Implementation of EU Directive on the Capital Adequacy of Investment Firms and Credit Institutions

- Implementation for Credit Institutions

(93/6/EEC of 15 March 1993)
(98/31/EC of 22 June 1998)
(98/33/EC of 22 June 1998)

BSD S 2/00
30 June 2000
## CONTENTS

<table>
<thead>
<tr>
<th>1.</th>
<th>CAPITAL ADEQUACY OVERVIEW</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Implementation</td>
<td>1</td>
</tr>
<tr>
<td>1.2</td>
<td>The Bank’s Approach to Capital Adequacy</td>
<td>2</td>
</tr>
<tr>
<td>1.3</td>
<td>Interpretation of Selected Terms in the Notice</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2.</th>
<th>OWN FUNDS</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Eligible Own Funds</td>
<td>7</td>
</tr>
<tr>
<td>2.2</td>
<td>Calculation of Eligible Own Funds</td>
<td>7</td>
</tr>
<tr>
<td>2.3</td>
<td>Publication of Ratio</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3.</th>
<th>THE TRADING BOOK</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Definition of Trading Book</td>
<td>11</td>
</tr>
<tr>
<td>3.2</td>
<td>Treatment of Investments in Other Credit Institutions and Investment Firms</td>
<td>12</td>
</tr>
<tr>
<td>3.3</td>
<td>Hedging Trading Book Exposures</td>
<td>13</td>
</tr>
<tr>
<td>3.4</td>
<td>Hedging Banking Book Exposures</td>
<td>13</td>
</tr>
<tr>
<td>3.5</td>
<td>Valuation of Positions for Reporting Purposes</td>
<td>14</td>
</tr>
<tr>
<td>3.6</td>
<td>Minimal Trading Book Activity</td>
<td>15</td>
</tr>
<tr>
<td>3.7</td>
<td>Trading Book Policy Statement</td>
<td>16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4.</th>
<th>POSITION RISK</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>Treatment of Derivatives</td>
<td>17</td>
</tr>
<tr>
<td>4.1.1</td>
<td><em>Interest rate futures, forward rate agreements and forward commitments on debt instruments</em></td>
<td>17</td>
</tr>
<tr>
<td>4.1.2</td>
<td><em>Derivative positions in equity futures and forwards</em></td>
<td>18</td>
</tr>
<tr>
<td>4.1.3</td>
<td><em>Commodity futures and forward commitments on commodities</em></td>
<td>18</td>
</tr>
<tr>
<td>4.1.4</td>
<td><em>Foreign exchange forwards</em></td>
<td>19</td>
</tr>
<tr>
<td>4.1.5</td>
<td>Swaps</td>
<td>19</td>
</tr>
<tr>
<td>4.1.6</td>
<td><em>Equity Indices</em></td>
<td>20</td>
</tr>
<tr>
<td>4.1.7</td>
<td><em>Units of Collective Investment Undertakings</em></td>
<td>20</td>
</tr>
<tr>
<td>4.1.8</td>
<td><em>Convertible Securities</em></td>
<td>20</td>
</tr>
<tr>
<td>4.1.9</td>
<td><em>Repurchase Agreements and Securities Lending Arrangements</em></td>
<td>21</td>
</tr>
<tr>
<td>4.1.10</td>
<td><em>Options</em></td>
<td>22</td>
</tr>
<tr>
<td>4.1.11</td>
<td>Warrants</td>
<td>23</td>
</tr>
<tr>
<td>4.1.12</td>
<td><em>Margins on Exchange-Traded futures and certain OTC derivative products</em></td>
<td>23</td>
</tr>
<tr>
<td>4.1.13</td>
<td><em>Netting of Position Risk</em></td>
<td>23</td>
</tr>
<tr>
<td>4.2</td>
<td>Underwriting</td>
<td>25</td>
</tr>
<tr>
<td>POSITION RISK (continued)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------------------------------------------------</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>4.3 Interest Rate Position Risk</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>4.3.1 Specific Interest Rate Risk for traded debt instruments</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>4.3.2 General Interest Rate Risk</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>4.3.2.1 Maturity Based Approach</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>4.3.2.2 Duration Based Approach</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>4.4 Equity Position Risk</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>4.4.1 Specific Risk</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>4.4.2 General Risk</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>4.4.3 Embedded interest rate risk in equity derivatives</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>4.5 Commodity Position Risk</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>4.5.1 Methods for Calculating Commodity Risk Capital Charges</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>4.5.1.1 Internal Models Approach</td>
<td>41</td>
<td></td>
</tr>
<tr>
<td>4.5.1.2 Maturity Ladder Approach</td>
<td>41</td>
<td></td>
</tr>
<tr>
<td>4.5.1.3 Simplified Approach</td>
<td>43</td>
<td></td>
</tr>
</tbody>
</table>

| SETTLEMENT AND COUNTERPARTY RISK                                                        | 44|
| 5.1 Settlement/Delivery Risk                                                             | 44|
| 5.2 Counterparty Risk                                                                    | 45|
| 5.2.1 Free Deliveries                                                                   | 45|
| 5.2.2 Forward Transactions                                                               | 46|
| 5.2.3 Repurchase and Reverse Repurchase Agreements, Securities or Commodities Lending and Securities or Commodities Borrowing | 47|
| 5.2.4 OTC Derivative Instruments                                                        | 48|
| 5.2.5 Netting of Add-Ons                                                                 | 48|
| 5.2.6 Other Counterparty Risk                                                            | 49|

| FOREIGN EXCHANGE RISK                                                                     | 50|
| 6.1 Procedure for Calculating the Net Open Foreign Exchange Position and Net Open Gold Position | 50|

<p>| THE USE OF MODELS                                                                         | 53|
| 7.1 Interest Rate Sensitivity Models                                                     | 53|
| 7.2 Options Pricing Models                                                                | 54|</p>
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.</td>
<td><strong>INTERNAL MODELS</strong></td>
<td>55</td>
</tr>
<tr>
<td>8.1</td>
<td>The Model Recognition Process</td>
<td>55</td>
</tr>
<tr>
<td>8.2</td>
<td>Model Recognition Letter</td>
<td>56</td>
</tr>
<tr>
<td>8.3</td>
<td>Model Recognition of Overseas Locations</td>
<td>56</td>
</tr>
<tr>
<td>8.4</td>
<td>Model Recognition for Subsidiaries of an Overseas Entity</td>
<td>56</td>
</tr>
<tr>
<td>8.5</td>
<td>Maintenance of Model Recognition</td>
<td>57</td>
</tr>
<tr>
<td>8.6</td>
<td>Qualitative Standards</td>
<td>57</td>
</tr>
<tr>
<td>8.7</td>
<td>Quantitative Standards</td>
<td>59</td>
</tr>
<tr>
<td>8.8</td>
<td>Specification of Risk Factors</td>
<td>60</td>
</tr>
<tr>
<td>8.9</td>
<td>Use of Internal Models in the determination of Specific Risk Requirements</td>
<td>61</td>
</tr>
<tr>
<td>8.10</td>
<td>Combination of Standard Approach and Internal Model Approach</td>
<td>62</td>
</tr>
<tr>
<td>8.11</td>
<td>Stress Testing</td>
<td>62</td>
</tr>
<tr>
<td>8.12</td>
<td>Back-testing</td>
<td>63</td>
</tr>
<tr>
<td>8.13</td>
<td>Supervisory Response to Back-Testing Exceptions</td>
<td>64</td>
</tr>
<tr>
<td>8.14</td>
<td>Calculation of Capital Requirements Using Internal Models</td>
<td>66</td>
</tr>
<tr>
<td>8.15</td>
<td>Capital Charge Arrived at Using the Model</td>
<td>66</td>
</tr>
<tr>
<td>8.16</td>
<td>Surcharge for Specific Risk</td>
<td>66</td>
</tr>
<tr>
<td>9.</td>
<td><strong>CONSOLIDATION</strong></td>
<td>68</td>
</tr>
<tr>
<td>9.1</td>
<td>Consolidated Capital Requirements</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>Credit Institutions: Banking Books</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>Credit Institutions: Trading Books</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>Investment Firms</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>Line by Line Aggregation of Trading Books</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>Other Group financial Institutions</td>
<td>71</td>
</tr>
<tr>
<td>9.2</td>
<td>Consolidation of Entities that use Internal VaR Models</td>
<td>71</td>
</tr>
<tr>
<td>9.3</td>
<td>Offsetting</td>
<td>71</td>
</tr>
<tr>
<td>10.</td>
<td><strong>LARGE EXPOSURES</strong></td>
<td>72</td>
</tr>
<tr>
<td>10.1</td>
<td>Scope</td>
<td>72</td>
</tr>
<tr>
<td>10.2</td>
<td>Measurement of Exposures</td>
<td>72</td>
</tr>
<tr>
<td>10.3</td>
<td>Large Exposures in the Trading Book</td>
<td>72</td>
</tr>
<tr>
<td>10.4</td>
<td>Limits on Large Exposures</td>
<td>73</td>
</tr>
<tr>
<td>10.5</td>
<td>Permitted Excesses</td>
<td>74</td>
</tr>
<tr>
<td>6.</td>
<td><strong>APPENDICES</strong></td>
<td>77</td>
</tr>
<tr>
<td></td>
<td>Appendix 1: Recognised Third Country Investment Firms</td>
<td>77</td>
</tr>
<tr>
<td></td>
<td>Appendix 2: Recognised Clearing Houses and Exchanges</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>Appendix 3: Recognised Credit Rating Agencies</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>Appendix 4: Trading Book Policy Statement</td>
<td>82</td>
</tr>
</tbody>
</table>
IMPLEMENTATION OF THE EU DIRECTIVE 93/6/EEC, AS AMENDED BY DIRECTIVES THE 98/31/EC AND 98/33/EC, ON THE CAPITAL ADEQUACY OF INVESTMENT FIRMS AND CREDIT INSTITUTIONS

1. CAPITAL ADEQUACY OVERVIEW

A Credit Institution under Central Bank of Ireland supervision shall maintain a level of Own Funds which the Bank considers adequate in relation to its business, ownership, structure and standing.

This Notice replaces Notice BSD S 2/95 and incorporates the requirements necessary to comply with the terms of the EU Directive (93/6/EEC) on the Capital Adequacy of Investment Firms and Credit Institutions (the “Capital Adequacy Directive”) as amended. This Notice sets out the basis on which this Directive is being implemented by the Bank for credit institutions only. The implementation of this Directive for investment firms is in a separate Notice issued by the Bank.

1.1 Implementation

In accordance with the Bank’s statutory powers\(^1\) regarding:

(i) the collection of information; and

(ii) the maintenance of specified ratios by institutions under Bank supervision,

\(^1\) Legislative provisions in respect of

(i) Collection of Information:

Section 18 of the Central Bank Act, 1971, as amended by the substitution of Section 37 of the Central Bank Act, 1989;
Section 41 of the Building Societies Act, 1989;
Section 25 of the Trustee Savings Bank Act, 1989;

(ii) Application of Specified Ratios:

Section 23 of the Central Bank Act, 1971, as amended by Section 40 of the Central Bank Act, 1989;
Section 39 of the Building Societies Act, 1989;
Section 31 of the Trustee Savings Bank Act, 1989.
the Bank hereby requires compliance with the provisions of this Notice.

1.2 **The Bank’s Approach to Capital Adequacy**

A credit institution must hold sufficient capital to satisfy the requirements arising from this Notice. This requirement is in addition to that already required under the Bank’s Notice BSD S 1/00 which implements the **Own Funds Directive** (89/299/EEC), as amended and the **Solvency Ratio Directive** (89/647/EEC) as amended, respectively.

In line with these Directives a credit institution must provide at all times sufficient Own Funds to meet:

- the requirements, arising from the Solvency Ratio Directive, in relation to credit risks (excluding risks arising from the trading book); and
- the requirements, arising from the Capital Adequacy Directive, in relation to its trading book business and in respect of the foreign exchange and commodity risk resulting from all of its business activities.

The capital requirements set out in this Notice are **minimum requirements only**. The Bank will determine the appropriate ratio for credit institutions on an individual basis. In summary, the minimum capital requirement for an institution resulting from activities in the Trading Book (and in the case of Commodity and Foreign Exchange Risk resulting from all business activities, including the Banking Book), should be calculated as set out below:

1. **The capital charge for:**
   
   (a) Position Risk (Interest Rate Position Risk, Equity Position Risk, Commodity Position Risk);
   
   (b) Settlement and Counterparty Risk;
   
   (c) Foreign Exchange Risk; and
   
   (d) Large Exposures,

   should be calculated as detailed in the Sections 4 - 6 and 10, respectively.

2. The sum of these capital charges should be multiplied by 12.5 (i.e. the reciprocal of the 8 per cent. minimum ratio) to give the trading book notional risk weighted assets.
(3) The amount of Own Funds required for each credit institution will be determined using ratios and calculated as the sum of:

(a) the banking book risk weighted assets multiplied by the solvency ratio applicable to that institution; and

(b) the trading book notional risk weighted assets multiplied by the trading book capital ratio for that institution.

In setting ratios for the banking book and the trading book the Bank will ensure that the requirement of Article 4(2), for sufficient own funds to cover risks arising in connection with business outside the scope of both the Capital Adequacy Directive and the Solvency Ratio Directive, is met.

In meeting the requirements on Internal Controls set out in Section 3.1 (b) of the Licensing and Supervision Requirements and Standards for Credit Institutions issued by the Bank, a credit institution will satisfy the requirements of Article 4 (4-5) for risk management systems which measure, monitor and control risks on all of their business.

1.3 Interpretation of Selected Terms in the Notice

1. *Credit Institutions* - The First Banking Directive (77/780/EEC) defines a Credit Institution as an undertaking whose business is to receive deposits or other repayable funds from the public and to grant credits for its own account. In an Irish context Credit Institutions comprise licensed banks, building societies, TSB Bank, ACC Bank plc, ICC Bank plc and the ICC Investment Bank plc. Credit Unions and Friendly Societies are excluded under Directive 86/524/EEC.

2. *Recognised third-country Investment firms* are those entities referred to in Appendix 1, as amended by the Bank from time to time.

3. *Financial Instruments* are those instruments listed in section B of the Annex to the Investment Services Directive (93/22/EEC), currently listed as:

1. (a) Transferable Securities;
   (b) Units in collective investment undertakings;
2. Money-market instruments;
3. Financial-futures contracts including equivalent cash-settled instruments;
4. Forward interest-rate agreements (FRAs)
5. Interest-rate, currency and equity swaps;
6. Options to acquire or dispose of any instruments falling within section B of the Annex to the Investment Services Directive, including equivalent cash-settled instruments. This category includes, in particular, options on currency and on interest rates.

4. parent undertaking, subsidiary undertaking and financial institution are as defined in Article 1 of Directive 92/30/EEC;

5. financial holding company is a financial institution the subsidiary undertakings of which are either exclusively or mainly credit institutions, investment firms or other financial institutions, one of which at least is a credit institution or an investment firm;

6. risk weightings are the degrees of credit risk applicable to the relevant counterparties under Directive 89/647/EEC. However, assets constituting claims on and other exposures to investment firms, recognised third-country investment firms or recognised clearing houses and exchanges will attract the same weighting as exposures to a credit institution;

7. risk weighted assets are the sum of the risk weighted assets in the banking book and notional risk weighted assets in the trading book;

8. over-the-counter (OTC) derivative instruments shall mean the off-balance sheet items to which according to the first subparagraph of Article 6(3) of Directive 89/647/EEC the methods set out in Annex II to the said Directive shall be applied. An over-the-counter (OTC) contracts is said to be cleared by a clearing house if

(a) the clearing house acts as the legal counterparty,
(b) all parties fully collateralise on a daily basis their exposure to the clearing house,
(c) that the posted collateral gives the same level of protection as collateral under Article 6(1)(a)(7) of Directive 89/647/EEC,

(d) the risk of a build-up of the clearing house’s exposure beyond the market value of collateral is eliminated.

The Bank will provide a list of the clearing houses recognised for this purpose.

9. *regulated market* is a market that satisfies the definition given in Article 1 (13) of the Investment Services Directive 93/22/EEC. The list of such markets is contained in Appendix 2;

10. *central government items* shall mean long and short positions in the assets referred to in Article 6 (1) (a) of Directive 89/647/EEC and those assigned a weighting of 0 per cent. in Article 7 of the same Directive;

11. *convertible* means a security which, at the option of the holder, can be exchanged for another security, usually the equity of the issuer;

12. *warrant* means a security which gives the holder the right to purchase an underlying at a stipulated price until or at the warrant’s expiry date. It may be settled by the delivery to the warrant holder of the underlying itself or by cash settlement;

13. *stock financing* means positions where physical stock has been sold forward and the cost of funding has been locked in until the date of the forward sale;

14. *repurchase agreement* and *reverse repurchase agreement* means any agreement in which an institution or its counter-party transfers securities or commodities or guaranteed rights relating to title to securities or commodities (where that guarantee is issued by a recognised exchange which holds the rights to the securities or commodities ) and the agreement does not allow an institution to transfer or pledge a particular security or commodity to more than one counter-party at one time, subject to a commitment to repurchase them (or substituted securities or commodities of the same description) at a specified price on a future date specified, or to be specified, by the transferor, being a *repurchase*
agreement for the institution selling the securities or commodities and a reverse repurchase agreement for the institution buying them.

15. *securities or commodities lending* and *securities or commodities borrowing* means any transaction in which an institution or its counter-party transfers securities or commodities, against appropriate collateral, subject to a commitment that the borrower will return equivalent securities or commodities at some future date or when requested to do so by the transferor, that transaction being securities or commodities lending for the institution transferring the securities or commodities and being securities or commodities borrowing for the institution to which they are transferred.

16. *clearing member* means a member of the exchange or the clearing house which has a direct contractual relationship with the central counterparty (market guarantor); non-clearing members must have their trades routed through a clearing member;

17. *delta* means the expected change in an option price as a proportion of a small change in the price of the instrument underlying the option; and

18. *modified duration* is calculated using the formula set out in paragraph 26 of Annex I of Directive 93/6/EEC.
2. OWN FUNDS

The Own Funds of a credit institution is defined in accordance with the Own Funds Directive and set out in the Bank’s Implementation Notice BSD S 1/00. The Bank will however permit a credit institution to use a supplementary form of Own Funds (Tier 3) to meet the capital requirements in respect of its trading book activities and its foreign exchange and commodity risk, as set out in this notice. No part of Own Funds provided to meet such capital requirements may be simultaneously used to meet other Own Funds requirements.

2.1 Eligible Own Funds

Own Funds which are eligible to meet the requirements arising from this Notice ("Eligible Own Funds") comprise three elements - “Original Own Funds” (Tier 1), “Additional Own Funds” (Tier 2) as well as, with the prior approval of the Bank, “Supplementary Own Funds” (Tier 3) which is intended to cover risks associated with the trading book and foreign exchange and commodity risks only.

2.2 Calculation of Eligible Own Funds

Eligible Own Funds may consist of three tiers as follows:

**Tier 1 ("Original Own Funds")**

(1) (a) Equity Capital defined for the purposes of the Own Funds Directive (89/299/EEC, Article 2(1)(1)) to include paid-up ordinary share capital and perpetual non-cumulative preference shares/preferred stock. With the approval of the Bank, building society deferred shares may also be included subject to Section 17 of the Building Societies Act, 1989; and

(b) Minority interests in subsidiaries, where the underlying investment meets the above definition of Equity Capital:

(2) Share Premium Account;

(3) Disclosed revenue and capital reserves but excluding revaluation reserves;

---

2 The Definition of the various elements are contained in the Notice BSD S 1/00.
(4) Interim profits, net of foreseeable charge or dividend, may be included only where the amounts have been verified for external audit purposes, subject to the approval of the Bank.

**Less: Deductions in calculating Tier 1**

(5) Goodwill and other intangible assets.

(6) Material losses of the current financial year.

(7) Own shares at book value held by a credit institution.

(8) Further deductions required by the Central Bank of Ireland

**Tier 2 (“Additional Own Funds”)**

(9) Perpetual subordinated loan capital and cumulative perpetual preference shares/preferred stock which meet the requirements set out in (89/299/EEC Article 3); such capital may not be reimbursed without the prior approval of the Bank.

(10) Tangible Fixed Asset Revaluation Reserves.

(11) Financial Fixed Asset Revaluation Reserves.

(12) Other items which, in the opinion of the Bank, are freely available to cover normal banking risks, disclosed in internal accounting records and verified by audit (89/299/EEC, Article 2(1)(6)). Insofar as these conditions are met, general provisions may be included under this heading up a current limit of 1.25% of the Risk Weighted Assets.

(13) Fixed-term and other redeemable cumulative preference shares/preferred stock with an original maturity of at least 5 years or redeemable only with the prior consent of the Bank.

(14) Subordinated loan capital with an original maturity of at least 5 years and subject to the other conditions of 89/299/EEC, Article 4(3).
Less: Deductions in arriving at Tier 1 plus Tier 2 Own Funds

(15) As defined earlier, certain items should be deducted at Tier 1 level. The following items are deducted in the calculation of Tier 1 (net of deductions) plus Tier 2 Own Funds:

(a) the amount of any Investment in Other Credit and Financial Institutions which exceeds 10 per cent. of the capital of those institutions; and

(b) the amount of any Investment in Other Credit and Financial Institutions (other than those at (a) above) which exceeds 10 per cent. of the reporting institution’s Tier 1 plus Tier 2 Own Funds (as measured before these deductions from Own Funds).

Limits on Tier 2

(16) The total of Tier 2 items which may be counted as part of Own Funds to meet banking book capital requirements must not exceed the total of Tier 1 (net of deductions) used to meet these requirements.

(17) The aggregate of subordinated loan capital and redeemable preference shares which may be included in Tier 2 is limited to 50 per cent of the Tier 1 total (net of deductions).

Tier 1 plus Tier 2 Own Funds is defined, therefore, as the aggregate of Tier 1 (net of deductions) and Tier 2 items, less the further deductions specified above and subject to the preceding limits.

Tier 3 (“Supplementary Own Funds”)

(18) Subordinated loan capital having an initial maturity of at least two years and subject to the following conditions and limits:

(a) It must be fully paid up;
(b) The loan agreement must not include any clause providing that in specified circumstances other than the winding up of the credit institution the debt will become repayable before the agreed repayment date unless approved by the Bank;

(c) Neither the principal nor the interest on such subordinated loan capital may be repaid if such repayments would mean that the Own Funds of the credit institution in question would then amount to less than 100% of the credit institution’s total Own Funds requirement for its entire business activities; and

(d) The credit institution must notify the Bank of all repayments on such subordinated loan capital.

(19) Net trading book profits net of any foreseeable charges or dividends, subject to the Bank being satisfied that they have been calculated using appropriate techniques.

**Limits on Tier 3**

(20) Tier 3 subordinated loan capital and unutilised eligible Tier 2 items may not exceed a maximum of 250 per cent. of unutilised Tier 1 Own Funds available to meet requirements arising from trading book activities and foreign exchange and commodity risk arising from all its business.

(21) It is the Bank’s policy that, at overall consolidated group level (or at solo level if a credit institution is not part of a consolidated group) the sum of Tier 2 and Tier 3 Own Funds cannot normally exceed 100% of the credit institution’s Tier 1 Own Funds. This limit cannot be exceeded without the Bank’s express permission, which will only normally be granted where a credit institution’s trading book accounts for a substantial part of its business.

**2.3 Publication of Ratio**

The risk asset ratio for published or comparative purposes is eligible Own Funds as a percentage of the sum of banking book risk weighted assets and trading book notional risk weighted assets.
3. THE TRADING BOOK

The calculation of capital requirements (see Section 1.2) is based upon the allocation of positions between the trading and banking (i.e. non-trading) book. Positions and exposures which are not in the trading book are deemed to be in the banking book. Each credit institution must agree a policy statement (see Section 3.7) with the Bank setting out the basis on which positions are allocated between the trading book and banking book. Items must be allocated to either the trading or banking book in a consistent manner and in accordance with objective procedures.

The Bank will allow a credit institution to calculate the capital requirement for their trading book business in accordance with the Solvency Ratio Directive where such business is not considered material. The materiality of trading book business and the qualification for exemption will be assessed according to the criteria set out in Section 3.6 below.

3.1 Definition of Trading Book

The trading book shall consist of:

(1) Proprietary positions in financial instruments (see definition 3 of Section 1.3), commodities and commodity derivatives which are held for resale and/or which are taken on by a credit institution with the intention of benefiting in the short term from actual and/or expected differences between their buying and selling prices or from other price or interest rate variations;

(2) Positions in financial instruments, commodities and commodity derivatives arising from matched principal broking;

(3) Positions taken in order to hedge other elements of the trading book;

(4) Exposures due to unsettled transactions, free deliveries and over-the-counter derivative instruments arising from the above position taking;
(5) Exposures due to repurchase agreements and securities and commodities lending which are based on securities or commodities included in the trading book;

(6) With the approval of the Bank, exposures due to reverse repurchase agreements and securities and commodities borrowings transactions which meet conditions (a) to (c) or (d) below:

(a) the exposures are marked to market daily;

(b) collateral is adjusted in accordance with a rule acceptable to the Bank to take account of material changes in the value of securities or commodities involved in the agreement; and

(c) the agreement/transaction provides for claims of a credit institution to be offset automatically and immediately against the claims of its counterparty in the event of that counterparty’s default;

or

(d) the agreement/transaction is inter-professional as defined in Article 2(17) and 2 (18) of the Directive.

Artificial transactions shall not be included in the trading book under the provisions of this Paragraph.

(7) Receivables related to items in the trading book including fees, commission, interest, dividends and margin on exchange-traded derivatives.

3.2 Treatment of Investments in Other Credit Institutions and Investment Firms

The Bank requires that investments in other credit institutions and investment firms which exceed certain limits (specified in 2.2 (14)) be deducted from the Own Funds of the institution, however, such investments may be included in the Trading Book as follows:

- The amount of such investments which are below the limits specified shall be included in the trading book if the investment satisfies the trading book definition.
• The amount of such investments deducted from Own Funds (i.e. long positions) may be taken into account in the trading book to offset general market risk arising on other trading positions provided the investment satisfies the trading book definition.

3.3 Hedging Trading Book Exposure
In accordance with the Capital Adequacy Directive an institution’s trading book should include such positions in financial instruments, commodities, commodity derivatives or other non-financial instruments as are entered into in order to hedge elements of the trading book.

In this way the (CAD) Directive provides for trading book exposures to be hedged by taking positions which, in their own right, would not normally qualify for inclusion in the trading book. Such positions must be marked to market daily and will attract both general market risk and counterparty risk capital requirements based on their mark to market valuations.

3.4 Hedging Banking Book Exposure
Banking book exposure may be hedged by entering into positions with either external counterparties (i.e. other than the institution itself) or with the institution’s own trading book, as an effective counterparty.

(i) hedging with an external counterparty

If a position (which would normally be recorded in the trading book) is entered into with an external counterparty to hedge an exposure in the banking book it should be recorded as banking book for the duration of the hedge and should therefore be excluded when determining the capital requirement for the trading book. Such transactions will be subject to the credit risk capital requirement for the banking book.

(ii) hedging with the trading book as an effective counterparty

This may be done by executing an internal transaction between the two books. Under such an internal transaction the original positions in the banking book which are being
hedged will remain there and will be subject to credit risk requirements in the normal way. The general market risk arising from the internal transaction will be captured in the trading book and incorporated in the calculation of general market risk capital requirements for the trading book in the normal way. There will be no specific risk requirement in the trading book associated with this internal transaction and the risk weighted assets in the banking book will not be changed.

Such internal transactions must satisfy the following:

- The arrangements for carrying out internal hedging transactions must be subject to a policy statement agreed by the Bank; this policy should ensure that no abusive switching designed to minimise capital charges can take place;

- A clearly identifiable and designated exposure must exist in the banking book which it is deemed prudent to hedge;

- The exposure must be hedged by the use of a financial instrument which would normally fall within the trading book;

- The transaction must be effected according to normal practice and priced at arms length;

- A clear audit trail must be created at the time the transaction is entered into.

3.5 Valuation of Positions for Reporting Purposes

A credit institution must mark to market its trading book on at least a daily basis in accordance with best accounting practice; however, this requirement may be waived in the case of an institution which has minimal trading book activity (see Section 3.6).

A credit institution which marks to market and manages interest rate risk on derivative instruments on a discounted cash flow basis may, with the approval of the Bank, use sensitivity models to value its positions in such instruments and may also use them for any bond which is amortised over its residual life rather than via. one final repayment of principal.
In the absence of readily available market prices, a credit institution may use alternative methods of valuation provided that those methods are sufficiently prudent and have been approved by the Bank. Section 7 sets out the Bank’s requirements in relation to the use of pre-processing models including such option pricing models as may be used to generate the delta and other risks associated with options.

3.6 Minimal Trading Book Activity

Following prior consultation with the Bank, a credit institution with minimal trading book activity will be permitted to calculate the capital requirements for its trading book business in accordance with the Solvency Ratio Directive rather than the provisions of this Notice, provided that

(i) the trading book business of the credit institution does not normally exceed 5 per cent. of its total business and its total trading book positions do not normally exceed EUR 15 million; and

(ii) the trading book business of the credit institution never exceeds 6 per cent. of its total business and its total trading book positions never exceed EUR 20 million.

In determining the proportion of an institution’s total business that is made up of its trading book business the Bank will refer to the size of the combined on- and off-balance sheet business. For these purposes debt instruments shall be valued at their market or principal values, equities at their market prices and derivatives according to the nominal or market values of the instruments underlying them. Long positions and short positions will be summed regardless of their signs.

Where a group is above the threshold at a consolidated level, but has subsidiaries below the threshold, it may apply to the Bank to exclude such subsidiaries from the provisions of this Notice.

In the event that a credit institution subject to an exemption from the trading book requirements exceeds the limits set out above it must notify the Bank as soon as possible. If the excess is regarded by the Bank as being likely to exist for more than a short period, the credit institution will be required to meet the capital requirements of the Capital Adequacy Directive, rather than those of the Solvency Ratio Directive, in respect of its trading book business.
In addition to covering the items listed in Appendix 4, the trading book policy statement of an institution whose trading book activity is below the de minimis level must include:

- an indication of exemptions being sought, whether for the institution as a whole or for selected subsidiaries;
- documentation supporting applications for exemption from the CAD trading book capital requirement, including completed trading book exemption forms;
- details of the procedures in place to monitor the size of the trading book to identify any breaches of the de minimis level.

Notwithstanding the above, all credit institutions must comply with the capital requirement set out in this notice, for Foreign Exchange Risk (Section 6) and Commodity Position Risk (Section 4.5) on their non-trading book activity.

3.7 Trading Book Policy Statement

Each credit institution with a trading book is required to agree a trading book policy statement with the Bank. This policy statement should be consistent with the institution’s trading policies as approved by its Board and should set out how the institution intends to comply with the requirements of this Notice. The procedure for agreeing a trading book policy statement, together with an outline of the items which the Bank would expect to see in such a statement, is set out in Appendix 4.
4. POSITION RISK

In accordance with the Capital Adequacy Directive as amended, all credit institutions will be subject to capital requirements in respect of position risk. Such requirements will cover exposure to commodity position risk arising from all its business activities and for those institutions with a trading book, above the de minimis level, interest rate position risk and equity position risk arising from these trading activities. The standard methodologies used to determine the capital requirements in respect of position risk are detailed below (Sections 4.3-4.5).

Section 4.1 sets out the way in which derivatives should be treated in determining the associated position risk. The treatment of positions arising from an institution’s underwriting commitments is explained in Section 4.2.

4.1 Treatment of Derivatives

4.1.1 Interest rate futures, forward-rate agreements (FRAs) and forward commitments to buy or sell debt instruments must be treated as combination of long and short positions. For such instruments a long position means a position in which an institution has fixed the interest it will receive at some point in the future and short position means a position in which it has fixed the interest it will pay at some point in the future. The resultant notional instruments should be treated for interest rate position risk, general and specific. The market value of the principal amount of the notional underlying should be used in the calculation of capital requirements.

For example

A long interest rate futures position must be treated as a combination of a short position in a notional zero coupon government bond maturing on the delivery date of the futures contract and a long position in a notional zero coupon government bond with maturity date equal to that of the instrument or notional position underlying the futures contract. For specific risk calculations, both the borrowing and the asset holding must be included as central government items, attracting 0 per cent. specific risk weightings, to reflect the fact that no specific risk arises on these instruments.
A **long bond futures position** must be treated as a combination of a short position in a notional zero coupon government bond maturing on the delivery date of the futures contract and a long position in the underlying bond (or notional bond) with maturity date equal to that of the bond. Where a bond futures contract may be satisfied by delivery of a range of securities, any of those securities may be regarded as the underlying bond provided the appropriate conversion factor has been applied and the position in the deliverable security may be netted against any other offsetting position in that security.

A **sold FRA** (i.e. an agreement to receive interest in the future) must be treated as a long position with a maturity date equal to the settlement date plus the contract period and a short position with maturity equal to the settlement date. As with futures contracts, no specific risk arises on these instruments.

A **forward commitment** to buy a debt instrument must be treated as a combination of a borrowing maturing on the delivery date and a long (spot) position in the debt instrument itself. The borrowing must be included as central government items for the purposes of specific risk and the position in the debt instrument itself treated as is appropriate to that debt instrument.

**4.1.2 Derivative positions in equity futures and forwards** based on individual equities, portfolios of equities or equity indices, must be converted into notional underlying instruments and reported at current market prices. In addition to equity position risk, determined in accordance with Section 4.4, such positions may give rise to embedded interest rate exposure and should be treated for interest rate risk as set out in Section 4.4.3.

**4.1.3 Commodity futures and forward commitments to buy or sell commodities** should be converted into notional commodity positions. They should be recorded as notional amounts in terms of the standard unit of measurement and assigned a maturity with reference to the expiry date. They should be treated for commodity position risk in accordance with Section 4.5.
4.1.4 **Foreign exchange forwards** should be broken down into a combination of a long position in a notional zero coupon government bond in the currency purchased and a short position in a notional zero coupon government bond in the currency sold, both with a maturity date equal to the settlement date of the forward contract. These positions should then be treated for interest rate position risk.

4.1.5 **Swaps.** Swaps should be decomposed into two separate legs.

*Interest rate swaps* should be treated as two notional positions in government securities with the relevant maturities. Swaps must be treated for interest rate risk purposes on the same basis as on-balance sheet instruments. Thus, an interest rate swap under which a credit institution receives floating rate interest and pays fixed rate interest must be treated as equivalent to a long position in a floating rate instrument of maturity equivalent to the period until the next interest fixing and a short position in a fixed-rate instrument with the same maturity as the swap itself.

For *currency swaps* the two legs of the transaction shall be split into foreign exchange forward contracts and treated accordingly. Alternatively, such swaps may be treated as a fixed/floating position in each currency.

*Equity swaps,* based on individual equities, portfolios of equities or equity indices, must be converted into two notional positions. For example, an equity swap under which a credit institution is receiving an amount based on the change in value of one particular equity or stock index and paying an amount based on a different index should be treated as a long position in the former and a short position in the latter.

*Commodity swaps* where one side of the transaction is a fixed price and the other the current market price are to be treated as a series of positions equal to the notional amount of the contract. (The positions are long where the credit institutions is paying a fixed price and receiving a floating price and short if the institution is receiving a fixed price and paying a floating price.)
For a commodity swap in which the legs of the transaction are in different commodities, the legs should be treated separately with each individual leg being incorporated under the appropriate commodity.

For a commodity or equity swap which involves paying or receiving a fixed or floating interest rate against a reference price, the two legs should be treated separately. The interest rate component should be treated for interest rate risk in accordance with Section 4.3 while the equity or commodity component should be treated for equity or commodity position risk as appropriate.

### 4.1.6 Equity Indices

Positions in equity indices shall be included in the calculation of specific and general risks as described in Section 4.4. Such a position may either be treated as an individual equity or decomposed into its component equities. Decomposed positions in component equities may be netted against any offsetting positions in the underlying equities themselves.

Positions in equity indices which are exchange traded and which, in the opinion of the Bank, represent broadly diversified indices shall be exempt from the specific risk requirement, provided they are not decomposed into the component equities. Such positions should be included in the general market risk calculation for the relevant country as a single position based on the sum of current market values of the underlying instruments.

### 4.1.7 Units of Collective Investment Undertakings

Positions in units of collective-investment undertakings shall be subject to the capital requirements of the Solvency Ratio Directive rather than to the position risk requirements of this Notice.

### 4.1.8 Convertible Securities

Convertible securities shall be treated as if they were positions in the underlying interest rate or equity instrument subject to the following restriction for convertible debt securities.
A convertible debt security must be treated as a position in an equity instrument if:

(1) less than three months exist to the first date at which conversion may take place or less than one year until the next date if the first date has passed; and

(2) the convertible is trading at a premium of less than 10%, where a premium is defined as the current mark to market value of the convertible less the mark to market value of the underlying equity, expressed as a percentage of the mark to market value of the underlying equity.

Other convertible debt securities may be treated as equity or debt securities.

Convertible securities, such as bonds and preference shares which carry conversion rights, which are treated as debt instrument should be given the specific risk weighting given to other debt instruments from the same issuer.

A position in a convertible and an offsetting position in the instrument underlying it may be netted subject to an additional capital requirement equal to any loss which conversion might entail.

4.1.9 Repurchase Agreements and Securities Lending Arrangements

Securities in the trading book transferred under an approved repurchase agreement or securities lending arrangement must be taken into account by the transferor/lender in the calculation of the capital requirement for position risk. Where a security owned by an institution (and included in its calculation of market risk) is transferred under a repurchase agreement, it continues to contribute to the bank’s interest rate (or equity) position risk calculation.

A position in a security subject to a repurchase agreement or stock lending arrangement may be netted against any offsetting position in that security. Where a counterparty to a repurchase agreement or stock lending agreement defaults on their obligations the credit institution must notify Bank immediately of its occurrence.

Securities in the trading book transferred under an approved repurchase agreement or securities lending arrangement should be represented as a cash borrowing, i.e. a short position in a government bond with maturity equal to that of the repurchase agreement and coupon equal to the repurchase agreement rate. A reverse repurchasing agreement...
(or stock borrowing arrangement) involving the transfer of securities into the trading book should be represented as a cash loan, i.e. a long position in a government bond with maturity equal to that of the reverse repurchase agreement and coupon equal to the reverse repurchase agreement rate.

4.1.10 Options

Options on interest rates, debt instruments, equities, equity indices, financial futures, swaps, commodities or commodity derivatives and foreign currencies shall be treated as if they were positions equal in value to the amount of the underlying instrument to which the option refers multiplied by its delta.

The resulting delta weighted positions may be netted off against offsetting positions in the identical underlying securities, commodities or derivatives. It is these net delta weighted positions that will be fed into the appropriate methodology to calculate the position risk arising on options.

The delta used must be that of the exchange concerned or where that is not available or for OTC options, that calculated by the credit institution itself subject to the Bank being satisfied that the methodology being used is reasonable (see Section 7). Credit institutions which use a recognised option pricing model may, with the written agreement of the Bank, use the delta value of options calculated from this model in the determination of the net positions for individual instruments.

Since delta does not cover the entire risk associated with options positions, a credit institution will be required to calculate an additional capital requirement in respect of other options risks, such as exposures to changes in delta (Gamma risk) or volatility (Vega risk). This requirement will be determined separately for each institution as part of the model review process.

Notwithstanding the above, the capital requirement on a bought exchange-traded or OTC option may be taken to be the same as that for the instrument underlying it, subject to the constraint that the resulting requirement does not exceed the market value of the option. In such cases the capital requirement shall be calculated separately from the general risk requirements of other positions and netting against offsetting
positions in the underlying securities, commodities or derivatives is not permitted. The capital requirement for written exchange-traded and OTC options must be calculated using the delta-based approach.

4.1.11 Warrants
Warrants relating to debt instruments, equities and commodities are to be treated in the same way as options.

4.1.12 Margins on Exchange-Traded futures and certain OTC Derivative Products
(1) The Bank will consider the use of the margin set by an exchange as a proxy for the capital requirement for position risk on exchange-traded futures, provided the credit institution has proven that the resulting capital charge is at least equal to that which would arise from the standard method of calculation or under the internal model approach.

(2) The Bank will consider the use of the margin for certain OTC derivatives contracts, namely interest-rate or commodity futures, forward-rate agreements or forward commitments to buy/sell individual commodities or debt instruments, cleared by a clearing house recognised by the Bank, as a proxy for the capital requirement for position risk on such OTC derivatives contracts, until 31/12/2006. This is subject to the credit institution proving that the resulting capital charge is at least equal to that which would arise from the standard method of calculation or under the internal model approach.

4.1.13 Netting of Position Risk
A credit institution shall net, by value, its long and short positions in the same equity, commodity, debt and convertible issues and identical financial/commodity futures, options and warrants to obtain its net position in each of those different instruments. In calculating the net position, derivative instruments shall be treated as positions in the underlying (or notional) security or securities. All net positions, irrespective of
their signs, must be converted on a daily basis into the institutions reporting currency at the prevailing spot rate before their aggregation.
4.2 UNDERWRITING

With the prior approval of the Bank, a credit institution may use the procedure set out below to determine the capital requirement for position risk arising from its underwriting positions on debt or equity instruments in respect of new securities or securities which are new to the market and where the institution:

(i) has given a commitment to an issuer to purchase, underwrite, sub-underwrite or distribute those securities; or

(ii) is a member of a syndicate for the underwriting or sub-underwriting or distribution of those securities.

Concessionary treatment:

(1) The credit institution shall calculate the net positions by deducting the underwriting positions which are subscribed or sub-underwritten by third parties on the basis of formal agreements so that the institution’s net commitment is the amount of the gross commitment adjusted for:

(a) underwriting or sub-underwriting commitments obtained from others;

(b) purchases and sales of the securities being underwritten; and any allocations granted or received with regard to underwriting commitments.

(2) It shall reduce the resulting net positions by the following reduction factors for the specific risk arising on debt instruments and both the specific and general risks arising on equities:

<table>
<thead>
<tr>
<th></th>
<th>Debt Instruments Specific Risk</th>
<th>Equities Specific and General Risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working day zero</td>
<td>100%</td>
<td>90%</td>
</tr>
<tr>
<td>Working day 1</td>
<td>90%</td>
<td>90%</td>
</tr>
<tr>
<td>Working day 2 or 3</td>
<td>75%</td>
<td>75%</td>
</tr>
<tr>
<td>Working day 4</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Working day 5</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>after working day 5</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>
Working day zero shall be the working day on which the institution becomes unconditionally committed to accepting a known quantity of securities at an agreed price. For example:

(a) in respect of bond issues and other issues which utilise similar underwriting processes, working day zero is the later of the allotment date and the payment date;

(b) in respect of an Irish equity issue and other issues which utilise similar underwriting processes, working day zero is the later of the subscription date and the announcement of allocations; and

(c) in the case of a rights issue, working day zero is the first day after the subscription period has ended.

(3) The capital requirement on the reduced net underwriting positions should then be determined for interest rate position risk and equity position risk as detailed in Sections 4.3 and 4.4 respectively.

Where the above method is not applied the position risk shall be calculated in respect of the net commitment, from the date the commitment is entered, under either the interest rate or equity provisions.

With the prior approval of the Bank, the method may also be applied to a commitment to purchase existing securities which are exchange traded in which case the seller of the securities would be treated as the issuer. This approval will only be granted where it is determined that a purchase of existing securities has the characteristics of an offering of securities which are new to the markets.
4.3 INTEREST RATE POSITION RISK

The interest rate position risk arising on an institution’s trading book shall be divided into two components, general interest rate risk and specific interest rate risk. The capital requirement for each component must be calculated using the standard methodologies, unless the institution is using an internal model which has been formally recognised by Bank. The standard methodologies are set out in Sections 4.3.1 and 4.3.2, pre-processing models which generate position values may feed into these methodologies. The recognition process for internal models is detailed in Section 8.

A credit institution must split its net positions by the currency in which they are denominated and must calculate the capital requirement for specific and general risk in each individual currency separately.

4.3.1 Specific Interest Rate Risk for traded debt instruments

Specific interest rate risk is the risk that the price of an individual debt instrument will change, due to factors relating to its issuer, relative to the prices of securities generally. In order to calculate the credit institutions exposure to such risks the credit institution’s positions in individual debt instruments, netted in accordance with Section 4.1.13, must be assigned to the appropriate categories in Table 1 below on the basis of residual maturities and then multiplied by the percentage weighting in Table 1. Weighted positions shall be summed (regardless of whether they are long or short) in order to calculate the capital requirement against specific risk. Holdings by a credit institution of its own debt instruments are disregarded in calculating specific risk - such holdings are deducted in calculating Own Funds.

<table>
<thead>
<tr>
<th>Certain Central government items (defined below)</th>
<th>Qualifying items</th>
<th>Non-qualifying items</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Up to 6 months</td>
<td>Over 6 and up to 24 months</td>
</tr>
<tr>
<td>0.00%</td>
<td>0.25%</td>
<td>1.00%</td>
</tr>
</tbody>
</table>
Debt instruments will be given 0 per cent. specific risk weighting if:

(1) they are issued by, explicitly guaranteed by, or fully collateralised by securities issued by Zone A central governments and central banks, including the European Communities; or

(2) they are issued by Zone B central governments and central banks and are denominated and funded in the national currency of the borrower; or

(3) they are explicitly guaranteed by Zone B central governments or central banks and are denominated and funded in the national currency common to the guarantor and the borrower.

Debt instruments will be treated as qualifying if any of the following conditions apply:

(1) they are securities issued by, explicitly guaranteed by, or fully collateralised by claims on, a multilateral development bank listed in the Solvency Ratio Directive or the European Investment Bank;

(2) they are issued or explicitly guaranteed by Zone A regional governments or local authorities;

(3) they are issued or explicitly guaranteed by a credit institution incorporated in a Zone A country but do not form part of the issuing institutions own funds;

(4) they are issued or explicitly guaranteed by a credit institution incorporated in a Zone B country and have a residual maturity of 1 year or less but do not form part of the issuing institutions own funds; or

(5) they are issued by an investment firm that is subject to the Capital Adequacy Directive, or by recognised third country investment firms.

Positions in other debt instruments will be treated as qualifying if they meet the following conditions:
(1) they are listed on at least one regulated market in a Member State or on a third country stock exchange which is recognised by the Bank; and

(2) they are considered by the reporting credit institution to be sufficiently liquid and, because of the solvency of the issuer, to be subject to a degree of default risk which is comparable to or lower than that of the qualifying assets referred to in items (1) to (4) above. The manner in which the instruments are assessed will be subject to scrutiny by the Bank, which will overturn the judgement of the credit institution if it considers that the instruments concerned are subject to too high a degree of default risk to be qualifying items.

A credit institution may also treat as qualifying, debt instruments which are sufficiently liquid and which, because of the solvency of the issuer, are subject to a degree of default risk which is comparable to or lower than that of the qualifying assets referred to in items (1) to (5) above. The default risk associated with such instruments must have been evaluated at such a level by at least two credit-rating agencies recognised by the Bank or by only one such credit rating agency so long as they are not rated below such a level by any other credit rating agency recognised by the Bank (Appendix 3).

Debt instruments which do not meet the requirements set out above are deemed to be non-qualifying and will be subject to 8 per cent. specific risk weighting.

Derivatives positions will attract specific risk only when they are based on an underlying instrument or security. For instance, where the underlying exposure is an interest rate exposure, as in a swap based on interbank rates, there will be no specific risk. However, for a swap based upon a bond yield, the underlying bond will generate a specific risk requirement. For options, the specific risk will be based upon the delta-weighted value of the underlying instrument except in the case of bought exchange-traded or OTC contracts for which the capital requirement has been taken to be the same as that which would arise in respect of the underlying instrument. For such options the specific risk requirement will be that of the underlying instrument.
4.3.2 General Interest Rate Risk

The capital requirement for general market interest rate risk is designed to capture the risk of loss arising from general changes in market interest rates. The requirement may be calculated using either the standard maturity based approach or, with the prior approval of the Bank, the duration based approach. Alternatively a credit institution may use an internal model which has been recognised by the Bank (see Section 8).

The standard maturity based approach and the duration based approach are detailed in the following subsections. In each method, the capital charge is the sum of the following elements:

- a proportion of the matched positions in each maturity-band (under the maturity based approach only);
- a proportion of the matched positions within each of 3 zones;
- a proportion of the matched positions across different zones;
- the residual unmatched position; and
- a charge for gamma and vega risk in options.

The relevant table (maturity or duration) should be completed for each currency separately and the capital charge for that currency determined, as set out below. The resulting capital charges should be converted into the reporting currency at prevailing spot rates and summed to give the total general interest rate risk requirement.

A credit institution which does not use sensitivity models must decompose positions in derivative instruments into notional positions in the underlying. Such a credit institution may, for the purposes of calculating the capital requirement for general market interest rate risk, treat as fully offsetting any positions in interest rate derivative instruments which meet the following conditions:

(1) the positions must be of the same value and denominated in the same currency;
(2) the coupons, if any, must be within 15 basis points;
(3) the reference rate (for floating rate positions) must be the same; and
(4) the next interest fixing date or, for fixed coupon positions, residual maturity corresponds with the following limits:

- less than one month hence: same day
between one month and one year hence: within seven days
- over one year hence: within 30 days.

4.3.2.1 Maturity Based Approach

The steps in calculating the general requirement for interest rate position risk under the maturity based approach are as follows:

(1) Net positions must be assigned to one of the maturity bands in Table 2 below on the following basis.

(a) Fixed rate instruments will be assigned to maturity bands based upon the residual time to maturity and whether their coupon is above/below 3 per cent.

(b) Floating rate instruments will be assigned to maturity bands based upon the time remaining until the interest rate is reset and whether their coupon is above/below 3 per cent.

(2) The total of the market values of individual net long positions and net short positions in each maturity band is multiplied by the appropriate weighting factor indicated in Table 2 giving weighted long positions and weighted short positions, respectively.

Table 2

<table>
<thead>
<tr>
<th>Zone</th>
<th>Maturity band</th>
<th>Coupon of 3% or more</th>
<th>Coupon of less than 3%</th>
<th>Weighting (%)</th>
<th>Assumed interest rate change (in %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>0 &lt;= 1 month</td>
<td>0 &lt;= 1 month</td>
<td>0.00</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; 1 &lt;= 3 months</td>
<td>&gt; 1 &lt;= 3 months</td>
<td>0.20</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; 3 &lt;= 6 months</td>
<td>&gt; 3 &lt;= 6 months</td>
<td>0.40</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; 6 &lt;= 12 months</td>
<td>&gt; 6 &lt;= 12 months</td>
<td>0.70</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Two</td>
<td>&gt; 1 &lt;= 2 years</td>
<td>&gt; 1.0 &lt;= 1.9 years</td>
<td>1.25</td>
<td>0.90</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; 2 &lt;= 3 years</td>
<td>&gt; 1.9 &lt;= 2.8 years</td>
<td>1.75</td>
<td>0.80</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; 3 &lt;= 4 years</td>
<td>&gt; 2.8 &lt;= 3.6 years</td>
<td>2.25</td>
<td>0.75</td>
<td></td>
</tr>
<tr>
<td>Three</td>
<td>&gt; 4 &lt;= 5 years</td>
<td>&gt; 3.6 &lt;= 4.3 years</td>
<td>2.75</td>
<td>0.75</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; 5 &lt;= 7 years</td>
<td>&gt; 4.3 &lt;= 5.7 years</td>
<td>3.25</td>
<td>0.70</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; 7 &lt;= 10 years</td>
<td>&gt; 5.7 &lt;= 7.3 years</td>
<td>3.75</td>
<td>0.65</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; 10 &lt;= 15 years</td>
<td>&gt; 7.3 &lt;= 9.3 years</td>
<td>4.50</td>
<td>0.60</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; 15 &lt;= 20 years</td>
<td>&gt; 9.3 &lt;= 10.6 years</td>
<td>5.25</td>
<td>0.60</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; 20 years</td>
<td>&gt; 10.6 &lt;= 12.0 years</td>
<td>6.00</td>
<td>0.60</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 12.0 &lt;= 20.0 years</td>
<td>8.00</td>
<td>0.60</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 20.0 years</td>
<td>12.50</td>
<td>0.60</td>
<td></td>
</tr>
</tbody>
</table>
(3) **The matched and unmatched weighted positions within individual maturity bands are calculated:** where a maturity band has both weighted long and weighted short positions, the extent to which one offsets the other is the matched weighted position for that band. The remainder (i.e. the excess of the weighted long positions over the weighted short positions, or vice versa, within a band) is the unmatched weighted long or short position for that band.

(4) **The matched and unmatched weighted positions within individual zones are calculated:** where a zone has both unmatched weighted long and short positions for various bands, the extent to which one offsets the other is called the matched weighted position within that zone. The remainder (i.e. the excess of the weighted long positions over the weighted short positions, or vice versa, within a zone) is the unmatched weighted long or short position for that zone.

(5) **The unmatched weighted positions for individual zones are offset against unmatched weighted positions in other zones:**

(a) The unmatched weighted long (short) position in zone 1 may offset the unmatched weighted short (long) position in zone 2. The extent to which the unmatched weighted positions in zones 1 and 2 are offsetting is described as the matched weighted position between zones 1 and 2.

(b) After (a) any residual unmatched weighted long (short) positions in zone 2 may then be matched by offsetting unmatched weighted short (long) positions in zone 3. The extent to which the unmatched positions in zones 2 and 3 are offsetting is described as the matched weighted position between zones 2 and 3.

(c) After (a) and (b) any residual unmatched weighted long (short) positions in zone 1 may then be matched by offsetting unmatched weighted short (long) positions in zone 3. The extent to which the unmatched positions in zones 1 and 3 are offsetting is described as the matched weighted position between zones 1 and 3.

The calculations in (a) and (b) may be carried out in reverse order (i.e. zones 2 and 3 followed by zones 1 and 2).
Any residual unmatched weighted positions following the matching within a band, within a zone, and between zones will be summed to give the residual unmatched weighted position.

The general interest rate risk capital requirement will be the sum of:
10 per cent. of the sum of the matched weighted positions in all maturity bands;
40 per cent. of the matched weighted position within zone 1;
30 per cent. of the matched weighted position within zone 2;
30 per cent. of the matched weighted position within zone 3;
40 per cent. of the matched weighted position between zones 1 and 2 and between zones 2 and 3;
150 per cent. of the matched weighted position between zones 1 and 3; and
100 per cent. of the residual unmatched weighted positions.

4.3.2.2 Duration Based Approach

A credit institution may use a duration based system for determining its general market interest rate risk capital requirement for traded debt instruments and other sources of interest rate exposures including derivatives. A credit institution must notify the Bank of the circumstances in which it intends to use the duration based approach and the Bank reserves the right to restrict the use of this approach. Once chosen, this approach must be applied consistently to categories of interest rate instruments within trading units.

The steps in calculating the general risk requirement for interest rate positions under the duration based approach are as follows:

(1) The credit institution will take the market value, of each fixed rate instrument and determine its Yield-To-Maturity. In the case of floating rate instruments the credit institution will take the market value of each instrument and calculate its yield in the assumption that the final maturity date is the date on which the interest rate can next be changed.
(2) For each debt instrument the credit institution will calculate the modified duration on the basis of the following formula:

\[ \text{modified duration} = \frac{\text{duration (D)}}{\left(1 + \frac{1}{1 + r}\right)} \], where:

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

where:

- \( r \) = yield to maturity (see 1 above),
- \( C_t \) = cash payment in time t,
- \( m \) = total maturity (see 1 above).

(3) The credit institution shall assign each debt instrument to one of the zones in Table 3 below on the basis of the modified duration of the instrument.

(4) The credit institution will then multiply the mark to market value of its net long or short position in each instrument by its modified duration and by the assumed interest rate change for an instrument with that particular modified duration (see Table 3).

<table>
<thead>
<tr>
<th>Zone</th>
<th>Modified duration (in years)</th>
<th>Assumed interest (change in %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>&gt; 0 &lt;= 1.0</td>
<td>1.00</td>
</tr>
<tr>
<td>Two</td>
<td>&gt;1.0 &lt;= 3.6</td>
<td>0.85</td>
</tr>
<tr>
<td>Three</td>
<td>&gt; 3.6</td>
<td>0.70</td>
</tr>
</tbody>
</table>

(5) The credit institution shall calculate its total duration-weighted long positions and its total duration-weighted short positions in each zone.
The matched and unmatched duration-weighted positions within individual zones are calculated: where a zone has both duration weighted long and short positions, the extent to which one offsets the other is the matched duration-weighted position for that zone. The remainder (i.e. the excess of the duration weighted long positions over the duration-weighted short positions, or vice versa) is the unmatched duration-weighted long or short position for that zone.

The unmatched duration-weighted positions within individual zones are offset against unmatched duration-weighted positions within other zones:

(a) The unmatched duration-weighted long (short) position for zone 1 may offset the unmatched duration-weighted short (long) position in zone 2. The extent to which the unmatched duration-weighted positions in zones 1 and 2 are offsetting is described as the matched duration-weighted position between zones 1 and 2.

(b) After (a), any residual unmatched duration-weighted long (short) positions in zone 2 may then be matched by the unmatched duration-weighted short (long) positions in zone 3. The extent to which the unmatched positions in zones 2 and 3 are offsetting is described as the matched duration-weighted position between zone 2 and 3.

(c) After (a) and (b) any residual unmatched weighted long (short) positions in zone 1 may then be matched by offsetting unmatched weighted short (long) positions in zone 3. The extent to which the unmatched positions in zones 1 and 3 are offsetting is described as the matched weighted position between zone 1 and 3.

The calculations in (a) and (b) may be carried out in reverse order (i.e. zones 2 and 3 followed by zones 1 and 2).

Any residual unmatched weighted positions following the matching within a zone and between zones will be summed to give the residual unmatched duration weighted position.

The general interest rate risk capital requirement will be the sum of:

2 per cent. of the matched duration weighted position for each zone;
40 per cent. of the matched weighted position between zones 1 and 2 and between zones 2 and 3;

150 per cent. of the matched duration weighted position between zones 1 and 3; and

100 per cent. of the residual unmatched duration weighted positions.
4.4 EQUITY POSITION RISK

The calculation of capital requirements in respect of equity position risk shall be the sum of the specific risk and general risk requirements. An equity position should be allocated to the country in which the equity is listed and the standard calculations described below should be applied for each country separately. Alternatively, an institution may use an internal risk model recognised by the Bank for the purposes of calculating the capital requirement (see Section 8).

The credit institution must calculate its net long or net short position in each equity in accordance with the netting rules set out in 4.1.13. Net long positions and net short positions should be summed separately. The institution’s overall gross position in equities will be the sum of the resulting totals while its overall net position will be the difference between them.

4.4.1 Specific Risk

The credit institution must multiply its overall gross position in equities by 4 per cent. in order to calculate its capital requirement against specific risk.

A lower capital requirement against specific risk of 2 per cent. may be applied for those portfolios of equities that an institution holds which meet the following conditions:

1. the equities are not those of issuers who have issued only traded debt instruments which currently attract an 8 per cent. requirement in Table 1 of Section 4.3.1 or that attract a lower requirement only because they are guaranteed or secured;

2. the equities are adjudged highly liquid by the Bank; and

3. no individual position comprises more than 5 per cent. of the value of the institution’s whole equity portfolio (or 10 per cent. provided the total of such positions does not exceed 50 per cent. of the portfolio).
4.4.2 General Risk

The credit institution must multiply its overall net position in equities by 8 per cent. in order to calculate its capital requirement against general risk.

4.4.3 Embedded interest rate risk in equity derivatives

For interest rate position risk, the notional underlying instruments should be included as government securities with a coupon below 3 per cent. in the currency concerned in the interest rate treatments in Section 4.3, but only if the Bank is satisfied, and has given express written agreement, that sufficient controls are in place to monitor this interest rate exposure and to take account of dividend exposures and liquidity risk. If a credit institution has an interest rate sensitivity model approved (see Section 7), the interest rate exposure may be incorporated into that model.

Without such permission from the Bank, embedded interest rate exposures in equity derivatives will be subject to capital requirements based on the following:

<table>
<thead>
<tr>
<th>Time to expiration</th>
<th>Percentage of notional position</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;0 &lt;= 3 months</td>
<td>0.20</td>
</tr>
<tr>
<td>&gt;3 &lt;= 6 months</td>
<td>0.40</td>
</tr>
<tr>
<td>&gt;6 &lt;= 12 months</td>
<td>0.70</td>
</tr>
<tr>
<td>&gt;1 &lt;= 2 years</td>
<td>1.25</td>
</tr>
<tr>
<td>&gt;2 &lt;= 3 years</td>
<td>1.75</td>
</tr>
<tr>
<td>&gt;3 &lt;= 4 years</td>
<td>2.25</td>
</tr>
<tr>
<td>&gt;4 &lt;= 5 years</td>
<td>2.75</td>
</tr>
<tr>
<td>over 5 years</td>
<td>3.75</td>
</tr>
</tbody>
</table>

The capital requirement is calculated for each notional position before any netting, as the mark to market value of the underlying position multiplied by the percentage above. The capital requirement for all notional interest rate positions under this treatment is the sum of the absolute values of the individual capital requirements calculated above.
4.5 COMMODITY POSITION RISK

The capital requirements for commodity position risk, arising in both the Banking Book and the Trading Book, introduced in the 98/31/EC amendment to the Capital Adequacy Directive are set out below. Unlike interest rate and equity position risk, commodity position risk is treated as a single risk, it is not broken down into specific and general risk components.

The risks arising from position-taking in commodities, and upon which the level of the capital charge for commodity position risk depends, come from a number of sources:

- **Commodity pricing** is often more complex and volatile than that associated with currencies and interest rates and the commodity markets may be less liquid than such markets;

- **Directional risk** arising from a change in the spot price is particularly important for a credit institution involved in spot or physical trading;

- Additional risks, which may prove to be more important than those arising from risk of a change in the spot price for a credit institution trading in derivative contracts, include:

  (a) **Basis Risk**: the risk that the relationship between prices of similar commodities change through time,

  (b) **Interest rate risk**: the risk of a change in the cost of carry for forward positions and options, and

  (c) **Forward gap risk**: the risk that the forward price may change for reasons other than a change in interest rates.

In addition to the resulting capital charge for commodity position risk a credit institution is required to calculate a capital charge for the counterparty credit risk to which it is exposed as a result of the commodity contracts held in either the banking
or trading book (Section 5). Interest rate risk and foreign-exchange risk arising from such positions should be included in the general interest rate risk calculation, Section 4.3.2, and the calculation of foreign-exchange risk, Section 6, or under Section 8 if a recognised internal model is being used for such purposes.

A credit institution must also guard against the risk that arises when a short position falls due before the long position: owing to a shortage of liquidity in some markets it might be difficult to close the short position and the credit institution might be squeezed by the market.

In accordance with Directive 98/31/EC, positions in gold or gold derivatives are considered as being subject to foreign exchange risk and should be treated under Section 6 or, with the approval of the Bank, Section 8.

Positions which are purely stock financing are to be excluded from the commodities position risk calculation only but would be subject to interest rate risk (Section 4.3) and counterparty risk (Section 5) calculations.

**4.5.1 Methods for Calculating Commodity Risk Capital Charges.**

There are three methods which may be used to calculate the capital charges for commodity risk:

(a) internal risk model approach
(b) maturity ladder approach
(c) simplified approach.

It should be noted that, regardless of the approach, each commodity position (spot plus forward) must be expressed in terms of a standard unit of measurement (barrels, tonnes, kilos). The spot price in each commodity should be expressed in the reporting currency.
4.5.1.1 Internal Models Approach

A credit institution may use its internal model to calculate the capital requirements on its commodity position risk. Such models will require the recognition of the Bank and will be subject to the requirements for internal models as set out in Section 8.

4.5.1.2 Maturity Ladder Approach

This approach involves the construction of a maturity ladder, as shown in Table 4 below, for each commodity. All contracts or holdings in a given commodity (expressed in a standard unit of measurement) and all other positions which can be regarded as positions in that commodity (under the terms of the next paragraph) must be assigned to one of the seven maturity bands in that commodity’s maturity ladder.

The following may be considered positions in the same commodity:
- positions in different sub-categories of commodities where the sub-categories are deliverable against each other
- positions in similar commodities if they are close substitutes and if a minimum correlation of 0.9 between price movements can be clearly established over a minimum period of one year.

Positions in the same commodity, or regarded as being in the same commodity, may be offset and assigned to the appropriate maturity band on a net basis if they satisfy either of the following:

- they are positions in contracts maturing on the same date; or
- they are positions in contracts maturing within 10 days of each other if the contracts are traded on markets which have daily delivery dates.

Physical stocks should be assigned to the first maturity band.
The calculation within each commodity table then proceeds as follows:

(1) The institution shall work out the sum of the long positions and the sum of the short positions in each maturity band.

(2) The matched and unmatched positions within individual maturity bands are calculated: the amount of the long (short) which is matched by the short (long) shall be termed the matched position within the band while the residual long or short position shall be termed the unmatched position within the band.

(3) The unmatched positions within individual maturity bands are offset against unmatched positions within other maturity bands: That part of the unmatched long (short) position for a given maturity band that can be matched with an unmatched short (long) position for a maturity band further out shall be the matched position between maturity bands. That part of the unmatched long or unmatched short which cannot be thus matched shall be termed the residual unmatched position.

(4) The capital requirement for the commodity shall then be calculated as the sum of

- the matched long and short positions within each maturity band multiplied by the spread rate of 1.5 per cent., which applies
to all maturity bands, multiplied by the spot price for that commodity

- the matched position between two maturity bands for each maturity band into which a residual unmatched position is carried forward multiplied by 0.6 per cent. (carry rate) and by the spot price for that commodity

- the residual unmatched positions, multiplied by 15 per cent. (outright rate) and by the spot price for the commodity.

The overall capital requirement for commodity position risk shall be the sum of the capital requirements for each commodity determined from its maturity ladder in accordance with the above guidelines.

4.5.1.3 Simplified Approach

The capital requirement for each commodity shall be

- 15 per cent. of the net position, long or short, multiplied by the spot price for the commodity; plus

- 3 per cent. of the gross position, long plus short, multiplied by the spot price for the commodity.

The overall capital requirement shall be the sum of the calculation for each commodity.
5. SETTLEMENT AND COUNTERPARTY RISK

Counterparty risk will arise in both the banking and trading books. Counterparty risk in the banking book is subject to the provisions of the Solvency Ratio Directive as implemented by the Bank in its Notice BSD S 1/00 and amended from time to time.

The capital requirements for settlement and counterparty risk arising in the trading book are set out below. The risk weightings to be applied shall be those provided in the Solvency Ratio Directive. However, assets constituting claims on and other exposures to investment firms or recognised third country investment firms shall be assigned the same risk weighting as that assigned to a claim on a credit institution. Trading book exposures incurred to recognised clearing houses and exchanges shall be assigned the same risk weighting as that assigned where the relevant counterparty is a credit institution.

5.1 Settlement/Delivery Risk

Where trading book transactions in debt instruments, equities and commodities between a credit institution and its counterparty (excluding repurchase and reverse repurchase agreements and securities/commodities lending and securities/commodities borrowing) are unsettled 5 days after their due delivery dates the credit institution must calculate the price difference to which it is exposed. Where the difference could involve a loss for the credit institution this difference must be multiplied by the appropriate factor in Column A of Table 5 in order to calculate the capital requirement.

Where the due delivery date is beyond the market norm for the instrument concerned an alternative capital requirement, set out in section 5.2.2, should be applied.

---

3 The due delivery date shall mean the date contracted for settlement between the credit institution and its counterparty

4 The price difference to which an institution is exposed shall mean the difference between the agreed settlement price for the debt instrument, equity or commodity in question and its current market value.
Table 5

<table>
<thead>
<tr>
<th>Number of Working Days</th>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>After Due Settlement Date</td>
<td>% of Price Difference</td>
<td>% of Agreed Settlement Price</td>
</tr>
<tr>
<td>5 - 15</td>
<td>8</td>
<td>0.5</td>
</tr>
<tr>
<td>16 - 30</td>
<td>50</td>
<td>4.0</td>
</tr>
<tr>
<td>31 - 45</td>
<td>75</td>
<td>9.0</td>
</tr>
<tr>
<td>46 or more</td>
<td>100</td>
<td>100% of price difference</td>
</tr>
</tbody>
</table>

The Bank would normally expect a credit institution to adopt the procedure outlined above. However, with the prior approval of the Bank, the capital requirement may be calculated by multiplying the agreed settlement price of every transaction which is unsettled between 5 and 45 working days after its due date by the appropriate factor in Column B of Table 5. As from 46 working days after the due date, it shall take the requirement to be 100 per cent. of the price difference to which it is exposed.

5.2 Counterparty Risk

5.2.1 Free Deliveries

A credit institution must hold capital against counterparty risk on free deliveries:

(1) if it has paid for securities or commodities before receiving them or if it has delivered securities or commodities before receiving payment for them; and

(2) in the case of cross-border transactions, if one day or more has elapsed since it made that payment or delivery.

The capital requirement shall be 8 per cent. of the value of the securities or commodities or cash owed to the institution multiplied by the risk weighting applicable to the relevant counterparty.
5.2.2 Forward Transactions

Purchases and sales of financial instruments (i.e., those for which the counterparties have agreed a settlement date beyond the market norm for that instrument) are deemed to give rise to counterparty exposure.

The capital requirement shall be 8 per cent. of the replacement cost plus potential future credit exposure multiplied by the risk weighting applicable to the counterparty.

The replacement cost is the difference between the market value of securities purchased and the contracted value, where positive, or the difference between the contracted value and the market value of securities sold, where positive. The potential future credit exposure shall be the contracted value multiplied by the appropriate percentage below:

Table 6

<table>
<thead>
<tr>
<th>Residual Maturity</th>
<th>Interest rate Contracts</th>
<th>Contracts concerning foreign exchange and gold</th>
<th>Equities</th>
<th>Contracts concerning precious metals except gold</th>
<th>Commodities other than precious metals</th>
</tr>
</thead>
<tbody>
<tr>
<td>One year or less</td>
<td>0%</td>
<td>1%</td>
<td>6%</td>
<td>7%</td>
<td>10%</td>
</tr>
<tr>
<td>Over one year but less than five years</td>
<td>0.5%</td>
<td>5%</td>
<td>8%</td>
<td>7%</td>
<td>12%</td>
</tr>
<tr>
<td>Over five years</td>
<td>1.5%</td>
<td>7.5%</td>
<td>10%</td>
<td>8%</td>
<td>15%</td>
</tr>
</tbody>
</table>

Notes:
(a) Contracts which do not fall within one of the five categories indicated in this table shall be treated as contracts concerning commodities other than precious metals;

(b) For contracts with multiple exchanges of principal, the percentages have to be multiplied by the number of remaining payments still to be made according to the contract;

(c) For contracts that are structured to settle outstanding exposure following specified payment dates and where the terms are reset such that the market value of the contract is zero on these specified dates, the residual maturity would be equal to the time until the next reset date. In the case of interest-rate contracts that meet these criteria and have a remaining maturity of over one year, the percentage shall be no lower than 0.5%.
5.2.3 Repurchase and Reverse Repurchase Agreements, Securities or Commodities

Lending and Securities or Commodities Borrowing

In the case of repurchase agreements and securities or commodities lending transactions, based on securities or commodities included in the trading book, the credit institution shall calculate the difference between the market value of the securities or commodities it has transferred to a counterparty and either the amount it owes to that counterparty, or the market value of collateral it has received from the counterparty, where that difference is positive.

In the case of reverse repurchase agreements and securities or commodities borrowing, the credit institution shall calculate the difference between either the amount owed by a counterparty or the market value of the collateral transferred by it to that counterparty and the market value of the securities or commodities it has received from the counterparty, where that difference is positive.

With the prior approval of the Bank, where there is a series of transactions with a single counterparty, the counterparty risk requirements may be calculated on a portfolio basis provided the documentation forming the written agreement provides for the claims of the credit institution to be automatically and immediately offset against the claims of the counterparty in the event of the latter’s default and the credit institution has the right to call for variation margin daily when there is a material adverse market move against the counterparty.

The Bank may allow a credit institution to exclude the amount of excess collateral from the calculations if the amount of excess collateral is guaranteed in such a way that the transferor is always assured that the excess collateral will be returned to it in the event of default of its counterparty.

Accrued interest shall be included in calculating the market value of amounts lent or borrowed and collateral.

The capital requirement shall be 8 per cent. of the figures produced in accordance with the above procedure multiplied by the risk weighting applicable to the relevant counterparty.
5.2.4 OTC Derivative Instruments

In order to calculate the capital requirement for the counterparty risk in over the counter (OTC) derivative instruments, a credit institution shall apply Annex II to the Solvency Ratio Directive implemented by the Bank in its Notice BSD S 1/00. OTC derivative instruments mean the off-balance sheet items to which according to the first sub-paragraph of Article 6(3) of Directive 89/647/EEC the methods set out in Annex II 89/647/EEC apply, as well as bought OTC equity contracts and other equity derivatives which shall be treated as exchange rate contracts.

The capital requirement shall be 8 per cent. of the risk weighted current replacement cost plus potential future credit exposure.

OTC contracts which have been cleared by a recognised clearing house (see item 8 of Section 1.3) are exempt until 31/12/2006 from the application of the methods set out in Annex II of the Solvency Ratio Directive. The Bank will provide a list of the clearing houses recognised for this purpose.

5.2.5 Netting of add-ons

The matrix of counterparty add-ons to be used to calculate the future credit exposure factor for OTC contracts are set out in Table 6 above. Netting of future credit exposure add-ons may be carried out in accordance with the formula set out below where the credit institution has a legally binding netting agreement which meets the Bank’s requirements as set out in its Notice BSD S 1/00.

The figure for the potential future credit exposure for all contracts in a legally binding netting agreement may be reduced by the following formula

\[ PCE_{\text{red}} = 0.4 \times PCE_{\text{gross}} + 0.6 \times \text{NGR} \times PCE_{\text{gross}} \]

where

- \( PCE_{\text{red}} \) = the reduced figure for potential future credit exposure for all contracts with a given counterparty included in a legally valid bilateral netting agreement.
- \( PCE_{\text{gross}} \) = the sum of the figures for potential future credit exposure for all contracts with a given counterparty which are included in a legally binding
valid bilateral netting agreement and are calculated by multiplying their notional principal amounts by the percentages set out in Table 6 above.

- NGR = “net-to-gross ratio” is the quotient of the net replacement cost for all contracts included in a legally valid binding netting agreement with a given counterparty (numerator) and the gross replacement cost for all contracts included in a legally valid binding netting agreement with a given counterparty (denominator). (If the netting agreement leads to a net obligation for the credit institution calculating the net replacement cost then the current replacement cost is set to zero.)

For the calculation of the potential future credit exposure factor according to the above formula perfectly matching contracts included in the netting agreements may be taken into account as a single contract with nominal principle equivalent to the net receipts. Perfectly matching contracts are forward foreign exchange contracts or similar contracts in which notional principal is equivalent to cash flows if the cash flows fall due on the same date and fully or partly in the same currency.

5.2.6 Other Counterparty Risk

A credit institution must calculate a capital requirement in accordance with the provisions of the Solvency Ratio Directive in relation to exposures in the form of fees, commission, interest, dividends and margin in exchange traded futures and options contracts which are directly related to items included in the trading book and have not been already taken into account in calculating capital requirements for position or counterparty risk. The capital requirement shall be 8 per cent. of the value of the exposure multiplied by the relevant risk weighting applicable to the counterparty.
6. FOREIGN EXCHANGE RISK

In order to determine its capital requirement for foreign exchange risk, a credit institution must calculate the net open position in each currency (including gold) arising on its entire business activities (i.e. trading and banking books), unless it is using an internal model formally recognised by the Bank for the determination of this capital requirement. This should be done in accordance with the procedure set out in section 6.1. The recognition process for internal models is detailed in Section 8.

6.1 Procedure for Calculating the Net Open Foreign Exchange Position and Net Open Gold Position

The net open position in each currency (including the reporting currency) and in gold shall consist of the sum of the following elements (positive or negative):

(1) Net spot position (i.e. all assets less all liabilities, including accrued interest, in the currency in question or, for gold, the net spot position in gold);

(2) Net forward position (i.e. all amounts to be received less all amounts to be paid under forward exchange and gold transactions, including currency futures and gold futures and the principal on currency swaps not included in the spot position);

(3) Irrevocable guarantees (and similar instruments) which are certain to be called and likely to be irrecoverable;

(4) Net future income/expenses not yet accrued but already fully hedged (with the prior consent of the Bank, net future income/expenses not yet entered in accounting records but already fully hedged by forward foreign exchange transactions may be included);

(5) The net delta (or delta-based) equivalent of the total book of foreign currency options and gold options;

(6) The market value of other (i.e. non-foreign currency and non-gold) options; and
(7) Any other off-balance sheet commitment to purchase or sell an asset
denominated in that currency.

Any positions which the credit institution has deliberately taken in order to hedge
against the adverse effect of the exchange rate on its capital ratio, or any position which
relates to items that are already deducted in the calculation of Own Funds, may be
excluded from the calculation of net open currency positions. Such positions should be
of a non-trading or structural nature and their exclusion, and any variation of the terms
of their exclusion requires the prior consent of the Bank.

Having calculated the net open short or long position in each foreign currency (i.e.
excluding the reporting currency) and the net open short or long position in gold, in
accordance with 6.1 above, these should all be converted at spot rates into the
reporting currency. All the net foreign exchange short positions and all the net foreign
exchange long positions should be summed separately. The larger of these two
absolute totals should be taken to be the institution’s overall net open foreign exchange
position. The absolute net open position in gold should then be added to this figure and
the total multiplied by 8 per cent. to give the capital charge.

Net positions in composite currencies may be broken down into the component
currencies according to the quotas in force. The Euro cannot be broken down into its
component parts and therefore it is not treated as a composite currency. No foreign
exposure is deemed to exist between the Euro and the participating currencies from 1
January 1999 or between the participating currencies from that date. For the purposes
of calculating the capital requirements for foreign exchange all participating currencies
should be converted into Euro’s and reported accordingly.

With the prior approval of the Bank, a credit institution with a trading book may use
net present values when calculating the net open position in each currency and in gold.

With the prior written approval of the Bank, a credit institution may provide a lower
capital requirement of 4 per cent. on the matched position in two closely correlated
currencies. A credit institution seeking the Bank’s approval for such a reduced charge
must prove to the satisfaction of the Bank that the currencies in question are closely correlated, by proving that:

The likelihood of a loss—calculated on the basis of daily exchange rate data for the preceding three or five years—occurring on equal and opposite positions in the currencies in question over the following 10 working days, which is 4 per cent. or less of the value of the matched position in question (valued in terms of the reporting currency) has a probability of at least 99 per cent. when an observation period of three years is used, or 95 per cent. when an observation period of five years is used.

For those currencies which are subject to a binding inter-governmental agreement, a credit institution may calculate its capital requirement in respect of the matched net open positions in such currencies to be 50 per cent. of the maximum movement stipulated by the inter-governmental agreement. At present, the only recognised binding inter-governmental agreements are the Singapore and Brunei Dollar interchangeability agreement and the Multilateral Monetary Agreement between South Africa, Lesotho, Namibia and Swaziland.
7. THE USE OF MODELS

The Bank may permit the use of models in determining positions in traded debt instruments, equities, commodities and foreign exchange for inclusion in the calculation of capital requirements in respect of position risk and foreign exchange risk under the standard approach. The circumstances in which the use of such models may be permitted are those set down in Paragraphs 5 and 8 of Annex I and Paragraph 3.1 of Annex III and embrace both interest rate sensitivity models and option pricing models. The Bank’s requirements for internal VaR models are detailed in Section 8.

The Bank will require each credit institution to agree a policy statement with it in relation to its use of models for the purpose of calculating the capital required by the Directive.

7.1 Interest Rate Sensitivity Models

A credit institution which marks to market and manages the interest rate risk on derivatives instruments on a discounted cash-flow basis may use sensitivity models to pre-process derivative positions by determining equivalent weighted positions for inclusion in the calculation of position risk. After pre-processing the residual positions are fed into the maturity or duration tables for general risk.

A number of different methods for determining interest rate sensitivities exist; however, all such models must generate positions that have the same sensitivity to interest rate changes as the underlying cashflows.

Interest rate sensitivity models involve the conversion of individual deals into cashflows. These cashflows are allocated to the 15 maturity bands, as set out in Table 2 of Section 4.3.2.1 i.e. the bands in the maturity based approach where coupon rates are less than 3 per cent.

The present value (PV) of each maturity band is calculated twice - once from the institution’s yield curve (with discount factors being generated using the zero coupon rates derived from the institution’s own yield curve) and then for the shifted yield curve i.e. the institution’s yield curve plus the appropriate assumed interest rate change.
given in Table 2 Section 4.3.2.1. The change in the present value in each band is the difference between the PV arrived at from discounting using the credit institution’s own yield curve and the PV arrived at from discounting at the shifted yield curve. This change is the sensitivity of the credit institution’s positions to changes in interest rates and is equivalent to calculating the weighted net positions in both the maturity based and duration based tables for general risk.

The sensitivity figures must then be allocated to the appropriate maturity bands in the maturity based table or maturity zones in the duration based table. That is to say, the model process reduces a portfolio of derivatives and amortising bond positions to a single set of net figures for each maturity band which is then slotted into the standard maturity based or duration based method and is subject to the standard capital requirements as set out in Section 4.3.

7.2 Option Pricing Models

Credit institutions will be required to calculate the delta weighted equivalent for option positions for inclusion in the measurement of position risk and foreign exchange risk. In cases where the options delta is unavailable from an exchange, a credit institution will be required to calculate delta by the use of an appropriate model, subject to the satisfaction of the Bank.

The Bank will consider the use of option pricing models which are capable of calculating the delta equivalent of positions in instruments based on a two-legged approach i.e. where the underlying instrument is treated as a combination of a long and a short position. A credit institution with option positions is required to satisfy the Bank that the model used by it to calculate its options positions and risks is appropriate to the options business of that institution, taking into account the level and complexity of that business.

A model used by a credit institution to price options must also be capable of generating a measure of the other option risks which may arise, such as gamma and vega risk, for use in the determination of an additional capital requirement in respect of options (see Section 4.1.10).
8. INTERNAL MODELS

Models may be used not only in the pre-processing of positions which feed into the standard approach to capital adequacy, as detailed in section 7, but also, under the internal models approach, in the actual determination of supervisory capital requirements.

The Bank may permit the use of internal risk-management models in calculating the capital requirements in respect of:

- positions in equity and debt instruments (including off-balance sheet instruments) arising from trading book activities, and/or

- foreign exchange risk and commodities risk arising from both trading and banking book activities.

Under the internal model approach supervisory approval can be obtained for capital requirements to be calculated using the institution's internal risk management system, which typically involve a value at risk (VaR) model. A combination of approaches can be used (see Section 8.10).

This Section sets out the requirements a credit institution will have to meet in order to receive explicit recognition from the Bank for the use of its internal risk model in the calculation of its supervisory capital.

8.1 The Model Recognition Process

The Bank will require that internal models used for the purpose of calculating market risk capital requirements, satisfy the qualitative and quantitative criteria set out in Sections 8.6, 8.7, 8.11 and 8.12 below. The credit institution must be able to demonstrate that its risk-management system is conceptually sound and implemented with integrity and that its internal model is being used in an environment where the risk management processes and procedures are adequate for the nature and volume of the business.
8.2 Model Recognition Letter

If model recognition is granted, the terms of recognition will be set out in a letter attached to which will be a schedule describing the following:

a) the specific models being recognised;

b) the products covered by the model together with the criteria by which limits, if any, on such products are set;

c) details of the calculation of the market risk capital requirements, including the multiplication factors to be applied;

d) the method for separating out specific risk, if required;

e) the agreed method for calculating P&L for back-testing purposes;

f) the procedures, agreed between the Bank and the institution, for the introduction of model refinements or the inclusion of any new products, new markets and new locations. The circumstances in which such changes should be notified to the Bank will also be set out.

8.3 Model Recognition at Overseas Locations

Where a model covers trading at an overseas branch of an Irish incorporated credit institution, the Bank will need to be satisfied that the controls surrounding the model are adequate, even where the methodology is the same.

Where a model covers trading at an overseas subsidiary of an Irish incorporated bank, the Bank will liaise with the overseas supervisor of that bank.

Where the model used by a credit institution in an overseas location differs from that which it uses in Ireland the Bank will need to be satisfied with the integrity of the model and the credit institutions reasons for using it.

8.4 Model Recognition for Subsidiaries of an Overseas Entity

The use of a model by an Irish subsidiary of an overseas institution, though similar to that of its overseas parent which has been granted model recognition by its parent
supervisor, will require the recognition of the Bank. The Bank will take into account
the results of the home country’s model review and will seek information directly from
the home supervisor where appropriate.

8.5 Maintenance of Model Recognition

As the internal models used are expected to continue to evolve over time the Bank will
agree with each institution the circumstances under which changes to the model should
be discussed with the Bank in order to permit the retention of model recognition. On
an ongoing basis the Bank will keep the internal models and risk management function
of the credit institution under review.

8.6 Qualitative Standards

The following are qualitative criteria, which deal with the general issue of the control
environment, that a credit institution must meet before it will be permitted to use its
internal model to calculate its capital requirement.

(i) the internal risk-measurement model is closely integrated into the daily risk-
management process of the institution and serves as the basis for reporting risk
exposures to senior management of the institution;

(ii) the institution has a risk control unit that is independent from business trading
units and reports directly to senior management. The unit must be responsible
for designing (subject to Section 8.4) and implementing the institution’s risk
management system. It shall produce and analyse daily reports on the output of
the risk-measurement model and on the appropriate measures to be taken in
terms of trading limits;

(iii) the Board of Directors and senior management are actively involved in the
risk-control process and the daily reports produced by the risk-control unit are
reviewed by a level of management with sufficient authority to enforce
reductions in the positions taken by individual traders as well as in the
institution’s overall risk exposure;
(iv) the institution has sufficient numbers of staff skilled in the use of sophisticated models in the trading, risk-control, audit and back-office areas;

(v) the institution has established procedures for monitoring and ensuring compliance with a documented set of internal policies and controls concerning the overall operation of the risk-measurement system;

(vi) the model, as implemented by the institution, must have a proven track record of reasonable accuracy in measuring risks;

(vii) the institution frequently conducts a rigorous programme of stress testing and the results of these tests are reviewed by senior management and reflected in the policies and limits it sets;

(viii) the institution must conduct, by way of a regular internal auditing process, an independent review of its risk-measurement system. This review must include both the activities of the business trading units and of the independent risk-control unit. At least once a year, the institution must conduct a review of its overall risk-management process. The review must consider:

- the adequacy of the documentation of the risk-management system and process and the organisation of the risk-control unit,

- the integration of market risk measures into daily risk management and the integrity of the management information system,

- the process the institution employs for approving risk-pricing models and valuation systems that are used by front and back-office personnel,

- the scope of market risks captured by the risk-measurement model and the validation of any significant changes in the risk-measurement process,

- the accuracy and completeness of position data, the accuracy and appropriateness of volatility and correlation assumptions, and the accuracy of valuation and risk sensitivity calculations,

- the verification process the institution employs to evaluate the consistency, timeliness and reliability of data sources used to run internal models including the independence of such data sources and
- the verification process the institution uses to evaluate back-testing that is conducted to assess the model’s accuracy.

8.7 Quantitative Standards

The Bank wishes to ensure that the use of an internal model provides a minimum level and degree of prudence and consistency of capital requirements across credit institutions. Accordingly the Bank requires that a credit institution wishing to use an internal model would meet the following minimum quantitative standards.

The calculation of the value-at-risk shall be subject to the following minimum standards:

- at least a daily calculation of value-at-risk;
- a 99th percentile, one-tailed confidence interval;
- a 10-day equivalent holding period;
- an effective historical observation period of at least one year except where a shorter observation period is justified by a significant upsurge in price volatility;
- data-set updates should occur with appropriate frequency but at a minimum of quarterly.

In addition the model must capture accurately all the material price risks of options and option-like positions and any other risks not captured by the model must be adequately covered by own funds. The following criteria apply to the measurement of option risk:

- the model must capture the non-linear price characteristics of options position; and
- the risk-measurement system must have a set of risk factors that captures the volatility’s of the prices underlying option positions e.g. vega risk.

Empirical correlation’s within and across broad risk categories (e.g. interest rates, foreign exchange rates etc.) may be used provided the institution has satisfied the Bank
that the system for measuring the correlation is sound and implemented with integrity and that any such offsetting of risk is appropriate.

( An institution may only use the "square root of the sum of squares" approach in aggregating VaR measures across risk or product categories, if it can empirically justify the underlying assumption of zero correlation between these categories. If correlation's between risk categories cannot be justified empirically, then the aggregate VaR should be determined by simply adding the VaR measures for each individual category. )

A credit institution may adopt quantitative standards different from those set out above provided they do not result in a lower capital charge than would otherwise be the case.

8.8 Specification of Risk Factors

The Bank will wish to be assured that the internal model captures all of the material risk factors arising on the underlying portfolio of the institution and its trading profile. The model will be required to meet the following minimum requirements but ultimately the risk factors to be included should be determined by the credit institutions trading strategy.

**Interest Rate Risk**

For interest rate risk, the risk management system shall incorporate a set of risk factors corresponding to the interest rates in each currency in which the institution has an interest rate sensitive on- or off- balance sheet position. The institution shall model the yield curves using one of the generally accepted approaches. For material exposures to interest rate risk in the major currencies and markets, the yield curve shall be divided into a minimum of six maturity segments, to capture the variations of volatility of rates along the yield curve. The risk-measurement system must also capture the risk of less than perfectly correlated movements between different yield curves.

**Foreign Currency Risk**

For foreign currency risk, the risk-measurement system must incorporate risk factors corresponding to gold and to the individual foreign currencies in which the institution’s positions are denominated.
**Equity Risk**

For equity risk, the risk-measurement system must use a separate risk factor at least for each of the equity markets for which the institution holds significant positions.

**Commodity Risk**

For commodity risk, the risk-measurement system must use a separate risk factor at least for each commodity in which the institution holds significant positions. The risk-measurement system must also capture the risk of less than perfectly correlated movements between similar, but not identical commodities and the exposure to changes in forward prices arising from maturity mismatches. It shall also take account of market characteristics, notably delivery dates and the scope they provided to traders to close out positions.

**8.9 Use of Internal Models in the determination of Specific Risk Requirements**

This section deals with specific risk associated with traded debt and equity instruments and associated off-balance sheet items. Specific risk is the risk that the price of an individual debt or equity instrument will change, due to factors relating to its issuer, relative to the price of securities generally. It is the risk of loss specifically arising from holding that instrument. It can arise from event or default risk or take the form of day to day variations (idiosyncratic risk).

In order to have a model recognised for the purposes of calculating specific risk requirements the following standards will, in addition to the quantitative and qualitative standards already specified, have to be met.

(a) The model must explain the historical price variation in the portfolio;

(b) The model should capture the concentration in terms of magnitude and changes in the portfolio;

(c) The model must be robust to an adverse environment;

(d) The model must be validated through back-testing done to ensure that specific risk is being accurately captured by the model (each quarter).
If all of the above requirements are met, the model may be recognised by the Bank for the calculation of capital requirements for specific risk and the institution will be subject to a specific risk surcharge, as detailed in Section 8.16.

Where an institution’s model does not meet these criteria the institution will be subject to a separate specific risk charge calculated using the standard approach, as detailed in Section 4.3.1.

8.10 Combination of Standard Approach and Internal Model Approach

A credit institution may use a combination of the standard approach and the internal model approach to calculate its market risk capital requirements. However, the Bank requires that a single approach be used for a broad risk category and a combination of the two approaches will not normally be permitted for material risk within a risk factor or across different entities or locations. Within a broad risk factor category a model should capture the material risks arising from options and option type products.

The inclusion of new products within the scope of the model must be in accordance with the procedures set out in the model recognition letter. That is, if the Bank considers the institution to have adequate new product procedures then the institutions may incorporate the new products within the scope of the model effective immediately. Otherwise the new products should initially be treated under the standard approach.

Where a combination of the standard and internal models approach is being used the capital required will be the sum of the figures calculated under both methods.

8.11 Stress Testing

The Bank attaches importance to the stress testing of the various risks facing a credit institution in its overall activity. A credit institution which uses an internal model to calculate its supervisory capital must have in place a rigorous and comprehensive programme of stress testing. As part of the model recognition process the Bank will

---

5 Stress testing is a way of identifying the risk to a credit institution posed by a breakdown of model assumptions or the occurrence of a low-probability event.
examine the stress testing programme and the procedures in place to assess and respond to its results.

Stress testing should be carried out with a frequency which is relevant to the portfolio of the institution. The results of stress testing should be communicated to the senior management and the Board of Directors for review. The limits and polices set should reflect the results of stress testing. The credit institution will be required to discuss from time to time with the Bank the stress testing programme and its results. The Bank will consider the appropriateness of scenarios which are used to test the effect of adverse market movements and the effect of changing assumptions on the underlying models.

8.12 Back-testing

Back-testing is used to compare the output of the model - a VaR forecast - with the corresponding trading outcome- P & L. The frequency with which the P &L exceed the VaR forecast would give an indication of any inherent weaknesses in the model.

The credit institution must have a back-testing programme in place which will on each business day provide a comparison between the one-day value-at-risk measure generated by the internal model and the change in portfolio’s actual value at the end of the subsequent business day.

Before model recognition is granted a credit institution must provide at least three months of back-testing history. For each day in this three month period the credit institution must compare the day’s P&L figure with the one day VaR forecast. The VaR measure used for backtesting purposes must be calculated using the institution’s model in exactly the same way as that used to calculate capital requirements except that it must be based on a one-day holding period.

In analysing the P&L the credit institution should be in a position to do so by source and compare the results to the VaR measure used for back-testing both at the level of the whole portfolio and individual books.
Credit institutions should have the capability to perform back-testing against hypothetical changes in the portfolio’s value. Backtesting on hypothetical changes in the portfolio’s value is based on a comparison between the portfolio’s end of day value and, assuming unchanged positions, its value at the end of the subsequent business day.

The Bank will require an institution to amend its back-testing programme where it is considered to be deficient.

**8.13 Supervisory Response to Back-Testing Exceptions**

The Bank will apply an appropriate *multiplication factor* to translate the internal VaR estimate generated by the model into the capital charge for market risk.

This multiplication factor will be determined by the Bank based on the accuracy and integrity of the institution’s model. It will typically be a value between three (minimum) and four, but will be subject to change by the introduction of a *plus factor*. Improvements in the model and its implementation may result in the Bank reducing an institution’s multiplication factor while increases may arise as a result of evidence of inaccurate results, through the occurrence of overshootings (exceptions), or other perceived weaknesses in the model.

An overshooting occurs when the change in the portfolio value (loss) exceeds the related one-day value at risk measure generated by the institutions model. All such overshootings must be recorded and a credit institution must submit, to the Bank, a written account of each exception—its cause and the planned response if any—within five working days of the exception occurring.

The Bank will take into account a range of factors in assessing whether an exception should be counted as a recognised exception depending on the nature, size and frequency of exceptions and/or other evidence of the models quality. It will be the responsibility of the credit institution to satisfy the Bank that corrective action has been taken and that the exception arose as a result of an exceptional situation.

---

6 The portfolios underlying the P&L and VaR measures should be the same. To ensure that
If 10 or more exceptions occur in the first 250 days of use the Bank will automatically apply a plus factor of one, until it is satisfied that adequate remedial action has been taken. The Bank may also consider withdrawing model recognition. Similarly if, during this period, an exception raises concerns about the suitability/accuracy of the model the Bank may introduce or increase the plus factor.

From the date at which the institution has 250 days of backtesting data available plus factors will be introduced or increased on the following basis and will depend on the number of overshootings (exceptions) occurring in the most recent 250 days.

The table below sets out the minimum multiplication factors (which include a plus factor) which will be applied, based on the number of exceptions recorded in each rolling period of 250 days.

The minimum multiplication factor in the table is 3. The multiplication factor includes the plus factor and is therefore subject to change.

<table>
<thead>
<tr>
<th>Zone</th>
<th>Number of exceptions</th>
<th>Plus factor</th>
<th>Multiplication Factor*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>4 or less</td>
<td>0.00</td>
<td>3.00</td>
</tr>
<tr>
<td>Yellow</td>
<td>5</td>
<td>0.40</td>
<td>3.40</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>0.50</td>
<td>3.50</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>0.65</td>
<td>3.65</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>0.75</td>
<td>3.75</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>0.85</td>
<td>3.85</td>
</tr>
<tr>
<td>Red</td>
<td>10 or more</td>
<td>1.00</td>
<td>4.00</td>
</tr>
</tbody>
</table>

*Assuming all qualitative standards are fully met

The Bank may apply plus factors in the green zone where no exceptions have occurred but other factors reveal problems in the model or a factor greater than 1 in the red zone. Where back-testing reveals problems with shortcomings in the integrity of the model, recognition may be withdrawn.

backtesting results are not biased by the inclusion in the P&L of non-modelled factors, the Bank will wish to agree the backtesting standards with each institution.
8.14 Calculation of Capital Requirements Using Internal Models

Where a credit institution uses its internal model to calculate the market risk charge, its total capital requirement for its trading book will be as follows:

1. the capital charge for market risk arrived at using the model (8.15); plus
2. the capital charges for market risk calculated under the standard approach (where a combination approach is being used); plus
3. the capital charges for counterparty risk in the trading book; plus
4. the incremental capital charges for large exposures.

8.15 Capital Charge Arrived at Using the Model

The capital requirement on a daily basis is equal to the higher of
- the previous days overall VaR measured according to the quantitative standards;
- an average of the daily VaR measured according to the quantitative standards on each of the preceding 60 business days multiplied by the appropriate multiplication factor (which incorporates the plus factor).

The calculation will be increased by a surcharge for those institution’s whose model has been recognised to calculate specific risk, set out in Section 8.16. unless this charge has been waived. For institution’s whose model has not been recognised for the purposes of determining specific risk, the charge in respect of specific will be calculated using the standard approaches of Sections 4.3 and 4.4 and will feed into item 2 of Section 8.14.

8.16 Surcharge for Specific Risk

Where a credit institution models specific risk it is required to increase its market risk capital by a surcharge. The surcharge can be calculated as

(i) an amount equal to the specific risk portion of the VaR measure calculated according to the requirements set out below; or
(ii) an amount equal to the VaR measures of sub-portfolios that are subject to specific risk.
In both cases the surcharge for specific risk should be calculated as an average over the previous 60 business days.

For (i) above the requirements for separating general and specific risk are as follows

**Equities:** The market should be identified with a single factor that is representative of the market as a whole and this factor should be taken to be the general market risk factor.

**Bonds:** The market should be identified with a reference curve for the currency concerned and this should be taken to be the general market risk curve.

A credit institution may select its own technique for identifying the specific risk component of the VaR measures for the purposes of calculating the surcharge. Such measures should be agreed with the Bank.

For (ii) above the sub-portfolio structure should be identified in advance and not be changed without the Bank’s prior consent.

While the Bank may waive a separate calculation of a capital charge for specific risk it will only consider doing so if a credit institution can demonstrate that the methodologies which it uses are in line with international agreed standards for the capture of event and default risk for its traded debt and equity positions and related off-balance sheet positions.
9. CONSOLIDATION

The Bank will apply capital adequacy requirements both on a consolidated basis (in accordance with the provisions of the Consolidated Supervision Directive) and also below the level of full group consolidation (i.e. solo basis) in order to achieve an appropriate distribution of capital throughout a banking group.

A credit institution subject to the calculation of capital requirements on a consolidated basis must consolidate all incorporated credit institution and investment firm subsidiaries and all their subsidiaries and participation’s and also their financial holding companies. The capital requirements for investment firms are set out in a separate implementation Notice issued by the Bank.

9.1 Consolidated Capital Requirements

The calculation of capital adequacy on a solo basis for an individual credit institution which has both a trading book and banking book is set out in Section 1.2. The calculation combines banking book risk assets with the notional risk asset equivalent of the trading book capital requirement to provide the denominator for calculating the capital ratios of the credit institution. This approach is called the simple aggregation approach.

The calculation of capital adequacy on a consolidated basis is determined by the type of institution being consolidated as follows:

Credit Institutions: Banking Books

(1) Consolidation for banking books will be carried out on a line-by-line (or accounting) basis across the group members being consolidated. The group banking book capital requirement shall be determined by multiplying the risk weighted assets by the solvency ratio set by the Bank for that group.
Credit Institutions: Trading Books

(2) The total trading book risk of two or more credit institutions in a group will be consolidated using “aggregation plus”. The notional risk weighted assets for each trading book is calculated separately (see Section 1.2) and aggregated to give the overall total of risk weighted assets for all such trading books.

(3) The trading book’s notional risk weighted assets, should be determined using:

(a) the CAD as implemented by the relevant EU/EEA banking supervisor;

(b) the host banking supervisor’s rules, where these are considered by the Bank to be broadly equivalent to the CAD; or

(c) the CAD, according to the requirements as set out in this implementation Notice.

(4) The group trading book capital requirement is then generated by multiplying notional risk weighted assets by the trading book capital ratio set by the Bank for that banking group.

(5) Where the Bank or other regulator as specified in (3) above has granted an exemption from trading book capital requirements to a credit institution subsidiary of a banking group, the subsidiary shall be consolidated with other group banking books on a line-by-line basis. However, such subsidiaries must also comply with the capital requirement for Foreign Exchange Risk, which shall be consolidated on the same basis as credit institutions’ trading books.

Investment Firms

(6) Investment firms which are subsidiaries of credit institutions will be consolidated using “aggregation plus”. The notional risk weighted assets for each investment firm are calculated separately and are aggregated to give the total notional risk weighted assets for all investment firm subsidiaries.

(7) The investment firm’s notional risk weighted assets should be determined using:
(a) the CAD as implemented by the relevant EU/EEA securities regulator, including the Bank as securities regulator;

(b) the host securities regulator’s rules, where these are considered by the Bank to be broadly equivalent to the CAD; or

(c) the CAD, according to the requirements as set out in this implementation Notice.

(8) The capital requirement for investment firms in the group is then generated by multiplying the total notional risk weighted assets by the capital ratio set by the Bank for that banking group.

(9) The use of aggregation plus for investment firm subsidiaries may be constrained by the size of non-trading (or banking book) activity of such firms. If this is large, the Bank may require the use of line-by-line (or accounting) consolidation for these non-trading book items.

**Line by line aggregation of trading books**

(10) As an alternative to aggregation-plus, consolidation of an investment firm and the trading books of group credit institutions may in exceptional circumstances and with the prior written approval of the Bank, be carried out on a line-by-line basis. The use of line-by-line consolidation for trading books will normally only be considered where daily risk management of group trading book positions is conducted centrally and where all of the following conditions can be met:

(a) the parent bank calculates or monitors trading book positions in an integrated fashion across the entities using this basis of consolidation;

(b) the investment firm and credit institution subsidiaries satisfy their local supervisory requirements on a solo basis;

(c) the parent bank is able to carry out adequate line by line consolidation on a daily basis; and

(d) capital resources are freely transferable within the group.

(11) When consolidating using the line-by-line approach, a credit institution can construct its consolidated capital requirement for general market risk without
first calculating the net position in each security on a consolidated basis (i.e.
rather than recalculating the net positions in each security on a consolidated
basis, an institution may use the sum of net positions calculated for individual
institutions on a solo basis). However, the method used to measure general
market risk must be the same for all entities subject to the line-by-line
consolidation.

**Other Group Financial Institutions**

(12) Other group financial institutions will usually be consolidated on a line-by-line
basis with the banking books.

### 9.2 Consolidation of Entities that use Internal VaR Models

Where a subsidiary which is consolidated using aggregation plus uses an internal model
recognised by its local CAD or CAD equivalent regulator to generate its solo capital
charge, then the output of the subsidiary’s model can be used when calculating the
consolidated capital charge for the Group. The calculation of the subsidiary’s notional
risk weighted assets, for inclusion in the consolidated capital requirement must include
the multiplication and other plus factors of the local regulator. Where the institution
proposes to use line-by-line consolidation the prior approval of the Bank must be
sought.

### 9.3 Offsetting

In determining consolidated group capital requirements, recognition for offsetting
exposures can only be given where consolidation is done on a line-by-line basis as set
out above. Offsetting is not permitted under the aggregation plus method.
10. LARGE EXPOSURES

A credit institution shall monitor and control its large exposures in accordance with the Large Exposures Directive 92/121/EEC as implemented by the Bank in its Notice of February 1994 (the Large Exposures Notice), subject to the modifications in this Section.

10.1 Scope

Compliance with the requirements set out in this Section will also be monitored on a consolidated basis for each credit institution. In this respect, however, measures must be taken to ensure the satisfactory allocation of risks within each group.

In the case of a credit institution which has a subsidiary which is also a credit institution or investment firm authorised by the Bank, the Bank may consider in certain circumstances and, subject to its prior approval, the monitoring of large exposures on a consolidated basis only.

If a credit institution is neither a parent undertaking nor a subsidiary, compliance with the requirements of this Section will be monitored on an unconsolidated basis.

10.2 Measurement of Exposures

The overall exposures to individual clients or groups of connected clients must be calculated by summing the exposures which arise on the trading book with those in the banking book and deducting from this sum, the exempt exposures as set out in the Large Exposures Notice. Items deducted in the calculation of Own Funds (see Section 2) are disregarded in the calculation of an exposure.

10.3 Large Exposures in the Trading Book

The exposures to individual clients which arise on the trading book shall be calculated by summing the following items:

(1) the excess - where positive - of the credit institution’s long positions over its short positions in all the financial instruments issued by the client in question
(with the net position in each of the different instruments being calculated according to the methods specified in Section 4).

(2) in the case of the underwriting of a debt or an equity instrument, the credit institution’s exposure shall be its reduced net exposure calculated in accordance with the methodology set out under Underwriting in Section 4.2 using the following reduction factors:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Working day zero</td>
<td>100%</td>
</tr>
<tr>
<td>- Working day 1</td>
<td>90%</td>
</tr>
<tr>
<td>- Working day 2 or 3</td>
<td>75%</td>
</tr>
<tr>
<td>- Working day 4</td>
<td>50%</td>
</tr>
<tr>
<td>- Working day 5</td>
<td>25%</td>
</tr>
<tr>
<td>- after working day 5</td>
<td>0%</td>
</tr>
</tbody>
</table>

(3) the Settlement and Counterparty Risk exposures due to the transactions, agreements and contracts referred to in Section 5 with the client in question, such exposures being calculated without the application of counterparty weightings.

The exposures to groups of connected clients in the trading book must be calculated by summing the exposures to the individual clients in a group in accordance with (1) to (3) above.

10.4 Limits on Large Exposures

The Bank shall continue to apply to credit institutions the limits laid down in Paragraph 3 of the Large Exposures Notice. However, a credit institution may use the expanded definition of Own Funds (i.e., including Tier 3, see Section 2) in respect of an overall large exposure (banking and trading book combined) provided that the
banking book element of the exposure already satisfies the limits based on Tier 1 plus Tier 2 Own Funds.

10.5 Permitted Excesses

On application by a credit institution to the Bank these limits may be exceeded subject to the following conditions being met simultaneously:

(1) the exposure on the banking book to the client or group of clients in question does not exceed the limits set out in Paragraph 3 of the Large Exposures Notice, calculated with reference to Tier 1 plus Tier 2 Own Funds, so that the excess arises entirely on the trading book;

(2) the credit institution meets an additional capital requirement in respect of the excess exposure to the client/group of connected clients. This additional requirement is based on the components of the exposure attracting the largest specific risk or settlement/counterparty risk requirements, which are selected as follows:

(a) Determine the total trading book exposure to the client/group of connected clients, in question, in accordance with Section 10.3 as follows:

(i) the excess - where positive - of the credit institution’s long positions over its short positions in all the financial instruments issued by the client in question (with the net position in each of the different instruments being calculated according to the methods specified in Section 4).

(ii) in the case of the underwriting of a debt or an equity instrument, the credit institution’s exposure shall be its reduced net exposure calculated in accordance with the methodology set out under Underwriting in Section 4.2 using the following reduction factors:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Working day zero</td>
<td>100%</td>
</tr>
<tr>
<td>Working day 1</td>
<td>90%</td>
</tr>
<tr>
<td>Working day 2 or 3</td>
<td>75%</td>
</tr>
<tr>
<td>Working day 4</td>
<td>50%</td>
</tr>
<tr>
<td>Working day 5</td>
<td>25%</td>
</tr>
<tr>
<td>after working day 5</td>
<td>0%</td>
</tr>
</tbody>
</table>

(iii) the Settlement and Counterparty Risk exposures due to the transactions, agreements and contracts referred to in Section 5 with the client in question,
such exposures being calculated without the application of counterparty weightings.

(b) List the components of the exposure in the following order:

(i) Settlement exposure including non OTC counterparty exposure;
(ii) Non-qualifying interest rate exposures;
(iii) OTC contract counterparty exposure listed in descending order of Add-ons;
(iv) All other exposures listed in descending order of specific risk weight.

(c) Starting at the top, select items from this list until the total exposure on the selected items equals the excess exposure to the client/group of clients in question. The exposures selected in this way are used to determine the additional capital requirement.

Where the excess has existed for ten days or less, the additional capital requirement shall be 200 per cent. of the specific risk requirement or settlement/counterparty risk requirement applicable to the components making up the excess, as selected in accordance with (a)-(c) above.

Where the excess has existed for more than ten days, the components of the excess, selected in accordance with (a)-(c) above, must be accumulated and allocated to the appropriate line(s) in the table below in ascending order of specific risk requirement or settlement/counterparty risk requirement. The credit institution must then meet an additional capital requirement equal to the sum of the specific risk requirement or settlement/counterparty risk requirement on these components multiplied by the corresponding factor in Column 2 of the Table below.

<table>
<thead>
<tr>
<th>Excess over 25% of expanded own funds</th>
<th>Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>to 40%(^1)</td>
<td>200%</td>
</tr>
<tr>
<td>from 40% to 60%</td>
<td>300%</td>
</tr>
<tr>
<td>from 60% to 80%</td>
<td>400%</td>
</tr>
<tr>
<td>from 80% to 100%</td>
<td>500%</td>
</tr>
<tr>
<td>from 100% to 250%</td>
<td>600%</td>
</tr>
<tr>
<td>Over 250%</td>
<td>900%</td>
</tr>
</tbody>
</table>

\(^1\) Exposures in the range 25%-65% are reported in the first line
(3) Where 10 days or less have elapsed since the excess occurred, the trading book exposure to the client or group of connected clients in question must not exceed 500 per cent. of the credit institution’s own funds.

(4) Any excesses which have persisted for more than 10 days must not in aggregate exceed 600 per cent. of the credit institution’s own funds.

(5) A credit institution must report to the Bank quarterly all cases where the limits have been exceeded during the preceding three months. In each case in which the limits have been exceeded the amount of the excess and the name of the client concerned must be reported.

Banking Supervision Department
Central Bank of Ireland
Appendix 1

**Recognised Third Country Investment Firms**

Recognised third country investment firms are those subject to CAD equivalent regulation by the following bodies:

<table>
<thead>
<tr>
<th>Country</th>
<th>Regulator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Sydney Futures Exchange  &lt;br&gt; Australian Stock Exchange</td>
</tr>
<tr>
<td>Canada</td>
<td>Alberta Stock Exchange  &lt;br&gt; Montreal Exchange  &lt;br&gt; Toronto Stock Exchange  &lt;br&gt; Vancouver Stock Exchange  &lt;br&gt; Investment Dealers Association of Canada</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>Hong Kong Monetary Authority  &lt;br&gt; Hong Kong Securities and Futures Commission</td>
</tr>
<tr>
<td>Japan</td>
<td>Japanese Financial Supervisory Agency  &lt;br&gt; Monetary Authority of Singapore  &lt;br&gt; Stock Exchange of Singapore</td>
</tr>
<tr>
<td>Singapore</td>
<td>Federal Banking Commission  &lt;br&gt; Securities and Exchanges Commission  &lt;br&gt; Commodities and Futures Trading Commission</td>
</tr>
<tr>
<td>Switzerland</td>
<td>Johannesburg Stock Exchange  &lt;br&gt; South African Futures Exchange  &lt;br&gt; Bond Exchange of South Africa</td>
</tr>
</tbody>
</table>
Appendix 2

Recognised Clearing Houses and Exchanges

**Recognised Exchanges**

- Alberta Stock Exchange
- American Stock Exchange
- Amsterdam Pork and Potato Terminal Market (Termijnmarkt Amsterdam BV)
- Amsterdam Stock Exchange (Amsterdamse Effectenbeurs)
- Antwerp (Effectenbeursvennootschap van Antwerpen)
- Athens Stock Exchange (ASE)
- Australian Stock Exchange
- Basle Stock Exchange (Basler Effektenbörse)
- Barcelona Stock Exchange (Bolsa de Valores de Barcelona)
- Belgian Futures & Options Exchange (BELFOX)
- Berlin Stock Exchange (Berliner Börse)
- Bilbao Stock Exchange (Bolsa de Valores de Bilbao)
- Bologna Stock Exchange (Borsa Valori de Bologna)
- Bordeaux (Bourse de Bordeaux)
- Bremen Stock Exchange (Bremer Wertpapierbörse)
- Brussels Stock Exchange (Société de la Bourse des Valeurs Mobilières)/ (Effecten Beursvennootschap van Brussel)
- Chicago Board of Trade
- Chicago Board Options Exchange
- Chicago Mercantile Exchange
- Coffee, Sugar and Cocoa Exchange Inc.
- Copenhagen Stock Exchange (Kobenhavns Fondsbors)
- DTB Deutsche Terminbörse
- The Irish Stock Exchange
- Dusseldorf Stock Exchange (Rheinisch-Westfalische Börse zu Düsseldorf)
- European Options Exchange
- Financiele Termijnmarkt, Amsterdam
- Finnish Options Exchange
- Florence Stock Exchange (Borsa Valori di Firenze)
- Frankfurt Stock Exchange (Frankfurter Wertpapierbörse)
- Genoa Stock Exchange (Borsa Valori di Genova)
- Geneva Stock Exchange (Bourse de Geneve)
- Hamburg Stock Exchange (Hanseatische Vertpapier Börse Hamburg)
- Hannover (Niedersächsische Börse zu Hannover)
- Helsinki Stock Exchange (Helsingin Arvopaperipörssli Osuuskunta)
- Hong Kong Futures Exchange
- International Petroleum Exchange of London Ltd
- Kansas City Board of Trade
- Lille (Bourse de Lille)
- Lisbon Stock Exchange (Bolsa de Valores de Lisboa)
- London International Financial Futures & Options Exchange
- London Metal Exchange Ltd
- London Stock Exchange
- Luxembourg Stock Exchange (Société de la Bourse de Luxembourg SA)
Lyon (Bourse de Lyon)
Madrid Stock Exchange (Bolsa de Valores de Madrid)
Marché à Terme International de France (MATIF)
Marché des Options Négociables de Paris (MONEP)
Marseille (Bourse de Marseille)
MEFF Renta Fija
MEFF Renta Variable
Mercato Italiano Derivati (IDEM)
Mercato Italiano Futures (MIF)
Mid American Commodity Exchange
Milan Stock Exchange (Borsa Valori di Milano)
Montreal Exchange
Munich Stock Exchange (Bayerische Börse in München)
Nagoya Stock Exchange
Nancy (Bourse de Nancy)
Nantes (Bourse de Nantes)
Naples Stock Exchange (Borsa Valori di Napoli)
National Association of Securities Dealers Incorporated (NASDAQ)
New York Cotton Exchange
New York Futures Exchange
New York Mercantile Exchange
New York Stock Exchange
OM Stockholm AB
OMLX, The London Securities and Derivatives Exchange Ltd
Oporto Stock Exchange (Bolsa de Valores do Porto)
Osaka Securities Exchange
Oslo Stock Exchange (Oslo Bors)
Pacific Stock Exchange
Palermo Stock Exchange (Borsa Valori di Palermo)
Paris Stock Exchange
Philadelphia Board of Trade
Philadelphia Stock Exchange
Rome Stock Exchange (Borsa Valori di Roma)
Singapore International Monetary Exchange Limited (SIMEX)
Stockholm Stock Exchange (Stockholm Fondbörs)
Stock Exchange of Hong Kong Ltd
Stock Exchange of Singapore
Stuttgart Stock Exchange (Baden-Württembergische Wertpapierbörse zu Stuttgart)
Swiss Futures and Options Exchange (SOFFEX)
Sydney Futures Exchange
Tokyo Stock Exchange
Tokyo International Financial Futures Exchange
Toronto Stock Exchange
Trieste Stock Exchange (Borsa Valori di Trieste)
Turin Stock Exchange (Borsa Valori de Torino)
Valencia Stock Exchange (Bolsa de Valores de Valencia)
Vancouver Stock Exchange
Venice Stock Exchange (Borsa Valori de Venezia)
Vienna Stock Exchange
Zurich Stock Exchange (Zurcher Borse)
Recognised Clearing Houses
Austrian Kontroll Bank (OKB)
Board of Trade Clearing Corporation
Cassa di Compensazione e Garanzia S.p.A. (CCG)
Commodity Clearing Corporation
The Emerging Markets Clearing Corporation
European Options Clearing Corporation Holding BV (EOCC)
Guarantee Fund for Danish Options and Futures (Garantifonden for Danske Optioner OG Futures) (FUTOP)
Kansas City Board of Trade Clearing Corporation
Hong Kong Futures Exchange Clearing Corporation Ltd
Hong Kong Securities Clearing Company Ltd
London Clearing House (LCH)
Norwegian Futures & Options Clearing House (Norsk Opsjonssentral A.S.)
N.V. Nederlandse Liquidatiekas (NLKKAS)
OM Stockholm AB (OM)
Options Clearing Corporation
OTOB Clearing Bank AG (OTOB)
Société de Compensation des Marchés Conditionnels (SCMC)
Sydney Futures Exchange Clearing House (SFECH Ltd)

(This list may be amended periodically.)
### Appendix 3

#### Recognised Credit Rating Agencies

<table>
<thead>
<tr>
<th>For all Issuers:</th>
<th>Securities</th>
<th>Money Market Obligations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moody’s Investors Service</td>
<td>Baa3</td>
<td>P3</td>
</tr>
<tr>
<td>Standard &amp; Poor’s Corporation</td>
<td>BBB-</td>
<td>A3</td>
</tr>
<tr>
<td>Fitch IBCA</td>
<td>BBB-</td>
<td>F-3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For all banks, building societies and parent companies and subsidiaries of banks:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Thomson Bankwatch</td>
<td>BBB-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For Canadian Issuers (and issuers of Canadian dollars):</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Canadian Bond Rating Service</td>
<td>B++ low</td>
</tr>
<tr>
<td>Dominion Bond Rating Service</td>
<td>BBB low</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For Japanese Issuers (and issuers of Japanese Yen):</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan Credit Rating Agency, Ltd</td>
<td>BBB-</td>
</tr>
<tr>
<td>Japan Rating and Investment Information Inc</td>
<td>BBB-</td>
</tr>
<tr>
<td>Mikuno &amp; Co</td>
<td>BBB</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For United States Issuers (and issuers of US dollars):</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Duff and Phelps, Inc</td>
<td>BBB-</td>
</tr>
</tbody>
</table>

(This list may be amended periodically.)
Appendix 4

Trading Book Policy Statement

Each credit institution with a trading book, is required to agree a trading book policy with the Bank. The procedure for agreeing such a statement shall be as follows:

1. The institution shall submit a draft trading book policy statement which covers the following:

   • A statement on the institution’s policy re: Allocation of Positions;
     - a listing of institution’s activities which it normally considers to be trading and includes in its trading book;
     - a description of how positions are allocated at time of trade.

   • A statement of the institution’s policy re: Valuation of Positions;
     - a description of the process used to value positions (mark-to-market, off-market prices, bid/offer/mid prices), in particular, the valuation of positions for which independent market prices are not readily available.
     - the pricing of options, in particular, the determination of appropriate deltas (from option pricing models or the use of an exchange delta).

   • A statement on the institution’s policy re: Hedging;
     - details of the procedure for identifying hedges.
     - details of the procedures used to hedge between the Banking Book and the Trading Book (identification of the reasons for transfer/setting up of an appropriate audit trail/monitoring adherence to policy).
• A policy statement on the Use of models;

- a listing of all models employed to process positions in the Trading Book (option pricing models/ interest rate sensitivity models).

- a brief description of all methodologies being employed in the calculation of risk in the trading book.

• A list of approvals being sought by the institution.

The following activities/ methodologies require the Bank’s prior approval, or notification:

- approval to include reverse Repos in Trading Book;

- approval of off market pricing;

- notification of Duration Approach to general interest rate risk;

- approval to treat equities for interest rate risk as if they were government securities;

- approval required re: underwriting;

- approval for alternative settlement risk calculation;

- approval for use of NPV FX positions;

- approval re:correlated currencies;

- approval re: Consolidated Large Exposures;

- approval for line-by-line consolidation in Integrated Trading Group.

- approval re: internal VaR models or pre-processing models.

The policy statement should list both items for which approvals are currently being sought and those for which the institution is not seeking approval and therefore is
not currently using. This would not preclude an institution from applying for approval in the future.

In addition to the above, the trading book policy statement of an institution whose trading book activity is below the de minimis level must include:

- an indication of exceptions being sought, whether for the institution as a whole or selected subsidiaries;
- documentation supporting applications for exemption from the CAD trading book capital requirement, including completed trading book exemption forms;
- details of procedures in place to monitor the size of the trading book to identify any breaches of the de minimis level.

2. The statement shall be reviewed by the Bank and agreed in draft form with the institution.

3. The institution shall arrange for external auditors to confirm the following in writing:

- that the criteria used for the allocation of positions is reasonable and in accordance with accounting policies;
- that the policy with regard to hedging complies with the CAD implementation notice;
- that the policy for the valuation of positions is acceptable and in accordance with best accounting practice.

4. The statement, as agreed in draft form with the Bank, shall be approved by the institution’s Board and re-submitted to the Bank, together with the audit confirmation, for formal approval.

5. The statement should be reviewed frequently (at least annually), and, where necessary, updated subject to the agreement of the Bank. Updates should be reviewed by external auditors and approved by the Board of the institution.