold options (unless the firm calculates a PRR on the option under paragraph 6).	Paragraph 5.17
Positions in CIUs	Paragraph 5.18

5.6 Firms should note that the table in paragraph 6.5 divides foreign currency options and warrants into:

5.6.1 Those which must be treated under Section 6; and

5.6.2 Those which must be treated under either Sections 5 or 6, the firm being able to choose whether Sections 5 or 6 is used.

5.7 When determining the currency of denomination firms must:

5.7.1 Use the currency in which the firm accounts for the instrument where an instrument is quoted in more than one currency; and

5.7.2 Treat depository receipts as positions in the underlying security.

5.8 Instruments denominated in a foreign currency include, amongst other things, assets and liabilities (including accrued interest); non-foreign currency derivatives; net underwriting positions; reduced net underwriting positions, and irrevocable guarantees (or similar instruments) that are certain to be called.

5.9 Where a contract is based on a basket of currencies, the firm can choose either to derive notional positions in each of the constituent currencies or treat it as a single notional position in a separate notional currency.

Derivation of notional position: General

5.10 Paragraph 5.11 to 5.18 derive notional currency positions for the instruments listed in the table in paragraph 5.5.

5.11

5.11.1 A firm must treat a foreign currency forward, future, synthetic future or CFD as two notional currency positions as follows:

5.11.1.1 a long notional position in the currency which the firm has contracted to buy; and

5.11.1.2 a short notional position in the currency which the firm has contracted to sell.

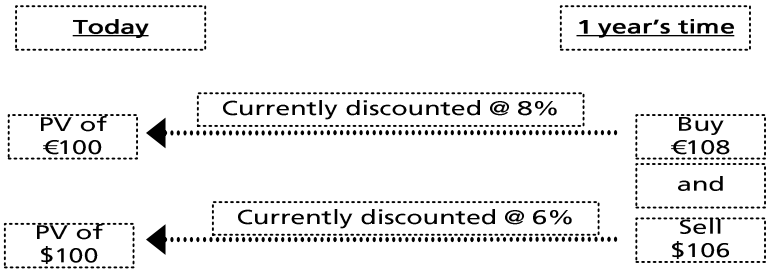
5.11.2 In 5.11.1 the notional positions have a value equal to either:

5.11.2.1 the contracted amount of each currency to be exchanged in the case of a forward, future, synthetic future or CFD held in the non-trading book; or

5.11.2.2 the present value of the amount of each currency to be exchanged in the case of a forward, future, synthetic future or CFD held in the trading book.

5.12

5.12.1 The following example illustrates paragraph 5.11. In this example, a firm contracts to sell $106 for €108 in one year's time and the present values of each cash flow are $100 and €100 respectively.



5.12.2 In the non-trading book, this forward would be treated as a combination of a €108 long position and a $106 short position.

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

5.12.4 Firms are reminded that foreign currency forwards held in the trading book should also be included in the firm's interest rate PRR calculation (see paragraph 2.4).

Derivation of notional positions: Foreign currency swaps

5.13

5.13.1 A firm must treat a foreign currency swap as:

5.13.1.1 a long notional position in the currency in which the firm has contracted to receive interest and principal; and

5.13.1.2 a short notional position in the currency in which the firm has contracted to pay interest and principal.

5.13.2 In 5.13.1 the notional positions have a value equal to either:

5.13.2.1 the nominal amount of each currency underlying the swap if it is held in the non-trading book; or

5.13.2.2 the present value amount of all cash flows in the relevant currency in the case of a swap held in the trading book.

5.14

5.14.1 The following example illustrates paragraph 5.13. In this example a firm enters into a five year foreign currency swap where it contracts to pay six month US$ Libor on $100 in return for receiving 6% fixed on €100. The present values of each leg are $100 and €98 respectively.

5.14.2 In the non-trading book, this swap would be treated as a combination of a €100 long position and a $100 short position.

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

5.14.4 Firms are reminded that foreign currency swaps held in the trading book should also be included in the firm's interest rate PRR calculation (see paragraph 2.4).

Derivation of notional positions: Foreign currency options and warrants

5.15 Where included in the PRR calculation, in the table in paragraph 5.5, a foreign currency option or warrant must be treated as a foreign currency forward.

Derivation of notional positions: Gold forwards, futures, synthetic futures and CFDs

5.16 A forward, future, synthetic future of CFD on gold must be treated as a notional position in gold with a value equal to the amount of gold underlying multiplied by the current spot price for gold.

Derivation of notional positions: Gold options

5.17 If included in the PRR calculation, in the table in paragraph 5.5, a gold option must be treated as a gold forward.

Derivation of notional positions: CIUs

5.18

5.18.1 This rule deals with positions in CIUs.

5.18.2 The actual foreign currency positions of a CIU must be included in a firm's foreign currency PRR calculation under paragraph 5.2.

5.18.3 A firm may rely on third party reporting of the foreign currency positions in the CIU, where the correctness of this report is adequately ensured.

5.18.4 If a firm is not aware of the foreign currency positions in a CIU, the firm must assume that the CIU is invested up to a maximum extent allowed under the CIU's mandate in foreign currency and the firm must, for trading book positions, take account of the maximum indirect exposure that it could achieve by taking leveraged positions through the CIU when calculating its foreign currency PRR. This must be done by proportionately increasing the position in the CIU up to the maximum exposure to the underlying investment items resulting from the investment mandate.

5.18.5 The assumed position of the CIU in foreign currency must be treated as a separate currency according to the treatment of investments in gold, subject to the modification that, if the direction of the CIU's investment is available, the total long position may be added to the total long open foreign currency position and the total short position may be added to the total short open foreign currency position. No netting is allowed between such positions prior to this calculation.

Open currency position

5.19 A firm must calculate its open currency position by:

5.19.1 calculating the net position in each foreign currency;

5.19.2 converting each net position into its base currency equivalent at current spot rates;

5.19.3 summing all short net positions and summing all long net positions; and

5.19.4 selecting the larger sum (ignoring the sign) from 5.19.3.

Net gold position

5.20 A firm must calculate its net gold position by:

5.20.1 Valuing all gold positions using the prevailing spot price for gold (regardless of the maturity of the positions);

5.20.2 Offsetting long and short positions; and

5.20.3 Converting the resulting net position into the base currency equivalent using the current spot foreign currency rate.

6. Option PRR

6.1 A firm must calculate its option PRR by:

6.1.1 Identifying which option positions must be included within the scope of the option PRR calculation under paragraph 6.3 to 6.5;

6.1.2 Calculating the derived position in each option in accordance with paragraph 6.9 to 6.15;

6.1.3 Calculating the PRR for each derived position in accordance with paragraph 6.16 to 6.32;

6.1.4 Summing all of the PRR calculated in accordance with 6.1.3.

6.2 Firms are reminded that the table in paragraph 2.4 and the table in paragraph 3.3 also require an interest rate PRR to be calculated for options on equities, baskets of equities or equity indices. The intention between paragraph 6 and the rest of Section 7 is illustrated in paragraph 6.33.

Scope of the option PRR calculation

6.3 Except as permitted under paragraph 6.5, a firm's option PRR calculation must include:

6.3.1 Each trading book position in an option on an equity, interest rate or debt security;

6.3.2 Each trading book positions in a warrant on an equity or debt security;

6.3.3 Each trading book position in a CIU; and

6.3.4 Each trading book and non-trading book position in an option on a commodity, currency or gold.

6.4 Paragraph 6.3.2 includes net underwriting positions or reduced net underwriting positions in warrants.

6.5 Appropriate PRR calculation for an option or warrant as per paragraph 6.3.

<table>
<tr><th>Option type (see paragraph 6.18) or warrant</th><th>PRR calculation</th></tr>
<tr><td>American option, European option, Bermudan option, Asian option or warrant for which the in the money percentage (see paragraph 6.6) is equal to or greater than the appropriate PRA (see paragraph 6.7 and 6.8)</td><td>Calculate either an option PRR, or the most appropriate to the underlying position of:
a) an equity PRR; or
b) an interest rate PRR; or
c) a commodity PRR; or
d) a foreign currency PRR; or
e) a collective investment undertaking PRR.</td></tr>
<tr><td>American option, European option, Bermudan option, Asian option or warrant:
a) for which the in the money percentage (see paragraph 6.6) is less than the appropriate PRA (see paragraph 6.7 and 6.8) or
b) that is at the money; or
c) that is out of the money</td><td rowspan="2">Calculate an option PRR</td></tr>
<tr><td>All other types of option listed in paragraph 6.18 (regardless of whether in the money, at the money</td></tr>
</table>

or out of the money).	

The in the money percentage

6.6

6.6.1 The in the money percentage is calculated in accordance with this rule.

6.6.2 For a call option:

$$\frac{\text{Current market price of underlying-Strike price of the option}}{\text{Strike price of the option}} * 100$$

6.6.3 For a put option:

$$\frac{\text{Strike price of option – Current market price of underlying}}{\text{Strike price of the option}} * 100$$

6.6.4 In the case of an option on a basket of securities a firm may not teat the option as being in the money by the relevant percentage so as to enable the firm not to apply an option PRR under paragraph 6.5 unless the conditions in paragraph 6.5 are satisfied with respect to each kind of underlying investment.

The appropriate PRA

6.7

6.7.1 The appropriate PRA for a position is that listed in the table in 6.8 against the relevant underlying position.

6.7.2 If the firm uses the commodity extended maturity ladder approach or the commodity maturity ladder approach for a particular commodity under paragraph 7.4 the appropriate PRA for an option on that commodity is the outright rate applicable to the underlying position (see paragraph 4.26 and 4.33).

6.7.3 If a firm does not have commodity positions treated under paragraph 7.4 or does not have positions in the commodity in question treated under paragraph 7.4 the restrictions in said paragraph that regulate when a firm can and cannot use a particular method of calculating the commodity PRR apply for the purpose of establishing the appropriate PRR for the purposes of paragraph 7.6.

6.8 Table: Appropriate PRA as per paragraph 6.7.

Underlying position	**Appropriate PRA**
Equity	The PRA application to the underlying equity or equity index in the table in paragraph 3.3 (simplified equity method)
Interest rate	The sum of the specific risk PRA (as set out in the table in 2.43) and the general market risk PRA (as set out in 2.56) applicable to the underlying position
Debt securities	The sum of the specific risk PRA (as set out in the table in paragraph 2.43) and the general market risk PRA (as set out in the table in paragraph 2.56) applicable to the underlying position

Commodity	18% (unless paragraph 6.7 requires otherwise)
Currency	8%
Gold	8%
CIU	32% (subject to paragraph 6.34 – paragraph 6.37)

Calculating derived positions

6.9 A firm must calculate the derived position specified in the table in paragraph 6.13 for each position included in its option PRR calculation.

Netting positions

6.10 A firm may calculate a derived position for its net position in an option or a warrant, if the relevant options or warrants are identical or may be treated as identical under paragraph 6.11 or paragraph 6.12.

6.11 A firm may treat options or warrants as identical if they have the same strike price, maturity (except for an interest rate cap or floor – see paragraph 6.12) and underlying.

6.12 A firm may treat as identical a purchased interest rate cap (floor) and a written interest rate cap (or floor) only if they mature within 30 days of each other and all other terms are identical (a cap may not be netted against a floor).

Derived positions

6.13 Derived positions

Underlying	**Option (or warrant)**	**Derived position**
Equity	Option (warrant) on a single equity or option on a future/forward on a single equity	A notional position in the actual equity underlying the contract valued at the current market price of the equity
	Option (warrant) on a basket of equities or option on a future/forward on a basket of equities	A notional position in the actual equities underlying the contract valued at the current market price of the equities.
	Option (warrant) on an equity index or option on a future/forward on an equity index	A notional position in the index underlying the contract valued at the current market price of the index.
Interest Rate	Option on an interest rate or an interest rate future/FRA	A zero coupon zero-specific-risk security in the currency concerned with a maturity equal to the sum of the time to expiry of the contract and the length of

		the period on which the settlement amount of the contract is calculated valued at the notional amount of the contract.
	Option on an interest rate swap	A zero coupon zero-specific-risk security in the currency concerned with a maturity equal to the length of the swap valued at the notional principal amount.
	Interest rate cap or floor	A zero coupon zero-specific-risk security in the currency concerned with a maturity equal to the remaining period of the cap or floor valued at the notional amount of the contract.
Debt securities	Option (warrant) on a debt security or option on an future/forward on a debt security	The underlying debt security with a maturity equal to the time to expiry of the option valued as the nominal amount underlying the contract at the current market price of the debt security
	Option (warrant) on a basket of debt securities or option on a future/forward on a basket of debt securities	A notional position in the actual debt securities underlying the contract valued at the current market price of the debt securities.
	Option (warrant) on an index of debt securities or option on a future/forward on an index of debt securities	A notional position in the index underlying the contract valued at the current market price of the index.
Commodity	Option on a commodity of option on a future/forward on a commodity	An amount equal to the tonnage, barrels or kilos underlying the option with (in the care of a future/forward on a commodity) a maturity equal to the expiry date of the forward or futures contract underlying the option. In the case of an option on a commodity the maturity of the position falls into Band 1 in the table in paragraph 4.28

		(Table: Maturity bands for the maturity ladder approach)
	Option on a commodity swap	An amount equal to the tonnage, barrels or kilos underlying the option with a maturity equal to the length of the swap valued at the notional principal amount.
CIU (these provisions about CIUs are subject to paragraph 6.34 to 6.37	Option (warrant) on a single CIU or option on a future/forward on a single CIU	A notional position in the actual CIU underlying the contract valued at the current market price of the CIU.
	Option (warrant) on a basket of CIUs or option on a future/forward on a basket of CIUs	A notional position in the actual CIUs underlying the contact valued at the current market price of the CIUs.
Gold	Option on gold or option on a future/forward on gold	An amount equal to the troy ounces underlying the option with (in the case of a future/forward on gold) a maturity equal to the expiry date of the forward or futures contract underlying the option.
Currency	Currency option	The amount of the underlying currency that the firm will receive if the option is exercised converted at the sport rate into the currency that the firm will sell if the option is exercised.

Combinations of options which can be treated as one option

6.14 A firm may treat (for the purpose of calculating an option PRR under Section 6) an option strategy listed in the table in 6.15 as the single position in a notional option specified against that strategy in the table in paragraph 6.15, if:

6.14.1 Each element of the strategy is transacted with the same counterparty;

6.14.2 The strategy is documented as a single structure;

6.14.3 The underlying for each part of the composite position (including any actual holding of the underlying) is the same under the PRR identical product netting rules;

6.14.4 The netting achieved does not result overall in a greater degree of netting in the calculation of the market risk capital component than would be permitted under the other standard market risk PRR rules;

6.14.5 Each option in the structure has the same maturity and underlying; and

6.14.6 The constituent parts of the structure from an invisible single contract, so that neither party can unwind or default on one part of the structure without doing so for the contract as a whole;

except that 6.14.1 and 6.14.2 only apply to the extent possible with respect to any part of the composite position held by the firm that consists of an actual holding of the underlying.

6.15 Option strategies

Option strategy (and an example)	**Notional option (and paragraph it must be treated under)**
Bull Spread (e.g. buy 100 call and sell 101 call)	One purchased option (treat under paragraph 6.20)
Bear Spread (e.g. sell 100 put and buy 101 put)	One written option (treat under paragraph 6.21)
Synthetic Long Call (e.g. long underlying and buy 100 put)	One purchase option (treat under paragraph 6.20 or 6.24)
Synthetic Short Call (e.g. short underlying and sell 100 put)	One written option (treat under paragraph 6.21 or 6.24)
Synthetic Long Put (e.g. short underlying and buy 100 call)	One purchase option (treat under paragraph 6.20 or 6.24)
Synthetic Short Put (e.g. buy underlying and sell 100 call)	One written option (treat under paragraph 6.21 or 6.24)
Long Straddle (e.g. buy 100 call and buy 100 put)	One purchased option (treat under paragraph 6.20)
Short Straddle (e.g. sell 100 call and sell 100 put)	One written option (treat under paragraph 6.21 but with no reduction for the amount the option is out of the money)
Long Straddle (e.g. buy 101 call and buy 99 put)	One purchase option (treat under paragraph 6.20)
Short Strangle (e.g. sell 99 call and sell 101 put)	One written option (treat under paragraph 6.21 but with no reduction for the amount the option is out of the money)
Long Butterfly (e.g. buy one 100 call, sell two 101 calls, and by one 102 call)	One purchased option (treat under paragraph 6.20)
Short Butterfly (e.g. sell one 100 put, buy two 101 puts,	One written option (treat under paragraph 6.21 but with

and sell one 102 put)	no reduction for the amount the option is out of the money)

The option PRR for an individual positions

6.16 A firm must calculate the option PRR for each individual derived option position using the method specified in the table in paragraph 6.18, or, if more than one method is permitted, using one of those methods.

6.17 The resulting PRRs must be converted to the firm's base currency using spot foreign currency rates.

6.18 Option PRR: methods for different types of option.

Option	Description	Method
American option	An option that may be exercised at any time over an extended period up to its expiry date	Option standard method or option hedging method if appropriate
European option	An option that can only be exercised at expiry	
Bermudan option	A cross between an American option and European option. The Bermudan option can only be exercised at specific dates during its life.	
Asian option	The buyer has the right to exercise at the average rate or price of the underlying over the period (or part of the period) of the option. One variant is where the payout is based on the average of the underlying against a fixed strike price; another variant is where the payout gives at expiry the price of the underlying against the average price over the option period.	
Barrier option	An option which is either cancelled or activated if the price of the underlying reaches a pre-set level regardless of the price at which the underlying may be trading at the expiry of the option. The knock-out type is cancelled if the underlying price or rate trades through the trigger; while the knock-in becomes activated if the price moves through the trigger.	
Corridor option	Provides the holder with a pay-out for each day that the underlying stays within a defined range chosen by the investor	
Ladder option	Provides the holder with guaranteed pay-outs if the underlying trades through a pre-agreed price(s) or rate(s) at a certain point(s) in time, regardless of future performance	

Lock-in option	An option where the pay-out to the holder is locked in at the maximum (or minimum) value of the underlying that occurred during the life of the option.	
Look-back option	A European style option where the strike price is fixed in retrospect, that is at the most favourable price (i.e. the lowest (highest) price of the underlying in case of a call (put)) during the life of the option	
Forward starting option	An option that starts at a future date	
Compound option	An option where the underlying is itself an option (i.e. an option on an option)	Option standard method or option hedging method if appropriate
Interest cap	An interest rate option or series of options under which the counterparty contracts to pay any interest costs arising as a result of an increase in rates above an agreed rate: the effect being to provide protection to the holder against a rise above that agreed interest rate.	Option standard method, but no reduction for the amount the option is out of the money is permitted
Interest rate floor	An interest rate option or series of options under which a counterparty contracts to pay any lost income arising as a result of a fall in rates below an agreed rate: the effect being to provide protection to the holder against a fall below that agreed interest rate.	
Performance option	An option based on a reference basket comprising any number of assets, where the pay-out to the holder could by one of the following: the maximum of the worst performing asset, or 0; the maximum of the best performing asset, or 0; the maximum of the spreads between several pairs of the asset; or 0.	Option standard method or option hedging method – using the highest PRA of the individual assets in the basket
Quanto	Quanto stands for "Quantity Adjusted Option". A quanto is an instrument where two currencies are involved. The payoff is dependent on a variable that is measured in one of the currencies and the payoff is made in the other currency	Subject to paragraph 6.31 the option standard method.
Clique option	A cliquet consists of a series of forward starting options where the strike price for the next exercise date is set equal to a positive constant times the underlying price as of the previous exercise date. It initially acts like a vanilla option with a fixed price but as time moves on, the strike is reset and the intrinsic value	Option standard method for a purchase cliquet, or the method specified in paragraph 6.30 for a written cliquet

	automatically locked in at pre-set dates. If the underlying price is below the previous level at the reset date no intrinsic value is locked in but the strike price will be reset to the current price attained by the underlying. If the underlying price exceeds the current level at the next reset the intrinsic value will again be locked in	
Digital option	A type of option where the pay-out to holder is fixed. The most common types are all-or-nothing and one-touch options. All-or-nothing will payout the fixed amount if the underlying is above (call) or below (put) a set value at expiry. The one-touch will pay the fixed amount if the underlying reaches a fixed point any time before expiry.	The method specified in paragraph 6.29
Any other option or warrant		The method specified for the type of instrument whose description it most closely resembles

6.19

6.19.1 The option standard method is described in paragraph 6.20 to 6.22

6.19.2 The option hedging method is described in paragraph 6.23 to 6.28.

The standard method: Purchased options and warrants

6.20 Under the option standard method, the PRR for a purchased option or warrant is the lesser of:

6.20.1 The market value of the derived position (see paragraph 6.9) multiplied by the appropriate PRA (see paragraph 6.8); and

6.20.2 The market value of the option or warrant.

The standard method: Written options and warrants

6.21 Under the option standard method, the PRR for a written option or warrant is the market value of the derived position (see paragraph 6.9) multiplied by the appropriate PRA (see paragraph 6.8). This result may be reduced by the amount the option or warrant is out of the money (subject to a maximum reduction to zero).

The standard method: Underwriting or sub-underwriting an issue of warrants

6.22 Under the option standard method, the PRR for underwriting or sub-underwriting an issue of warrants is the net underwriting position (or reduced net underwriting position) multiplied by the current market price of the underlying securities multiplied by the appropriate PRA, but the result can be

limited to the value of the net underwriting position (or reduced net underwriting position) calculated using the issue price of the warrant.

The hedging method

6.23 The option hedging method involves the option PRR being calculated on a combination of the option and its hedge.

6.24 Under the option hedging method a firm must calculate the option PRR for individual positions as follows:

6.24.1 For an option or warrant on an equity, basket of equities or equity index and its equity hedge(s), the firm must, to the extent specified or permitted in the table in paragraph 6.26, use the calculation in the table in paragraph 6.27.

6.24.2 For an option or warrant on a debt security, basket of debt securities or debt security index and its debt security hedge(s), the firm must, to the extent specified or permitted in the table in paragraph 6.26, use the calculation in the table in paragraph 6.27;

6.24.3 For an option on gold and its gold hedge, the firm must, to the extent specified or permitted in the table in paragraph 6.26, use the calculation in the table in paragraph 6.27; and

6.24.4 For an option on a currency and its currency hedge, the firm must, to the extent specified or permitted in the table in paragraph 6.26, use the calculation in the table in paragraph 6.28.

6.25

6.25.1 A firm may not use the option hedging method for:

6.25.1.1 an interest rate option and its hedge; or

6.25.1.2 a commodity option and its hedge; or

6.25.1.3 a CIU option and its hedge.

6.25.2 A firm may only use the option hedging method if the item underlying the option or warrant is the same as the hedge of the option or warrant under the PRR identical product netting rules.

6.26 Appropriate treatment for equities, debt securities or currencies hedging options

Hedge	**PRR calculation for the hedge**	**Limits (if hedging method is used)**	**Naked position**
An equity (hedging an option or warrant)	The equity must be treated in either Section 3 (equity PRR) or the option hedging method (see the table in paragraph 6.27)	The option hedging method must only be used up to the amount of the hedge that matches the notional amount underlying the option or warrant	To the extent that the amount of the hedge (or option or warrant) exceeds the notional amount underlying the option or warrant (or hedge), a firm must apply an equity PRR, interest rate PRR or foreign currency PRR (or the option

			standard method)
A debt security (hedging an option or warrant)	The debt security must be treated in Section 2 (interest rate PRR) or the option hedging method (see the table in paragraph 6.27)	As for the first row	As for the first row
Hedge	PRR calculation for the hedge	Limits (if hedging method is used)	Naked position
Gold (hedging a gold option)	The gold must be treated in either Section 5 (foreign currency PRR) or the option hedging method (see the table in paragraph 6.27)	As for the first row	As for the first row
A currency or currencies (hedging a currency option)	The currency must be treated in either Section 5 (foreign currency PRR) or the option hedging method (see the table in paragraph 6.28)	As for the first row	As for the first row

6.27 The hedging method of calculating the PRR (equities, debt securities and gold)

	PRR			
	Option or warrant position	*In the money by more than the PRA*	*In the money by less than the PRA*	*Out of the money or at the money*
Long in security or gold	Long put	Zero	Wp	X
	Short call	Y	Y	Z
Short in security or gold	Long call	Zero	Wc	X
	Short put	Y	Y	Z
Wc means	{(100%+PRA x The underlying position valued at strike price} – The market value of the underlying position			
X means	The market value of the underlying position multiplied by the appropriate PRA			
Y means	The market value of the underlying position multiplied by the appropriate PRA. This result may be reduced by the market value of			

	the option or warrant, subject to a maximum reduction to zero.
Z means	The option hedging method is not permitted; the option standard method must be used.

6.28 The hedging method of calculating the PRR (currencies)

PRR			
Option position	*In the money by more than 8%*	*In the money by less than 8%*	*Out of the money or at the money*
Long calls & long puts	Zero	WL	X
Short calls & short puts	Zero	Y	X
Where:			
Wl means	(1.08% x U) – The market value of the underlying position		
U means	The amount of the underlying currency that the firm will receive if the option is exercised, converted at the strike price into the currency that the firm will sell if the option is exercised		
X means	The market value of the underlying position multiplied by 8%		
Y means	The market value of the underlying position multiplied by 8%. This result may be reduced by the market value of the option, subject to a maximum reduction to zero.		

Specified methods and treatments: Digital options

6.29 The option PRR for a digital option is the maximum loss of the option.

Specific methods and treatments: Written cliquet options

6.30 The option ORR for a written cliquet option is the market value of the derived position (see paragraph 6.9) multiplied by the appropriate PRA (see paragraph 6.8) multiplied by (F + 1) (see the following provisions of this paragraph). This result may be reduced by the amount the option is out of the money (subject to a maximum reduction to zero). The option PRR for a written cliquet option is therefore defined by the following formula:

[PRA * underlying * (F + 1)] - OTM

Where:

6.30.1

$$\mathrm{F}= \min\left[FR, \max\left(\frac{FR}{2}, Y\right)\right]$$

6.30.2 FR= Number of forward re-sets

6.30.3 Y= Years to maturity

630.4 OTM= the amount by which the option is out of the money

Specific methods and treatments: Quantos

6.31 If they pay-out to the holder of a quanto option is fixed at the inception of the transaction a firm must add 8% to the PRA when applying the option standard method.

Interaction with other Sections

6.32 The application of an option PRR to a position does not prevent any of the other PRR charges listed in the calculation of market risk capital requirements, from applying if they would otherwise do so.

6.33 In particular is a firm applies an option PRR to an equity derivative an interest rate PRR will also generally apply.

Options on a CIU

6.34 Paragraph 6.35 to 6.38 applies to a firm that applies an option PRR to an option on a CIU.

6.35

6.35.1 For the purpose of identifying the underlying position for the purpose of paragraph 6.8 and the derived position under paragraph 6.13 a firm may choose between treating that position as:

6.35.1.1 Being in the CIU itself; or

6.35.1.2 (subject to paragraph 6.36 and it the conditions in Section 7 for the use of that method are satisfied) the positions in the underlying investments or assumed positions arising through the use of the standard CIU look through method.

6.35.1.3 A firm must exercise the choice in 6.35.1.1 consistently for the purposes of both Sections 6 and 7 but may make different choices for different options.

6.36 A firm may not use the modified CIU look through method for the purpose of calculating the PRR with respect to an option on a CIU.

6.37 If a firm uses the standard CIU look through method for the purpose of Section 6 it must use the methods set out in Section 6 relating to baskets of securities in relation to the resulting positions.

6.38 If a firm uses the standard CIU look through method it should use if for the purpose of calculating the appropriate PRA. It should do so by applying the appropriate PRA to the underlying investments of the CIU or, as the case may be, the assumed positions. However a firm should not treat the option as being in the money by the relevant percentage so as to enable the firm not to apply an option PRR under paragraph 6.5 unless the conditions in paragraph 6.5 are satisfied with respect to each kind of underlying investment or, as the case may be, assumed position.

6.39 Paragraphs 6.10 to 6.12 are subject to paragraph 7.3 (netting). Paragraph 7.4 (use of third party) applies for the purpose of Section 6.

Options on a commodity

6.40 Paragraph 4.38 and paragraphs 4.40 to 4.41 apply to commodity options treated under Section 6 as well as those treated under Section 4.

7. Position risk requirements for collective investment undertakings

Collective investment scheme undertaking PRR calculation

7.1 A firm must calculate its CIU PRR by:

7.1.1 Identifying which CIU positions must be included within the scope of the PRR calculation (see paragraph 7.2);

7.1.2 Identifying which CIU positions are to be subject to the CIU PRR and which positions are subject to:

7.1.2.1 the standard CIU look through method (paragraph 7.6 to 7.10); or

7.1.2.2 the modified CIU look through method (paragraph 7.6 to 7.8 and paragraph 7.11); or

7.1.2.3 the option PRR (see paragraph 7.13);

7.1.3 converting on a daily basis net positions into the firm's base currency at the prevailing spot exchange rate before their aggregation;

7.1.5 calculating an individual PRR for each position in a CIU (see paragraph 7.5);

7.1.6 summing the resulting individual PRRs.

Scope of the PRR calculation for collective investment scheme undertakings

7.2

7.2.1 A firm's PRR calculation must include all trading book positions in CIUs.

7.2.2 A firm's CIU PRR calculation must include all trading book positions in CIUs unless they are treated under one of the CIU look through methods and included in the PRR calculations for the relevant underlying investments or subject to an option PRR.

7.2.3 A firm's PRR calculation for CIUs treated under Section 7 must include notional positions arising from trading book positions in options or warrants on collective investment undertakings (unless the firm calculates a PRR on the option or warrant under Section 6).

General rules

7.3 Unless noted otherwise, no netting is permitted between the underlying investments of a CIU and other positions held by a firm.

7.4 A firm may reply on a third party to calculate and report PRR capital requirements for position risk (general market risk and specific risk) for positions in CIUs falling within paragraphs 7.9 and 7.11, in accordance with the methods set out in Section 7, provided that the correctness of the calculation and the report is adequately ensured.

Calculation of the collective investment undertaking PRR

7.5 Without prejudice to other provisions in Section 7, a position in a CIU is subject to a collective investment undertaking PRR (general market risk and specific risk) of 32%. Without prejudice to provisions in paragraph 5.18 or, if the firm has a VaR model permission, paragraph 7.10, where the modified gold

treatment set out in those paragraphs is used, a position in a CIU is subject to a securities PRR requirement for position risk (general market risk and specific risk) and a foreign-exchange PRR of no more than 40%.

Look through methods: General criteria

7.6 A firm may determine the securities PRR requirement for positions in CIUs which meet the criteria set out it paragraph 7.7, by the methods set out in paragraphs 7.9 to 7.11.

7.7 The general eligibility criteria for using the methods in paragraphs 7.9 to 7.11, for CIUs issued by companies supervised or incorporated within the EEA are that:

7.7.1 The CIU's prospectus or equivalent document must include:

7.7.1.1 the categories of assets the CIU is authorised to invest in;

7.7.1.2 if investment limits apply, the relative limits and the methodologies to calculate them;

7.7.1.3 if leverage if allowed, the maximum level of leverage; and

7.7.2 if the investment in OTC financial derivatives or repo-style transactions are allowed, a policy to limit counterparty risk arising from these transactions;

7.7.2 the business of the CIU must be reported in half-yearly and annual reports to enable an assessment to be made of the assets and liabilities, income and operations over the reporting period;

7.7.3 the units/shares of the CIU are redeemable in cash, out of the undertaking's assets, on a daily basis at the request of the unit holder;

7.7.4 investments in the CIU must be segregated from the assets of the CIU manager; and

7.7.5 the must be adequate risk assessment, by the investing firm, of the CIU.

7.8 Third country CIUs may be eligible if the requirements in paragraphs 7.7.1 to 7.7.5 are met.

Standard CIU look through method: General

7.9

7.9.1 Where a firm is aware if the underlying investments of the CIU on a daily basis the firm may look through to those underlying investments in order to calculate the securities PRR charge for position risk (general market risk and specific risk) for those positions in accordance with the methods set out in the securities PRR requirements or, if the firm has a VaR model permission, in accordance with the methods set out in paragraph 7.10

7.9.2 Under this approach, positions in CIUs must be treated as positions in the underlying investments of the CIU. Netting is permitted between positions in the underlying investments of the CIU and other positions held by the firm, as long as the firm holds a sufficient quantity of units to allow for redemption/creation in exchange for the underlying investments.

Standard CIU look through method: Index or basket funds

7.10

7.10.1 A firm may calculate the securities PRR charge for position risk (general market risk and specific risk) for positions in CIUs in accordance with the methods set out in the securities PRR requirements or, if the firm has a VaR model permission, in accordance with the methods set out in paragraph 7.10, to assumed positions representing those necessary to replicate the composition and performance of the externally generally generated index or fixed basket of equities or debt securities referred to in 7.10.1.1, subject to the following conditions:

7.10.1.1 the purpose of the CIU's mandate is to replicate the composition and performance of an externally generated index or fixed basket of equities or debt securities; and

7.10.1.2 a minimum correlation of 0.9 between daily price movements of the CIU and the index or basket of equities or debt securities it tracks can be clearly established over a minimum period of six months.

7.10.2 Correlation as referred to in 7.10.1.2 means the correlation coefficient between daily returns on the exchange traded fund and the index or basket of equities or debt securities it tracks.

CIU modified look through method

7.11

7.11.1 Where a firm is not aware of the underlying investments of the CIU on a daily basis, the firm may calculate the securities PRR charge for position risk (general market risk and specific risk) in accordance with the methods set out in the securities PRR requirements, subject to the following conditions:

7.11.1.1 it must be assumed that the CIU first invests to the maximum extent allowed under its mandate in the asset classes attracting the highest securities PRR charge for position risk (general market risk and specific risk), and then continues making investments in descending order until the maximum total investment limit is reached;

7.11.1.2 the firm must take account of the maximum indirect exposure that it could achieve by taking leveraged positions through the CIU when calculating its securities PRR charge for position risk, by proportionally increasing the position in the CIU up to the maximum items resulting from the investment mandate; and

7.11.1.3 should the securities PRR charge for position risk (general market risk and specific risk) under this approach exceed that set out in paragraph 7.5, the PRR charge must be capped at that level.

7.11.2 For the purpose of 7.11.1.1 the position in the CIU must be treated as a direct holding in the assumed position.

VAR and other models

7.12 Where Section 7 permits a firm to calculate the PRR charge for a position in a CIU using the measures in Section 7 relating to the underlying investment, a firm that has:

7.12.1 A VaR or other model permission that covers positions in CIUs may use its model.

Options on a CIU

7.13 If not included in the option PRR, an option on a CIU must be treated as a notional position in that CIU.

7.14 Firms should note that the table in paragraph 6.5 divides options and warrants on CIUs into:

7.14.1 Those which must be treated under Section 6; and

7.14.2 Those which must be treated either under Sections 6 or 7, the firm being able to choose whether Section 6 or 7 is used.

8. Securities underwriting

8.1 This Section sets out the method for calculating a net underwriting position or reduced net underwriting position, which is then included in the PRR calculation in other parts of Section 7. It also deals with concentration risk. Section 8 only related to new securities, which is defined in paragraph 8.13.

8.2 A firm which underwrites or sub-underwrites an issue of securities must, for the purposes of calculating its market risk capital component and its concentration risk capital component:

8.2.1 identify commitments to underwrite or sub-underwrite which give rise to an underwriting position (see paragraph 8.8);

8.2.2 identify the time of initial commitment (see paragraph 8.14); and

8.2.3 calculate the net underwriting position (set out in paragraph 8.18), reduced net underwriting position or the net underwriting exposure.

8.3 A firm must include the net underwriting position or reduced net underwriting position in whichever one or more of the following is or are relevant:

8.3.1 paragraph 2.3.1 where debt securities are being underwritten;

8.3.2 paragraph 3.2.1 where equities are being underwritten;

8.3.3 paragraph 6.22 where warrants are being underwritten; and

8.3.4 paragraph 5.3 where the equities, debt securities or warrants being underwritten and denominated in a foreign currency.

8.4 A firm must comply with paragraph 8.2 from initial commitment (as determined under paragraph 8.8) until the end of the fifth business day after working day 0 (as determined under paragraph 8.23).

8.5 Sub-underwriting is a commitment given by one firm to someone other than the issuer or seller of the securities to sub-underwrite all or part of an issue of securities.

8.6 The net underwriting position calculated in paragraph 8.18 will also be used in calculating the net underwriting exposure under paragraph 8.34.

8.7 The net underwriting position or reduced net underwriting position arising from underwriting or sub-underwriting a rights or warrants issue should be calculated using the current market price of the underlying security for the purposes of the equity PRR or option PRR. However, the PRR will be limited to the value of the net underwriting position calculated using the initial issue price of the rights or warrants. Where there is no market price because the rights or warrants are in relation to a new class of securities and the initial price has not

been set the net underwriting position or reduced net underwriting is the amount of the commitment.

Commitment to underwriting securities

8.8

8.8.1 For the purpose of paragraph 8.2.1, a firm has a commitment to underwrite or sub-underwrite an issue of securities where:

8.8.2 it gives a commitment to an issuer of securities to underwrite an issue of securities; or

8.8.3 (where paragraph 8.13.2 applies) it gives a commitment to a seller of securities, to sub-underwrite an issue of securities; or

8.8.4 It gives a commitment to a person, other than the issuer of securities or, if paragraph 8.13.2 applies, the seller of the securities, to sub-underwrite an issue of securities; or

8.8.5 It is a member of a syndicate or group that gives a commitment of the type described in 8.81 to 8.84.

8.8.6 Another provision deals with them separately or the context otherwise requires, a provision of Section 8 that deals with underwriting also applies to sub-underwriting.

Exclusions from Section 8 (Securities and Underwriting)

8.9 Positions arising under a revolving underwriting facility are not within the scope of Section 8.

8.10

8.10.1 Block trades, including bought deal, and private placements are not within the scope of Section 8 because they involve an outright purchase by the firm of the relevant securities.

8.10.2 Revolving underwriting facilities are not within the scope of Section 8 as they are excluded by paragraph 8.9.

8.10.3 Underwriting syndicated loans is not within the scope of Section 8 as it relates to the underwriting of securities but not loans.

8.10.4 For the purpose of section 8 securities include debt and equity instruments and convertibles but exclude loans.

Grey market transactions

8.11

8.11.1 A firm that buys and sells securities before issue is dealing in the grey market for the purpose of Section 8.

8.11.2 Section 8 does not apply to a firm with respect to its dealings in the grey market unless the firm:

8.11.2.1 has an underwriting commitment to the issuer in respect of those securities; or

8.11.2.2 has a sub-underwriting commitment in respect of those securities and is using the grey market solely for the purpose of reducing that sub-underwriting commitment.

8.11.3 Section 8 does not apply to a firm with respect to its dealings in the grey market if the transaction is undertaken by the proprietary

trading part of the firm or is undertaken for proprietary trading purposes.

8.11.4 Section 8 does not apply to a firm with respect to its dealings in the grey market except as described in paragraph 8.18.

8.12 In Section 8 the grey market is the market which dealers "buy" and "sell" securities ahead of issue. In reality the dealers are buying and selling promises to deliver the securities when issued.

New securities

8.13 For the purposes of Section 8, a firm must treat securities as being new for the purposes of the definition of underwriting if they are:

8.13.1 Securities that, prior to the allotment following the underwriting, were not in issue; or

8.13.2 Securities that do not fall within 8.13.1 but that have not previously been offered for sale or subscription to the public and have not been admitted to trading on a market operated by a recognised investment exchange or an overseas investment exchange.

Time of initial commitment

8.14 Subject to paragraph 8.15, the time of initial commitment is the earlier of:

8.14.1 (in the case of underwriting) the time the firm agrees with the issuer of securities to underwrite those securities; or

8.14.2 (in the case of underwriting falling under paragraph 8.13.2) the time the firm agrees with the seller of securities to underwrite those securities; or

8.14.3 (in the case of sub-underwriting) the time the firm agrees with the person referred to in paragraph 8.8.1.3 to sub-underwrite those securities; or

8.14.4 (in the case of paragraph 8.8.1.4) the time the group or syndicate in question (or a member of that group or syndicate on behalf of the others) agrees with the issuer or other person to whom the commitment is given as referred to in paragraph 8.8.1.4 to underwrite of sub-underwrite the securities in question; or

8.14.5 (if the firm at that time has a commitment, whether legally or binding or not) the time the price and allocation of the issue or offer are set.

8.15 If a firm has an irrevocable and unfettered right to withdraw from an underwriting commitment, exercisable within a certain period, the commitment commences (and thus the time of initial commitment occurs) when that right expires.

8.16 Subject to the existence of a right described in paragraph 8.15 an underwriting commitment commences even if it is subject to formal, legal or other conditions that would normally be expected to be satisfied.

8.17 A force majeure or material adverse change clause would not be a right of the sort referred to in paragraph 8.15.

Calculating the underwriting position

8.18 A firm must calculate a net underwriting position by adjusting the gross amount it has committed to underwrite for:

8.18.1 Any sales or sub-underwriting commitments received that have been confirmed in writing at the time of initial commitment (but excluding any sales in the grey market as defined in paragraph 8.11.1);

8.18.2 Any underwriting or sub-underwriting commitments obtained from others since the time of initial commitment;

8.18.3 Any purchases or sales of the securities since the time of initial commitment (other than purchases or sales in the grey market as defined in paragraph 8.11.1);

8.18.4 (in the case of sales in the grey market as defined in paragraph 8.11(1) any sales of the securities as at the time of initial commitment or since the time of initial commitment subject, in both cases, to the following conditions:

8.18.5 any sales of the securities as at the time of initial commitment must be confirmed in writing at the time of initial commitment; and

8.18.6 sales must be net of any purchases in the grey market as defined in paragraph 8.11.1; and

8.18.7 any allocation of securities granted or received, arising from the commitment to underwrite the securities, since the time of initial commitment.

8.19

8.19.1 If the allocation of securities has not been fixed a firm must calculate the gross amount of its commitment, for the purposes of paragraph 8.18, by reference to the maximum amount it has committed to underwrite until the time the allocation is set.

8.19.2 An underwriting commitment may only be reduced under paragraph 8.18 on the basis of a formal agreement.

8.20 Allocations may arise, after date of initial commitment, from the agreement to underwrite. For example obligations or rights may be allocated to or from the issuer, the underwriting group or syndicate.

Over-allotment options

8.21

8.21.1 This rule deals with the treatment of short positions that arise when a firm commits to distribute securities that it is underwriting in an amount that exceeds the allocation to the firm made by the issuer of the securities being underwritten.

8.21.2 When calculating its net underwriting position, a firm may use an over-allotment option granted to it by the issuer of the securities being underwritten to reduce the short positions in 8.21.1.

8.21.3 A firm may also use an over-allotment option granted to another member of the underwriting syndicate for the purpose in 8.21.2.

8.21.4 8.21.2 and 8.21.3 only apply to working day 0.

8.21.5 8.21.2 and 8.21.3 only apply to the extent that the treatment is consistent with the terms of the over-allotment option.

8.22 Except as provided for in paragraph 8.21, a firm must not take into account an over-allotment option granted to it or another member of the underwriting syndicate in calculating its net underwriting position.

Working day 0

8.23 For the purposes of Section 8 working day 0 is the business day on which a firm that is underwriting or sub-underwriting becomes unconditionally committed to accepting a known quantity of securities at a specified price.

8.24 For debt issues and securities which are issued in a similar manner, working day 0 is the later of the date on which the securities are allotted and the date on which payment for them is due.

8.25 For equity issues and securities which are issued in a similar manner, working day 0 is the later of the date on which the offer becomes closed for subscriptions and the date on which the allocations are made public.

8.26 For rights issues, working day 0 is the first day after the date on which the offer becomes closed to acceptances for subscription.

Calculating the reduced net underwriting position

8.27 To calculate the reduced net underwriting position a firm must apply the table in paragraph 8.28 to the net underwriting position (calculated under paragraph 8.18) as follows:

8.27.1 In respect of debt securities, a firm must calculate two reduced net underwriting positions; one for inclusion in the firm's interest rate PRR specific risk calculation (paragraph 2.43), the other for inclusion in its interest rate PRR general market risk calculation (paragraph 2.51); and

8.27.2 In respect of equities, a firm must calculate only one reduced net underwriting position, and then include it in the simplified equity method (see paragraph 3.29).

8.28 Net underwriting position reduction factors.

Underwriting timeline	**Debt**		**Equity**
	General market risk	Specific risk	
Time of initial commitment until working day 0	0%	100%	90%
Working day 1	0%	90%	90%
Working day 2	0%	75%	75%
Working day 3	0%	75%	75%
Working day 4	0%	50%	50%
Working day 5	0%	25%	25%
Working day 6 and onwards	0%	0%	0%

8.29 The table in paragraph 8.30 gives an example of the reduced net underwriting position calculation. The example is based on the firm starting with a commitment to underwrite £100 million new equity issue. Firms are reminded that in the case of an equity, the reduced net underwriting position should be treated under the simplified equity method (paragraph 3.27)

8.30 Example of the reduced net underwriting position calculation

Time	Net underwriting position (see paragraph 8.18)	Percentage reduction (see paragraph 8.28)	Reduced net underwriting position
At initial commitment 9.00am Monday	£100m gross =£80m amount is reduced by £20m due to sales/sub-underwriting commitments confirmed in writing at the time of initial commitment (see paragraph 8.18(1) and (3))	90%	£8m
Post initial commitment 9.02am Monday	Remaining £80m is = £40m reduced by £40m due to further sales, sub-underwriting commitments obtained and allocations granted (see paragraph 8.18(2) to (5)	90%	£4m
At the end of working day 1	Remaining £40m is = £20m reduced to £20m due to further sales	90%	£2m
End of working day 3	Remaining £20m is = £5m reduced to £5m due to further sales	75%	£1.25m
End of working day 4	Remaining £5m is = £2m reduced to £2m due to further sales.	50%	£1m
End of working day 5	Remaining £2m is = 31m reduced to £1m due to further sales.	25%	£0.75m
Start of working day 6	£1m remaining = £1m	0%	£1m

Large exposure risk from underwriting securities: Calculating the net underwriting exposure

8.31 For the purposes of calculating the concentration risk capital component a firm must include net underwriting exposures to an issuer in the calculation of its total exposure to that issuer.

8.32 A firm must include any other exposures arising out of underwriting (including any counterparty exposures to any sub-underwriters) for the purposes of calculating the concentration risk capital component.

8.33 A firm, before entering into a new underwriting commitment must be able to recalculate the concentration risk capital component to the level of detail necessary to ensure that the firm's capital resources requirement does not exceed the firm's capital resources.

8.34 Except where otherwise specified by a requirement on a permission from the FSC, a firm must calculate the net underwriting exposure to an issuer by

applying the relevant reduction factors in the table in paragraph 8.35 to its net underwriting position calculated under paragraph 8.18.

8.35 Calculation of net underwriting exposure.

Time	Reduction factor to be applied to net underwriting position
Initial commitment to working day 0	100%
Working day 0	100%
Working day 1	90%
Working day 2	75%
Working day 3	75%
Working day 4	50%
Working day 5	25%
Working day 6 onwards	0%

8.36 The effect of paragraph 8.34 is that there is no concentration limit for net underwriting exposures between initial commitment and the end of working day 0, except where specified by a requirement on a firm's FSC permission.

Large exposure risk from underwriting securities: Monitoring and reporting concentration risk

8.37 For the purposes of concentration risk monitoring only, a firm must report its net underwriting exposure both before and after the application of the reduction factors in the table in paragraph 8.3.

Risk management

8.38 A firm must take reasonable steps to establish and maintain such systems and controls to monitor and manage its underwriting and sub-underwriting business as are appropriate to the nature, scale and complexity of its underwriting and sub-underwriting business. In particular, a firm must have systems to monitor and control its underwriting exposures between the time of the initial commitment and working day one in the light of the nature of the risks incurred in the markets in question.

8.39 A firm should take reasonable steps to:

8.39.1 Allocate responsibility for the management if its underwriting and sub-underwriting business;

8.39.2 Allocate adequate resources to monitor and control its underwriting and sub-underwriting business;

8.39.3 Satisfy itself that its systems to monitor exposure to counterparties will calculate, revise and update its exposure to each counterparty arising from its underwriting or sub-underwriting business;

8.39.3 Satisfy itself of the suitability of each person who performs functions for it in connection with the firm's underwriting and sub-underwriting business having regard to the person's skill and experience; and

8.39.4 Satisfy itself that its procedures and controls to monitor and manage its underwriting business address, on an ongoing basis, the capacity on sub-underwriters to meet sub-underwriting commitments.

9. Variations from the position risk requirements for collective investment undertakings

9.1 A firm is required under the capital resources requirement to calculate its market risk capital requirement using the guidance set out in Section 7. However, the FSC may at the firm's request modify the capital resources requirement to allow the firm to calculate all or part of the PRR for the positions covered by that model by using a varied model (for options risk aggregation and/or interest rate pre-processing) or a VaR model (value at risk model) instead. Section 10 deals with VaR model permissions.

9.2 The purpose of Section 9 is to provide guidance on the FSC's policy for the granting of model permissions under the regulation. The policy recognises that these models may vary across firms but, as a minimum, the FSC will need to be satisfied:

9.2.1 About the quality of the internal controls and risk management relating to the models (see paragraph 9.19 to 9.23 for further details);

9.2.2 About the quality of the model standards; and

9.2.3 that the model captures and produces an accurate measure of the risks inherent in the portfolio covered by the model (see paragraph 9.25 to 9.53 for further details).

9.3 Section 9 also explains how the output from the model is fed into the market risk capital component calculation.

9.4 If a model permission is granted by the FSC, the permission will contain certain requirements. In order to adequately address individual circumstances, these may differ from what is set out in Section 9. The permission will also identify the rules to which the permission applies and the scope of model recognition granted to the firm.

9.5 Permissions permitting the use of models in the calculation of PRR will not be granted if that would be contrary to the requirements. Any permission which is granted will only be granted on terms that are compatible with the requirements. Accordingly, the only permission permitting the use of models in calculating PRR that the FSC is likely to grant model permissions and VaR model permissions.

Scope of model permissions

9.6 The FSC recognises two types of other models. The table in paragraph 9.7 describes them.

9.7 types of 2 models.

	Options risk aggregation models	**Interest rate pre-processing models**
Brief description and eligible instruments	Analyse and aggregate options risks for: • Interest rate	May be used to calculate duration weighted positions for: • Interest rate

	options; • Equity options; • Foreign currency options; • Commodity options; and • CIU options	futures; • Forward rate agreements (FRAs); • Forward commitments to buy or sell debt securities; • Options, swaps or warrants on interest rates or debt securities and options on such swaps; • Amortising bonds; • Equity futures, forwards, warrants and options (but only in relation to the interest rate risk inherent in these products); and • Foreign currency futures, forwards, swaps and options, but only in relation to the interest rate risk inherent in these products
The output and how it is used un the PRR calculation	Depending on the type of model and the requirements in the model permission granted, the outputs from an options risk aggregation model are used as an input to the market risk capital component calculation	Depending on the type of model and the requirements in the model permission granted, the individual sensitivity figures produced by this type of model are either input into the calculation of interest rate PRR under the interest rate duration method (see paragraph 2.62) or are converted into notional positions and input into the calculation of interest rate PRR under the interest rate maturity method (see 2.58).

9.8 Currently the FSC only envisages allowing recognition for options on CIUs if the CIU satisfies one of the following conditions:

9.8.1 It is regulated collective investment scheme; or

9.8.2 The firm can demonstrate that it has characteristics that are similar to or better than an undertaking in 9.8.1 from the point of view of transparency and liquidity.

The model permission application and review process

9.9 Due to the complexity of other model permissions, it is recommended that, a firm will contact its usual contact at the FSC to discuss its proposed application. It should also be noted that the permission recognition process in the case of other models may take longer.

9.10 In order to consider a model permission request, the FSC may undertake a review to ensure that it is adequate and appropriate for the PRR calculation.

9.11 The model review process may be conducted through a series of visits covering various aspects of the firm's control and IT environment. Before these visits the FSC may ask the firm to provide some information relating to its permission request accompanied by some specified background material. The model review visits are organised on a timetable that allows a firm being visited sufficient time to arrange the visit and provide the appropriate pre-visit information.

9.12 As part of the model review process, the following may be reviewed: organisational structure and personnel; details of the firm's market position in the relevant products; profit and risk information; valuation and reserving policies; operational controls; IT systems; model release and control procedures; risk management and control framework; risk appetite and limit structure and future developments relevant to model recognition.

9.13 The FSC will normally require meetings with senior management and staff from the front office, financial control, risk management, operations, systems development, information technology and audit areas.

9.14 A review by a skilled person may be used before a model permission is granted to supplement the permission process or after the permission has been granted to review the model.

9.15 If the FSC grants a model permission, the permission direction will specify the particular rule which has been modified, and set out the requirements subject to which the permission has been granted. These requirements may include:

9.15.1 The details of the calculation of PRR;

9.15.2 The model methodology to be employed;

9.15.3 The products covered by the model (e.g. option type, maturity, currency); and

9.15.4 Any notification requirements relating to the model permission.

9.16 Where a firm operates any part of its model outside Gibraltar, the FSC may take into account the results of any review of that model carried out by any overseas regulator concerned. The FSC may wish to receive information directly from that regulator.

Maintenance and model recognition

9.17 No changes should be made to a model unless the change is not material. Material changes to a model will require a renewed permission to be issued. Materiality is measured from the time that the permission is granted or, it the permission has been varied, any later time that may be specified in the permission for these purposes. If a firm is considering making material changes

to its model, then it should notify the FSC at once. If a firm wishes to change the products covered by the model it should apply for a variation of its model permission.

9.18 If the model ceases to meet the requirements of the permission, the firm should notify the FSC at once. The FSC may revoke the permission unless it is varied. If the model permission contains conditions it is a condition of using the model approach that the firm should continue to comply with those conditions.

Risk management standards

9.19 A firm with a complex portfolio is expected to demonstrate more sophistication in its modelling and risk management than a firm with a simple portfolio.

9.20 A firm should be able to demonstrate that the risk management standards set out in Section 9 are satisfied by each legal entity with respect to which the model approach is being used. This is particularly important for subsidiary undertakings in groups subject to matrix management where the business lines cut across legal entity boundaries.

9.21

9.21.1 A firm should have conceptually sound risk management system which is implied with integrity and should meet the minimum standards set out in this paragraph.

9.21.2 A firm should have a risk control unit that is independent of business trading units and reports directly to senior management. The unit should be responsible for designing and implementing the firm's risk management system. It should produce and analyse daily reports on the risks run by the business and on the appropriate measures to be taken in terms of the trading limits.

9.21.3 A firm's senior management should be actively involved in the risk control process and the daily reports produced by the risk control unit should be reviewed by a level of management with sufficient authority to enforce reductions of positions taken by individual traders as well as in the firm's overall risk exposure.

9.21.4 The risk control group should have a sufficient number of staff with appropriate skills in the use models.

9.21.5 A firm should have established procedures for monitoring and ensuring compliance with a documented set of appropriate internal policies and controls concerning the overall operation of the risk measurement and control framework. This should take into account the front, middle and back office functions.

9.21.6 A firm should conduct, as part of its regular internal audit process, a review of the systems and controls relating to its model. This review should include the valuation process, compliance with the model permission's scope and the activities of the business and trading units and the risk control units. This review should be undertaken by staff independent of the areas being reviewed.

9.22 In assessing whether the risk management and control framework is implemented with integrity, the FSC will consider the IT systems used to run the model and associated calculations. The assessment will include, where appropriate:

9.22.1 feeder systems; risk aggregation systems; the integrity of the data (i.e. whether it is complete, coherent and correct); reconciliations and checks on completeness of capture; and

9.22.2 system development, change control and documentation; security and audit trails; system availability and contingency procedures; network adequacy.

9.23 A firm should take appropriate steps to ensure that it has adequate controls relating to:

9.23.1 the derivation of the PRR from the model output;

9.23.2 model development, including independent validation;

9.23.3 reserving;

9.23.4 valuation, including independent validation; and

9.23.5 the adequacy of the IT infrastructure.

Model standards

9.24 A firm should take appropriate steps to ensure that its model captures and produces an accurate measure of the risk inherent in the portfolio covered by the model. These risks may include, but are not limited to, gamma, vega and rho.

Options risk aggregation models

9.25 For a firm to obtain a model permission for its options risk aggregation model, it should have in place an appropriate options valuation model.

9.26 The FSC does not specify the methodology that a firm should employ in order to produce the appropriate outputs from its options risk aggregation model. However, paragraphs 9.27 to 9.43 provide details of how a firm could meet the requirement to capture gamma, vega and rho risks using a scenario matrix approach. Where a firm adopts the scenario matrix approach then the standards set out in paragraphs 9.27 to 9.43 should be followed. The firm should also take into account other risk not captured by the scenario matrix approach. If a firm does not use the scenario matrix approach it should use an equivalent methodology. If a firm uses an equivalent methodology it should be able to demonstrate that the approach used meets the requirements set out in Section 9.

9.27 A scenario matrix is an approach by which an options portfolio is re-valued given a number of simultaneous shifts in both the spot level of the underlying and implied volatility.

9.28 The scenario matrix approach may be employed for all types of options on all types of underlying asset.

9.29

9.29.1 This paragraph provides an outline of the initial steps to be taken when using the scenario matrix approach.

9.29.2 A value for an option should be obtained using the firm's options valuation model.

9.29.3 The inputs into the options valuation model for implied volatility of the underlying asset and the price of the underlying asset should then be altered so that a new value for the option is obtained (details of the amount by which the implied volatility and the price of the underlying should be amended are set out in paragraphs 9.30 to 9.36.

9.29.4 The difference between the original value of the option and the new value obtained following the alternations should be input into the appropriate cell in the matrix. The value in the central cell where there is no change in implied volatility or price of the underlying should therefore be zero.

9.29.5 The process of obtaining a new price for the option should be repeated until the matrix is completed.

9.30 The alteration to the implied volatility [known as the implied volatility shift referred to in paragraph 9.29.3] may be a proportional shift. The size of the shift depends on the remaining life of the option and the asset class of the underlying. The table in paragraph 9.32 sets out the shifts that should be applied where a proportional shift is used. Alternatively, a firm may use a single shift across all maturities or use an absolute shift rather than a proportional implied volatility shift. Where a single shift or an absolute shift is used it should be at least as conservative as the proportional shifts. Any use of a single shift or an absolute shift should be reviewed and, if necessary updated, on a regular basis.

9.31 A firm may choose to use a less detailed term structure than that in the table in paragraph 9.32, but the shifts used should be no less conservative than those set out in that table. For example, a firm that uses one < 3 month band, rather than the two bands (≤ 1 month and 1-3 months) set out in the table, should use the most conservative shift set out in the table for the bands covered. In this example that shift is 30%.

9.32 Proportional implied volatility shifts

Remaining life of option	**Proportional shift**	
	Equities, foreign currency and commodities	*Interest rates and CIUs*
≤ 1 month	30%	30%
> 1 ≤ 3 months	20%	20%
> 3 ≤ 6 months	15%	15%
> 6 ≤ 9 months	12%	12%
> 9 ≤ 12 months	9%	9%
> 1 ≤ 2 years	6%	9%
> 2 ≤ 4 years	4.5%	9%
> 4 years	3%	9%

9.33 The size of the underlying price/rate shift depends on the asset class of the underlying as referred to in paragraph 9.29.3 and is set out in the table in paragraph 9.34.

9.34 Underlying price/rate shifts.

Underlying asset class	**Shift**
Equities	±8%
Foreign currency	±8%
Commodities	±15%, (but a firm may use the percentages applicable under the commodity extended

	maturity ladder approach if it would qualify under Section 4 to use that approach).
Interest rates	±100bp (but a firm may use the sliding scale of shifts by maturity as applicable to the interest rate duration method).
CIU	±32%, (but a firm may use the percentages applicable to the underlyings if the firm applies one of the CIU look through methods under Section 7).

9.35 The shifts outlined in the table in paragraph 9.34 are the maximum shifts required; in addition there will be a number of intermediate shifts as a result of the minimum matrix size criteria set out in paragraph 9.36.

9.36 The minimum size of the scenario matrix should be 3x7, that is, three observations for implied volatility (including the actual implied volatility) and seven observations for the price of the underlying (including the actual price of the underlying). A firm should be able to justify its choice of granularity. Greater granularity may be required where the portfolio contains, for example, a large portion of barrier options.

9.37

9.37.1 A different scenario matrix should be set up for each underlying asset type in accordance with this paragraph.

9.37.2 For equities (including single equities, baskets and indices) there should be a separate matrix for each national market or non-decomposed basket or non-decomposed multi-national index.

9.37.3 For foreign currency products there should be a separate matrix for each currency pair where appropriate.

9.37.4 For commodity products there should be a separate matrix for each commodity. The question whether two items are the same commodity should be decided in accordance with Section 4.

9.37.5 For interest rate products there should be a separate matrix for each currency. In addition, a firm should not offset the gamma and vega exposures (except in the circumstances set out in paragraph 9.38) arising from any one of the following types of product with the gamma and vega exposures arising from any of the other products in the list:

9.37.5.1 swaptions (options on interest rates);

9.37.5.2 interest rate options (including options on exchange-traded deposit or bill futures);

9.37.5.3 bond options (including options on exchange-traded bond futures); and

9.37.5.4 other types of options required by the permission to form their own separate class of underlying asset.

9.37.6 The other types of options referred to in 9.37.5.4 will generally be exotic options that do not fall easily into 9.37.5.1 to 9.37.5.3.

9.37.7 For CIUs there should be a matrix for each CIU fund. If the firm applies one of the CIU look through methods under Section 7 apply based on what the underlyings are.

9.38 A firm may offset gamma and vega exposures arising from the products listed in paragraph 9.37.5 where it can demonstrate that it trades different types of interest rate-related options as a portfolio and takes steps to control the basis risk between different types of implied volatility. To the extent that this is the case an individual matrix is not required for each of the products listed in paragraph 9.37.5 and a combined scenario matrix may be used.

9.39 Where it is imprudent fully to offset long-dated and short-dated vega exposure owing to the risk of non-ell shifts in the yield curve, a firm should use an appropriate number of scenario matrices to take account of non-ell shifts in the yield curve according to the maturity of the option or underlying.

9.40 Following the steps outlined in paragraph 9.29, a firm then removes the portion of the values in the matrix that can be attributed to the effect that delta has had on the change in the value of the option (a process known as delta-stripping).

9.41 Once the effect of delta has been removed from the matrix, the values left in the matrix relate to gamma and vega risk. A firm's PRR in relation to gamma and vega risk on the individual option is the absolute of the most negative cell in the scenario matrix produced. Where all cells are positive the PRR is zero. The total PRR for the gamma and vega risk on the portfolio of options is a simple sum of the individual requirements. This amount should then be fed into a firm's PRR calculation.

9.42 The values that have been obtained for the delta-equivalent positions of instruments included in the scenario matrix should then be treated in the same way as positions in the underlying. Where the delta obtained relates to interest rate position risk, the delta equivalent positions may be fed into the firm's interest rate pre-processing model to the extent that the positions fall within the scope of interest rate pre-processing models as set out in paragraph 9.7 and provided that the firm's model permission allows the firm's model to be used in this way. Alternatively, the delta obtained should be fed into the standard PRR calculations in Sections 2 to 5 as appropriate.

9.43 In using the scenario matrix approach, none of the steps followed will take specific account of a firm's exposure to rho risk. Where a firm can demonstrate that for interest rate-related options the rho sensitivity is effectively included in the delta sensitivities produced, there is no separate capital requirement relating to rho. For all other options except commodity options, a firm should calculate a rho sensitivity ladder by currency using its model and either feed this into the interest rate maturity method or interest rate duration method calculation or, where the firm's permission allows the firm's model to be used in this way, feed that ladder into an interest rate pre-processing model. Generally a model does not need to deal specifically with rho risk for commodity options.

Interest rate pre-processing models

9.44 To the extent that a firm's permission if for the use of an interest rate pre-processing model the firm should use it for the pre-processing of the instruments set out in paragraph 9.7, from which the residual positions are fed into the interest rate maturity or interest rate duration method calculation.

9.45 There are a number of different methods of constructing pre-processing models but all should comply with paragraph 9.45 to 9.53. All pre-processing models should generate positions that have the same sensitivity to defined interest rate changes at the underlying cash flows.

9.46 In an interest rate pre-processing model each transaction is converted into its constituent cash flows. The cash flows are discounted using zero coupon rates derived from the firm's own yield curves.

9.47 The cash flows are then calculated again using the firm's own yield curve shifted by the amount set out in paragraph 9.49.

9.48 The difference between the present values calculated using the firm's own yield curve and those calculated using the firm's curve shifted under paragraph 9.47 are known as the sensitivity figures. Alternatively, a firm may shift the yield curve by one basis point and multiply up the sensitivity figures by the appropriate amount in order to achieve the shifts set out in paragraph 9.48. These sensitivity figures are then allocated to each of the 15 maturity bands set out in paragraph 9.49

9.49 Yield curve shifts

Zone	Modified duration	Assumed interest rate change (percentage points)
1	0 ≤ 1 months	1.00
	> 1 ≤ 3 months	1.00
	> 3 ≤ 6 months	1.00
	> 6 ≤ 12 months	1.00
2	> 1.0 ≤ 1.9 years	0.90
	> 1.9 ≤ 2.8 years	0.85
	> 2.8 ≤ 3.6 years	0.85
3	> 3.6 ≤ 4.3 years	0.75
3	> 4.3 ≤ 5.7 years	0.70
	> 5.7 ≤ 7.3 years	0.70
	> 7.3 ≤ 9.3 years	0.70
	> 9.3 ≤ 10.6 years	0.70
	> 10.6 ≤ 12 years	0.70
	> 12.0 ≤ 20 years	0.70
	> 20 years	0.70

9.50 Sensitivity figures calculated by a firm using an interest rate pre-processing model are usually produced in the format of a net sensitivity by maturity bucket or by discrete grid point. These maturity buckets or grid points should then be allocated to the 15 bands set out in paragraph 9.49. The number of maturity buckets or grid points used to represent a yield curve can be referred to as granularity. The granularity should always be adequate to capture the material curve risk in the portfolio. Curve risk can be defined as the risk associated with holding long and short positions at different points along the yield curve.

9.51 Positive and negative amounts placed in each of the different maturity bands in paragraph 9.49 under the sensitivity calculation in paragraph 9.50 should then be netted off to produce one figure for each of the bands. There is no capital requirement for this netting process.

9.52 The individual sensitivity figures produced should then be input into the interest rate duration method calculation. The individual sensitivity figures for each band should be included with the other positions in the appropriate column in the table in paragraph 2.64.

9.53 Instead of using the approach in paragraph 9.52 a firm may use an approach based on the interest rate maturity method, making appropriate adjustments to the sensitivity figures.

10. Use of a Value at Risk Model

10.1 This section applies to a firm with a VaR model. It only applies with respect to those positions coming within the scope of the VaR model and applies subject to any other restrictions in the VaR model permission.

Introduction and purpose

10.2 This section provides details of when the FSC expects to allow a firm to use a VaR model for the purpose of calculating part or all of its PRR. It introduces the concept of a VaR model, the methodology behind it and the link to the standard market risk PRR rules. It then goes on to detail the application and review process. The bulk of Section 10 specifies the model standards and risk management standards that firms will be required to meet in order to use a VaR model. It further stipulates requirements for stress testing, back testing, capital calculations and finally the reporting standards expected by the FSC.

10.3 The models described in Section 10 are described as VaR models in order to distinguish them from models, which are dealt with in Section 9. A VaR model is a risk management model which uses a statistical measure to predict profit and loss movement ranges with a confidence interval. From these results PRR charges can be calculated.

10.4 The aim of the VaR model approach is to enable a firm with adequate risk management systems to be subject to a PRR requirement that is more closely aligned with the risks to which it is subject than the PRR requirements generated by the standard market risk PRR codes of practice. This provides a firm with an incentive to measure market risks as accurately and comprehensively as possible. It is crucial that those responsible for managing market risk at a firm should be aware of the assumptions and limitations of the firm's VaR model.

10.5 There are a number of general methodologies for calculating PRR using a VaR model. The FSC does not prescribe any one method of computing VaR measures. Moreover, it does not wish to discourage any firm from developing alternative risk measurement techniques. A firm should discuss the use of any alternative techniques used to calculate PRR with the FSC.

10.6 A firm should not use the VaR model approach to calculate PRR unless it has a VaR model permission. If a firm does not have such a permission it should use the standard market risk PRR rules. Therefore, a firm needs to apply for a VaR model permission in order to calculate its PRR using a VaR model instead of (or in combination with) the standard market risk PRR guidance.

Conditions for allowing a VaR model

10.7 A permission or allowance for another model allowing the use of models in the calculation of PRR will not be granted if that would be contrary to the relevant requirements and any VaR model which is allowed will only be granted on terms that are compatible with the relevant requirements. Accordingly, the FSC is likely only to grant a permission or other permission allowing the use of

models in the calculation of PRR if it is a VaR model permission or another recognised or approved model permission.

10.8 Section 10 sets out the minimum standards that the FSC expects firms to meet before allowing a VaR model. The FSC will not allow a VaR model unless it is satisfied that the requirements of Section 10 are met and it is satisfied about the procedures in place at a firm to calculate the model PRR. In particular the FSC will not normally allow a VaR model unless it is satisfied about the quality of:

10.8.1 The internal controls and risk management relating to the VaR model (see paragraph 10.56 to 10.82);

10.8.2 The VaR model standards (see paragraph 10.24 to 10.55); and

10.8.3 Stress testing and back testing procedures relating to a VaR model (see, in addition to 10.8.2, paragraph 10.83 to paragraph 10.112).

10.9 The FSC recognises that the nature of the VaR models will vary between firms. The scope of and the requirements and conditions set out in a VaR model permission may therefore differ in substance or detail from Section 10 in order to address individual circumstances adequately. However any differences will only be allowed if they are compliant with the relevant requirements. A VaR model permission will implement any such variation by modifying Section 10. A VaR model permission may also include additional conditions to meet the particular circumstances of the firm or model.

The VaR model permission application and review process

10.10 Details of the general process for applying for a VaR model permission are set out in applications for advanced approaches. Due to the complexity of a VaR model permission, it is recommended that a firm discuss its proposed application with its usual contact at the FSC before it makes the application.

10.11 In order for a VaR model permission to be granted, the FSC is likely to undertake a review to ensure that it is adequate and appropriate for the PRR calculation.

10.12 The VaR model review process may be conducted through a series of visits covering various aspects of a firm's control and IT environment. Before these visits the FSC may ask the firm to provide some information relating to the firm's VaR model permission request accompanied by some specified background material. The VaR model review visits are organised on a timetable that allows the firm being visited sufficient time to arrange the visit and provide the appropriate pre-visit information.

10.13 As part of the process for dealing with an application for a VaR model permission the following may be reviewed; organisational structure and personnel; details of the firm's market position in the relevant products; revenue and risk information; valuation and reserving policies; operational controls; information technology system; model release and control procedures; risk management and control framework; risk appetite and limit structure; future developments relevant to model recognition.

10.14 A visit will usually involve the FSC wishing to meet senior management and staff from the front office, financial control, risk management, operations, systems development, information technology and internal audit areas.

10.15 The FSC may complement its own review of a VaR model permission request with one or more reviews by a skilled person under the relevant legislation. Such a review may also be used where a VaR model permission has been granted to ensure that the requirements in Section 10 and of the VaR model permission continue to be met.

Conditions for a VaR model outside Gibraltar

10.16 Where a VaR model used outside Gibraltar differs from that used in Gibraltar the FSC may request details of the reasons for using different models.

10.17 Where a firm operates any part of its VaR model outside Gibraltar, the FSC may take into account the results of the home supervisor's review of that model. The FSC may wish to receive information directly from the home supervisor.

Scope of VaR models

10.18 Subject to paragraphs 10.135 to 10.145, a firm must use the VaR model approach to calculate the PRR for a position:

10.18.1 To the extent that the PRR calculation is within the scope of the VaR model permission (see paragraph 10.13 and 10.16);

10.18.2 If the position comes within the scope of the VaR model permission under paragraph 10.20.

10.19 In accordance with paragraph 10.18.1 a VaR model will set out the risk categories that it covers, which are expected to be one or more of the following types:

10.19.1 Interest rate general market risk;

10.19.2 Interest rate specific risk (in conjunction with interest rate general market risk;

10.19.3 equity general market risk;

10.19.4 equity specific risk (in conjunction with equity general market risk);

10.19.5 CIU risk;

10.19.6 Foreign-exchange risk; and

10.19.7 Commodity risk.

10.20

10.20.1 A position comes within the scope of a VaR model permission under paragraph 10.18.2 if it comes within:

10.20.1.1 one of the broad classes of position within the scope of the VaR model permission (see 10.20.4); and

10.20.1.2 the detailed list of types of position coming within the scope of the VaR model permission (see 10.20.5).

10.20.2 A firm may bring another type of position within the scope of its VaR model permission if:

10.20.2.1 it is within one of the broad classes of position under 10.20.1.1;

10.20.2.2 the firm has decided to calculate PRR for such positions using the VaR model;

10.20.2.3 that decision is made in accordance with the firm's internal processes and procedures set out in the documentation identified in the VaR model allowance

for this purpose (as those processes and procedures have been subsequently modified); and

10.20.2.4 the VaR model is able to calculate PRR for such positions in accordance with the VaR model allowance.

10.20.3 If a type of position product falls within the scope of the VaR model allowance under 10.20.1 or 10.20.2, the firm may take that type of position out of that scope. It must do so in accordance with the internal processes and procedures referred to in 10.20.2.3). The firm may bring it back within the scope of the VaR model permission in accordance with the procedure in 10.20.2. However this is subject to paragraph 10.139.2.

10.20.4 A position is within 10.20.1.1 if it is in one of the classes set out in paragraph 10.21 (or any list of classes that replaces paragraph 10.21 in the firm's VaR model) and the VaR model permission states that that class is within the scope of the VaR model permission.

10.20.5 A position is within 10.2.2 if it is within 10.20.4 and is a position in a CRD financial instrument, commodity or other product of a type that is included in a list in the VaR model permission that refers to this paragraph.

10.21 The categories of position described in paragraph 10.20.4 are as follows:

10.21.1 Linear products, which comprise securities with linear pay-offs (e.g. bonds and equities) and derivative products which have linear pay-offs in the underlying risk factor (e.g. interest rate swap, FRAs, total return swaps);

10.21.2 European, American and Bermudan put and call options (including caps, floors and options) and investments with these features (see paragraph 6.18 for an explanation of some of these terms); and

10.21.3 Asian options, digital options, single barrier options, double barrier options, look back options, forward starting options, compound options and investments with these features (see paragraph 6.18 for an explanation of some of these terms); and

10.21.4 All other options based products (e.g. basket options, quantos, outer performance options, timing options) and investments with these features (see paragraph 6.18 for an explanation of some of these terms).

10.22 The categorisation described in paragraph 10.21 may be amended or replaced in the case of a particular firm's VaR model permission.

10.23 It is the FSC's view that, where a firm uses a VaR model for one risk category, it is good practice to extend its model over time to calculate all of its PRR risk categories. A firm will typically be expected to have a realistic plan in place to do this.

Model standards: General

10.24 A firm must comply with the minimum standards set out in paragraph 10.25 to 10.53 in calculating the model PRR.

10.25 The FSC accepts that the scope and nature of the VaR models varies across firms. This means that different firms are likely to calculate different estimates of market risk for the same portfolio. Systematic differences are due to length of data series, choice of methodology (historical or Monte Carlo simulation or variance - covariance method or a hybrid of these), and differences

in aggregating risks within and across broad risk factors, the treatment of options and non-linear products and the specification of risk factors.

Model standards: Frequency of calculations and confidence level

10.26 The model PRR must be computed at least once every business day, using a 99% one-tailed confidence limit.

10.27 A firm may meet the requirement in paragraph 10.26 by using different model meters and employing a suitable adjustment mechanism to produce a figure which is equivalent to the figure produced using the parameters set out in paragraph 10.26. For example, a firm's model may use a 95% one-tailed confidence limit if the firm has a mechanism to convert the output of the model to reflect a 99% one-tailed confidence limit.

Model standards: Holding period

10.28 In calculating the VaR number, a firm must either use a ten business day holding period, or use a holding period converted to a ten business day holding period. However, if the firm's VaR model permission specifies that the firm must use a specific method, the firm must do so.

10.29 If a firm uses a holding period other than 10 business days and converts the resulting VaR measure to a ten business day equivalent measure, it should be able to justify the choice of conversion technique. For example, the square root of time method will usually be justifiable. The FSC considers it good practice ultimately to move towards the application of an actual ten business day holding period, rather than using different holding periods.

Model standards: Observation period

10.30 Subject to paragraph 10.31, the calculation of VaR numbers must be based on an effective historical observation period of at least one year or such longer period as may be set out in the firm's VaR model permission. If using that prescribed observation period would not be a sufficiently prudent way of calculating a VaR measure or component of a VaR measure, the firm must use a shorter period. However, if the firm uses a shorter period it must ensure that the resulting VaR measure is sufficiently prudent for these purposes.

Model Standards: Data series

10.31 A firm must ensure that the data series used by its VaR model is reliable. Where a reliable data series is not available, proxies or any other reasonable value-at-risk measurement technique must be used. A firm must be able to demonstrate that the technique is appropriate and does not materially understate the modelled risks.

10.32 A data series is unreliable if it has, for example, missing data points, or data points which contain stale data. Reliable data series may be difficult to obtain for new products (for example an instrument of longer dated tenor that did not previously trade) and for less liquid risk factors. Where a firm is including this data within its VaR model it should ensure that the combination of prudent valuation techniques provide a sufficient cushion against risk over close out period which takes account of the illiquidity of these risk factors.

10.33

10.33.1 If a weighting scheme or other similar method is used to calculate VaR numbers, then the effective observation period must be at least one year. Where a weighting scheme is used, the weighted average time lag of the individual observations must not be less than six months.

10.33.2 If a specific observation period or weighted average time lag is specified in a firm's VaR model permission, the firm must comply with that if it is longer than the period specified in 10.33.1.

10.33.3 However, if a weighting scheme in 10.33.1 or 10.33.2 would result in imprudent VaR numbers then the weighting scheme must be adjusted so that it is consistent with a prudent VaR number.

10.34 A firm must update data sets in accordance with the frequency set out in its VaR model permission. If volatility in market prices or rates necessitates more frequent updating in order to ensure a prudent calculation of the VaR measure the firm must do so.

10.35 The minimum updating frequency that can be specified in a VaR model permission is quarterly.

Model standards: Aggregation across risk categories

10.36 The process for determining and implementing correlations within risk categories and across risk categories must be implemented with integrity and be consistent with the terms of the firm's VaR model permission.

10.37 Aggregation between parametric models requires correlation between broad risk categories to be specified.

10.38 In aggregating VaR measures across risk or product categories, a firm must not use the square root of the sum of the squares approach unless the assumption of zero correlation between these categories is empirically justified. If correlations between risk categories are not empirically justified, the VaR measures for each category must simply be added in order to determine its aggregate VaR measure. But to the extent that a firm's VaR model permission provides for a different way of aggregating VaR measures:

10.38.1 That method applies instead of this measure; and

10.38.2 If the correlations between risk categories used for that purpose cease to be empirically justified then the firm should notify the FSC at the earliest opportunity.

Model standards: Risk Factors: Introduction

10.39 Subject to paragraph 10.53, a VaR model should capture and accurately reflect all material risks arising on the underlying portfolio on a continuing basis insofar as those risks are within the scope of the VaR model permission. This should encompass general market risk and, to the extent that this comes within the scope of the VaR model permission, specific risk. A firm should ensure that the VaR model has sufficient risk factor granularity to be able to capture all such material risks and that these are properly documented and specified.

Model standards: Risk factors: General

10.40 In the case of general market risk, and risks with respect to which the standard market risk PRR requirements do not distinguish between general market risk and specific risk, a firm's VaR model must capture a sufficient number of risk factors in relation to the level of activity of the firm and in particular the risks set out in paragraph 10.41 to 10.45.

10.41 For interest rate risk, a VaR model must incorporate a set of risk factors corresponding to the interest rate curves in each currency in which the firm has interest rate sensitive positions. A firm must ensure that it captures the variations of volatility of rates along the yield curve. In order to achieve this, a firm must divide the yield curves of, at a minimum, the major currencies and markets in which it has material interest rate exposures into a minimum of six

maturity segments. The risk measurement system must also capture the risk of less than perfectly correlated movements between different yield curves.

10.42 For equity risk, a VaR model must use a separate risk factor at least for each of the equity markets in which the firm has material exposures.

10.43 For foreign exchange risk, a VaR model must incorporate risk factors corresponding to the individual foreign currencies, including gold, in which the firm's positions are denominated.

10.44 For commodity risk, the VaR model must use a separate risk factor at least for each commodity in which the firm has material exposures. The VaR model must capture the risk of less than perfectly correlated movements between similar, but not identical, commodities and the exposures to changes in forward prices arising from maturity mismatches. It must also take account of market characteristics, notably delivery dates and the scope provided to traders to close out positions.

10.45

10.45.1 For CIUs the actual foreign exchange positions of the CIU must be taken into account.

10.45.2 A firm may rely on a third party reporting of the foreign exchange position in the CIU, where the correctness of this report is adequately ensured.

10.45.3 If a firm is not aware of the foreign exchange positions in a CIU, this position must be carved out and treated in paragraph 5.3 to 5.4.

10.46 This paragraph contains guidance on the inclusion of CIUs in a VaR model.

10.46.1 The FSC may allow all types of CIU to be included within the scope of a firm's VaR model permission.

10.46.2 Section 10 does not distinguish between specific risk and general market risk for positions in CIUs. Therefore even if specific risk is not otherwise included within the scope of a firm's VaR model permission, a firm should be able to demonstrate that its VaR model captures specific risk.

10.46.3 A firm should also be able to demonstrate that its VaR model adequately captures correlations, liquidity risk and concentration risk.

10.46.4 A firm may use a look-through approach, under which the VaR model estimates are based on the underlying positions. If a firm uses a look through approach it should also ensure that all the relevant risk factors relating to the underlying positions are captured.

Model standards: Risk factors: Specific risk

10.47

10.47.1 If a firm's VaR model covers the calculation of PRR with respect to specific risk the firm must meet the requirements set out in this paragraph and paragraphs 10.48 to 10.52 in addition to the other requirements of Section 10.

10.47.2 The VaR model must explain the historical price variation in the portfolios concerned.

10.47.3 The VaR model must capture concentration in terms of magnitude and changes of composition of the portfolios concerned.

10.47.4 The VaR model must be robust to an adverse environment.

10.47.5 The VaR model must capture name-related basis risk. That is the firm must be able to demonstrate that the VaR model is sensitive to material idiosyncratic differences between similar but not identical positions.

10.47.6 The VaR model must capture event risk.

10.47.7 In addition to the other requirements in Section 10, a firm must have an approach in place to capture, in the calculation of its capital requirements, the default risk of its trading book positions that is incremental to the default risk captured by the VaR-based calculation as specified in the specific risk requirements in paragraphs 10.47.2 to 10.47.6 and 10.49.

10.47.8 A firm must be able to demonstrate that its approach to the calculation of capital requirements for specific risk meets soundness standards comparable to the approach set out in Section 4, under the assumption of a constant level of risk, and adjusted where appropriate to reflect the impact of liquidity, concentrations, hedging and optionality.

10.48 This paragraph provides guidance on paragraph 10.47.3. Take as an example a VaR model based on a factor model or on a historical simulation model. The ability of the model to explain price variations could be demonstrated by a statistical comparison over the same period of time between actual price changes on the portfolio and the profit and loss impact of the risk factors included within the model. A firm may wish to include an estimate of residual variation not explained by the model.

10.49

10.49.1 Where a firm is subject to event risk that is not reflected in its VaR measure, because it is beyond the 10 day holding period and 99 percent confidence interval (low probability and high severity events), the firm must ensure that the impact of such events is factored into its internal capital assessment.

10.49.2 A firm's VaR model must conservatively assess the risk arising from less liquid positions and positions with limited price transparency under realistic market scenarios. In addition, the VaR model must meet minimum data standards. Proxies must be appropriately conservative and may be used only where available data is insufficient or is not reflective of the true volatility of a position or portfolio.

10.49.3 As techniques and best practices evolve, a firm must avail itself of these advances.

10.50 T to avoid double counting capital requirements under paragraph 10.47.7 a firm may, when calculating its incremental default charge, take into account the extent to which default risk has already been incorporated into the VaR calculation, especially for risk positions that could and would be closed within 10 days in the event of adverse market conditions or other indications of deterioration in the credit environment. Where a firm captures its incremental default risk through a surcharge, it must have in place methodologies for validating the measure.

10.51 A firm that does not capture the incremental default risk through an internally developed approach must calculate the surcharge through an approach consistent with either the standardised approach to credit risk or the IRB approach.

10.52 With respect to securitisation exposures that would be subject to a deduction treatment, or risk weighted at 1250% as set out in Section 9, these positions are subject to a capital charge that is no less than set forth under that treatment. A firm that is a dealer in these exposures may apply a different treatment where it can demonstrate to the FSC, in addition to trading intent that a liquid two-way market exists for the securitisation exposures or, in the case of synthetic securitisations that rely solely on credit derivatives, for the securitisation exposures themselves or all their constituent risk components. For the purposes of this Guidance Note a two-way market is deemed to exist where there are independent good faith offers to buy and sell so that a price reasonably related to the last sales price or current good faith competitive bid and offer quotations can be determined within one day and settled at such a price within a relatively short time conforming to trade custom. For a firm to apply a different treatment, it must have sufficient market data to ensure that it fully captures the concentrated default risk of these exposures in its internal approach for measuring the incremental default risk in accordance with the specific risk standards referred to in paragraph 10.47.

Model standards: Materiality

10.53 A firm's VaR model must capture accurately all the material price risks of options or option-like positions within the scope of its VaR permission and the firm must ensure that, if its VaR model does not accurately capture any other material risk, the firm has capital resources (in addition to those required to meet its capital resources requirement) that are adequate to cover that risk.

10.54 For example, paragraph 10.53 might involve creating and documenting a prudent incremental PRR charge for the risk not captured and holding sufficient capital resources to ensure that the firm would comply with the financial resources requirements as modified by its VaR model permission if the model PRR for market risk were increased by the amount of this incremental charge. Where additional profit and loss reserves are being taken to cover a material risk, rather than the firm taking an incremental PRR charge, those reserves should be transparent to senior management and auditable. The reserves should also be consistent with Valuation requirements while not being excessive in relation to the principles of mark-to-market account. Therefore either through such processes or through the VaR model a firm should be able to satisfy the FSC that material risks, notably on options, are adequately addressed.

10.55 A firm is expected ultimately to move towards full revaluation of option positions. For portfolios containing path-dependent options, an instantaneous price shock applied to a static portfolio will be acceptable provided that the risks not captured by such an approach are not material. Where a risk is immaterial and does not justify further capital resources, that immaterial risk should still be documented.

Risk management standards: Introduction

10.56 A firm with a complex portfolio is expected to demonstrate greater sophistication in its modelling and risk management than a firm with a simple portfolio. For example, a firm will be expected to consider, where necessary, varying degrees of liquidity for different risk factors, the complexity of risk modelling across time zones, product categories and risk factors. Some trade-off is permissible between the sophistication and accuracy of the model and the conservatism of underlying assumptions or simplifications.

10.57 A firm should be able to demonstrate that it meets the risk management standards set out in the VaR model permission of a legal entity basis. This is

particularly important for a subsidiary undertaking in a group subject to matrix management where the business lines cut across legal entity boundaries.

Risk management standards: General requirement

10.58 A firm must have a conceptually sound risk management system surrounding the use of its VaR model that is implemented with integrity and that in particular meet the qualitative standards set out in paragraphs 10.59 to 10.82.

Risk management standards: Use requirement

10.59 A firm must base its model PRR calculation on the output of the VaR model which us used for its internal risk management rather than one developed specifically to calculate its PRR.

10.60 The VaR model must be fully integrated into the daily risk management process of the firm, and serve as the basis for reporting risk exposures to senior management of the firm.

10.61 A firm's VaR model output should be an integral part of the process of planning, monitoring and controlling a firm's market risk profile. The VaR model should be used in conjunction with internal trading and exposure limits. The links between these limits and the VaR model should be consistent over time and understood by senior management. The firm should regard risk control as an essential aspect of the business to which significant resources need to be devoted.

Risk management standards: Risk control unit

10.62 A firm must have a risk control unit which is independent from business trading units and which reports directly to senior management. It:

10.62.1 Must be responsible for designing and implementing the firm's risk management system;

10.62.2 Must produce and analyse daily reports on the output of the VaR model and on the appropriate measures to be taken in terms of the trading limits; and

10.62.3 Conduct the initial and on-going validation of the VaR model.

Risk management standards: Senior management

10.63 A firm's governing body and senior management must be actively involved in the risk control process, and the daily reports produced by the risk control unit must be reviewed by a level of management with sufficient authority to enforce both reductions of positions taken by individual traders as well as in the firm's overall risk exposure.

10.64 It is the responsibility of a firm's own management to ensure the accuracy and integrity of its VaR model. This responsibility includes obtaining appropriate independent validation of the VaR model.

Risk management standards: Skilled staff

10.65 A firm must have sufficient numbers of skilled staff in the use of sophisticated models in the trading, risk control, audit and back office areas.

Risk management standards: Controls and compliance

10.66 A firm must establish, document and maintain policies, controls and procedures to an auditable standard:

10.66.1 Concerning the operation of its VaR model approach: and

10.66.2 For ensuring compliance with the policies, controls and procedures in 10.66.1.

Risk management standards: Documentation

10.67 A VaR model must be adequately documented.

10.68

10.68.1 An example of documents required by paragraph 10.67 may be a manual that describes the basic principles of the risk management framework, clearly setting out empirical techniques, principles and assumptions used within it.

10.68.2 This documentation should be off sufficient detail for the FSC to be able to develop a clear understanding of how the VaR model works from that documentation on its own.

Risk management standards: Track record

10.69 A firm's VaR model must have a proven track record of acceptable accuracy in measuring risk.

Risk management standards: Development validation

10.70 Adequate procedures must be in place to ensure that model changes are validated before being introduced.

10.71 The procedures in paragraph 10.70 need not necessarily rely on back testing using a back-run of recreated data.

Risk management standards: Test portfolios

10.72 A VaR model must be capable of calculating VaR numbers for any test portfolio specified by the FSC.

Risk management standards: Stress testing

10.73

10.73.1 A firm must frequently conduct a rigorous programme of stress testing. The results of these tests must be reviewed by senior management and reflected in the policies and limits the firm sets.

10.73.2 The programme must particularly address:

10.73.2.1 concentration risk;

10.73.2.2 illiquidity of market conditions;

10.73.2.3 one way markets;

10.73.2.4 event and jump to default risks;

10.73.2.5 non linearity of products;

10.73.2.6 deep out of the money positions;

10.73.2.7 positions subject to the gapping of prices; and

10.73.2.8 other risks that may not be captured appropriately in the VaR model (for example, recovery rate uncertainty, implied correlations and skew risk).

10.73.3 The shocks applied must reflect the nature of the portfolios and the time it could take to hedge out or manage risks under severe market conditions.

Risk management standards: Valuation

10.74 A firm must have procedures to ensure that the valuation of assets and liabilities is appropriate, that valuation uncertainty is identified and appropriate reserving is undertaken where necessary.

Risk standards: Risk review

10.75 At least once a year, a firm must conduct, as part of its regular internal audit process, a review of its risk management process. This review must include both the activities of the business trading units and of the independent risk control unit, and must be undertaken by suitably qualified staff independent of the areas being reviewed. This review must consider, at a minimum:

10.75.1 The adequacy of the documentation of the risk management system and process;

10.75.2 The organisation of the risk control unit;

10.75.3 The integration of market risk measures into daily risk management;

10.75.4 The integrity of the management information system;

10.75.5 The process for approving risk pricing models and valuation systems used in front and back offices;

10.75.6 The validation of any significant changes in the risk management process;

10.75.7 The scope of risks and products captured by the VaR model;

10.75.8 The accuracy and completeness of position data;

10.75.9 The process used to ensure the consistency, timeliness, independence and reliability of data sources (including the independence of such data sources);

10.75.10 The accuracy and appropriateness of volatility and correlation assumptions;

10.75.11 Reserving policies and the accuracy of the valuation procedures and risk sensitivity calculations;

10.75.12 The process employed to evaluate the VaR model's accuracy, including the programme of back testing;

10.75.13 The controls surrounding the development of the VaR model; and

10.75.14 The process employed to produce the calculation of the model PRR.

Risk management standards: Validation and back testing

10.76 The FSC will require a period of initial monitoring or live testing before a VaR model can be recognised. This will be agreed on a firm by firm basis.

10.77 In assessing the firm's VaR model and risk management, the FSC will have regard to the results of internal model validation procedures used by the firm to assess the VaR model.

10.78 A firm must have processes in place to ensure that its VaR model has been adequately validated by suitably qualified parties independent of the development process to ensure that it is conceptually sound and adequately captures all material risks. This validation must also be conducted on a periodic

basis but especially where there have been any significant structural changes in the market or changes to the composition of the portfolio which might lead to the VaR model no longer being adequate. As techniques and best practices evolve, a firm must avail itself of these advances. Model validation must not be limited to back testing, but must, at a minimum, also include the following:

10.78.1 Tests to demonstrate that any assumptions made within the VaR model are appropriate and do not underestimate or overestimate the risk (including testing of the validity of the assumptions and approximations underlying the VaR model);

10.78.2 In addition to the regulatory back testing programmes, a firm must carry out its own model validation tests in relation to the risks and structures of its portfolios, such as statistical validation techniques and other methods of measuring performance and validity;

10.78.3 The use of hypothetical portfolios to ensure that the VaR model is able to account for particular structural features that may arise, for example material basis risks and concentration risk; and

10.78.4 Investigation of the limitations of the VaR model including testing of the accuracy of parts of the VaR model as well as of the whole.

10.79

10.79.1 In addition to regulatory back testing programmes, testing for model validation should be carried out using additional tests which may include for example:

10.79.1.1 Testing carried out using hypothetical changes in portfolio value that would occur were end of day positions to remain unchanged;

10.79.1.2 Testing carried out for longer periods than required for the regular back testing programme (for example, 3 years);

10.79.1.3 Testing carried out using confidence intervals other than the 99 percent interval required under the quantative requirements in Section 10; and

10.79.1.4 Testing of parts of portfolios.

10.79.2 A longer time period generally improves the power of back testing. However a longer time period may not be desirable if the VaR model or market conditions have changed to the extent that historical data is no longer relevant.

10.80 Paragraphs 10.91 to 10.112 provide further material on back testing.

Risk management standards: Information technology

10.81 In assessing whether the VaR model is implemented with integrity as described in paragraph 10.58, the FSC will consider in particular the information technology systems used to run the model and associated calculations. The assessment may include:

10.81.1 Feeder systems; risk aggregation systems; time series databases; the VaR model system; stress testing system; the back testing system including profit and loss cleaning systems where appropriate; data quality; reconciliations and checks on completeness of capture;

10.81.2 Systems development, change control and documentation; security and audit trails; system availability and contingency procedures network adequacy; and

10.81.3 Operational statistics relating to the VaR model production process, including, for example, statistics relating to timeliness, number of re-runs and reliability of data feeds.

Risk management standards: Controls

10.82 A firm must ensure that it has adequate controls relating to:

10.82.1 The derivation of the model PRR;

10.82.2 The integrity of the back testing programme, including the calculation of the profit and loss account;

10.82.3 The integrity and appropriateness of the VaR model, including the VaR model's geographic coverage and the completeness of data sources;

10.82.4 The VaR model's initial and ongoing development, including independent validation;

10.82.5 The valuation models, including independent validation; and

10.82.6 The adequacy, security and integrity of the information technology infrastructure.

Stress testing

10.83 Paragraphs 10.84 to 10.90 related to stress testing of a VaR model (see paragraph 10.73).

10.84 Stress testing is a way of identifying the risk to a firm posed by a breakdown of model assumptions or by low probability events. Where stress tests reveal unacceptable vulnerability to a given set of circumstances, a firm should take prompt steps to manage those risks appropriately, for example by hedging against the outcome or reducing the size of the firm's exposures.

10.85 A firm must have the capacity to run daily stress tests.

10.86 Stress testing must involve identifying market scenarios or other low probability events in all types of risks that generate the greatest losses on a firm's portfolio.

10.87 A firm must periodically and actively identify all the worst case scenarios that are relevant to its portfolio. Scenarios used must be appropriate to test the effect of adverse movements in market volatilities and correlations and the effect of any change in the assumptions underlying the VaR model. Scenarios involving low probability market events must nevertheless be plausible.

10.88 Stress testing must capture non-linear effects.

10.89 A firm must have procedures to assess and respond to the results produced from stress testing. In particular, stress testing results must be:

10.89.1 Used to evaluate its capacity to absorb such losses or identify steps to be taken to reduce risk; and

10.89.2 Communicated routinely to senior management and periodically to the governing body.

10.90 A firm may want to conduct the more complex stress tests at longer intervals or on an ad hoc basis.

Back testing: Introduction

10.91 Back testing is the process of comparing value-at-risk measure to portfolio performance. It is intended to act as one of the mechanisms for the

ongoing validation of a firm's VaR model and to provide incentives for firms to improve their VaR measures.

10.92 It is a condition for granting a VaR model permission that a firm should have a back testing programme in place and should provide three months of back testing history.

10.93 Back testing conducted only at a whole portfolio level using a single measure of profit and loss has limited power to distinguish an accurate VaR model from an inaccurate one. Back testing should therefore be regarded as an additional safeguard rather than a primary validation tool.

10.94 A firm must have the capacity to analyse and compare its clean profit and loss figures and clean hypothetical profit and loss figures to the VaR measure, both at the level of the whole portfolio covered by the VaR model permission and at the level of individual books that contain material amounts of risk.

10.95 Clean profit and loss back testing should be used for regulatory back testing and used to calculate plus factors. Hypothetical profit and loss back testing should used for model validation and for reporting to the FSC.

Back testing: Basic testing requirements

10.96 A firm must, on each business day, compare each of its 250 most recent business days' clean profit and loss figures (ending with the business day preceding the business day in question) with the corresponding one-day VaR measures.

10.97 Generally the positions underlying the profit and loss account and VaR measures should not be materially different.

Back testing: One day VaR measure

10.98 The one-day VaR measure for a particular business day is the VaR number for that business day calibrated to a one business day holding period and a 99% one-tailed confidence level.

Back testing: Calculating the clean profit and loss

10.99 The ultimate purpose of back testing is to assess whether capital is sufficient to absorb actual losses. Therefore back testing should be performed using a measure of actual daily profit and loss. Actual daily profit and loss means the day's profit and loss arising from trading activities within the scope of the VaR model permission. This measure, should, however, be 'cleaned' using paragraph 10.100. A clean profit and loss measure is used to back test against in order to ensure that back testing results are not biased by the inclusion in profit and loss of non-modelled factors.

10.100 A clean profit and loss figure for a particular business day is the firm's actual profit or loss for that day in respect of the trading activities within the scope of the firm's VaR model permission, adjusted by stripping out:

10.100.1 Fees and commissions;

10.100.2 Brokerage;

10.100.3 Additions to and releases from reserves which are not directly related to market risk (e.g. administration reserves); and

10.100.4 Any inception profit exceeding an amount specified for this purpose in the firm's VaR model permission (where inception profit is defined as any profit arising immediately on entering into a new transaction).

10.101 The definition of clean profit and loss figure may be amended or replaced in an individual VaR model permission if the firm can demonstrate to the FSC that the alternative method meets the spirit and purpose of the provisions in Section 10 about the clean profit and loss figure.

10.102 The FSC will review as part of a firm's VaR model permission application the processes and documentation relating to the derivation of profit and loss used for back testing. A firm's documentation should clearly set of the basis for cleaning profit and loss. To the extent that certain profit and loss elements are not updated every day (for example certain reserve calculations) the documentation should clearly set out how such elements are included in the clean profit and loss series.

Back testing: Definition of back testing exception

10.103 A back testing exception is deemed to have occurred for any business day if the clean profit and loss figure for that business day shows a loss, which in absolute magnitude, exceed the one-day VaR measure for that business day. The only exception is if that business day is identified in the firm's VaR model permission.

Back testing: Obligation to notify the FSC

10.104 If a back testing exception occurs, the firm must notify its usual supervisory contact at the FSC orally by close of business two business days after the business day for which the back testing exception occurred. Within five business days following the end of each Month, the firm must submit to the FSC a written account of the previous Month's back testing exceptions (if any). This explanation must include the causes of the back testing exceptions, an analysis of whether the back testing exceptions indicate a deficiency in the firm's VaR model and the firm's planned response (if any).

Back testing: Summary of the back testing cycle

10.105

10.105.1 This paragraph gives guidance on the back testing calculation and reporting process in paragraphs 10.96 to 10.104.

10.105.2 Let the day on which the loss referred to in paragraph 10.100 is made in day n. The value-at-risk measure for that day will be calculated on day n-1, or overnight between day n-1 and day n. Profit and loss figures are produced on day n+1, and back testing also takes place on day n+1. The firm's supervisor should be notified of any back testing exceptions by close of business on day n+2.

10.105.3 Any back testing exception initially counts for the purpose of the calculation of the plus factor even if subsequently the FSC agrees to exclude it under the process described in paragraph 10.106. Thus, where the firm experiences a back testing exception and already has four or more back testing exceptions for the previous 250 business days, changes to the multiplication factor arising from changes to the plus factor become effective at n+3 (using the time-line terminology in 10.105.2).

Back testing: Process for disregarding back testing exceptions

10.106

10.106.1 this paragraph gives guidance on the process for excluding back testing exceptions as referred to in paragraph 10.103.

10.106.2 The FSC will respond flexibly to back testing exceptions. However, the FSC's starting assumption will be that a back testing exception should be taken into account for the purpose of the calculation of plus factors. If the firm believes that a back testing exception should not count for that purpose, it should seek a variation of its VaR model permission in order to exclude that particular back testing exception. The FSC will then decide whether to agree to such a variation.

10.106.3 One example of when a firm's back testing exception might properly be disregarded is when it has arisen as a result of a risk that is not captured in its VaR model but against which capital resources are already held.

Back testing: Specific risk back testing

10.107 If a firm's VaR model permission covers specific risk, the firm must validate its VaR model through back testing aimed at assessing whether specific risk is being accurately captured. This back testing must be carried out in accordance with the provisions of its VaR model permission. If the VaR model permission provides for this back testing to be performed on the basis of relevant sub-portfolios, these must be chosen in a consistent manner.

10.108 Specific risk back testing involves the back testing of a standalone specific risk VaR measure against profit and loss series determined by reference to exposure risk factors categorised as specific risk. Alternatively specific risk back testing may take the form of regular back testing of trading books and portfolios that are predominantly exposed to risk factors categorised as specific risk. The precise requirements for specific risk back testing will be specified in the firm's VaR model permission as will the definition of a specific risk back testing exception.

Back testing: Multiple exceptions

10.109 If ten or more back testing exceptions or ten or more specific risk back testing exceptions are recorded in a business day 250 day period, a firm must take immediate action.

10.110 Where back testing reveals severe problems with the basic integrity of the VaR model, the FSC may withdraw the model recognition. In particular, if ten or more back testing exceptions are recorded in a 250 business day period, the FSC may consider revoking a firm's VaR model permission. The FSC may also consider revoking a firm's VaR model permission if ten or more specific risk back testing exceptions occurs in such a period.

Back testing: Hypothetical profit and loss

10.111 A firm must also perform back testing against a clean hypothetical profit and loss figure with respect to each business day. A clean hypothetical profit and loss figure for a business day means the clean profit and loss figure that would have occurred for that business day if the portfolio on which the VaR number for that business day is based remained unchanged.

10.112

10.112.1 A clean hypothetical profit and loss figure is based on the day's change in the value of the same portfolio that was used to generate the value at risk forecast.

10.112.2 Back testing under paragraph 10.111, although carried out with respect to each business day, need not be carried out each day. A firm need only carry it out sufficiently frequently to comply with its reporting

requirements under paragraph 10.129. An exception arising out of such back testing need not be reported to the FSC under paragraph 10.104.

10.112.3 The firm may also need to calculate a clean hypothetical profit and loss figure in order to produce profit attribution reports and to analyse the cause of back testing exceptions.

Capital calculations: General

10.113 The model PRR is, for any business day (the "relevant" business day), equal to the sum of:

10.113.1 The higher of:

10.113.1.1 the VaR number of the relevant business day; and

10.113.1.2 the average of its daily VaR numbers for each of the 60 business days ending with the relevant business day, multiplied by the multiplication factor for the relevant business day; and

10.113.2 (in the case of a VaR model permission that covers specific risk) the incremental default risk charge for the relevant business day.

10.114 For any day that is not a business day, the model PRR is the amount for the prior business day.

10.115 The VaR number for any business day means the VaR measure, in respect of the previous business day's close-of-business positions in products coming within the scope of the VaR model permission, calculated by the VaR model and in accordance with Section 10 and any methodology set out in the VaR model permission. The VaR number must not be calculated taking into account matters on the business day for which it is the VaR number.

10.116 The incremental default risk charge for any business day means the incremental default risk charge required under paragraph 10.47 to 10.52, in respect of the previous business day's close-of-business positions with respect to which those provisions apply.

10.117 The following equation expresses paragraph 10.113 mathematically:

$$PRR_{VaR} = \text{Max}\left\{\text{VaR}_t, \text{fx}\frac{1}{60}\sum_{i=0}^{59}\text{VaR}_{t-i}\right\} + IDRC$$

where:

10.117.1 PRR_{VaR} is a firm's model PRR;

10.117.2 VaR_t represents the previous day's value-at-risk figure;

10.117.3 VaR_{t-i} represents the value-at-risk calculated for i business days earlier;

10.117.4 f is the multiplication factor; and

10.117.5 IDCR is the incremental default risk charge (if applicable).

Capital calculations: Multiplication factors

10.118 The multiplication factor for any business day is the sum of the minimum multiplication factor and the plus factor for that day.

10.119 The minimum multiplication factor is three or any higher amount that the VaR model permission defines it as.

10.120 The minimum multiplication factor will never be less than three. If the FSC sets the minimum multiplication factor above three the VaR model permission will have a table that sets out the reasons for that add on and specify how much of the add on is attributable to each reason (see paragraph 10.121). If there are weaknesses in the VaR model that may otherwise be considered a breach of the requirements referred to in paragraph 10.24 the FSC may apply such an add on to act as a mitigant for those weaknesses.

10.121 Something that would otherwise be a breach of the requirements referred to in paragraph 10.24 is not a breach to the extent that it is identified in the firm's VaR permission as a reason for an increase in the minimum multiplication factor above 3.

10.122 Typically, any add on will be due to a specific weakness in systems and controls identified during the FSC's review that the FSC does not consider material enough to justify withholding overall model recognition. The firm will be expected to take action to address the reasons for any add on. The FSC will then review these periodically and, where satisfactory action has been taken, the add on will be removed through a variation of the VaR model permission.

10.123 The plus factor system is designed so that the more often a VaR model has under-predicted losses in the past, the higher should be the capital requirement based on the VaR model. It is intended to provide a capital requirement based on the VaR model. It is intended to provide a capital incentive for the firm to continue to improve the accuracy of its VaR model.

10.124 The table in paragraph 10.125 sets out the plus factors to be added on the minimum multiplication factor for any business day. It is based on the number of back testing exceptions that occurred during the back testing period as referred to in paragraph 10.96 ending three business days preceding the business day for which the model PRR is being calculated.

10.125 Back testing plus factors

Zone	Number of recorded exceptions	Plus factor
Green	4 or less	0.00
Yellow	5	0.40
	6	0.50
	7	0.65
	8	0.75
	9	0.85
Red	10 or more	1.00

10.126 A VaR model that correctly predicts a one-tailed 99% confidence level is expected to produce, on average, 2.5 back testing exceptions every 250 days. Random events may cause the number of back testing exceptions actually observed to vary. The plus factor system is designed to take this into account. Hence plus factors are only imposed on the firm if it has five or more recorded back testing exceptions. Therefore, where a back testing exception appears to be caused simply by chance, it will not be appropriate for a VaR model

permission to be varied to exclude that back testing exception as described in paragraph 10.106.

Capital calculations: Specific risk surcharge: transitional requirements

10.127 Firms who gain model recognition before 1 January 2008 will be permitted to calculate PRR for specific risk in accordance with the methodology it was permitted to use immediately before that date instead of capturing event and default risk in their models. This treatment will not be available to a firm that gains model recognition after that date.

Reporting procedures and requirements

10.128 A VaR permission will contain requirements for what the firm should report to the FSC and the procedures for reporting. The precise requirements will vary from VaR model permission to VaR model permission. Paragraph 10.129 to 10.130 set out what the FSC regards as the standard requirements.

10.129 A firm must, not later than the number of business days after the end of each quarter specified in the VaR model permission for this purpose, submit, in respect of the quarter, a report to the FSC about the operation of the VaR model, the systems and controls relating to it and any changes to the VaR model and those systems and controls. Each report must outline as a minimum the following information in respect of that quarter:

10.129.1 Methodological changes and developments to the VaR model;

10.129.2 The introduction of all new pricing models used in connection with the VaR model and any changes to any pricing models used in connection with the VaR model, including details of any material associated valuation or risk management issues;

10.129.3 A summary of back testing performance against clean profit and loss figures and clean hypothetical profit and loss figures, which should be provided in electronic format as stipulated by the VaR model permission;

10.129.4 (if the VaR model permission covers specific risk) the results of the specific risk back testing including specific risk back testing exceptions;

10.129.5 Any change to any feeder or pre-processing systems in connection with the VaR model, including changes to any of the systems set out in the list described in paragraph 10.131.1 (as it exists at the date of the VaR model permission), and any introduction of a new such system;

10.129.6 Any changes to the products coming within the scope of the VaR model;

10.129.7 Any material changes or additions to any of the matters referred to in the firm's internal documentation in relation to the VaR model (as it exists at the date of the VaR model permission) or to any matters subsequently notified under 10.129.7;

10.129.8 Any changes in senior management;

10.129.9 A copy of an updated version of the lists of types of positions covered by the VaR model permission (made up of the types of positions in the list referred to in paragraph 10.2.5 but omitting or adding, as the case may be, those types taken outside or brought within the scope of the VaR model permission in accordance with the procedure in paragraph 10.20) showing all changes made since the VaR model permission was granted; and

10.129.10 Where applicable (nil returns are not required), details of:

10.129.11 any use of a changed historical observation period in accordance with paragraph 10.30 or any change in the use of any weighting scheme as described in paragraph 10.33;

10.129.12 any data series becoming unreliable as described in paragraph 10.31 and any subsequent use of alternative value at risk measurement techniques;

10.129.13 the frequency of updating data sets being increase in accordance with paragraph 10.34;

10.129.14 any change in the method employed to derive 10-day VaR numbers;

10.129.15 to the extent that the use of correlations is permitted by a firm's VaR model permission, a summary of any notifications that are required under paragraph 10.38; and

10.129.16 the VaR model not accurately capturing risks (as referred to in paragraph 10.53) and any steps taken under paragraph 10.53.

10.130 A firm must provide to, and discuss with, the FSC details of any significant planned changes to the VaR model before those changes are implemented. These details must include information about the nature of the change and an estimate of the impact on VaR numbers and the incremental default risk charge.

Updating the VaR model permission

10.131 A VaR model permission will generally contain a list of the following:

10.131.1 feeder systems and pre-processing systems;

10.131.2 products covered by the VaR model permission; and

10.131.3 the firm's internal documentation in relation to the VaR model.

10.132 The information in paragraph 10.131 will vary over time. It is therefore not included in a VaR permission as a rule but for information only. The FSC will update that information regularly in accordance with information supplied under paragraph 10.129. That updating will not amount to a variation of the VaR model permission.

Link to standard PRR rules: Incorporation of the model output into the capital calculation

10.133 A VaR model permission will modify the calculation of the market risk capital requirement to provide that a firm should calculate its market risk capital requirement in accordance with Section 10 to the extent set out in the VaR model permission.

10.134 By modifying the calculation of the market risk capital requirement to allow the firm to use the VaR model to calculate all or part of its PRR for certain positions, the FSC is treating it like an application permission. The modification means that the PRR calculation set out in Section 10 supersedes the standard market risk PRR codes of practice for products coming within the scope of the VaR model permission, insofar as those rules related to PRR in relation to the risks coming within the scope of the VaR model permission.

10.135 To the extent that a position does not fall within the scope of a firm's VaR model permission the firm must calculate the PRR under the standard PRR rules or, as applicable, those provisions as modified by the firm's permission.

10.136

10.136.1 This rule applies to a position that comes within the scope of a firm's VaR model permission.

10.136.2 If, where the standard market risk PRR rules apply, a position is subject to one of the PRR charges under the calculation of the market risk capital requirement and the firm's VaR model permission says that it covers the risks to which that PRR charge relates, the firm must, for those risks, calculate the PRR for that position under the VaR model approach rather than under the standard market risk PRR rules.

10.136.3 If, where the standard market risk PRR rules apply, a position is subject to one or more of the PRR charges listed in calculation of the market risk capital requirement and the firm's VaR model permission does not cover all the risks to which those PRR charge relate, the firm must calculate the PRR for that position under the VaR model approach (for those risks that are covered) and under the standard market risk PRR codes of practice (for those other risks).

10.136.4 Where the standard market risk PRR rules distinguish between specific and general market risk a firm's VaR model permission covers specific risk to the extent that it says it does. If the firm's VaR model permission does not cover specific risk, paragraph 10.144 and 10.145 apply.

10.136.5 If a firm's VaR model permission covers positions in CIUs it covers specific risk with respect to those positions.

10.137 A firm may only use the VaR model approach to calculate its market risk capital requirement for the risks covered by the interest rate PRR, the equity PRR, the commodity PRR, the option PRR, the foreign exchange PRR and the CIU PRR.

10.138 A firm may exclude from the VaR model approach immaterial risks within the scope of its VaR model permission. If a firm does so it must instead apply the standard market risk PRR rules to those risks.

10.139

10.139.1 If a firm calculates its market risk capital requirement using a combination of the standard market risk PRR guidance and either the VaR model approach or the VaR model approach with the model approach the PRR from each method must be added together.

10.139.2 A firm must take appropriate steps to ensure that all of the approaches are applied in a consistent manner.

10.140 An example of the effect of paragraph 10.139 is that where a firm normally calculates the PRR for a particular portfolio using a VaR model, a firm should not switch to the standard market risk PRR rules purely to achieve a more attractive PRR.

10.141 If:

10.141.1 The standard market risk PRR rules provide for a choice between one of the methods of PRR calculations listed under the calculation of the market risk capital requirement or specify that one method must be used in some circumstances and that the other method must be used in other circumstances;

10.141.2 One of those methods is dis-applied under paragraph 10.136; and

10.141.3 The other method is not dis-applied;

the firm:

10.141.4 Must use the VaR model approach if under the standard market risk PRR guidance the firm must use the standard market risk PRR guidance in 10.141.2; and

10.141.5 May use the VaR model approach if under the standard market risk PRR guidance the firm may use the standard market risk PRR guidance in 10.141.2.

10.142 The treatment of a convertible is an example of a situation in which paragraph 10.141 applies. The table in paragraph 3.3 (Instruments which result in notional positions) shows that there are circumstances in which under the standard market risk PRR guidance a firm should calculate an equity PRR and that there are circumstances in which a firm may choose between calculating an equity PRR and an interest rate PRR. Paragraph 10.141 would be relevant is a firm's VaR model permission only covers one of equity risk and interest rate risk.

10.143 The standard market risk PRR guidance for the option PRR are only dis-applied to the extent that the derived positions arising under paragraph 6.13 (Derived Positions) come within the scope of the VaR model permission.

Link to standard PRR guidance: General market risk only

10.144

10.144.1 This rule relates to the calculation of PRR with respect to positions that under the standard market risk PRR guidance are or may be subject to the interest rate PRR if the VaR model permission covers general market risk but not interest rate specific risk.

10.144.2 The firm must calculate the interest rate PRR so far as it relates to interest rate specific risk in accordance with the standard market risk PRR rules except that the firm must not use the basic interest rate PRR calculation in paragraph 3.45.

Link to standard PRR rules: General market risk only

10.145

10.145.1 This guidance relates to the calculation of PRR with respect to positions that under the standard market risk PRR guidance are or may be subject to the equity PRR if the VaR model permission covers equity general market risk but not equity specific risk.

10.145.2 The firm must calculate the equity PRR so far as it relates to equity specific risk in accordance with the standard market risk PRR codes of practice except that the PRR for equity specific risk must be calculated under the standard equity method.

Link to standard PRR guidance: Miscellaneous

10.146

10.146.1 To the extent that a firm's VaR model permission does not allow it to use an approach set out in Section 10, the relevant provisions in Section 10 do not apply to that firm.

10.146.2 If a provision of the guidance refers to Section 10, that reference must, in the case of the particular firm with a VaR model permission, be treated as excluding the provisions of Section 10 that do not apply under the VaR model permission and as taking into account any modifications to Section 10 made by the VaR model permission. Such references also include requirements and conditions contained in the VaR model permission but not

in Section 10 and to the codes of practices modified by the VaR model permission.

Requirement to use value at risk methodology

10.147 A VaR model must be a value-at-risk-model. It must provide an estimate of the worst expected loss on a portfolio resulting from market movements over a period of time with the specified confidence level.

Ceasing to meet the requirements of Section 10

10.148 If a firm ceases to meet any of the requirements set out in Section 10, the FSC's policy is that the VaR model permission should cease to have effect. In part this will be achieved by making it a condition of a firm's VaR model permission that it complies at all times with the codes of practice referred to in paragraph 10.24. Even if they are not formally included as conditions, the FSC is likely to consider revoking the VaR model permission if the requirements are not met.

10.149 If a firm ceases to meet the conditions or requirements in its VaR model permission or Section 10 it must notify the FSC at the earliest opportunity.

Changes to the VaR model

10.150 A firm may change its VaR model to such extent as it sees fit, except that it must not make a change that (either on its own or together with other changes since the date of VaR model permission or any later date set out in the VaR model permission for these purposes) would:

10.150.1 be inconsistent with VaR model permission under Section 10; or

10.150.2 mean that back testing in accordance with Section 10 and the VaR model permission would result in the use of data that is inappropriate for the purposes of measuring the performance of the VaR model.

11. Credit derivatives in the trading book

11.1 This Section applies to the treatment of credit derivatives in the trading book.

Establishment of positions created by credit derivatives: Treatment of the protection seller

11.2 Paragraphs 11.3 to 11.11 relate to the treatment of the protection seller. Positions are determined in accordance with paragraphs 11.4 to 11.11.

11.3 When calculating the PRR of the protection seller, unless specified differently by other rules, the notional amount of the credit derivative contract must be used. For the purpose of calculating the specific risk PRR charge, other than for total return swaps, the maturity of the credit derivative contract is applied instead of the maturity of the obligation.

11.4 A total return swap creates a long position in the general market risk of the reference obligation and a short position in the general market risk of a government bond with a maturity equivalent to the period until the next interest fixing and which is assigned a 0% risk weight under the standardised approach to credit risk. It also creates a long position in the specific risk of the reference obligation.

11.5 A credit default swap does not create a position for general market risk. For the purposes of specific risk, a firm must record a synthetic long position in

an obligation of the reference entity, unless the derivative is rated and meets the conditions for a qualifying debt security, in which case a long position in the derivative is recorded. If the premium or interest payments are due under the product, these cash flows must be represented as notional positions in government bonds.

11.6 A single name credit linked note creates a long position in general market risk of the note itself, as an interest rate product. For the purpose of specific risk, a synthetic long position is created in the issuer of the reference entity. An additional long position is created in the issuer of the note. Where the credit linked note has an external rating and meets the conditions for a qualifying debt security, a single long position with the specific risk of the note need only be recorded.

11.7 In addition to a long position in the specific risk of the issuer of the note, a multiple name credit linked note providing proportional protection creates a position in each reference entity, with the total notional amount of the contract assigned across the positions according to the proportion of the total notional amount that each exposure to a reference entity represents. Where more than one obligation of a reference entity can be selected, the obligation with the highest risk weighting determines the specific risk.

11.8 Where a multiple name credit linked note has an external rating and meets the conditions for a qualifying debt security, a single long position with the specific risk of the note need only be recorded.

11.9 A first-asset-to-default credit derivative creates a position for the notional amount in an obligation of each reference entity. If the size of the maximum credit event payment is lower than the PRR requirement under the method in paragraph 11.2, the maximum payment amount may be taken as the PRR requirement for specific risk.

11.10 A second-asset-to-default credit derivative creates a position for the notional amount in an obligation of each reference entity less one (that with the lowest specific risk PRR requirement). If the size of the maximum credit event payment is lower that the PRR requirement under the method in paragraph 11.3, this amount may be taken as the PRR requirement for specific risk.

11.11 If a first of second-asset to default derivative is externally rated and meets the conditions for a qualifying debt security, then the protection seller need only calculate one specific risk charge reflecting the rating of the derivative.

Establishment of positions created by credit derivatives: Treatment of the protection buyer

11.12 For the party who transfers credit risk (the protection buyer), the positions are determined as the mirror principle of the protection seller, with the exception of a credit linked note (which entails no short position in the issuer). If at a given moment there is a call option in combination with a step- up, such moment is treated as the maturity of the protection. In the case of first-to-default credit derivatives and nth-to-default credit derivatives, the following treatment applies instead of the mirror principle.

11.12.1 First-to-default credit derivatives - Where an institution obtains credit protection for a number of reference entities underlying a credit derivative under the terms that the first default among the assets shall trigger payment and that this credit event shall terminate the contract, the institution may offset specific risk for the reference entity to which the

lowest specific risk percentage charge among the underlying reference entities applies according to Table 1 of Annex I of Directive 2006/49/EC.

11.12.2 Nth-to-default credit derivatives - Where the nth default among the exposures triggers payment under the credit protection, the protection buyer may only offset specific risk if protection has also been obtained for defaults 1 to n-1 or when n-1 defaults have already occurred. In such cases, the methodology set out above for first-to-default credit derivatives shall be followed appropriately modified for nth-to-default products.

Recognition of hedging provided by credit derivatives

11.13

11.13.1 Paragraphs 11.14 to 11.17 relate to specific risk PRR for trading book positions hedged by credit derivatives for the purposes of the calculation of the securities PRR.

11.13.2 A firm may take an allowance for protection provided by credit derivatives for the purposes in 11.13.1 in accordance with the principles set out in the codes of practice referred to in 11.13.1.

11.13.3 Paragraphs 11.13 to 11.17 are subject to the requirements of the credit default swap PRR methods.

11.14

11.14.1 A firm may take full allowance when the value of two legs always moves in the opposite direction and broadly to the same extent.

11.14.2 This will be the case in either of the following situations:

11.14.2.1 The two legs consist of completely identical instruments; or

11.14.2.2 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 exposures (i.e., the cash position).

11.14.2.3 The maturity of the swap itself may be different from that of the underlying exposure for the purposes of 11.13.2.2.

11.14.2.4 In these cases, a firm must not apply a specific risk PRR to either side of the position.

11.15 An 80% offset may be applied when the value of two legs always move in the opposite direction and where there is an exact match in terms of the reference obligation, the maturity of both the reference obligation and the credit derivative, and the currency of the underlying exposure. In addition, key features of the credit derivative contract must not cause the price movement of the credit derivative materially to deviate from the price movements of the cash position. To the extent that the transaction transfers risk, an 80% specific risk offset may be applied to the side of the transaction with the higher PRR, while the specific risk requirements on the other side are zero.

11.16

11.16.1 A firm may take partial allowance when the value of two legs usually moves in the opposite direction. This would be the case in the situations set out in 11.16.2 to 11.16.4.

11.16.2 The first situation referred to in 11.16.1 is that the position is captured in paragraph 11.14.2.2 but there is an asset mismatch between the

reference obligation and the underlying exposure. However, the positions meet the following requirements:

11.16.2.1 the reference obligation ranks pari passu with or is junior to the underlying obligation; and

11.16.2.2 the underlying obligation and reference obligation share the same obligor and have legally enforceable cross-default or cross-acceleration clauses.

11.16.3 The second situation referred to in 11.16.1 is that the position is captured in paragraphs 11.14.2.1 or 11.15 but there is a currency or maturity mismatch between the credit protection and the underlying asset (currency mismatches must be included in the normal reporting with respect to the foreign exchange PRR).

11.16.4 The third situation referred to in 11.16.1 is that the position is captured in paragraph 11.15 but there is an asset mismatch between the cash position and the credit derivative. However, the underlying asset is included in the (deliverable) obligations in the credit derivative documentation.

11.16.5 In each of those cases, rather than adding the specific risk PRR requirements for each side of the transaction, only the higher of the two PRR requirements applies.

11.17 In all cases not falling under paragraphs 11.14 to 11.16, a firm must assess a specific risk PRR charge against both sides of the position.

Special treatment of credit default swaps: Provisions applicable to all methods

11.18 Paragraphs 11.18 to 11.57 set out the calculation of the specific risk portion of the interest PRR for credit default swaps.

11.19 The specific risk portion of the interest rate PRR is calculated separately for:

11.19.1 Credit default swaps (other than those in 11.19.2);

11.19.2 Credit default swaps that are also securitisation positions; and

11.19.3 Other positions;

that are subject to the interest rate PRR.

11.20 The specific risk portion of the interest rate PRR for positions falling into paragraph 11.19.1 and 11.19.2 must be calculated in accordance with the credit default swap PRR methods rather than in accordance with Section 2 and the other provisions of Section 11. However a firm may apply paragraphs 11.13 to 11.17 before applying the credit default swap PRR methods. If it does so the firm must apply the credit default swap PRR methods to the remaining positions in credit default swaps.

11.21 In accordance with the principle in paragraph 11.19, there is no netting for the purpose of calculating specific risk PRR charges:

11.21.1 (under paragraph 2.37 to 2.40 or otherwise) between a position falling into paragraph 11.19.1 or 11.19.2 and one falling into paragraph 11.19.3; or

1) Between a position falling into paragraph 11.19.1 and one falling into paragraph 11.19.2.

11.22 A firm must create notional positions in accordance with the procedure in paragraph 11.2 to 11.12.

11.23

11.23.1 A firm must then calculate the interest rate PRR for specific risk for the notional positions created under paragraph 11.22.

11.23.2 The firm must carry out the calculation in 11.23.1 for notional positions arising under paragraph 11.19.1 under the ordinary credit default swap PRR method.

11.23.3 The firm must carry out the calculation in 11.23.1 for notional positions arising under paragraph 11.19.2 under the securitisation credit default swap PRR method.

11.23.4 Under each of the credit default swap PRR methods the firm must make a separate calculation with respect to each security in which it has a notional position in accordance with paragraph 11.22. Paragraph 2.37 applies for the purpose of deciding which notional positions in securities must be treated together.

11.23.5 Paragraphs 11.53 to 11.57 apply to each of the credit default swap PRR methods.

Ordinary credit default swap PRR method: Introduction

11.24 Paragraphs 11.25 to 11.34 set out the ordinary credit default swap PRR method.

11.25 The specific risk potion of the interest rate PRR for credit default swaps treated under the ordinary credit default swap PRR method is the sum of the calculations under paragraph 11.26 for each security.

11.26 The specific risk portion of the interest rate PRR for notional positions in a security as referred to in paragraph 11.22 under the ordinary credit default swap PRR method is the sum of:

11.26.1 The larger of the potential loss produced under paragraph 11.28 and the potential loss produced under paragraph 11.29 (the valuation change capital change); and

11.26.2 The amount in paragraph 11.34 (the default capital charge).

Ordinary credit default swap PRR method: The valuation change capital charge

11.27 A firm must allocate credit default swaps that result, under paragraph 11.22, in positions in the same notional security to the time bands set out in paragraph 11.32 for the purposes of calculating the potential losses referred to in paragraph 11.26.1 (but see paragraph 11.52).

11.28

11.28.1 The amount of the potential loss calculated under this measure is calculated as follows.

11.28.2 Within each time band the firm must calculate the net valuation change in the credit default swap that would occur if spreads (as defined in paragraph 11.53) were to increase by the amount shown in paragraph 11.33. The amount of the change in spread is the same for each time band.

11.28.3 The potential loss calculated under 11.27 is the sum of all bands that create a net loss. Bands which produce a profit must be ignored.

11.28.4 The time bands referred to in the 11.27 are those established under paragraph 11.27.

11.29 The amount of the potential loss calculated under 11.28 in the same way as it is under paragraph 11.28 except that the net valuation change is the one that would occur if spreads were to decrease by the amount shown in paragraph 11.33.

11.30 The valuation change in paragraphs to 11.28 to 11.29 is applied to the current value of the credit default swap.

11.31 The credit quality step applicable under the table in paragraph 11.33 is that which would be attributable to the security in question under the standardised approach to credit risk. If a rating from an eligible ECAI is not available to the firm it must treat that position as having credit quality step 6.

11.32 Time bands

Time bands	Residual contract maturity
1	Less than three months
2	Three months to one year
3	Over one year to two and a half years
4	Over two and a half a years to five years
5	Greater than five years

11.33 Stress factors based on rating of reference entity

Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
$0.7 \times \sqrt{spread}$	$1.2 \times \sqrt{spread}$	$1.5 \times \sqrt{spread}$	$2.1 \times \sqrt{spread}$	$3.4 \times \sqrt{spread}$	$5.4 \times \sqrt{spread}$
Spread is defined in paragraph 11.53					

Ordinary credit default swap PRR method: The default capital charge

11.34

11.34.1 The amount calculated under this Guidance Note is the amount resulting from the calculation in 11.34.5.

11.34.2 A firm must fully net all notional positions along a timeline by calculating, for all credit default swaps in which the firm currently has a position that give rise to a notional position in the security in question:

11.34.2.1 its net current position in the security in question: and

11.34.2.2 the net in the security in question for all times in the future until those positions expires or otherwise cease to exist.

11.34.3 The firm must calculate the net positions under 11.34.2 in accordance with paragraphs 2.37 to 2.40. Paragraph 11.54 also applies.

11.34.4 The firm must then calculate the higher of the following two amounts:

11.34.4.1 the largest notional long position created under 11.34.2; and

11.34.4.2 the amount of any short position calculated under 11.34.2.1.

11.34.5 the firm must then multiply the amount established under 11.34.4 by the appropriate PRA for the specific risk potion of the interest rate PRR that applies to the security in question under Section 2.

Securitisation credit default swap PRR method: Introduction

11.35 Paragraphs 11.36 to 11.51 set out the securitisation credit default swap PRR method.

11.36 The specific risk portion of the interest rate PRR for credit default swaps treated under the securitisation credit default swap PRR method is the sum of the calculations under paragraph 11.37 for each security referred to in paragraph 11.37.

11.37 The specific risk portion of the interest rate PRR for notional positions in a security as referred to in paragraph 11.22 under the securitisation credit default swap PRR method is the sum of:

11.37.1 The amount in paragraph 11.38 (the valuation change capital change); and

11.37.2 The amount in paragraph 11.46 (the default capital charge).

Securitisation credit default swap PRR method: Valuation change capital charge: General

11.38

11.38.1 The valuation change capital charge as referred to in paragraph 11.37.1 is equal to the greatest loss the firm would suffer in the scenarios set out in the matrix in paragraph 11.40. Each scenario consists of the combination of one of the nine scenarios on the vertical axis with one of the three scenarios on the horizontal axis.

For these purposes:

11.38.1.1 T as referred to in the matrix is the amount set out in the table in paragraph 11.41;

11.38.1.2 stresses 11.40.1 to 11.40.4 as referred to in that matrix refer to the obligor under the securities that are the subject of the securitisation question.

11.38.2 The valuation change under this measure is applied to the current value of the credit default swap.

11.38.3 This paragraph is subject to paragraph 11.52.

11.39 References in the table in paragraph 11.41 to credit quality steps are to the credit quality steps that would apply under the standardised approach to credit risk to the securities referred to in paragraph 11.38.3. If a rating from an eligible ECAI is not available to the firm it must treat that security as having the lowest credit quality step.

11.40 Calculation of the valuation change capital charge: Scenarios.

	Change in credit spread of the underlying reference

		entities		
		$-T\sqrt{spread}$	No change	$+T\sqrt{spread}$
11.40.1	Base correlation steepening (see row 1 of the table in paragraph 11.44)			
11.40.2	Base correlation flattening (see row 2 of the table in paragraph 11.44)			
11.40.3	Base correlation ell up (see row 3 of the table in paragraph 11.44)			
11.40.4	Base correlation down (see row 4 of the table in paragraph 11.44)			
11.40.5	No correlation change			
11.40.6	Combination of 11.40.1 and 11.40.3			
11.40.7	Combination of 11.40.1 and 11.40.4			
11.40.8	Combination of 11.40.2 and 11.40.3			
11.40.9	Combination of 11.40.2 and 11.40.4			
Spread is defined in paragraph 11.53				

11.41 Calculation of the valuation change in capital charge: Definition of T

Credit quality step under the standardised approach to credit risk	**T**

1	0.7
2	1.2
3	1.5
4	2.1
5	3.4
6	5.4

Securitisation credit default swap PRR method: Valuation change capital charge: Explanation of the terms in the matrix in paragraph 11.40

11.42

11.42.1 The base correlation referred to in the rules relating to the securitisation credit default swap PRR method refers, in relation to a securitisation position, to the correlation in credit risk between the securities that are the subject of that securitisation.

11.42.2 The base correlation used for the purposes of the securitisation credit default swap PRR method means each base correlation referred to in 11.42.1 that the firm would use to calculate the fair market value of a credit default swap on the following basis:

11.42.1.1 The credit default swap related to the most junior tranche; and

11.42.1.2 The thickness of the tranche (as referred to in Section 9) is equal to the percentage figure at the head of the relevant column in the table in paragraph 11.44.

11.43

11.43.1 This paragraph explains how the correlation calculations in the vertical axis of the matrix in paragraph 11.40 are to be carried out.

11.43.2 The firm must calculate the base correlation relating to each of the deemed tranches set out in the table in paragraph 11.44.

11.43.3 The firm must then multiply the base correlation for each deemed tranche under 11.43.2 by the relevant figure in the table in paragraph 11.44.

11.43.4 The firm must then produce a stressed base correlation curve through the use of interpolation based on the calculations under this Guidance Note.

11.43.5 Notwithstanding 11.43.3, the curve in 11.43.4 must not show a correlation above 100%.

11.43.6 The firm must then use the curve to revalue its credit default swap using an appropriate and prudent technique.

11.44 Correlation moves

	Thickness of tranche					
		3%	7%	10%	15%	30%
Scenario from	1 Base correlation	0.7	0.9	1	1.1	1.

paragraph 11.40	steepening					
	2 Base correlation flattening	1.3	1.1	1	0.9	0.7
	3 Base correlation parallel up	1.2	1.2	1.2	1.2	1.2
	4 Base correlation parallel down	0.8	0.8	0.8	0.8	0.8

11.45 The fact that the FSC has used the base correlation methodology in Section 11 does not mean that it endorses the use of that technique to value credit default swaps for other purposes. The FSC has used it in Section 11 as it is well-known and publicly available. If a firm uses another technique to value its credit default swaps it should discuss this with the FSC.

Securitisation credit default swap PRR method: Default charge

11.46 A firm must calculate a separate default charge for each position in a notional security arising under paragraph 11.22 in accordance with paragraphs 11.47 to 11.51. The total default charge for a particular security is equal to the sum of those charges.

11.47 To the extent that a firm has a matching long and short position in the same tranche with the same maturity it may net the short and long positions in the notional security in accordance with paragraph 2.37.

11.48 If the notional position referred to in paragraph 11.46 is short, the default charge for that position is equal to its notional amount multiplied by the appropriate PRA.

11.49

11.49.1 If the notional position referred to in paragraph 11.46 is long, the default charge for that position must be calculated in accordance with this paragraph. It is the amount calculated under 11.49.4.

11.49.2 A firm must identify the risk weight that the securitisation position, that gives rise to the notional security referred to in paragraph 11.46, would attract under Section 9.

11.49.3 A firm must multiply the risk weight calculated under 11.49.2 by the appropriate percentage from the table on 11.51.

11.49.4 A firm must multiply the number calculated in 11.49.3 by the notional amount of the position referred to in paragraph 11.46.

11.49.5 Notwithstanding anything else in this paragraph the default charge must be no less than the notional amount of the position referred to in paragraph 11.46 multiplied by the appropriate PRA.

11.50

11.50.1 For the purpose of the table in 11.51 the column relating to a securitisation position applies it the securities that are the subject of the securitisation ("reference entities") are themselves securitisation positions.

11.50.2 For the purpose of the table in paragraph 11.51 the column relating to trades based on an index applies if 11.50.1 does not apply and the reference entities are expressed to be those included in an index of entities used by those who deal in credit default swaps or a part of such an index. That index must contain the price for entering into a credit default swap whose reference entities constitute all the entities in the index or the price for entering into a credit default swap based on specified entities in that index. 11.50.2 only applies if the index includes such a price for all the reference entities being treated under this Guidance Note.

11.50.3 For the purpose of the table in paragraph 11.51 the column headed "Other" applies to any case not covered by 11.50.1 or 11.50.2.

11.51 Calculation of the default requirement

	Type of position			
Risk weight		Securitisation position	Trades based on an index	Other
	Less than 400%	4.8%	1.6%	3.2%
	400% to less than 800%	6.4%	3.2%	4.8%
	800% to less than 1250%	8%	4.8%	6.4%
	1250% and over	8%	8%	8%

Valuation changes for credit default swaps resulting in positions in multiple securities

11.52

11.52.1 This paragraph applies to the calculation of the valuation change charge under both credit default swap PRR method if paragraph 11.22 results in a credit default swap being split into positions in more than one security.

11.52.2 For the purposes of the ordinary credit default swap PRR method, the firm must, for each notional security produced as described in 11.52.1, apply to the whole of the credit default swap in question the stresses in the table in paragraph 11.33 using the credit quality step in the table in paragraph 11.33 for that security.

11.52.3 For the purpose of the securitisation credit default swap PRR method, the firm must, for each notional security produced as described in 11.52.1, apply to the whole of the credit default swap in question the stresses in the table in paragraph 11.40 using the value of T (as defined in the table in paragraph 11.41) for that security.

11.52.4 The firm must then allocate the different changes in the value of the credit default swap under 11.52.2 or, as the case may be, 11.52.3 between the calculations for each security produced as described in 11.52.1 on a proportional basis in accordance with the principles in paragraphs 11.2 to 11.12. The firm must do this by multiplying the amount of the change in 11.52.2 or, as the case may be, 11.52.3 calculated with respect to the security in question by a fraction based on the proportion of the credit default swap attributable to the security under those principles.

Special treatment of credit default swaps: Supplementary material

11.53 The spread referred to in the tables in paragraph 11.33 and 11.40 refers to the premia and other cash flows referred to in paragraph 11.5 (expressed as a percentage). The spread must be calculated every business day. It is the spread that would apply if the credit default swap in question were entered into on that day on arm's length commercial terms.

11.54 Where a credit default swap PRR method requires netting between positions, a firm may only net positions arising out of credit default swaps that have comparable deliverable obligations, identical credit events and documentation that will act identically on the occurrence of a credit event.

11.55 A notional position in government bond created under 11.5 must not be treated under either credit default swap PRR method. The firm must instead treat it is accordance with the other codes of practice for the calculation of the interest rate PRR.

11.56 The provisions in paragraph 11.5 and paragraph 11.11 about the creation of a specific risk charge reflecting the rating of the derivative do not apply for the purposes of either credit default swap PRR method.

11.57 The second sentence of paragraph 11.9 and of paragraph 11.10 continues to apply to a credit default swap that would otherwise be subject to one of the credit default swap PRR methods. Those credit default swaps must be excluded from the credit default swap PRR methods.

Valuation

11.58 The requirements under the adequacy of financial resources are particularly relevant for a firm trading credit derivatives, especially for credit default swaps that are also securitisation positions.

Other risks relating to credit derivatives

11.59 A firm must be able to describe, demonstrate and explain to the FSC its trading strategies in relation to credit derivatives both in theory and on practice.

11.60 Paragraph 11.61 to 11.63 relate to risks relating to credit derivatives that may not be captured in Section 11. This paragraph is of particular relevance to the obligations in the requirements for adequacy of financial resources (obligations to hold adequate capital and other resources), (Systems, strategies, processes and reviews) and adequacy of financial resources (Stress and scenario tests).

11.61 Paragraph 11.5 requires a firm to recognise any premiums payable or receivable under the contract as notional government bonds. These positions are then entered into the general market risk framework. As premium payments paid under such contracts are contingent on no credit event occurring, a credit event could significantly change the general market risk capital requirement. A firm should take into account under adequacy of financial resources whether the risk means that the capital requirements under paragraph 7.11 materially understate the firm's general market risk position.

11.62 If a firm recognises profits on a non-accrual basis it should consider whether the capital requirements for its credit derivatives business adequately cover the risk that any recognised profit may not be achieved due to a credit event occurring. This includes positions for which the firm may have a perfect hedge in place.

11.63 If a firm uses models in its valuation process, it should consider whether the default capital requirements under the credit default swap PRR methods

adequately cover the default losses that the firm's model estimates it will be exposed to.

Financial Services Commission
PO Box 940, Suite 3, Ground Floor, Atlantic Suites,
Europort Avenue, Gibraltar