ISLE OF MAN
FINANCIAL SERVICES AUTHORITY

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TS17-08(200)

Technical Specification for
Non-Life QIS4 Exercise
at a 1 in 50/1 in 100/1 in 200 Year Level
28 July 2017

This paper is issued by the Isle of Man Financial Services Authority ("the FSA"), the regulatory authority responsible for the supervision of the insurance and pensions sectors in the Isle of Man.

What is it for?

This paper accompanies the FSA's Consultation Paper [CP17-08/T09]. It sets out the technical specification for our latest Quantitative Impact Study (QIS4) in respect of the valuation of the assets and liabilities and the assessment of capital adequacy of insurers undertaking non-life insurance business. The technical specification may be revised following the QIS4 exercise based on the results of that exercise or further developed via the consultative process. This technical specification is therefore not (at this stage) the FSA's proposed specification for its new valuation and capital adequacy regime.

Who is affected by it?

This document will be of direct interest to those with responsibility for modelling, calculating, and reviewing and/or using the calculation of technical provisions and assessing risk and capital adequacy for all existing and prospective insurance companies undertaking non-life insurance business in or from the Isle of Man.

The FSA has advised each non-life insurer whether they should apply one or more of the 1 in 50, 1 in 100 and 1 in 200 year confidence levels when assessing capital adequacy in the QIS4 exercise.

Other parties with an interest in the Isle of Man non-life assurance sector may also find this specification and the issues raised of interest.

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1. Valuation

1.1. Assets and other Liabilities

1.1.1. Valuation Approach

1.1.1.1 The primary objective for valuation as set out in Section 3 of CP16-04 requires an economic, market-consistent approach to the valuation of both assets and liabilities. According to the risk-based approach set out in Section 3.6 of CP16-04, when valuing balance sheet items on an economic basis, insurers need to consider the risks that arise from a particular balance sheet item, using principles, methodologies and parameters that the financial markets would expect to be used in valuing the asset or liability.

1.1.1.2 Wherever possible, a market-consistent valuation should be used for the economic valuation of assets and liabilities. A valuation that is based upon principles, methodologies and parameters that the financial markets would expect to be used is termed a market-consistent valuation. Where a range of assessments and approaches is evident from a market, a market-consistent valuation is one that falls within this range.

1.1.1.3 It may be well known to financial markets that the approach taken to market assessments for some assets and insurance liabilities or their components uses modelling based on certain assumptions, techniques and portfolio specific information as well as generally available data on insurance technical risks. A calculation consistent with this approach would be market-consistent.

1.1.1.4 However, in exceptional circumstances, there may be information additional to that on market assessments from the wider economy that should be taken into account e.g. where a market is anomalous, not operating effectively or is subject to intervention from the relevant authorities. For example, where a government/regulator intervenes in a major way e.g. by injecting money or taking control. Such action may be in response to or the cause of distortions of supply and demand in relevant markets so that values determined in a market-consistent way may also be distorted temporarily. In addition, alternative approaches will be needed in the case of assets, or liabilities which are determined by reference to such assets which are not frequently traded.

1.1.1.5 A market-consistent value may not then be appropriate and a different value, which may, for example, be expected to be market-consistent under more normal market conditions, may need to be determined to arrive at an economic valuation for solvency purposes. The extent to which this is appropriate is likely to vary according to market conditions. If such circumstances arise, we would provide guidance as to the appropriate values or adjustments insurers should use for solvency purposes to reflect the risk-adjusted present value of their cash flows and maintain consistency, decision usefulness, relevance and transparency.

1.1.1.6   A sufficiently active market may exist for an asset or liability that in itself provides a measure of value that is market-consistent. For other assets and liabilities or when the market becomes illiquid, there may be no direct measure of value. However, relevant market information may be available regarding the assessment of components of the rights, obligations or risks of the asset or liability. If, for example, a component of the obligations of an insurance liability can be replicated using financial instruments for which there is a reliable market value, that value provides a reliable indication of the value for this component.

1.1.1.7   The market-consistent value of an asset or liability may be determined using different techniques, or a combination thereof. This approach to valuation is sometimes termed the "components approach", under which risk components are valued at market value where such a value is ascertainable, decision useful and reliable; other components may need to be valued using marked-to-model methods. Separate components may, for example, be identifiable for insurance contracts which have an investment or deposit component and an insurance risk component. The components approach helps to improve market consistency and reduce modelling error. It should be noted that where there is no sufficiently deep and liquid market from which to determine a market-consistent value for a risk component, the additional liquidity risk needs to be considered.

1.1.2.   Specific recognition and valuation requirements for selected items on the regulatory balance sheet

1.1.2.1   **Intangible assets**. Goodwill is to be valued at zero. Other intangible assets can be recognised and measured at a value other than zero only if they can be sold separately and if there is a quoted market price in an active market for the same or similar intangible assets.

1.1.2.2   **Participations**. Holdings in related entities are to be valued at the quoted market price in an active market. If this valuation is not possible:

1) **Holdings in related insurers and reinsurers:**

a) Subsidiary insurers or reinsurers must be valued using the equity method based on recognition and measurement for the subsidiary's balance sheet consistent with the requirements of this technical specification.

b) Related insurers or reinsurers other than subsidiaries should also be valued using the equity method using recognition and measurement of the holding's balance sheet consistent with the requirements of this technical specification. However if this is not possible an alternative valuation method in accordance with the requirements in 1.1.1 should be used.

2) **Holdings in entities other than insurers and reinsurers:**

    a) Holdings in entities other than insurers and reinsurers should be valued using the equity method based on recognition and measurement of the related undertaking's balance sheet consistent with the requirements of this technical specification. If that is not practicable the equity method would be applied to the entity's balance sheet following IFRS with the amendment that goodwill and other intangible assets would need to be deducted. If this is not possible for related entities, <u>other than subsidiaries,</u> an alternative valuation method in accordance with the requirements in 1.1.1 should be used.

1.1.2.3 **Contingent liabilities**. For regulatory solvency purposes, material contingent liabilities must be valued as liabilities. The valuation of the liability should follow the recognition and measurement requirements of FRS12 on "Provisions, Contingent Liabilities and Contingent Assets" however with the use of the risk-free interest rate term structure as set out in Appendix 1 section 1.4.

1.1.2.4 **Deferred taxes**. Insurers and reinsurers shall recognise and value deferred tax assets and liabilities in relation to all assets and liabilities that are recognised for solvency or tax purposes in accordance with IFRS. Notwithstanding this, (re)insurers shall value deferred taxes, other than deferred tax assets arising from the carry forward of unused tax credits and the carry forward of unused tax losses, on the basis of the difference between the value ascribed to assets and liabilities recognised and valued according to this technical specification, and the values ascribed to assets and liabilities as recognised and valued for tax purposes. (Re)insurers should only ascribe a positive value to deferred tax assets where it is probable that future taxable profit will be available against which the deferred tax asset can be utilised, taking into account any legal or regulatory requirements on the time relating to the carry forward of unused tax losses or the carry forward of unused tax credits.

1.2. Liabilities

1.2.1. Valuation approach

1.2.1.1 The market-consistent value of a liability may be determined using different techniques, or a combination thereof. For example, in valuing technical provisions:

- If the insurance obligations are traded in a sufficiently deep and liquid market, the observed prices may be used to arrive at a market-consistent value. The availability, decision usefulness and reliability of the prices should be taken into account when deriving the market-consistent value;

- If some or all of the cash flows associated with the insurance obligations can be replicated using financial instruments, the market value of the replicating financial instruments may be used as the value of those cash flows;

1.2.1.2 If the cash flows associated with the insurance obligations cannot be replicated perfectly, then the remaining cash flows may be valued using a discounted cash flow model. To be market-consistent, the methodology used needs to deliver a proxy for market value based on market-consistent valuation principles and to reflect the uncertainty or unavailability of market information

1.3. Technical Provisions

1.3.1. Introduction

1.3.1.1 Under the approach set out in CP16-04 section 3.8, the FSA's ultimate aim is that insurers are required to set up technical provisions which correspond to the economic value of the entity fulfilling its insurance obligations to policyholders and other beneficiaries arising over the lifetime of the entity's portfolio of insurance policies. The value of technical provisions should be equal to the sum of a best estimate provision and a risk margin, as described in Appendix 1.

1.3.1.2 However we recognise that for non-life insurers this may be a significant change from the current approach used for accounting and regulatory purposes.

1.3.1.3 Over the coming years changes to accounting methodologies driven by IFRS 17 will require changes to the approach used for calculating technical provisions for accounting purposes, towards the best estimate plus risk margin approach which will be required by our new framework.

1.3.1.4 Non-life insurers may use their current accounting provisions in the QIS4 exercise, and potentially in the early years of the introduction of our new regime, while they work towards adapting their methodology to comply with both IFRS 17 requirements and the requirements of our regulatory regime. If insurers wish to adopt this approach they should satisfy themselves that the accounting provisions are likely to be no lower than the provisions calculated on a best estimate plus risk margin approach.

1.3.1.5 Where an insurer adopts the approach of using existing accounting provisions and is unable to split the technical provisions between best estimate and risk margin, the whole of the technical provisions should be shown in the QIS4 return as "best estimate provision". It will also be necessary to estimate the duration profile of the liability cash flows in order to estimate the impact of the interest rate shock scenario on technical provisions – we will provide a spreadsheet to assist with the application of the interest rate shock scenario

1.3.1.6 If insurers do wish to complete QIS4 on the basis of the proposed best estimate plus risk margin approach, details of the required approach are set out in Appendix 1. These details also include various approximate approaches which will be acceptable at least in early submissions while more detailed approaches are implemented.

1.3.1.7 Insurers should segment their (re)insurance obligations into homogeneous risk groups, and as a minimum by line of business, when calculating technical provisions. Section 1.3.2 specifies the required segmentation of the obligations.

1.3.2. Segmentation

General Principles

1.3.2.1   Insurance and reinsurance obligations should be segmented, as a minimum, by line of business (LoB) in order to calculate technical provisions.

1.3.2.2   The purpose of segmentation of (re)insurance obligations is to achieve an accurate valuation of technical provisions. For example, in order to ensure that appropriate assumptions are used, it is important that the assumptions are based on homogeneous data to avoid introducing distortions which might arise from combining dissimilar business. Therefore, business is often managed in more granular homogeneous risk groups than the proposed minimum segmentation by lines of business where it allows for a more accurate valuation of technical provisions.

1.3.2.3   Insurers offer insurance products covering different sets of risks. Therefore it is appropriate for each insurer to define the homogeneous risk group and the level of granularity most appropriate for their business and in the manner needed to derive appropriate assumptions for the calculation of the best estimate provision.

1.3.2.4   (Re)insurance obligations should be allocated to the line of business that best reflects the nature of the risks relating to the obligation. In particular, the principle of substance over form should be followed for the allocation. In other words, the segmentation should reflect the nature of the risks underlying the contract (substance), rather than the legal form of the contract (form).

1.3.2.5   The segmentation should be applied to both components of the technical provisions (best estimate provision and risk margin).

Segmentation of non-life and health insurance and reinsurance obligations

1.3.2.6   Non-life and health insurance obligations other than non-proportional reinsurance should be segmented into 16 lines of business (lines 1 to 12 and 25 to 28), also defined in Appendix 4:

1) Motor vehicle liability insurance

   Insurance obligations which cover all liabilities arising out of the use of motor vehicles operating on land (including carrier's liability).

2) Other motor insurance

   Insurance obligations which cover all damage to or loss of land vehicles (including railway rolling stock).

3) Marine, aviation and transport insurance (MAT)

   Insurance obligations which cover all damage to or loss to sea, lake, river and canal vessels, aircraft, and damage to or loss of goods in transit or baggage irrespective of the form of transport. Also insurance obligations which cover liabilities arising out of the use of aircraft, ships, vessels or boats on the sea, lakes rivers or canals (including carrier's liability).

4) Fire and other damage to property insurance

Insurance obligations which cover all damage to or loss of property other than those included in the lines of business 2 and 3 due to fire, explosion, natural forces including storm, hail or frost, nuclear energy, land subsidence and any event such as theft.

5) General liability insurance

Insurance obligations which cover all liabilities other than those in the lines of business 1 and 3.

6) Credit and suretyship insurance

Insurance obligations which cover insolvency, export credit, instalment credit, mortgages, agricultural credit and direct and indirect suretyship.

7) Legal expenses insurance

Insurance obligations which cover legal expenses and cost of litigation.

8) Assistance

Insurance obligations which cover assistance for persons who get into difficulties while travelling, while away from home or while away from their habitual residence.

9) Miscellaneous financial loss insurance

Insurance obligations which cover employment risk, insufficiency of income, bad weather, loss of benefits, continuing general expenses, unforeseen trading expenses, weather, loss of benefit, continuing general expenses, unforeseen trading expenses, loss of market value, loss of rent or revenue, indirect trading losses other than those mentioned above, other financial loss (non-trading) as well as any other risk of non-life insurance not covered by the lines of business 1 to 8.

10)   Medical expense insurance

Insurance obligations which cover the provision of preventive or curative medical treatment or care including medical treatment or care due to illness, accident, disability and infirmity, or financial compensation for such treatment or care, where the underlying business is not pursued on a similar technical basis to that of life insurance, other than obligations included in the line of business 12.

11)   Income protection insurance

Insurance obligations which cover financial compensation in consequence of illness, accident, disability or infirmity where the underlying business is not pursued on a similar technical basis to that of life insurance, other than obligations included in the line of business 12.

12)   Workers' compensation insurance

Health insurance obligations which relate to accidents at work, industrial injury and occupational diseases and where the underlying business is not pursued on a similar technical basis to that of life insurance, covering:

- The provision of preventive or curative medical treatment or care relating to accident at work, industrial injury or occupational diseases; or

- Financial compensation for such treatment; or
- Financial compensation for accident at work, industrial injury, or occupational diseases.

25) Non-proportional casualty reinsurance

Non-proportional reinsurance obligations relating to insurance obligations included in lines of business 1 and 5.

26) Non-proportional marine, aviation and transport reinsurance

Non-proportional reinsurance obligations relating to insurance obligations included in line of business 3.

27) Non-proportional property reinsurance

Non-proportional reinsurance obligations relating to insurance obligations included in lines of business 2, 4, 6 and 9.

28) Non-proportional health reinsurance

Non-proportional reinsurance obligations relating to insurance obligations included in lines of business 10, 11, and 12

1.3.2.7 Obligations relating to accepted proportional reinsurance should be segmented into 12 lines of business (numbered 13-24 respectively) in the same way as non-life and health insurance obligations are segmented, as defined in Appendix 4.

2. Solvency Capital Requirement

2.1. Overall structure of the solvency capital requirement

2.1.1. Overview

2.1.1.1 The calculation of the Solvency Capital Requirement (SCR) is divided into the risks and sub-risks set out in the diagram below. The diagram also shows which risks and sub-risks are included in the QIS4 exercise for life and health insurers and reinsurers.
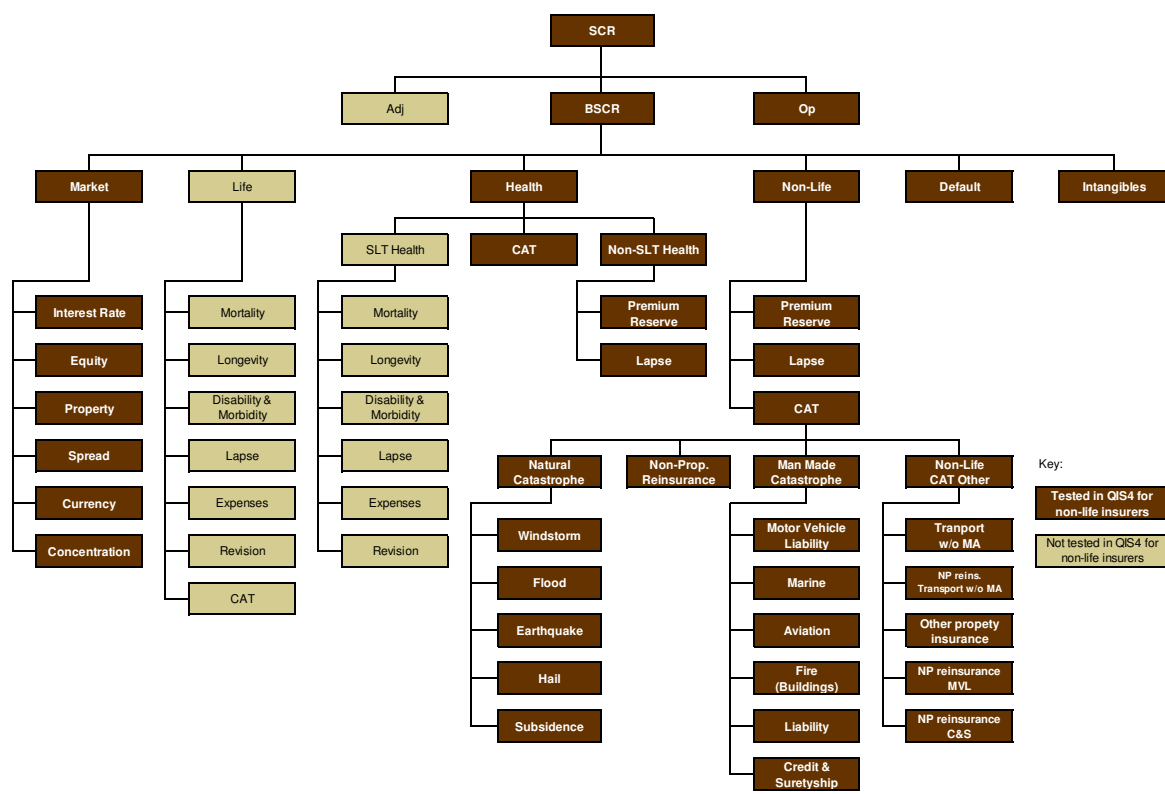
2.1.1.2 For each risk or sub-risk, the specifications are split into the following sub-sections:

- Description – defines the scope of the shock scenario(s) used to assess the capital requirement for the sub-risk, and gives a definition of the relevant sub-risk;

- Capital Requirement – this sets out the shock scenario(s) and how the outcome is calculated;

- Simplification – this sets out how the calculation can be simplified under certain conditions (this subsection is only included where simplified calculations are envisaged);

- Sensitivities – for some sub-risks we are testing a number of alternative approaches or parameters, and this section sets these out.

Technical provisions in the SCR calculations

2.1.1.3   For the purposes of the SCR calculation, technical provisions should be valued in accordance with the specifications laid out in the section on valuation. To avoid circularity in the calculation, any reference to technical provisions within the calculations for the individual SCR shock scenarios is to be understood to exclude the risk margin.

Scenario-based calculations

2.1.1.4   For several risks, the calculation of the capital requirement is scenario-based, i.e. the capital requirement is determined as the impact of a specified shock scenario on the level of Basic Own Funds (BOF).

2.1.1.5   The level of Basic Own Funds is defined as the difference between assets and liabilities, where the liabilities should not include subordinated liabilities. The change of BOF resulting from the scenario is referred to as ΔBOF, where this is defined to be positive if the scenario results in a loss of BOF.

2.1.1.6   The scenario should be interpreted in the following manner:
- The recalculation of technical provisions to determine the change in BOF should allow for any relevant adverse changes in option take-up behaviour of policyholders under the scenario;
- Where risk mitigation techniques meet requirements set out in subsections 2.11 – 'Financial Risk Mitigation' and 2.12 – 'Insurance Risk Mitigation', their risk-mitigating effect should be taken into account in the analysis of the scenario;
- Where the scenario results in an increase of BOF, and therefore does not reflect a risk for the insurer, this should not lead to a 'negative capital requirement'. The corresponding capital requirement in such a situation is set to a floor of nil.

Calibration

2.1.1.7   For the purposes of QIS4 the SCR should be calculated corresponding to the Value-at-Risk of the basic own funds of an insurer or reinsurer at confidence levels of 99.5%, 99% and 98% over a one year period. The parameters and assumptions used in this technical specification reflect this calibration objective.

2.1.1.8   To ensure that the different modules of the standard formula are calibrated in a consistent manner, this calibration objective applies to each individual risk module.

2.1.1.9   For the aggregation of the individual risk modules to an overall SCR, linear correlation techniques are applied.

Treatment of new business in the standard formula

2.1.1.10 In the standard formula, new non-life insurance business is taken into account in the premium risk part of the premium and reserve risk sub-modules. The volume measure for this risk component is based on the expected premiums earned and written during the following twelve months. The sub-modules thereby allow for unexpected losses stemming from this business. However, the standard formula does not take into account the expected profit or loss of this business.

Proportionality and simplifications

2.1.1.11 The principle of proportionality is intended to support the consistent application of the principles-based solvency requirements to all insurers.

2.1.1.12 In principle, the updated solvency and capital adequacy framework will provide a range of methods to calculate the SCR, allowing insurers to choose a method that is proportionate to the nature, scale and complexity of the risks that are measured:

- Full internal model;
- Standard formula and partial internal model;
- Standard formula with undertaking-specific parameters (not to be considered for the qualitative assessment);
- Standard formula;
- Simplifications.

The first three points are to be consulted upon at a later stage. The current QIS4 assessment only involves the calculation of the standard formula and any simplifications that have been specified by the FSA for testing at this stage. We expect to test further simplifications at a later stage in the development of the new framework. Insurers should use their best efforts to calculate the results of the SCR under this specification in as detailed and accurate a way as possible. Any simplifications or approximations which need to be made in practice should be discussed and agreed with the FSA during the QIS4 exercise period and summarised when the results are provided.

2.2. SCR calculation structure

2.2.1. The Solvency Capital Requirement

2.2.1.1 The SCR as calculated as follows:

$$SCR = BSCR + SCR_{op}$$

Where:

- SCR is the overall Solvency Capital Requirement;
- $BSCR$ is the Basic Solvency Capital Requirement;
- SCR_{op} is the capital requirement for operational risk.

2.2.1.2 This technical specification defines the calculation of the BSCR and SCR$_{op}$ at the confidence levels below:

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
Value at Risk (VAR)	99.5%	99%	98%

2.2.2. The Basic Solvency Capital Requirement

2.2.2.1 The BSCR is the Solvency Capital Requirement before any adjustments and combines capital requirements for four major risk categories:
- SCR_{market} is the capital requirement for market risk;
- $SCR_{default}$ is the capital requirement for counterparty default risk;
- $SCR_{non-life}$ is the capital requirement for non-life underwriting risk;
- $SCR_{intangibles}$ is the capital requirement for intangible assets risk.

2.2.2.2 The BSCR is determined as follows:

$$BSCR = \sqrt{\sum_{r,c} Corr_{r,c} \cdot SCR_r \cdot SCR_c} + SCR_{intangibles}$$

Where:
- $Corr_{r,c}$ are the entries of the correlation matrix $Corr$;
- SCR_r and SCR_c are the capital requirements for the individual SCR risks according to the rows and columns of the correlation matrix $Corr$;
- $SCR_{intangibles}$ is the capital requirement for intangible asset risk, calculated in accordance with 2.5;
- $Corr$ for all three confidence levels is defined as:

Corr	Market	Default	Health	Non-life
Market	1	0.25	0.25	0.25
Default	0.25	1	0.25	0.5
Health	0.25	0.25	1	0
Non-life	0.25	0.5	0	1

2.3. Loss absorbing capacity of technical provisions and deferred taxes

[To be consulted on at a later date].

2.4. SCR Operational Risk

2.4.1.1 Operational risk is the risk of loss arising from inadequate or failed internal processes, or from personnel or systems, or from external events. Operational risk should include legal risks, and exclude risks arising from strategic decisions, as well as reputational risks. The operational risk capital requirement is designed to address operational risks to the extent that these have not been explicitly covered in other risk capital requirements.

2.4.1.2 The capital requirement for operational risk is determined as follows:

$$SCR_{Op} = \min(0.3 \cdot BSCR; Op)$$

where:

Op = Basic operational risk charge for non-life and health business

is determined as follows:

$$Op = max(Op_{premiums}; Op_{provisions})$$

where:

$$Op_{premiums} = \text{X} \cdot Earn_{nl} + \text{X} \cdot \max(0, Earn_{nl} - 1.2 \cdot pEarn_{nl})$$

and

- $Earn_{nl}$ = Earned premium during the previous 12 months for non-life and health insurance obligations, without deducting premiums ceded to reinsurance
- $pEarn_{nl}$ = Earned premium during the 12 months prior to the previous 12 months for non-life and health insurance obligations, without deducting premiums ceded to reinsurance
- X is as defined in the table below:

Confidence level	X
1 in 50 year	0.024
1 in 100 year	0.027
1 in 200 year	0.03

and where:

$$Op_{provisions} = \text{X} \cdot BEP_{nl}$$

where:

- BEP_{nl} = Best estimate provision for non-life and health insurance obligations, without deduction of recoverables from reinsurance contracts and special purpose vehicles.
- X is as defined in the table below:

Confidence level	X
1 in 50 year	0.024
1 in 100 year	0.027
1 in 200 year	0.03

2.5. SCR Intangible asset risk

2.5.1. Description

2.5.1.1 Where intangible assets are recognised according to the specifications set out in Section 1, the risks inherent to these items should be considered in the calculation of the SCR.

2.5.1.2 Intangible assets are exposed to two risks:

1) Markets risks, as for other balance sheet items, derived from the decrease of prices in the active market, and also from unexpected lack of liquidity of the relevant active market, that may result in an additional impact on prices, even impeding any transaction;

2) Internal risks, inherent to the specific nature of these elements (e.g. linked to either failures or unfavourable deviations in the process of finalisation of the intangible asset or its amount reduced, risks linked to the commercialisation of the intangible asset, triggered by a deterioration of the public image of the insurer).

2.5.2. Capital Requirement

2.5.2.1 The capital requirement for intangible assets, $SCR_{intangible}$, is calculated as follows:

$$SCR_{intangible} = \theta \cdot IA$$

Where:

- θ is equal to 0.8 (1 in 200), 0.72 (1 in 100), 0.64 (1 in 50);
- IA is the value of intangible assets according to Section 1.

2.6. Market Risk

2.6.1. Structure of the market risk capital requirement

2.6.1.1 This section covers the risk arising from exposure to market risk, arising from the level or volatility of market prices of financial instruments. Exposure to market risk is measured by the impact of movements in the level of financial variables such as stock prices, interest rates, immovable property prices and exchange rates.

2.6.1.2 The calculations of capital requirements in the market risk section are based on specified scenarios. General guidance about the interpretation of the scenarios can be found in Section 2.

2.6.2. Description

2.6.2.1 The market risk capital requirement is calculated using the input from six scenarios that aim to establish the exposure of the participating insurer to interest rate, equity, property, spread, currency and concentration risk.

2.6.2.2 The scenarios provide the following information:

- $Market_{interest}$ is the capital requirement for interest rate risk;

- $Market_{equity}$ is the capital requirement for equity risk;
- $Market_{property}$ is the capital requirement for property risk;
- $Market_{fx}$ is the capital requirement for currency risk;
- $Market_{spread}$ is the capital requirement for spread risk;
- $Market_{conc}$ is the capital requirement for risk concentrations.

2.6.3. Capital Requirement

2.6.3.1 The capital requirement relating to market risk is calculated by combining the capital requirements listed in 2.6.2.2 using a correlation matrix as follows:

$$SCR_{market} = \sqrt{\sum_{r,c} MarketCorr_{r,c} \cdot Market_r \cdot Market_c}$$

Where:

- $MarketCorr_{r,c}$ are the entries of the correlation matrix $MarketCorr$;
- $Market_r$ and $Market_c$ are the capital requirements for the individual market shock scenarios according to the rows and columns of the correlation matrix $MarketCorr$;
- $MarketCorr$ is defined as:

MarketCorr						
Interest	1	A	A	A	0.25	0
Equity	A	1	0.75	0.75	0.25	0
Property	A	0.75	1	0.5	0.25	0
Spread	A	0.75	0.5	1	0.25	0
Currency	0.25	0.25	0.25	0.25	1	0
Conc.	0	0	0	0	0	1

2.6.3.2 The factor A shall be equal to 0 when the capital requirement for interest rate risk, as determined by paragraph 2.6.5.15, is derived from the capital requirement for the risk of an increase in the interest rate term structure, otherwise, the factor A shall be equal to 0.5.

2.6.4. Look-through approach

2.6.4.1 In order to properly assess the market risk inherent in collective investment entities and other investments packaged as funds, it will be necessary to examine their economic substance. Wherever possible, this should be achieved by applying a look-through approach in order to assess the risks applying to the assets underlying the investment vehicle. Each of the underlying assets would then be subjected to the relevant risk stresses.

2.6.4.2 The same look-through approach should also be applied for other indirect exposures to underwriting risk (such as in the case of investments in catastrophe bonds), indirect exposures to counterparty risk and indirect exposures to market risk. Notwithstanding the first sentence, the look-through approach should not be applied to investments in a related entity. The capital charge is capped at the equity value of the investment in cases where the loss is legally limited.

2.6.4.3 A related entity means either a subsidiary of the insurer or another entity in which a participation is held, or an entity linked with another by a relationship that requires the production of consolidated accounts.
Where:

1) A subsidiary is any entity over which a parent company, in the opinion of the FSA, effectively exercises a dominant influence on that entity;

2) A participation is the holding, directly or indirectly, of voting rights or capital in an entity over which, in the opinion of the FSA, a significant influence is effectively exercised.

2.6.4.4 Where a number of iterations of the look-through approach is required (e.g. where an investment fund is invested in other investment funds), the number of iterations should be sufficient to ensure that all material market risk is captured.

2.6.4.5 The above recommendations should be applied to both passively and actively managed funds, such as money market funds.

2.6.4.6 Where the look-through approach cannot be applied to collective investment entities or investments packaged as funds, the SCR may be calculated on the basis of the target underlying asset allocation of the collective investment entity or fund, provided such a target allocation is available to the insurer at the level of granularity necessary for calculating the SCR, and the underlying assets are managed according to this target allocation. For the purpose of this calculation for QIS4, data groupings may be used, provided they are applied in a prudent manner, and that the extent to which they are used is discussed and agreed with the FSA in advance of the QIS4 calculations being performed.

2.6.4.7 Where this approach is not possible and for all collective investments to which the look-through approach could not be applied, the equity type 2 charge shall be applied. In such cases, insurers shall discuss this with the FSA, and demonstrate why it has not been possible, in advance of the QIS4 calculations being performed.

2.6.4.8 Where external asset management firms may delay publicising the fund composition, affected insurers or reinsurers shall ensure that they are able to access the information required to identify the nature of all underlying assets in line with the requirements to monitor their solvency positions.

2.6.5. Interest Rate Risk

Description

2.6.5.1   Interest rate risk is caused by the sensitivity of the value of any assets, liabilities and financial investments to fluctuations in the term structure of interest rates or interest rate volatility, whether valued by mark-to-model or mark-to-market techniques.

2.6.5.2   Direct property investments, equity investments and investments in related entities should not be considered to be interest rate sensitive.

2.6.5.3   Assets sensitive to interest rate movements will include, but are not limited to, fixed-income investments, financing instruments (for example loan capital), policy loans, interest rate derivatives and any insurance assets.

2.6.5.4   Consideration should be given to the fact that callable bonds, and other types of interest rate structures, may not be called by the issuer in the event that spreads widen or interest rates increase. This may have an impact on the duration of the asset.

2.6.5.5   The discounted value of future cash flows, particularly in the valuation of technical provisions, will be sensitive to a change in the rate at which those cash flows are discounted.

Capital Requirement

2.6.5.6   The capital requirement relating to interest rate risk is determined as the result of two pre-defined scenarios for each confidence level specified in 2.2.1.2:

$$Market_{interest}{}^{Up} = \Delta BOF | InterestUpShock$$
$$Market_{interest}{}^{Down} = \Delta BOF | InterestDownShock$$

Where:

- ΔBOF is the change in the value of basic own funds, this does not include changes in the risk margin.
- $InterestUpShock$ is the instantaneous permanent revaluation of all interest rate sensitive items using altered term structures upwards.
- $InterestDownShock$ is the instantaneous permanent revaluation of all interest rate sensitive items using altered term structures downwards.

The shocks in both cases should be applied to the spot rates. Details of the calibrations are specified in 2.6.5.8.

2.6.5.7   Where an insurer is exposed to interest rate movements in more than one currency, the capital requirement for interest rate risk should be calculated based on the larger of the sum over all currencies of the capital requirement for interest rate risk under the upward shock and the sum over all currencies of the capital requirement for interest rate risk under the downward shock. The sum over all currencies should be considered irrespective of an increase or decrease in basic own funds for one or another currency.

2.6.5.8 The altered term structures are derived by multiplying the current interest rate curve by $(1 + s^{up})$ and $(1 + s^{down})$, where both the upward stress, $s^{up}(t)$, and the downward stress, $s^{down}(t)$, for individual maturities t are specified as follows:

Maturity t (years)	Relative change (200) $s^{up}(t)$	Relative change (200) $s^{down}(t)$	Relative change (100) $s^{up}(t)$	Relative change (100) $s^{down}(t)$	Relative change (50) $s^{up}(t)$	Relative change (50) $s^{down}(t)$
1	70%	-75%	63.0%	-67.5%	56.0%	-60.0%
2	70%	-65%	63.0%	-58.5%	56.0%	-52.0%
3	64%	-56%	57.6%	-50.4%	51.2%	-44.8%
4	59%	-50%	53.1%	-45.0%	47.2%	-40.0%
5	55%	-46%	49.5%	-41.4%	44.0%	-36.8%
6	52%	-42%	46.8%	-37.8%	41.6%	-33.6%
7	49%	-39%	44.1%	-35.1%	39.2%	-31.2%
8	47%	-36%	42.3%	-32.4%	37.6%	-28.8%
9	44%	-33%	39.6%	-29.7%	35.2%	-26.4%
10	42%	-31%	37.8%	-27.9%	33.6%	-24.8%
11	39%	-30%	35.1%	-27.0%	31.2%	-24.0%
12	37%	-29%	33.3%	-26.1%	29.6%	-23.2%
13	35%	-28%	31.5%	-25.2%	28.0%	-22.4%
14	34%	-28%	30.6%	-25.2%	27.2%	-22.4%
15	33%	-27%	29.7%	-24.3%	26.4%	-21.6%
16	31%	-28%	27.9%	-25.2%	24.8%	-22.4%
17	30%	-28%	27.0%	-25.2%	24.0%	-22.4%
18	29%	-28%	26.1%	-25.2%	23.2%	-22.4%
19	27%	-29%	24.3%	-26.1%	21.6%	-23.2%
20	26%	-29%	23.4%	-26.1%	20.8%	-23.2%
90	20%	-20%	18%	-18%	16%	-16%

For example, the altered 10 year interest rate for a commercial insurer (assessed on a 1 in 200 year confidence level),$r_1(10)$, in the upward shock scenario is determined as:

$$r_1(10) = r_0(10) \cdot (1 + 0.42)$$

Where $r_0(10)$ is the 10 year interest rate based on the current term structure.

2.6.5.9 All interest rates for all maturity points should be shocked with the relevant up or down stresses. For maturities not specified above, the value of the shock shall be linearly interpolated. Note that for maturities greater than 90 years, a stress of ± 20% should be maintained. For maturities shorter than one year, the relative change under the s^{up} shock is +70% and -75% under the s^{down} shock.

2.6.5.10 Irrespective of the above shock factors, the absolute increase of interest rates in the upward scenario should be at least X basis points (bps). Where X is specified as follows for different confidence levels:

Confidence level	X
1 in 200 year	100 bps
1 in 100 year	90 bps
1 in 50 year	80 bps

2.6.5.11 When, for a given maturity, the initial value of the interest rate is negative, the insurer should calculate the increase or decrease of the interest rate as the product between the s^{up} or s^{down} shock and the absolute value of the initial interest rate.

For example, in the case of initial negative interest rates for an insurer assessed on a 1 in 200 year confidence level, the altered 10 year interest rate, $r_1(10)$, in the upward shock scenario is determined as:

$$r_1(10) = r_0(10) + |r_0(10)| \cdot 0.42$$

and in the downward shock:

$$r_1(10) = r_0(10) - |r_0(10)| \cdot 0.31$$

2.6.5.12 The impact of the interest rate shocks on the value of participations in financial and credit institutions shall be considered only on the value of the participations that are not deducted from own funds. The part deducted from own funds shall be considered only to the extent that such impact increases basic own funds.

2.6.5.13 Holdings in subordinated liabilities issued by the related entity are treated as financial instruments taking account of contractual terms and applying market shocks as appropriate (i.e. the interest rate, spread, currency, concentration and other risk scenarios as appropriate).

2.6.5.14 Where there are any assets which exhibit both fixed income and equity characteristics, both of these features should be taken into account when determining which of the risk shock scenarios should apply. The determination of which risk shock scenarios apply should have regard to the economic form of the asset. Where the asset can be considered as the composite of discrete components, it may be appropriate to apply the relevant shocks to each of these components separately. Where it is not possible to consider the asset as the composite of separate components, then the determination of which of the risk shock scenarios apply should be based on whichever of the fixed income or equity characteristics are predominant in an economic sense.

2.6.5.15 The capital requirement for interest rate risk is derived from the type of shock scenario that gives rise to the highest capital requirement for each confidence level:

$$Market_{interest} = \max\left(0; Market_{interest}{}^{Up}; Market_{interest}{}^{Down}\right)$$

2.6.6. Equity Risk

Description

2.6.6.1 Equity risk is caused by the sensitivity of assets, liabilities and financial investments to fluctuations in the level or volatility of the market prices for equities.

2.6.6.2 Exposure to equity risk refers to all assets and liabilities whose value is sensitive to changes in equity prices.

2.6.6.3 For the calculation of the equity risk capital requirement, hedging and risk transfer mechanisms should be taken into account according to the principles of subsection 2.11 – 'Financial Risk Mitigation'.

2.6.6.4 Where insurers or reinsurers hold short positions in equity (including put options), these should only be netted off against long equity positions, for the purposes of determining the equity risk capital requirement, only if the short position meets the requirements to be considered as an acceptable risk mitigation technique for the purposes of the calculation of the SCR.

2.6.6.5 Any other short equity exposure should be ignored when calculating the equity stress in the equity risk scenario. The residual short equity exposure should not be considered to increase in value after application of the downward shock to equity values.

2.6.6.6 Where there are any assets which exhibit both fixed income and equity characteristics, both of these features should be taken into account when determining which of the risk shock scenarios should apply. The determination of which risk shock scenarios apply should have regard to the economic form of the asset. Where the asset can be considered as the composite of discrete components, it may be appropriate to apply the relevant shocks to each of these components separately. Where it is not possible to consider the asset as the composite of separate components, then the determination of which of the risk shock scenarios apply should be based on whichever of the fixed income or equity characteristics are predominant in an economic sense.

Capital Requirement

2.6.6.7 For the calculation of the equity risk capital requirement, equities are split into the following two types:

1) Type 1 Equities comprise:

   - Equities listed in regulated markets in countries which are members of the EEA or the OECD;

2) Type 2 equities shall comprise of:

   - Equities listed on stock exchanges in countries that are not members of the EEA or OECD;
   - Equities that are not listed;
   - Hedge funds;
   - Commodities;
   - Other alternative investments;

- All remaining investments other than those already covered by the interest rate risk, property risk or the spread risk shock scenarios; this includes the assets and indirect exposures that are subjected to equity risk where a look-through approach was not possible.

1.1.1.1. The capital requirement relating to equity risk for each type, i, is calculated as follows:

$$Market_{equity,i} = \max(0; \Delta BOF | EquityShock_i)$$

where:

- $Market_{equity,i}$ is the equity risk capital requirement with respect to equity type *i*.

- ΔBOF is the change in the value of basic own funds, this does not include changes in the risk margin.

- $EquityShock_i$ is the instantaneous permanent decrease in the value of all type *i* equity investments (as detailed above) by a shock factor specific to equity type *i*. The base level equity shock scenarios for each equity type and confidence level are specified as:

EquityShock confidence level	Type 1	Type 2
1 in 200 year	39.0%	49.0%
1 in 100 year	35.1%	44.1%
1 in 50 year	31.2%	39.2%

2.6.6.8 The equity shock scenario should take into account all of the insurer's individual direct and indirect exposures to equity prices. All equities and equity type exposures have to be taken into account, including private equity as well as certain types of alternative investments.

2.6.6.9 Alternative investments are treated as Type 2 equities and should cover all types of equity type risk such as hedge funds, derivatives, managed futures, investments in special purpose vehicles, etc., which cannot be allocated to spread risk or classical equity type risk, either directly or where a look-through approach was not possible.

2.6.6.10 In a second step, the equity risk capital requirement is then derived by combining the capital requirements for the individual categories using a correlation matrix as follows:

$$Market_{equity} = \sqrt{\sum_{r,c} EqCorr_{r,c} \cdot Market_{equity,r} \cdot Market_{equity,c}}$$

Where:

- $EqCorr_{r,c}$ are the entries of the correlation matrix $EqCorr$

- $Mkt_{equity,r}$, $Mkt_{equity,c}$ are the capital requirements for equity risk per type according to the rows and columns of the correlation matrix $EqCorr$

- $EqCorr$ for all confidence levels is defined as:

EqCorr	Type 1	Type 2
Type 1	1	0.75
Type 2	0.75	1

2.6.7. Property Risk

Description

2.6.7.1 Property risk is caused by the sensitivity of assets, liabilities and financial investments to fluctuations in the level or volatility of the market prices of property.

2.6.7.2 The investments that should be treated as property, hence, be considered in the property scenario are:

- Land, buildings and immovable property rights;

- Property investment for the insurer's own use.

2.6.7.3 All other 'property-type' investments should be treated as equity, hence, be considered in the equity scenario instead. Examples of such investments include:

- Investments in companies engaged in real estate management, facility management or real estate administration;

- Investments in companies engaged in real estate project development or similar activities;

- Investments in companies which took out loans from institutions outside the scope of the insurance group in order to leverage their investments in properties.

Capital Requirement

2.6.7.4 The capital requirement relating to property risk is calculated as follows:

$$Market_{property} = \max(0; \Delta BOF | PropertyShock)$$

Where:

- ΔBOF is the change in the value of basic own funds, this does not include changes in the risk margin.

- $PropertyShock$ is the instantaneous permanent decrease in the value of all property investments (as detailed above) by x% for each confidence level. Where x% is specified as:

Property Shock confidence level	X%
1 in 200 year	25.0%
1 in 100 year	22.5%
1 in 50 year	20.0%

2.6.7.5   The property shock scenario should take into account all of the insurer's individual direct and indirect exposures to property prices as well as their specific investment policy including e.g. hedging arrangements, gearing etc.

2.6.8. Currency Risk

Description

2.6.8.1   Currency risk is caused by the sensitivity of assets, liabilities and financial investments to fluctuations in the level or volatility of currency exchange rates.

2.6.8.2   Insurers may be exposed to currency risk arising from various sources, including their investment portfolios, as well as assets, liabilities and investments in related entities. The design of the currency risk shock scenario is intended to take into account currency risk for an insurer arising from all possible sources.

2.6.8.3   The local currency is the currency in which the insurer prepares its financial statements. All other currencies are referred to as foreign currencies. A foreign currency is relevant for the scenario calculations if the amount of basic own funds depends on the exchange rate between the foreign currency and the local currency.

2.6.8.4   Note that for each relevant foreign currency, the currency position should include any investment in foreign instruments where the currency risk is not hedged. This is because the shocks for interest rate, equity, spread and property risks have not been designed to incorporate currency risk.

2.6.8.5   Investments in Type 1 and Type 2 equities which are listed in stock exchanges operating with different currencies should be assumed to be sensitive to the currency of their main listing. Type 2 equities which are non-listed shall be assumed to be sensitive to the currency of the country in which the issuer has its main operations. Immovable property should be assumed to be sensitive to the currency of the country in which it is located.

Capital Requirement

2.6.8.6   The capital requirement relating to currency risk for each currency C and confidence level is calculated as the higher result of two pre-defined scenarios:

$$Market_{fx,C}{}^{Up} = \max(0; \Delta BOF|FXUpwardShock)$$
$$Market_{fx,C}{}^{Down} = \max(0; \Delta BOF|FXDownwardShock)$$

Where:

- ΔBOF is the change in the value of basic own funds, this does not include changes in the risk margin.

- $FXUpwardShock$ is the instantaneous permanent increase in the value of currency C, against the local currency by x% for each confidence level (see table below for definition of x%).

- $FXDownwardShock$ is the instantaneous permanent decrease in the value of currency C, against the local currency by x% for each confidence level. Where x% is defined as:

FXUpwardShock/FXDownwardShock confidence level	X%
1 in 200 year	25.0%
1 in 100 year	22.5%
1 in 50 year	20.0%

2.6.8.7 All of the participant's individual currency positions and its investment policy (e.g. hedging arrangements, gearing etc.) should be taken into account in the currency shock scenarios.

2.6.8.8 For each currency group C, the capital requirement $Market_{fx,C}$ should be determined as:

$$Market_{fx,C} = \max\left(0; Market_{fx,C}{}^{Up}; Market_{fx,C}{}^{Down}\right)$$

2.6.8.9 The total currency risk capital requirement, $Market_{fx}$, is then derived by combining the capital requirements, $Market_{fx,C}$, for each currency exposure using a correlation matrix as follows:

$$Market_{fx} = \sqrt{\sum_{r,c} CurrencyCorr_{r,c} \cdot Market_{fx,r} \cdot Market_{fx,c}}$$

Where:

- $CurrencyCorr_{r,c}$ are the entries of the correlation matrix $CurrencyCorr$.

- $Market_{fx,r}$, $Market_{fx,c}$ are the capital requirements resulting from the shock scenarios defined in 2.6.8.6 per currency according to the rows and columns of the correlation matrix $CurrencyCorr$.

- $CurrencyCorr$ for all confidence levels is defined as:

CurrencyCorr	1	2	3	4	5	6	7	8	9	10
CurrGroup 1	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CurrGroup 2	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CurrGroup 3	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CurrGroup 4	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5
CurrGroup 5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5
CurrGroup 6	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5
CurrGroup 7	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5
CurrGroup 8	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5
CurrGroup 9	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5
CurrGroup 10	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1

Where the currency groups have been determined so as to reflect a strong historical positive correlation of the currencies within a group as follows:

1) *CurrGroup1* consists of currencies within the European Union and the European Free Trade Area (other than the pound sterling) including:

- Euro (EUR)
- Swiss Franc (CHF)
- Swedish Krona (SEK)
- Norwegian Krone (NOK)
- Danish Krone (DKK)
- Polish Zloty (PLN)
- Czech Koruna (CZK)
- Hungarian Forint (HUF)
- Bulgarian Lev (BGN)
- Croatian Kuna (HRK)
- Romanian Leu (RON)

2) *CurrGroup2* consists of:

- US Dollar (USD)
- Chinese Yuan (CNY)
- Hong Kong Dollar (HKD)
- Taiwan Dollar (TWD)
- Saudi Riyal (SAR)
- Any other currencies officially pegged to the US Dollar

3) *CurrGroup3* consists of:

- Singapore Dollar (SGD)
- Indian Rupee (INR)
- Malaysian Ringgit (MYR)
- Thai Baht (THB)

4) *CurrGroup4* consists of:

- Australian Dollar (AUD)
- New Zealand Dollar (NZD)
- South African Rand (ZAR)

5) *CurrGroup5* consists of:

- Canadian Dollar (CAD)
- Brazilian Real (BRL)
- Mexican Peso (MXN)
- Chilean Peso (CLP)
- Colombian Peso (COP)

6) *CurrGroup6* consists of:

- Japanese Yen (JPY)

7) *CurrGroup7* consists of:

- Russian Ruble (RUB)

8) *CurrGroup8* consists of:

- Turkish Lira (TRY)

9) *CurrGroup9* consists of:

- South Korean Won (KRW)

10)   CurrGroup10 consists of:

- Icelandic Krona (ISK)

2.6.8.10 Where insurers have material exposures to one or more currencies other than those specified in the ten currency groups above they should discuss this with the FSA and agree which currency group the currency should be modelled in (which may be a further group).

2.6.8.11 Where reinsurers transfer underwriting risk using reinsurance contracts or special purpose vehicles that result in material basis risk from a currency mismatch between underwriting risk and the risk-mitigation technique, insurers or reinsurers may take into account the risk-mitigation technique in the calculation of the SCR, provided that the risk-mitigation technique meets the requirements set out in section 2.11 – 'Financial Risk Mitigation', and the calculation is carried out in accordance with the following:

1) The currency basis risk stemming from the risk-mitigation technique shall be taken into account in the relevant underwriting risk scenario of the standard formula, at the most granular level, by adding the capital requirement calculated in accordance with the relevant scenario, x% (as defined in 2.6.8.6) of the difference between the following:

   a) The hypothetical capital requirement for the relevant underwriting risk scenario that would result from a simultaneous occurrence of the stress defined in 2.6.8.6;

   b) The capital requirement for the relevant underwriting risk scenario.

2) Where the risk-mitigation technique covers more than one risk scenario, the calculation determined in 1) above shall be carried out for each of these scenarios. The capital requirement resulting from these calculations shall not exceed x% of the capacity of the non-proportional reinsurance contract or special purpose vehicle. Where x% is defined as follows for each confidence level:

Confidence level	X%
1 in 200 year	25.0%
1 in 100 year	22.5%
1 in 50 year	20.0%

Simplification

2.6.8.12 The approach to calculating the capital requirement set out in 2.6.8.6 to 2.6.8.11 above has been adapted by us from the approach used in Solvency II, to reflect the specific situation of Isle of Man insurers in that they may be exposed to a wider range of currencies than domestic European insurers. We believe that the Solvency II approach, which assumes all currencies simultaneously move in an adverse direction to the reporting currency could be materially more onerous than a 1 in 50/100/200 year stress (respectively) as it takes no account of diversification of exposure.

2.6.8.13 To compare the above approach to that set out in Solvency II, we request insurers to also calculate the capital requirement for currency risk using the Solvency II approach, as set out below.

2.6.8.14 For each currency, the capital requirement, $Market_{fx,C}$, is defined as the maximum of the values $Market_{fx,C}{}^{Up}$ and $Market_{fx,C}{}^{Down}$, as defined in 2.6.8.6, i.e.:

$$Market_{fx,C} = \max\left(0; Market_{fx,C}{}^{Up}; Market_{fx,C}{}^{Down}\right)$$

2.6.8.15 The total capital requirement for each confidence level, $Market_{fx}$ is then calculated as the sum over all currencies of $Market_{fx,C}$.

2.6.9. Spread Risk

Description

2.6.9.1 Spread risk results from the sensitivity of the value of assets, liabilities and financial instruments to changes in the level or in the volatility of credit spreads over the risk-free interest rate term structure.

2.6.9.2 The spread risk module applies in particular to the following classes of bonds:
1) Corporate bonds;
2) Subordinated debt investments, depending on the contractual terms;
3) Investment instruments with equity and bond features;
4) Covered bonds;
5) Loans other than
    • retail loans secured by a residential mortgage, and
    • loans to a company which is a member of the same group as the insurer;
6) Securitisation positions;
7) Credit derivatives other than for hedging purposes.

2.6.9.3 Consideration should be given to the fact that callable bonds and other types of interest rate structures may not be called by the issuer in the event that spreads widen or interest rates increase. This may have an impact on the duration of the asset.

2.6.9.4   A repo-seller, having agreed to repurchase collateral at a future date, should take account of any risk associated with the collateral even though he is not presently holding it.

2.6.9.5   A repo-lender should take account of any concentration, interest, spread or counterparty risk associated with the items exchanged for the collateral, taking into account the credit risk of the repo-seller.

2.6.9.6   Holdings in subordinated liabilities issued by related entities are treated as financial instruments taking account of contractual terms and applying market stresses as appropriate (i.e. the interest rate, spread, currency, concentration and other shock scenarios as appropriate).

2.6.9.7   Where there are any assets which exhibit both fixed income and equity characteristics, both of these features should be taken into account when determining which standard formula shock scenarios should apply.

2.6.9.8   The determination of which shock scenarios apply should have regard to the economic form of the asset. Where the asset can be considered as the composite of discrete components, it may be appropriate to apply the relevant stresses to each of these components separately. Where it is not possible to consider the asset as the composite of separate components then the determination of which of the shock scenarios apply should be based on which of the fixed income or equity characteristics is predominant in an economic sense.

2.6.9.9   Furthermore, the spread risk shock scenario is applicable to all types of asset-backed securities as well as to all the tranches of structured credit products such as collateralised debt obligations. This class of securities includes transactions of schemes whereby the credit risk associated with an exposure or pool of exposures is tranched, having the following characteristics:

1) Payments in the transaction or scheme are dependent upon the performance of the exposure or pool of exposures; and

2) The subordination of tranches determines the distribution of losses during the ongoing life of the transaction or scheme.

2.6.9.10   The spread risk shock scenario further covers in particular credit derivatives, for example (but not limited to) credit default swaps, total return swaps and credit linked notes that are not held as part of a recognised risk mitigation policy.

A protection buyer in a total return swap arrangement should consider the arrangement to be a risk mitigation technique in accordance with 2.11 and 2.12. Any fixed leg of the contract should be subject to spread and interest rate risk.

A protection seller in a total return swap arrangement should take into account any market and counterparty risk associated with the items underlying the swap.

2.6.9.11   In relation to credit derivatives, only the credit risk which is transferred by the derivative is covered in the spread risk shock scenario.

2.6.9.12 Instruments sensitive to changes in credit spreads may also give rise to other risks, which should be treated accordingly in the appropriate shock scenarios. For example, the counterparty default risk associated with the counterparty of a risk-mitigating transaction should be addressed in the counterparty default risk module, rather than in the spread risk shock scenario.

2.6.9.13 The spread risk shock scenario also covers the credit risk of other credit risky investments including in particular:

1) Participating interests;

2) Debt securities issued by, and loans to, affiliated entities and entities with which an insurer is linked by virtue of a participating interest;

3) Debt securities and other fixed-income securities;

4) Participation in investment pools;

5) Deposits with credit institutions, other than cash at bank. Cash at bank is treated in the counterparty default risk scenario.

2.6.9.14 The design for the spread risk shock scenario implies that credit spread risk hedging programmes can still be taken into account when calculating the capital requirement for this risk type. This enables insurers to gain appropriate recognition of, and allowance for, their hedging instruments – subject to proper treatment of the risks inherent in the hedging programmes

Calculation

2.6.9.15 The capital requirement for spread risk for each confidence level specified in 2.2.1.2 is calculated as follows:

$$Market_{sp} = Market_{sp}^{bonds} + Market_{sp}^{securitisation} + Market_{sp}^{cd}$$

Where:

- $Market_{sp}^{bonds}$ is the capital requirement for spread risk of bonds and loans other than residential mortgage loans fulfilling the criteria set out in 2.7.4.10.;

- $Market_{sp}^{securitisation}$ is the capital requirement for spread risk of tradable securities or other financial instruments based on repackaged loans which are offered by way of securitisation as defined in 2.6.9.30.

- $Market_{sp}^{cd}$ is the capital requirement for spread risk on credit derivatives.

Spread risk on bonds and loans other than residential mortgage loans that meet the requirements set out in 2.7.6.2

2.6.9.16 The capital requirement for spread risk of bonds and loans other than residential mortgage loans that meet the requirements set out in 2.7.6.2 is determined as the result of a pre-defined scenario:

$$Market_{sp}^{bonds} = \max(0; \Delta BOF|spreadshock\ on\ bonds)$$

2.6.9.17 The change in basic own funds as a result of the spread risk shock on bonds and loans other than residential mortgage loans that meet the requirements in 2.7.6.2 is the immediate effect on the net value of assets and liabilities expected in the event of an instantaneous decrease of values in bonds and loans other than non-residential mortgage loans due to the widening of their credit spreads. The change in basic own funds is given below:

$$\sum_i MV_i \cdot F^{up}(rating_i; duration_i)$$

Where:

- $F^{up}(rating_i; duration_i)$ is a function of the credit quality step of the credit risk exposure and duration which is calibrated to deliver a shock consistent with the VaR for each shock scenario specified in 2.2.1.2 following a widening of credit spreads. The spread risk factor $F^{up}(rating_i; duration_i)$ is capped at a level of 100%

- MV_i *is the value of the credit risk exposure in accordance to subsection 1.*

2.6.9.18 To determine the spread risk capital requirement for bonds and loans other than residential mortgage loans that meet the requirements set out in 2.7.6.2, the following factors F^{up} should be used:

Spread risk factors for bonds in a 1 in 200 year shock

Duration (years)	Credit quality step (see Appendix 3)					
	0	1	2	3	4	5, 6
≤ 5	0.9% · $duration_i$	1.1% · $duration_i$	1.4% · $duration_i$	2.5% · $duration_i$	4.5% · $duration_i$	7.5% · $duration_i$
5<dur≤ 10	4.5% + 0.5% · ($duration_i$ − 5)	5.5% + 0.6% · ($duration_i$ − 5)	7.0% + 0.7% · ($duration_i$ − 5)	12.5% + 1.5% · ($duration_i$ − 5)	22.5% + 2.5% · ($duration_i$ − 5)	37.5% + 4.2% · ($duration_i$ − 5)
10 <dur≤ 15	7.2% + 0.5% · ($duration_i$ − 10)	8.4% + 0.5% · ($duration_i$ − 10)	10.5% + 0.5% · ($duration_i$ − 10)	20.0% + 1.0% · ($duration_i$ − 10)	35% + 1.8% · ($duration_i$ − 10)	58.5% + 0.5% · ($duration_i$ − 10)
15 < dur≤ 20	9.7% + 0.5% · ($duration_i$ − 15)	10.9% + 0.5% · ($duration_i$ − 15)	13.0% + 0.5% · ($duration_i$ − 15)	25.0% + 1% · ($duration_i$ − 15)	44.0% + 0.5% · ($duration_i$ − 15)	61.0% + 0.5% · ($duration_i$ − 15)
> 20	12.2% + 0.5% · ($duration_i$ − 20)	13.4% + 0.5% · ($duration_i$ − 20)	15.5% + 0.5% · ($duration_i$ − 20)	30.0% + 0.5% · ($duration_i$ − 20)	46.6% + 0.5% · ($duration_i$ − 20)	63.5% + 0.5% · ($duration_i$ − 20)

Spread risk factors for bonds in a 1 in 100 year shock

Duration (years)	Credit quality step (see Appendix 3)					
	0	**1**	**2**	**3**	**4**	**5, 6**
≤ 5	$0.81\% \cdot duration_i$	$0.99\% \cdot duration_i$	$1.26\% \cdot duration_i$	$2.25\% \cdot duration_i$	$4.05\% \cdot duration_i$	$6.75\% \cdot duration_i$
5<dur≤ 10	$4.05\% + 0.45\% \cdot (duration_i - 5)$	$4.95\% + 0.54\% \cdot (duration_i - 5)$	$6.3\% + 0.63\% \cdot (duration_i - 5)$	$11.25\% + 1.35\% \cdot (duration_i - 5)$	$20.25\% + 2.25\% \cdot (duration_i - 5)$	$33.75\% + 3.78\% \cdot (duration_i - 5)$
10 <dur≤ 15	$6.48\% + 0.45\% \cdot (duration_i - 10)$	$7.56\% + 0.45\% \cdot (duration_i - 10)$	$9.45\% + 0.45\% \cdot (duration_i - 10)$	$18.0\% + 0.9\% \cdot (duration_i - 10)$	$31.5\% + 1.62\% \cdot (duration_i - 10)$	$52.65\% + 0.45\% \cdot (duration_i - 10)$
15 < dur≤ 20	$8.73\% + 0.45\% \cdot (duration_i - 15)$	$9.81\% + 0.45\% \cdot (duration_i - 15)$	$11.7\% + 0.45\% \cdot (duration_i - 15)$	$22.5\% + 0.9\% \cdot (duration_i - 15)$	$39.6\% + 0.45\% \cdot (duration_i - 15)$	$54.9\% + 0.45\% \cdot (duration_i - 15)$
> 20	$10.98\% + 0.5\% \cdot (duration_i - 20)$	$12.06\% + 0.45\% \cdot (duration_i - 20)$	$13.95\% + 0.45\% \cdot (duration_i - 20)$	$27.0\% + 0.45\% \cdot (duration_i - 20)$	$41.94\% + 0.45\% \cdot (duration_i - 20)$	$57.15\% + 0.45\% \cdot (duration_i - 20)$

Spread risk factors for bonds in a 1 in 50 year shock

Duration (years)	Credit quality step (see Appendix 3)					
	0	**1**	**2**	**3**	**4**	**5, 6**
≤ 5	$0.72\% \cdot duration_i$	$0.88\% \cdot duration_i$	$1.12\% \cdot duration_i$	$2.0\% \cdot duration_i$	$3.6\% \cdot duration_i$	$6.0\% \cdot duration_i$
5<dur≤ 10	$3.6\% + 0.4\% \cdot (duration_i - 5)$	$4.4\% + 0.48\% \cdot (duration_i - 5)$	$5.6\% + 0.56\% \cdot (duration_i - 5)$	$10.0\% + 1.2\% \cdot (duration_i - 5)$	$18.0\% + 2.0\% \cdot (duration_i - 5)$	$30.0\% + 3.36\% \cdot (duration_i - 5)$
10 <dur≤ 15	$5.76\% + 0.4\% \cdot (duration_i - 10)$	$6.72\% + 0.4\% \cdot (duration_i - 10)$	$8.4\% + 0.4\% \cdot (duration_i - 10)$	$16.0\% + 0.8\% \cdot (duration_i - 10)$	$28.0\% + 1.44\% \cdot (duration_i - 10)$	$46.8\% + 0.4\% \cdot (duration_i - 10)$
15 < dur≤ 20	$7.76\% + 0.4\% \cdot (duration_i - 15)$	$8.72\% + 0.4\% \cdot (duration_i - 15)$	$10.4\% + 0.4\% \cdot (duration_i - 15)$	$20.0\% + 0.8\% \cdot (duration_i - 15)$	$35.2\% + 0.4\% \cdot (duration_i - 15)$	$48.8\% + 0.4\% \cdot (duration_i - 15)$
> 20	$9.76\% + 0.4\% \cdot (duration_i - 20)$	$10.72\% + 0.4\% \cdot (duration_i - 20)$	$12.4\% + 0.4\% \cdot (duration_i - 20)$	$24.0\% + 0.4\% \cdot (duration_i - 20)$	$37.28\% + 0.4\% \cdot (duration_i - 20)$	$50.8\% + 0.4\% \cdot (duration_i - 20)$

Spread risk factors for unrated exposures of bonds

Duration (years)	F_i^{Up} (200)	F_i^{Up} (100)	F_i^{Up} (50)
Up to 5	$3.0\% \cdot duration_i$	$2.7\% \cdot duration_i$	$2.4\% \cdot duration_i$
More than 5 and up to 10	$15\% + 1.7\% \cdot (duration_i - 5)$	$13.5\% + 1.53\% \cdot (duration_i - 5)$	$12\% + 1.36\% \cdot (duration_i - 5)$
More than 10 and up to 15	$23.5\% + 1.2\% \cdot (duration_i - 10)$	$21.15\% + 1.08\% \cdot (duration_i - 10)$	$18.8\% + 0.96\% \cdot (duration_i - 10)$
More than 15 and up to 20	$29.5\% + 1.2\% \cdot (duration_i - 15)$	$26.55\% + 1.08\% \cdot (duration_i - 15)$	$23.60\% + 0.96\% \cdot (duration_i - 15)$
More than 20	$Min[35.5\% + 0.5\% \cdot (duration_i - 20);1]$	$Min[31.95\% + 0.45\% \cdot (duration_i - 20);1]$	$Min[28.4\% + 0.4\% \cdot (duration_i - 20);1]$

2.6.9.19 Collateralised bonds and loans for which a credit assessment by a nominated External Credit Assessment Institution (ECAI) is not available and where the collaterals of those bonds and loans meet the criteria set out in section 2.11 on risk mitigation techniques, shall be assigned a risk factor F^{up} according to the following:

1) Where the risk-adjusted value of collateral is higher than or equal to the value of the bond or loan i, F^{up} shall be equal to half of the risk factor that would be determined in accordance with 2.6.9.18;

2) Where the risk-adjusted value of collateral is lower than the value of the bond or loan i, and where the risk factor determined in accordance with ⬚ would result in a value of the bond or loan i that is lower than the risk-adjusted value of the collateral, F^{up} shall be equal to the average of:

a) The risk factor determined in accordance with 2.6.9.18, and

b) The difference between the value of the bond or loan i and the risk-adjusted value of the collateral, divided by the value of the bond or loan i;

3) Where the risk-adjusted value of collateral is lower than the value of the bond or loan, i, and where the risk factor determined in accordance with ⬚ would result in a value of the bond or loan i that is higher than or equal to the risk-adjusted value of the collateral, F^{up} shall be determined in accordance with 2.6.9.17.

The risk-adjusted value of the collaterals shall be calculated in accordance with section 2.7.7.1 - 2.7.7.10.

2.6.9.20 The factors F^{up} are applied to assess the impact of a widening of spreads on the value of bonds. For example, for a commercial insurer with a bond with a credit quality step 0 and duration of 5 years, a loss in value of 4.5% would be assumed under the widening of spreads scenario.

2.6.9.21 For variable interest rate bonds, the modified duration used in the calculation should be equivalent to a fixed income bond with coupon payments equal to the forward interest rate. If the modified duration is less than 1 year, it should be treated as 1 year.

2.6.9.22 For exposures to bonds issued by insurers or reinsurers that do not meet their MCR, the following shock factors shall apply:

Duration (years)	F_i^{Up} (200)
Up to 5	$7.5\% \cdot duration_i$
More than 5 and up to 10	$37.5\% + 4.2\% \cdot (duration_i - 5)$
More than 10 and up to 15	$58.5\% + 0.5\% \cdot (duration_i - 10)$
More than 15 and up to 20	$61.0\% + 0.5\% \cdot (duration_i - 15)$
More than 20	$\text{Min}[63.5\% + 0.5\% \cdot (duration_i - 20); 1]$

Duration (years)	F_i^{Up} (100)
Up to 5	$6.75\% \cdot duration_i$
More than 5 and up to 10	$33.75\% + 3.78\% \cdot (duration_i - 5)$
More than 10 and up to 15	$52.65\% + 0.45\% \cdot (duration_i - 10)$
More than 15 and up to 20	$54.9\% + 0.45\% \cdot (duration_i - 15)$
More than 20	$\text{Min}[57.15\% + 0.45\% \cdot (duration_i - 20); 1]$

Duration (years)	F_i^{Up} (50)
Up to 5	$6\% \cdot duration_i$
More than 5 and up to 10	$30\% + 3.36\% \cdot (duration_i - 5)$
More than 10 and up to 15	$46.8\% + 0.4\% \cdot (duration_i - 10)$
More than 15 and up to 20	$48.8\% + 0.4\% \cdot (duration_i - 15)$
More than 20	$\text{Min}[50.8\% + 0.4\% \cdot (duration_i - 20); 1]$

2.6.9.23 For exposures to bonds issued by insurers or reinsurers for which a credit assessment by a nominated ECAI is not available and that the insurers or reinsurers meet the following requirements:
1) Meet their MCR;

2) The Solvency ratios are determined according to the requirements set out in these specifications;

3) The Solvency ratios are determined consistently to the scenario under consideration.

The following mapping between solvency ratios and credit quality steps should be applied to determine the risk factors listed in 2.6.9.18,

Solvency ratio	196%	175%	122%	95%	75%	75%
Credit quality step	1	2	3	4	5	6

Where the solvency ratio falls in between the solvency ratios set out in the table above, the value of F^{up} shall be linearly interpolated from the closest values of F^{up} corresponding to the closest solvency ratios set out in the table above. Where the solvency ratio is lower than 75%, F^{up} shall be equal to the factor corresponding to the credit quality steps 5 and 6. Where the solvency ratio is higher than 196%, F^{up} shall be the same as the factor corresponding to the credit quality step 1.

Special reference to covered bonds

2.6.9.24 In order to provide covered bonds with a treatment in the spread risk shock scenario according to their specific features, the risk factor F^{up} for each confidence level should be applied according to the tables below, subject to the following requirements being met:

1) The asset has a credit quality step of 0 or 1;

2) The covered bond must be issued by a credit institution which has its registered office in the Isle of Man or a Member State of the European Union and is subject by law to special public supervision designed to protect bond-holders. In particular, sums deriving from the issue of these bonds must be invested in conformity with the law in assets which, during the whole period of validity of the bonds, are capable of covering claims attaching to the bonds and which, in the event of failure of the issuer, would be used on a priority basis for the reimbursement of the principal and payment of the accrued interest.

1 in 200 year confidence level		
Duration (years)	0	1
Up to 5	$0.7\% \cdot duration_i$	$0.9\% \cdot duration_i$
More than 5	Min(1; 3.5% + 0.5% · ($duration_i$ - 5))	Min(1; 4.5% + 0.5% · ($duration_i$ - 5))

1 in 100 year confidence level		
Duration (years)	0	1
Up to 5	$0.63\% \cdot duration_i$	$0.81\% \cdot duration_i$
More than 5	$Min(1; 3.15\% + 0.45\% \cdot (duration_i - 5))$	$Min(1; 4.05\% + 0.45\% \cdot (duration_i - 5))$

1 in 50 year confidence level		
Duration (years)	0	1
Up to 5	$0.56\% \cdot duration_i$	$0.72\% \cdot duration_i$
More than 5	$Min(1; 2.8\% + 0.4\% \cdot (duration_i - 5))$	$Min(1; 3.6\% + 0.4\% \cdot (duration_i - 5))$

Special reference to exposures to central governments, central banks, multilateral development banks and international organisations

2.6.9.25 A risk factor of 0% should apply for the purposes of this risk shock scenario to:

- Exposures to the Isle of Man Government;
- Exposures to EU Member States' central government;
- Central banks denominated and funded in any domestic currency of an EU Member State;
- Instruments issued by a multilateral development bank such as:
  - The International Bank for Reconstruction and Development;
  - The International Finance Corporation;
  - The Inter-American Development Bank;
  - The Asian Development Bank;
  - The African Development Bank;
  - The Council of Europe Development Bank;
  - The Nordic Investment Bank;
  - The Caribbean Development Bank;
  - The European Bank for Reconstruction and Development;
  - The European Investment Bank;
  - The European Investment Fund;
  - The Multilateral Investment Guarantee Agency;
  - The International Finance Facility for Immunisation;
  - The Islamic Development Bank.
- Exposures to international organisations such as:

- o The European Community;
- o The International Monetary Fund;
- o The Bank for International Settlements.
- Exposures to the European Central Bank;
- Exposures that are fully, unconditionally and irrevocably guaranteed by the European Investment Bank or the European Investment Fund.

2.6.9.26 The zero risk charge referred to in 2.6.9.25 only applies to debt exposures to the named organisations. It does not extend to investments in entities which are owned by one of the named organisations.

2.6.9.27 For the purpose of the spread risk shock scenarios, exposures to regional governments and local authorities established in the jurisdiction of a Member State shall be treated as exposures to the central government for which a zero capital requirement for spread risk applies, provided there is no difference in risk between such exposures because of the specific revenue-raising powers of the former, and specific institutional arrangements exist, the effect of which is to reduce the risk of default. Insurers and reinsurers should assess to what extent a regional government or a local authority fulfils these criteria.

2.6.9.28 To determine the spread risk capital requirement for exposures to central governments and central banks denominated and funded in the domestic currency, the following factors, F^{up}, should be used for each confidence level:

1 in 200 year confidence level

Duration (years)	Credit quality step					
	0	1	2	3	4	5,6
≤ 5	0%	0%	$1.1\% \cdot duration_i$	$1.4\% \cdot duration_i$	$2.5\% \cdot duration_i$	$4.5\% \cdot duration_i$
5 <dur≤ 10	0%	0%	$5.5\% + 0.6\% \cdot (duration_i - 5)$	$7\% + 0.7\% \cdot (duration_i - 5)$	$12.5\% + 1.5\% \cdot (duration_i - 5)$	$22.5\% + 2.5\% \cdot (duration_i - 5)$
10 <dur≤ 15	0%	0%	$8.4\% + 0.5\% \cdot (duration_i - 10)$	$10.5\% + 0.5\% \cdot (duration_i - 10)$	$20.0\% + 1\% \cdot (duration_i - 10)$	$35.0\% + 1.8\% \cdot (duration_i - 10)$
15<dur≤ 20	0%	0%	$10.9\% + 0.5\% \cdot (duration_i - 15)$	$13.0\% + 0.5\% \cdot (duration_i - 15)$	$25.0\% + 1\% \cdot (duration_i - 15)$	$44.0\% + 0.5\% \cdot (duration_i - 15)$
> 20	0%	0%	$13.4\% + 0.5\% \cdot (duration_i - 20)$	$15.5\% + 0.5\% \cdot (duration_i - 20)$	$30.0\% + 0.5\% \cdot (duration_i - 20)$	$46.5\% + 0.5\% \cdot (duration_i - 20)$

1 in 100 year confidence level

Duration (years)	Credit quality step					
	0	**1**	**2**	**3**	**4**	**5,6**
≤ 5	0%	0%	$0.99\% \cdot duration_i$	$1.26\% \cdot duration_i$	$2.25\% \cdot duration_i$	$4.05\% \cdot duration_i$
5 <dur≤ 10	0%	0%	$4.95\% + 0.54\% \cdot (duration_i - 5)$	$6.3\% + 0.63\% \cdot (duration_i - 5)$	$11.25\% + 1.35\% \cdot (duration_i - 5)$	$20.25\% + 2.25\% \cdot (duration_i - 5)$
10 <dur≤ 15	0%	0%	$7.56\% + 0.45\% \cdot (duration_i - 10)$	$9.45\% + 0.45\% \cdot (duration_i - 10)$	$18.0\% + 0.9\% \cdot (duration_i - 10)$	$31.5\% + 1.62\% \cdot (duration_i - 10)$
15<dur≤ 20	0%	0%	$9.81\% + 0.45\% \cdot (duration_i - 15)$	$11.7\% + 0.45\% \cdot (duration_i - 15)$	$22.5\% + 0.9\% \cdot (duration_i - 15)$	$39.6\% + 0.45\% \cdot (duration_i - 15)$
> 20	0%	0%	$12.06\% + 0.45\% \cdot (duration_i - 20)$	$13.95\% + 0.45\% \cdot (duration_i - 20)$	$27.0\% + 0.45\% \cdot (duration_i - 20)$	$41.85\% + 0.45\% \cdot (duration_i - 20)$

1 in 50 year confidence level

Duration (years)	Credit quality step					
	0	**1**	**2**	**3**	**4**	**5,6**
≤ 5	0%	0%	$0.88\% \cdot duration_i$	$1.12\% \cdot duration_i$	$2.0\% \cdot duration_i$	$3.6\% \cdot duration_i$
5 <dur≤ 10	0%	0%	$4.4\% + 0.48\% \cdot (duration_i - 5)$	$5.6\% + 0.56\% \cdot (duration_i - 5)$	$10.0\% + 1.2\% \cdot (duration_i - 5)$	$18.0\% + 2.0\% \cdot (duration_i - 5)$
10 <dur≤ 15	0%	0%	$6.72\% + 0.4\% \cdot (duration_i - 10)$	$8.4\% + 0.4\% \cdot (duration_i - 10)$	$16\% + 0.8\% \cdot (duration_i - 10)$	$28.0\% + 1.44\% \cdot (duration_i - 10)$
15<dur≤ 20	0%	0%	$8.72\% + 0.4\% \cdot (duration_i - 15)$	$10.4\% + 0.4\% \cdot (duration_i - 15)$	$20.0\% + 0.8\% \cdot (duration_i - 15)$	$35.2\% + 0.4\% \cdot (duration_i - 15)$
> 20	0%	0%	$10.72\% + 0.4\% \cdot (duration_i - 20)$	$12.4\% + 0.4\% \cdot (duration_i - 20)$	$24.0\% + 0.4\% \cdot (duration_i - 20)$	$37.2\% + 0.4\% \cdot (duration_i - 20)$

2.6.9.29 In order to allow an analysis of the impact of these provisions, insurers and reinsurers should disclose their exposures to governments and central banks.

Spread risk on securitisation positions

2.6.9.30 A securitisation is defined as a transaction or scheme, whereby the credit risk associated with an exposure or pool of exposures is tranched, having both of the following characteristics:

1) Payments in the transaction or scheme are dependent upon the performance of the exposure or pool of exposures;

2) The subordination of tranches determines the distribution of losses during the ongoing life of the transaction or scheme.

2.6.9.31 The capital requirement for spread risk of securitisation positions is determined as the result of the pre-defined scenario:

$$Market_{sp}^{securitisation} = \max(0; \Delta BOF | direct\ spread\ shock\ on\ securitisation\ positions)$$

2.6.9.32 The direct spread risk shock on securitisation positions is the immediate effect on the net asset value expected in the event of the following instantaneous decrease of values in securitisation positions due to the widening of their credit spread:

$$\sum_i MV_i \cdot F^{up}(rating_i; duration_i)$$

Where:

- MV_i is the value of the credit risk exposure in accordance to subsection 1;

2.6.9.33 $F^{up}(rating_i; duration_i)$ is a function of the credit quality step of the credit risk exposure and duration which is calibrated to deliver a shock consistent with the VaR for each shock scenario specified in 2.2.1.2 following a widening of credit spreads, where the $F^{up}(rating_i; duration_i)$ rating factor is capped at 100%. To determine the aggregate spread risk capital requirement for securitisation positions, the following split into Type 1 and Type 2 securitisation positions and re-securitisation positions should be made:

Type 1 Securitisations shall include exposures to securitisations that meet the following criteria:

1) The exposure has been assigned to credit quality step 3 or better;

2) The securitisation is listed in a regulated market of the Isle of Man or a country which is a member of the EEA or the OECD;

3) After the delivery of an enforcement notice and where applicable an acceleration notice, the tranche is not subordinated to other tranches of the same securitisation transaction or scheme in respect of receiving principal and interest payments;

4) The underlying assets have been acquired by the Securitisation Special Purpose Entity (SSPE) in a manner that is enforceable against any third party and are beyond reach of the seller (originator or sponsor) and its creditors including the event of the seller's insolvency;

5) There are no severe clawback provisions in the jurisdiction of the seller (originator or sponsor), this includes but is not limited to provisions under which the sale of the underlying assets can be invalidated by the liquidator of the seller (originator or sponsor) solely on the basis that it was concluded within a certain period before the declaration of the seller's insolvency or provisions where the SSPE can prevent such invalidation only if it can prove that it was not aware of the insolvency of the seller at the time of sale;

6) The securitisation includes provisions to ensure that a default of the servicer does not result in a termination of servicing and provisions to ensure the replacement of derivative counterparties and liquidity providers if applicable;

7) All the assets underlying the securitisation belong to only one of the following categories:

a) Residential mortgages or fully guaranteed residential loans fully guaranteed by an eligible protection provider, qualifying for the credit quality step 2 or above, where the portion of each of the loans that is used to meet the requirement for collateralisation of the covered bond does not represent more than 80% of the value of the corresponding residential property located in France, and where a loan-to-income ratio respects at most 33% when the loan has been granted. There shall be no mortgage liens on the residential property when the loan is granted, and for the loans granted from 1 January 2014 the borrower shall be contractually committed not to grant such liens without the consent of the credit institution that granted the loan. The loan-to-income ratio represents the share of the gross income of the borrower that covers reimbursement of the loan, including the interests. The protection provider shall be either a financial institution authorised and supervised by the competent authorities and subject to prudential requirements comparable to those applied to institutions in terms of robustness or an institution or an insurer. It shall establish a mutual guarantee fund or equivalent protection for insurers to absorb credit risk losses, whose calibration shall be periodically reviewed by the competent authorities. Both the credit institution and the protection provider shall carry out a creditworthiness assessment of the borrower;

b) Loans to small and medium-sized enterprises;

c) Auto loans and leases for the financing of:

i. Motor vehicles – any power driven vehicles which are moved by their own means, having at least four wheels, being complete, completed or incomplete, with a maximum design speed exceeding 25km/h;

ii. Trailers – any non-self-propelled vehicles on wheels which are designed and constructed to be towed by a motor vehicle;

iii. Agricultural or forestry tractors – any tractor, trailer or interchangeable towed machinery, whether being complete, completed or incomplete, which is intended to be used in agriculture or forestry;

    iv. Motorcycles or motor tricycles – two-wheeled vehicles without a sidecar or with a sidecar or vehicles with three symmetrically arranged wheels respectively, fitted with an engine having a cylinder capacity of more than 50 cm^3 if of the interval combustion type and/or having a maximum design speed of more than 45 km/h; or

    v. Tracked vehicles.

Such loans or leases may include ancillary insurance and service products or additional vehicle parts, and in the case of leases, the residual value of leased vehicles;

d) Leased property;

e) Consumer loans;

f) Credit card receivables.

The pool of underlying assets may only include derivatives if these are used strictly for hedging currency and interest rate risk.

8) The pool of underlying assets do not include loans that were granted to credit-impaired obligors, where a credit impaired obligor is a borrower (or where applicable, a guarantor) which:

a) Has declared bankruptcy, agreed with their creditors to a debt dismissal or reschedule or had a court grant their creditors a right of enforcement or material damages as a result of a missed payment within three years prior to the date of origination; or

b) Is on official registry of persons with adverse credit history; or

c) Has a credit assessment by an ECAI or has a credit score indicating a significant risk that contractually agreed payments will not be made compared to the average obligor for this type of loan in the relevant jurisdiction;

9) The pool of underlying assets do not include loans in default at the time of issuance of the securitisation or when incorporated in the pool of the underlying assets at any time after issuance. Where a default shall be considered to have occurred with regard to a particular obligor when either or both of the following have taken place:

a) The institution considers that the obligor is unlikely to pay its credit obligations to the institution, the parent entity or any of its subsidiaries in full, without recourse by the institution to actions such as realising security;

b) The obligor is past due more than 90 days on any material credit obligation to the institution, the parent entity or any of its subsidiaries. Competent authorities may replace the 90 days with 180 days for exposures secured by residential or SME commercial real estate in the retail exposure class, as well as exposures to public sector entities).

10) Except for securitisations where the underlying assets are credit card receivables, at least one payment has been made by obligors on the loans or lease;

11) In the case of securitisations where the underlying assets are residential mortgages, the pool of underlying residential mortgage loans do not include any loan that was marketed and underwritten on the premise that the loan applicant or, where applicable intermediaries, were made aware that the information provided might not be verified by the lender;

12) In the case of securitisations backed by residential mortgages, the assessment of the borrower's creditworthiness meet the requirements set out below:

a) Before concluding a credit agreement, the creditor makes a thorough assessment of the consumer's creditworthiness. That assessment shall take appropriate account of factors relevant to verifying the prospect of the consumer to meet their obligations under the credit agreement;

b) The procedures and information on which the assessment is based are established, documented and maintained;

c) The assessment of creditworthiness shall not rely predominantly on the value of the residential immovable property exceeding the amount of the credit or the assumption that the residential immovable property will increase in value unless the purposed of the credit agreement is to construct or renovate the residential immovable property;

d) Where a creditor concludes a credit agreement with a consumer the creditor shall not subsequently cancel or alter the credit agreement to the detriment of the consumer on the grounds that the assessment of creditworthiness was incorrectly conducted. This shall not apply where it is demonstrated that the consumer knowingly withheld or falsified the information;

e) Creditor only makes the credit available to the consumer where the result of the creditworthiness assessment indicated that the obligations resulting from the credit agreement are likely to be met in the manner required under that agreement;

f) The creditor informs the consumer in advance that a database is to be consulted;

g) Where the credit application is rejected the creditor informs the consumer without delay of the rejection and, where applicable, that the decision is based on automated processing of data. Where the rejection is based on the result of the database consultation, the creditor shall inform the consumer of the result of such consultation and of the particulars of the database consulted;

h) Consumer's creditworthiness is re-assessed on the basis of updated information before any significant increase in the total amount of credit is granted after the conclusion of the credit agreement unless such additional credit was envisaged and included in the original creditworthiness assessment.

13) Where the issuer, originator or sponsor of the securitisation is established in the EU, it discloses information on the credit quality and performance of the underlying assets, the structure of the transaction, the cashflows and any collateral supporting the exposures as well as any information that is necessary for investors to conduct comprehensive and well0informed stress tests, where the issuer, originator and sponsors are established outside the EU, comprehensive loan-level data in compliance with standards generally accepted y market participants is made available to existing and potential investors and regulators at issuance and on a regular basis.

2.6.9.34 Type 2 securitisations shall include all securitisations that do not qualify as Type 1 securitisations and are not re-securitisation positions.

2.6.9.35 Insurers may use a transitional method for securitisations issued before the entry into force of the new regulatory regime, whereby it is assumed that securitisation positions that meet the criteria under 1), 3), 4) and 7) can be considered as Type 1 securitisations.

2.6.9.36 For Type 1 securitisations the following factors F^{up} should be used for each confidence level:

Credit Quality Step	F_i^{Up} (200)	F_i^{Up} (100)	F_i^{Up} (50)
0	$2.1\% \cdot duration_i$	$1.89\% \cdot duration_i$	$1.68\% \cdot duration_i$
1	$4.2\% \cdot duration_i$	$3.78\% \cdot duration_i$	$3.36\% \cdot duration_i$
2	$7.4\% \cdot duration_i$	$6.66\% \cdot duration_i$	$5.92\% \cdot duration_i$
3	$8.5\% \cdot duration_i$	$7.65\% \cdot duration_i$	$6.8\% \cdot duration_i$

2.6.9.37 For Type 2 securitisations the following factors F^{up} should be used for each confidence level, where the modified duration should not be lower than 1 year:

Credit Quality Step	F_i^{Up} (200)	F_i^{Up} (100)	F_i^{Up} (50)
0	$12.5\% \cdot duration_i$	$11.25\% \cdot duration_i$	$10.0\% \cdot duration_i$
1	$13.4\% \cdot duration_i$	$12.06\% \cdot duration_i$	$10.72\% \cdot duration_i$
2	$16.6\% \cdot duration_i$	$14.94\% \cdot duration_i$	$13.28\% \cdot duration_i$
3	$19.7\% \cdot duration_i$	$17.73\% \cdot duration_i$	$15.76\% \cdot duration_i$
4	$82.0\% \cdot duration_i$	$73.8\% \cdot duration_i$	$65.6\% \cdot duration_i$
5,6	$100.0\% \cdot duration_i$	$90.0\% \cdot duration_i$	$80.0\% \cdot duration_i$

Unrated	$100.0\% \cdot duration_i$	$90.0\% \cdot duration_i$	$80.0\% \cdot duration_i$

2.6.9.38 For re-securitisations the following factors F^{up} should be used for each confidence level:

Credit Quality Step	F_i^{Up} (200)	F_i^{Up} (100)	F_i^{Up} (50)
0	$33.0\% \cdot duration_i$	$29.7\% \cdot duration_i$	$26.4\% \cdot duration_i$
1	$40.0\% \cdot duration_i$	$36.0\% \cdot duration_i$	$32.0\% \cdot duration_i$
2	$51.0\% \cdot duration_i$	$45.9\% \cdot duration_i$	$40.8\% \cdot duration_i$
3	$91.0\% \cdot duration_i$	$81.9\% \cdot duration_i$	$72.8\% \cdot duration_i$
4	$100.0\% \cdot duration_i$	$90.0\% \cdot duration_i$	$80.0\% \cdot duration_i$
5,6	$100.0\% \cdot duration_i$	$90.0\% \cdot duration_i$	$80.0\% \cdot duration_i$
Unrated	$100.0\% \cdot duration_i$	$90.0\% \cdot duration_i$	$80.0\% \cdot duration_i$

Spread risk on credit derivatives

2.6.9.39 For credit derivatives a scenario-based approach is used. Credit derivatives encompass credit default swaps (CDS), total return swaps (TRS), and credit linked notes (CLN), where:

1) The insurer or reinsurer does not hold the underlying instrument or another exposure where the basis risk between that exposure and the underlying instrument is immaterial in all possible scenarios; or

2) The credit derivative is not part of the undertaking's risk mitigation policy.

Credit derivatives which are part of the insurer's or reinsurer's risk mitigation policy shall not be subject to a capital requirement for spread risk, as long as the insurer or reinsurer holds either the instruments underlying the credit derivative or another exposure with respect to which the basis risk between that exposure and the instruments underlying the credit derivative is not material in any circumstances.

2.6.9.40 The capital requirement for spread risk of credit derivatives is determined as the result of two pre-defined scenarios for each confidence level:

$$Mkt_{sp,upward}^{cd} = \max(0; \Delta BOF|\ upward\ spread\ shock\ on\ credit\ derivatives)$$

$$Mkt_{sp,downward}^{cd} = \max(0; \Delta BOF|\ downward\ spread\ shock\ on\ credit\ derivatives)$$

2.6.9.41 The capital requirement for spread risk on credit derivatives is equal to the loss in basic own funds that would result from an instantaneous absolute increase in credit spreads of the instruments underlying the credit derivative or from an instantaneous relative decrease in spreads of the instruments underlying the credit derivatives according to the following magnitude for each confidence level:

Credit quality step	1 in 200 year	
	Widening of spreads (in absolute terms)	Decrease of spreads (in relative terms)
0	+130bp	-75%
1	+150bp	-75%
2	+260bp	-75%
3	+450bp	-75%
4	+840bp	-75%
5	+1620bp	-75%
6	+1620bp	-75%

Credit quality step	1 in 100 year	
	Widening of spreads (in absolute terms)	Decrease of spreads (in relative terms)
0	+117bp	-68%
1	+135bp	-68%
2	+234bp	-68%
3	+405bp	-68%
4	+756bp	-68%
5	+1458bp	-68%
6	+1458bp	-68%

Credit quality step	1 in 50 year	
	Widening of spreads (in absolute terms)	Decrease of spreads (in relative terms)
0	+104bp	-60%
1	+120bp	-60%
2	+208bp	-60%
3	+360bp	-60%
4	+672bp	-60%
5	+1296bp	-60%
6	+1296bp	-60%

2.6.9.42 The capital requirement for spread risk on credit derivatives will be calculated as follows for each confidence level:

$$Mkt_{sp}^{cd} = \max\left(0;\ Mkt_{sp,upward}^{cd};\ Mkt_{sp.downward}^{cd}\right)$$

2.6.9.43 In order for simplification to be used, the following conditions must be met:

1) The simplification is proportionate to the nature, scale and complexity of the risks that the (re)insurer faces.

2) The standard calculation of the spread risk shock scenario is an undue burden for the (re)insurer.

2.6.9.44 Where the simplification is applied, the following formula shall be used for each confidence level:

$$Market_{sp}^{bonds} = MV^{bonds} \cdot \left[\sum_i \%MV_i^{bonds} \cdot stress_i + \%MV_{no\ rating}^{bonds} \cdot \min\left(dur_{no\ rating} \cdot 0.03; 1 \right) \right] + \Delta\ Liab_{ul}$$

Where:

- MV^{bonds} is the total market value of the credit-risky asset portfolio;

- $\%MV_i^{bonds}$ is the proportion of the credit-risky asset portfolio at credit quality step i;

- $\%MV_{no\ rating}^{bonds}$ is the proportion of the credit-risky asset portfolio for which no credit quality step is available;

- $stress_i$ is defined as the product of the average duration and the F'^{up} spread shock factors defined in the table below;

- $dur_{no\ rating}$ is the average duration of the credit-risky asset portfolio for which no credit quality step is available, weighted by the market value of the assets;

The stressed scenario is defined as a fall in value on the assets of:

$$MV^{bonds} \cdot \left[\sum_i \%MV_i^{bonds} \cdot stress_i + \%MV_{no\ rating}^{bonds} \cdot \min\left(dur_{no\ rating} \cdot 0.03; 1 \right) \right]$$

where F^{up} spread shock factors for each confidence level are defined as:

Credit quality step	0	1	2	3	4	5	6
F^{up} (200)	0.9%	1.1%	1.4%	2.5%	4.5%	7.5%	7.5%
F^{up} (100)	0.81%	0.99%	1.26%	2.25%	4.05%	6.75%	6.75%
F^{up} (50)	0.72%	0.88%	1.12%	2.0%	3.6%	6.0%	6.0%

2.6.10. Market risk concentrations

Description

2.6.10.1 Market risk concentrations are caused by the accumulation of exposures with the same counterparty. For the sake of simplicity and consistency, the definition of market risk concentrations regarding financial investments is restricted to this and does not include other types of concentration (e.g. geographical area, industry sector, etc.).

2.6.10.2 The scope of the concentration risk shock scenario extends to assets considered in the equity, spread and property risk shock scenarios, and excludes assets covered by the counterparty default risk shock scenario in order to avoid any overlap between both elements of the standard calculation of the SCR.

2.6.10.3 As an example, risks derived from concentration in cash held at a bank are captured in the counterparty default risk shock scenario, while risks corresponding to concentration in other bank assets should be reflected in the concentration risk shock scenario.

2.6.10.4 An appropriate assessment of concentration risks needs to consider both the direct and indirect exposures derived from the investments included in the scope of this shock scenario.

2.6.10.5 The capital requirement for market risk concentration shall be calculated on the basis of single name exposures. For this purpose, exposures to entities which belong to the same group shall be treated together as a single name exposure.

Capital Requirement

2.6.10.6 The capital requirement calculation for each confidence level is performed in three steps:

1) Excess exposure per single name exposure;

2) Risk concentration capital requirement per single name exposure;

3) Aggregation across single name exposures.

2.6.10.7 The excess exposure per single name exposure is calculated as:

$$XS_i = \max\left(0; \frac{E_i}{Assets_{xl}} - CT\right)$$

Where:

- XS_i is the excess exposure of single name i;

- E_i is the net exposure at default to counterparty i that is included in the calculation base of the market risk concentration shock scenario;

- $Assets_{xl}$ is the total amount of assets considered in the concentration risk shock scenario, it should not include:

1) Assets held in respect of life insurance contracts where the investment risk is fully borne by the policyholders;

2) Exposures an insurer or reinsurer has to a counterparty belonging to the same group, provided that the following conditions are met:

a) The counterparty is an insurer or reinsurer, an insurance holding company, a mixed financial holding company or an ancillary services company which is subject to prudential requirements;

b) The counterparty is fully consolidated in the same consolidation scope as the insurer or reinsurer;

c) The counterparty is subject to the same risk evaluation, measurement and control procedures as the undertaking;

d) The counterparty is established in the Isle of Man or the European Union;

e) There is no current or foreseen material, practical or legal impediment, to the prompt transfer of own funds or repayment of liabilities from the counterparty to the insurer or reinsurer.

3) Assets covered in the counterparty default risk shock scenario;

4) Deferred tax assets;

5) Intangible assets.

- CT is the excess exposure threshold, depending on the credit quality step of single name i, and is set as follows:

Credit quality step	Excess exposure threshold (CT)
0	3%
1	3%
2	3%
3	1.5%
4	1.5%
5	1.5%
6 or unrated	1.5%

2.6.10.8 The capital requirement for market risk concentration on a single name exposure, i, is calculated as the result of a pre-defined scenario:

$$Conc_i = \Delta BOF | ConcentrationShock$$

Where:

- ΔBOF is the change in the value of basic own funds, this does not include changes in the risk margin;

- $ConcentrationShock$ is the instantaneous decrease in the value of the assets corresponding to the single name exposure, i, and confidence level equal to:

$$XS_i \cdot g_i$$

The parameter g_i depends on the credit quality step of the counterparty and is determined as follows for each confidence level:

Credit quality step	0	1	2	3	4	5	6	Unrated
g_i (200)	12%	12%	21%	27%	73%	73%	73%	73%
g_i (100)	10.8%	10.8%	18.9%	24.3%	65.7%	65.7%	65.7%	65.7%
g_i (50)	9.6%	9.6%	16.8%	21.6%	58.4%	58.4%	58.4%	58.4%

2.6.10.9 For counterparties without credit quality steps that meet the following requirements:

1) Are (re)insurers supervised by the FSA, an insurance supervisor of a country in the EU, or by an insurance supervisor in a regime which has been assessed by EIOPA as being equivalent to Solvency II;

2) Meet their MCR;

3) The solvency ratios are determined according to the requirements set out in this specification (for a (re)insurer supervised by the FSA), Solvency II (for an EU insurer) or the corresponding regime for a (re)insurer in a regime which has been assess as being equivalent to Solvency II;

4) The solvency ratios are determined consistently to the scenario under consideration.

The parameter g_i, depending on the solvency ratio and confidence level, is determined as follows:

Solvency Ratio	>196%	175%	122%	100%	≤95%
Risk factor g_i (200)	12.0%	21.0%	27.0%	64.5%	73.0%
Risk factor g_i (100)	10.8%	18.9%	24.3%	58.1%	65.7%
Risk factor g_i (50)	9.8%	16.8%	21.6%	51.6%	58.4%

2.6.10.10 Where the eligible amount of own funds of a (re)insurer, to cover the SCR, falls in between the eligible amount values specified above, the value of the risk factor g_i shall be linearly interpolated from the eligible amount (solvency ratio) and risk factor values specified in the table directly above.

2.6.10.11 For other single name exposures, the parameter g_i should be defined as follows:

Confidence level	
1 in 200 year shock	73.0%
1 in 100 year shock	65.7%
1 in 50 year shock	58.4%

2.6.10.12 The capital requirement for concentration risk is determined assuming no correlation between the requirements for each counterparty i, and should be equal to the following:

$$Market_{conc} = \sqrt{\sum_i \left(Conc_i{}^2 \right)}$$

2.6.10.13   Where an insurer has more than one exposure to a counterparty, then E_i is the aggregate of those exposures at default to this counterparty considered as a single name exposure. The aggregate exposure at default across all single name exposures considered for the market risk concentration shock scenario shall be reduced by the amount of exposure at default to counterparties belonging to that single name exposure and for which the risk factor g_i for market risk concentration is 0%.

The external credit quality step of the counterparty, $rating_i$, should be a weighted average credit quality step on this single name exposure, determined as the whole number nearest to the average of the credit quality steps of the individual exposures to this counterparty, weighted by the net exposure at default in respect of that exposure to this counterparty.

2.6.10.14   The exposure at default to an individual counterparty i should comprise assets covered by the concentration risk shock scenario, including hybrid instruments, e.g. junior debt, mezzanine CDO tranches.

2.6.10.15   Exposures via investment funds or such entities whose activity is mainly the holding and management of an insurer's own investment need to be considered on a look-through basis. The same holds for CDO tranches and similar investments embedded in 'structured products'. The concentration risk shock scenario should not be applied at the level of an investment fund but at the level of each sub-counterparty, after aggregation of exposures in each sub-counterparty at the portfolio level. If the underlying single name exposures of the investment fund cannot be determined, the concentration risk should be applied at the level of the investment fund.

Special reference to covered bonds

2.6.10.16   In order to provide covered bonds with a treatment in the concentration risk shock scenario according to their specific features, the relative excess exposure threshold, CT, should be 15% when the following requirements are met:

- The asset has a credit quality step of 0 or 1 or better;

- The covered bond must be issued by a credit institution which has its registered office in the Isle of Man or a Member State of the European Union and is subject by law to special public supervision designed to protect bond-holders. In particular, sums deriving from the issue of these bonds must be invested in conformity with the law in assets which, during the whole period of validity of the bonds, are capable of covering claims attaching to the bonds and which, in the event of failure of the issuer, would be used on a priority basis for the reimbursement of the principal and payment of the accrued interest.

Exposures in the form of covered bonds shall be considered as single name exposures, regardless of other net exposures at default to the same counterparties. Other net exposures at default to the same counterparties as the counterparties of exposures in the form of covered bonds shall be considered as separate single name counterparties.

Special reference to unrated credit institutions and financial institutions

2.6.10.17   Single name exposures for which a credit assessment by a nominated ECAI is not available, which are credit institutions and financial institutions and which meet the requirements of this technical specification shall be assigned a risk factor g_i which is determined as follows:

Confidence level	
1 in 200 year shock	64.5%
1 in 100 year shock	58.1%
1 in 50 year shock	51.6%

Concentration risk capital in case of immovable properties

2.6.10.18   (Re)insurers should identify the exposures in a single property higher than 10% of 'total assets' (concentration threshold) considered in this shock scenario according to paragraphs 2.6.10.1 to 2.6.10.5.

2.6.10.19   For this purpose the insurer should take into account both properties directly owned and those indirectly owned (i.e. funds of properties), and both ownership and any other real exposure (mortgages or any other legal right regarding properties).

2.6.10.20   Properties located in the same building or sufficiently nearby should be considered a single property.

2.6.10.21   The risk concentration capital requirement per property i is calculated using the assigned risk factor g_i in the table below.

Confidence level	
1 in 200 year shock	12.0%
1 in 100 year shock	10.8%
1 in 50 year shock	9.6%

Special reference to exposures to central governments, central banks, multilateral development banks and international organisations

2.6.10.22   A risk factor of 0% should apply for the purposes of this shock scenario for exposures to:

- The Isle of Man Government;
- EU Member States;
- Central government and central banks denominated and funded in any domestic currency of an EU Member State;
- A multilateral development bank such as:
  o The International Bank for Reconstruction and Development;
  o The International Finance Corporation;
  o The Inter-American Development Bank;

- o The Asian Development Bank;
- o The African Development Bank;
- o The Council of Europe Development Bank;
- o The Nordic Investment Bank;
- o The Caribbean Development Bank;
- o The European Bank for Reconstruction and Development;
- o The European Investment Bank;
- o The European Investment Fund;
- o The Multilateral Investment Guarantee Agency;
- o The International Finance Facility for Immunisation;
- o The Islamic Development Bank.

- International organisations such as:
  - o The European Community;
  - o The International Monetary Fund;
  - o The Bank for International Settlements.
- The European Central Bank;
- Exposures that are fully, unconditionally and irrevocably guaranteed by the European Investment Bank or the European Investment Fund.

The zero risk charge referred to in this paragraph only applies to debt exposures to the named organisations, and doesn't extend to investments in entities which are owned by one of the named organisations.

2.6.10.23   For the purpose of the market risk concentration shock scenario, exposures to regional governments and local authorities established in the jurisdiction of a Member State shall be treated as exposures to the central government for which a zero capital requirement for market risk concentration applies, provided there is no difference in risk between such exposures due to the specific revenue-raising powers of the former, and specific institutional arrangements exist, the effect of which is to reduce the risk of default. Insurers should assess to what extent a regional government or a local authority fulfil these criteria.

2.6.10.24   To determine the concentration risk capital requirement for exposures to central governments and central banks denominated and funded in the domestic currency, other than those mentioned in 2.6.10.23, the following risk factors g_i should be used for each confidence level:

Credit quality step	0	1	2	3	4	5	6	Unrated
g_i (200)	0%	0%	12%	21%	27%	73%	73%	73%
g_i (100)	0%	0%	10.8%	18.9%	24.3%	65.7%	65.7%	65.7%
g_i (50)	0%	0%	9.6%	16.8%	21.6%	58.4%	58.4%	58.4%

Special reference to bank deposits

2.6.10.25 Bank deposits considered in the concentration risk shock scenario shall be assigned a risk factor g_i for market risk concentration of 0% to the extent that their full value is covered by a government Deposit Guarantee Scheme in the Isle of Man or European Community, the guarantee is applicable without any restrictions to the insurer and provided there is no double-counting of such guarantee in the SCR calculation.

Treatments of risks associated to SPV notes held by an insurer

2.6.10.26 SPV notes should be treated as follows:

1) SPV notes having mostly the features of fixed-income bonds, authorised, where the SPV is defined below and has credit quality step 3 or better.

   Their risks should be considered in the spread, interest rate and concentration risk shock scenarios according to its credit quality step and the respective confidence level.

2) Other SPV notes, including those having significant features of equities (i.e. equity tranche notes).

2.6.10.27 Their risks should be considered in the equity risk shock scenario for the respective confidence level. For this purpose the SPV notes should be considered as non-traded equities, unless they are traded actively in a financial market.

2.7. Counterparty default Risk

2.7.1. Description

2.7.1.1 Counterparty default risk is caused by the unexpected default, or deterioration in the credit standing, of an insurer's or reinsurer's counterparties and debtors.

2.7.1.2 The counterparty default risk shock scenario should reflect possible losses due to unexpected defaults of the counterparties and debtors of insurers over the forthcoming twelve months. The scope of the counterparty default risk shock scenario includes risk-mitigating contracts, such as reinsurance arrangements, securitisations and derivatives; receivables from intermediaries; as well as any other credit exposures which are not covered in the spread risk capital requirement calculation.

2.7.1.3   Where liabilities for employee benefits are recognised, these should be taken into account in the calculation of the capital requirements for counterparty default risk and for the shock scenarios used in the calculation of market risk. For this purpose, insurers should take into account the nature of the benefits and, where relevant, the nature of all contractual arrangements with an institution for occupational retirement provision or another insurer or reinsurer for the provision of these benefits.

2.7.1.4   If the management of the assets covering the liabilities for employee benefits has been outsourced, an insurer acting as a sponsor should take them into account in the calculation of the capital requirements for the counterparty default risk and for the shock scenarios used in the calculation of market risk, provided it is liable for any loss in value of these assets.

2.7.1.5   For each counterparty, the counterparty default risk shock scenario should take account of the overall counterparty risk exposure of the insurer concerned to that counterparty, irrespective of the legal form of its contractual obligations to that counterparty.

2.7.1.6   A differentiation of two classes of exposure, denoted by Type 1 and Type 2, is made and a different treatment according to their characteristics is applied.

2.7.1.7   The Type 1 class covers exposures which may not be diversified and where the counterparty is likely to be rated. The class therefore consists of exposures in relation to:

1) Risk-mitigation contracts including reinsurance arrangements, insurance securitisations and derivatives;

2) Cash at bank;

3) Deposits with ceding insurers, where the number of single name exposures does not exceed 15;

4) Commitments received by an insurer or reinsurer which have been called up but are unpaid, where the number of single name exposures does not exceed 15. This includes called up but unpaid ordinary share capital and preference shares; called up but unpaid legally binding commitments to subscribe and pay for subordinated liabilities; called up but unpaid initial funds; called up but unpaid guarantees; called up but unpaid letters of credit;

5) Legally binding commitments which the insurer has provided or arranged and which may create payment obligations depending on the credit standing or default on a counterparty. These include guarantees, letters of credit and letters of comfort that the insurer has provided.

For determining the number of independent counterparties, counterparties which belong to the same group should not be treated as independent counterparties.

2.7.1.8   The capital requirement for securities lending arrangements and securities repurchase arrangements should follow the recognition of items exchanged in the regulatory balance sheet, also taking into account contractual terms and risks stemming from the agreement.

If a lent asset remains on the balance sheet, and the asset received is not recognised, the relevant market risk capital requirements should be applied to the lent asset. In addition, a counterparty default risk charge (Type 1 exposures) should apply to the lent asset, taking into account the risk-mitigation provided by the asset received if the latter is recognised as collateral.

If the lent asset does not remain on the balance sheet and the asset received is recognised, the relevant market risk charges should be applied to the asset received. In addition, if, following the contractual terms of the lending arrangement and the legal provisions applying in the case of insolvency of the borrower, there is a risk that the lent asset is not given back to the lender at the end of the arrangement, although the received asset has been returned to the borrower, then a capital charge for counterparty default risk should be calculated based on the initial value of the lent asset.

In cases where the lent asset and the asset received are both recognised on the balance sheet, the relevant market risk charges should be applied to both. In additional, a counterparty default risk charge should apply to the lent asset, taking into account the risk mitigation provided by the asset received if the latter is recognised as collateral.

If the lending arrangement results in the creation of a liability on the balance sheet, the insurer or reinsurer should consider this liability when calculating the interest rate risk capital requirement.

2.7.1.9 The Type 2 class covers exposures of types which are usually diversified and where the counterparty is likely to be unrated. The class of Type 2 exposures therefore consists of all exposures which are not covered in the spread risk shock scenario, are in the scope of the counterparty default risk shock scenario and are not in the Type 1 class, in particular:

1) Receivables from intermediaries;

2) Policyholder debtors;

3) Residential mortgage loans that meet the requirements set out in 2.7.6.2;

4) Deposits with ceding insurers, where the number of single name exposures exceeds 15;

5) Commitments received by an insurer or reinsurer which have been called up but are unpaid as referred to in 2.7.1.7 4), where the number of single name exposures exceeds 15.

2.7.1.10 Insurers and reinsurers may, at their discretion, consider all exposures referred to in points 4) and 5) of 2.7.1.7 above as Type 1 exposures, regardless of the number of single name exposures.

2.7.1.11 Where a letter of credit, a guarantee or an equivalent risk mitigation technique has been provided to fully secure an exposure and this risk mitigation technique meets the requirements of section 2.11.2 – 'Conditions for using financial risk mitigation techniques', then the provider may be considered as the counterparty on the secured exposure for the purpose of assessing the number of single name exposures.

2.7.1.12 The following credit risks shall not be covered in the counterparty default risk shock scenario:

1) The credit risk transferred by a credit derivative;

2) The credit risk on debt issuance by special purpose vehicles;

3) The underwriting risk of credit and surety ship insurance or reinsurance.

2.7.1.13 Where insurance contracts written by an insurer contain investment guarantees provided to policyholders by a third party and for which the insurer or reinsurer would be liable should the third party default these externally-provided guarantees shall be treated as derivatives in the counterparty default risk shock scenario.

2.7.2. Capital requirement

2.7.2.1 The capital requirements relating to counterparty default risk should be calculated separately for Type 1 and Type 2 exposures. The capital requirements are then aggregated as follows for each confidence level:

$$SCR_{default} = \sqrt{SCR^2_{default,1} + 1.5 \cdot SCR_{default,1} \cdot SCR_{default,2} + SCR^2_{default,2}}$$

Where:

- $SCR_{default}$ is the capital requirement for counterparty default risk;

- $SCR_{default,1}$ is the capital requirement for counterparty default risk of Type 1 exposures;

- $SCR_{default,2}$ is the capital requirement for counterparty default risk of Type 2 exposures.

2.7.3. Calculation of capital requirement for Type 1 exposures

2.7.3.1 The main inputs of the counterparty default risk shock scenario are the estimated loss-given-default (LGD) of an exposure and the probability of default (PD) of the counterparty. Given these for the portfolio of Type 1 exposures, the capital requirement is calculated as follows:

$$SCR_{default,1} = \begin{cases} \beta \cdot \sqrt{V}, & \text{if } \sqrt{V} \leq 5\% \cdot \sum_i LGD_i \\ \rho \cdot \sqrt{V}, & \text{if } 5\% \cdot \sum_i LGD_i < \sqrt{V} \leq 20\% \cdot \sum_i LGD_i \\ \sum_i LGD_i & \text{if } 20\% \cdot \sum_i LGD_i \leq \sqrt{V} \end{cases}$$

Where:

- The sum is taken over all independent counterparties with Type 1 exposures;

- LGD_i is the loss-given-default for Type 1 exposure of counterparty i;

- V is the variance of the loss distribution of the Type 1 exposures;

- $\sqrt{V}$ is the standard deviation of the loss distribution of the Type 1 exposures.

- Where β and ρ are defined as follows for each confidence level:

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
β	3.0	2.7	2.4
ρ	5.0	4.5	4.0

2.7.3.2 The variance V of the loss distribution of Type 1 exposure shall be equal to the sum of V_{inter} and V_{intra}.

2.7.3.3 V_{inter} shall be equal to the following:

$$V_{inter} = \sum_{(j,k)} \frac{PD_k \cdot (1 - PD_k) \cdot PD_j \cdot (1 - PD_j)}{1.25 \cdot (PD_k + PD_j) - (PD_k \cdot PD_j)} \cdot TLGD_j \cdot TLGD_k$$

Where:

- The sum covers all possible combinations (j, k) of different probabilities of default on single name exposures;
- $TLGD_j$ and $TLGD_k$ denote the sum of losses-given-default on Type 1 exposures from counterparties bearing a probability of default PD_j and PD_k respectively.

2.7.3.4 V_{intra} shall be equal to the following:

$$V_{intra} = \sum_{j} \frac{1.5 \cdot PD_j \cdot (1 - PD_j)}{2.5 - PD_j} \cdot \sum_{PD_j} LGD_i{}^2$$

Where:

- The first sum covers all different probabilities of default on single name exposures;
- The second sum covers all single name exposures that have a probability of default equal to PD_j;
- LGD_i denotes the loss-given-default on the single name exposure i.

2.7.3.5 PD_i denotes the probability of default, regarding a credit exposure i for which a credit assessment by a nominated external credit assessment institution (ECAI) is available. The values of PD_i should be set as follows for all confidence levels:

Credit quality step	0	1	2	3	4	5	6
Probability of Default (PD_i)	0.002%	0.01%	0.05%	0.24%	1.20%	4.2%	4.2%

2.7.3.6 In cases where more than one rating is available for a counterparty, the second highest rating should be used.

Counterparties without a credit quality step

2.7.3.7 For counterparties without credit quality steps that meet the following requirements:

1) Are insurers or reinsurers supervised by the Isle of Man Financial Services Authority or by a supervisor in the European Union or by a supervisor in a regulatory regime which has been assessed by EIOPA as equivalent to Solvency II;

2) Meet their MCR;

3) Have solvency ratios determined according to the requirements set out in these specifications, Solvency II or a regime which has been assessed as equivalent to Solvency II;

4) Have solvency ratios determined consistently to the scenario under consideration.

The credit quality step and the Probability of Default (PD_i), depending on the solvency ratio is determined as follows:

Solvency ratio	≥196%	≥175%	≥122%	≥95%	≥75%	<75%
Credit quality step	1	2	3	4	5	6
Probability of Default (PD_i)	0.01%	0.05%	0.24%	1.2%	4.2%	4.2%

2.7.3.8 For unrated counterparties that are insurers or reinsurers and that do not meet their MCR, the credit quality step shall be 6 and the probability of default shall be 4.2%.

2.7.3.9 For all other unrated counterparties, the credit quality step shall be 6 and the probability of default shall be 4.2%.

Counterparties which belong to the same group

2.7.3.10 If an insurer has more than several counterparties which are not independent (for example because they belong to one group) then it is necessary to assign a probability of default to the whole set of dependent counterparties. This overall probability of default should be the average probability of the counterparties, weighted with the corresponding losses-given-default.

Pooling arrangements

2.7.3.11 Insurers and reinsurers may consider exposures which belong to different members of the same legal or contractual pooing arrangement as different single name exposures, irrespective of whether the insurer or reinsurer ceding its risk to the pool is a member of the pool or not.

2.7.3.12 A "pooling arrangement" is an arrangement between several insurers or reinsurers, the "pool members", whereby the pool members agree to share in defined proportions similarly defined insurance risks each pool member has written for its own account. The pool members are jointly liable or severally liable for the insurance risks transferred to the pooling arrangement.

2.7.3.13 For the purpose of the above definition:

- The parties insured by the members of the pooling arrangement are not themselves members of the pooling arrangement;

- A contract including the parties insured as a member to the contract is not a pooling arrangement.

2.7.3.14 When the composition of the pool members varies in the context of the same arrangement depending on conditions of this very arrangement, the very arrangement shall be unbundled and separate calculations of the loss-given-default shall be performed for each composition of the pool.

2.7.3.15 Insurers and reinsurers may consider exposures which belong to different members of the same legal or contractual pooling arrangement as a single name exposure where the probability of default of the pool is the average of the probabilities of default on each of the exposures to counterparties that belong to the pool weighted by the loss-given-default in respect to those exposures. For this purpose, the loss-given-default should be computed according to the simplifications provided.

2.7.3.16 Whether the insurer or reinsurer which is calculating its counterparty default capital requirement is party to the pooling arrangement or not is determining which exposures should be considered in the application of this pooling arrangement.

2.7.3.17 Pool exposure of Type A – the insurer's or reinsurer's exposure is ceded to the pooling arrangement or members of the pooling arrangement as part of its contract with the pooling arrangement. The insurer or reinsurer itself is not a party to the pooling arrangement.
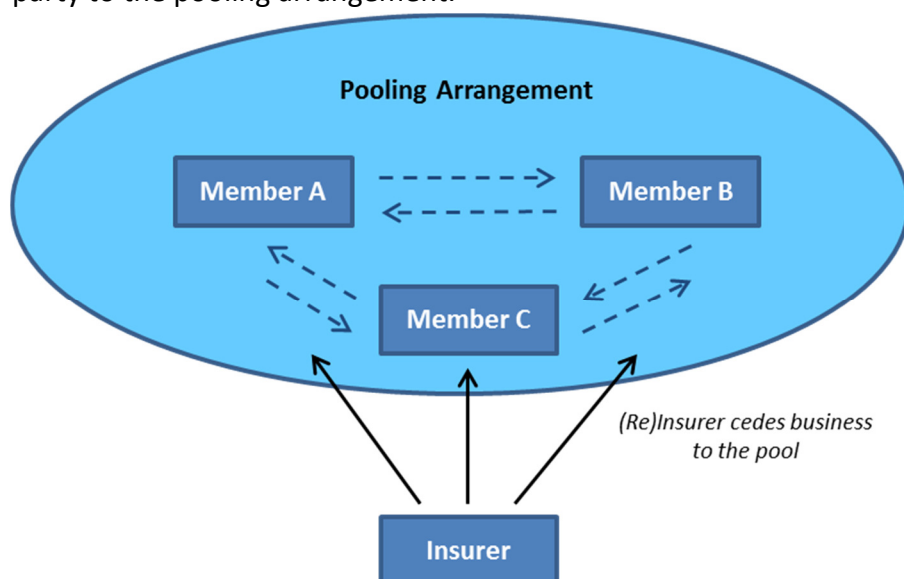
2.7.3.18 Pool exposure of Type B – the insurer's or reinsurer's exposure is ceded to the pooling arrangement or members of the pooling arrangement as part of its contract with the pooling arrangement. The insurer or reinsurer itself is a part to the pooling arrangement.
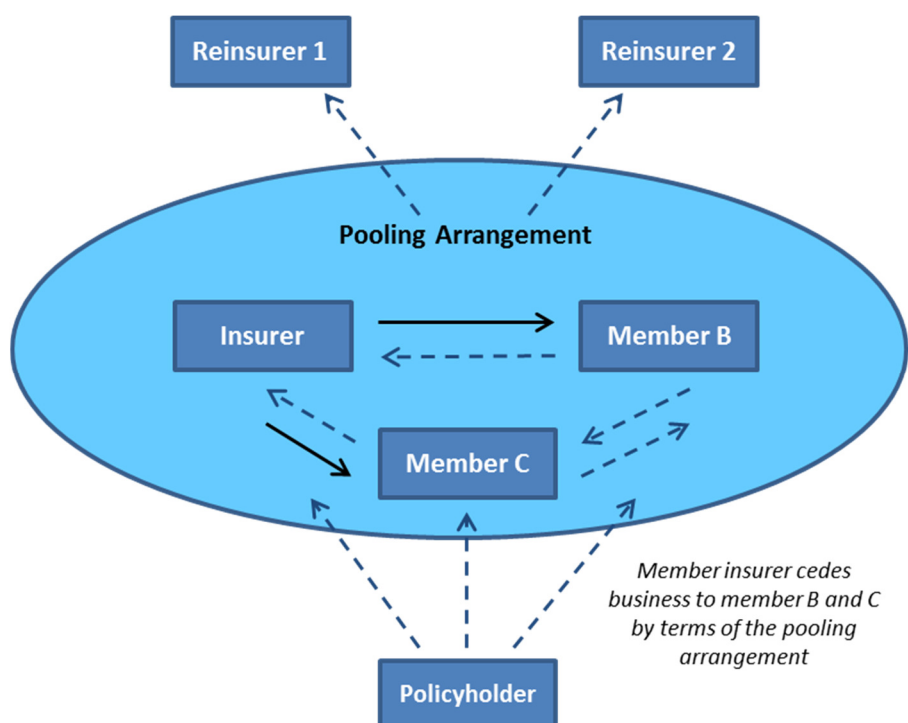
2.7.3.19 Pool exposure of Type C – the insurer's or reinsurer's exposure to an external counterparty to the pooling arrangement, due to the shared risk that meets the criteria of the pooling arrangement. The insurer or reinsurer itself is a party to the pooling arrangement.
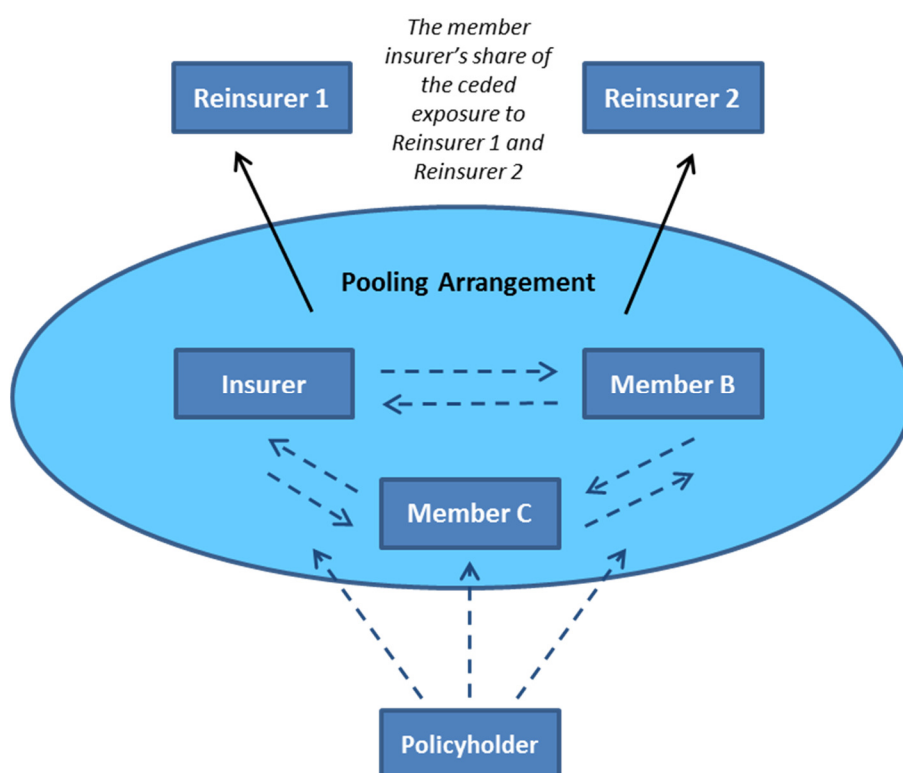
2.7.3.20 The probabilities of default of the single name exposure shall be used in accordance with 2.7.3.5 to 2.7.3.9 for Type 1 exposures. The loss-given-default shall be calculated separately for exposures through a pooling arrangement and for non-pooling exposure. The loss-given default is the sum of the loss given default for pooling exposures and non-pooling exposures. The loss-given-default shall be calculated as follows, depending on the type of pool exposure:

1) Loss-given-default for pool exposure of Type A:

   a) For pool exposures of Type A which the insurer or reinsurer considers as a separate single name exposure, the loss-given-default of a pool member is equal to the loss-given-default set out in 2.7.4.1. Where the pooling arrangement is jointly liable, this loss-given default shall be multiplied by a risk factor Q;

   b) There is only one Q-factor for each pooling arrangement, to be calculated as:

   $$Q = e^{-\alpha(\min(SR_{pool};196\%)-1)}$$

   Where:

   - $\alpha = 0.15$;

   - Each pool member in scope of application of this technical specification, or of Solvency II, is denoted by the subscript i and any other pool member by the subscript j such that SR_{pool} is equal to

   $$SR_{pool} = (1-P) \times \frac{\sum_i (eligible\ own\ funds)_i}{\sum_i [(eligible\ own\ funds)_i / SR_i]} + \sum_j P_j \cdot SR_j$$

   - $P = \sum_j P_j$;

   - P_j denotes the share of risk of pool member j agreed by the pooling arrangement;

   - SR_i and SR_j denotes the solvency ratio of the pool member i and j.

   c) For the calculation of the Q-factor, the insurer or reinsurer shall use the latest available information;

   d) SR_i and SR_j for pool members which are in scope of application of this technical specification, or of Solvency II, for which a credit assessment by a nominated ECAI is available shall be assigned in accordance with the following table:

Credit quality step	0	1	2	3	4	5	6
SR_i and SR_j	196%	196%	175%	122%	95%	75%	75%

   e) SR_i for pool members which are in scope of application of this technical specification for which a credit assessment by a nominated ECAI is not available shall be the latest available solvency ratio;

f) Where two or more members of the pooling arrangement belong to the same corporate group they shall be treated as the same single name exposure. In particular, if all the members of the pooling arrangement belong to the same corporate group, they shall be treated as a single name exposure, without application of the Q-factor;

g) Where the insurer or reinsurer is ceding risk to a pooling arrangement by the intermediary of a central entity, the central entity should be considered as part of the pooling arrangement and its share of the risk calculated in this context

2) Loss-given-default for pool exposure of Type B:

a) Where the pooling arrangement is jointly liable, the loss for the insurer or reinsurer (I) given default of the counterparty member (CM) shall be equal to the following:

$$LGD_{CM} = \max\left(0; \left((1 - RR_{CM}) \cdot \left(\frac{P_I}{1 - P_{CM}} \times BE_{CM,Pool}^{Net,internal} + \Delta RM_{I,Pool}^{CM}\right) - F \cdot Collateral\right)\right)$$

Where:

i) RR_{CM} for a given counterparty member should be equal to:

- 10% if 60% or more of the assets of this counterparty member are subject to collateral arrangements;

- 50% otherwise.

ii) P_I is the insurer's share of risk agreed by the pooling arrangement;

iii) P_{CM} is the counterparty member's share of risk agreed by the pooling arrangement;

iv) $BE_{CM,Pool}^{Net,internal}$ is the best estimates of the liabilities ceded to the counterparty member (CM) in regards to exposure through the pooling arrangement, net of any reinsurance from external counterparties to the pool;

v) $\Delta RM_{I,Pool}^{CM}$ is the counterparty member's (CM) contribution to the risk-mitigating effect of the pooling arrangement on the underwriting risk of the insurer (I);

vi) F denotes the factor to take into account the economic effect of the collateral arrangement in relation to the pooling arrangement;

vii) $Collateral$ is the risk-adjusted value of collateral in relation to the counterparty member of the pooling arrangement.

3) Loss-given-default for pool exposure of Type C:

a) The loss for the insurer (I) given default of the counterparty entity external to the pooling arrangement (CE) shall be equal to the following:

$$LGD_{CE} = \max\left(0; \left((1 - RR_{CE}) \cdot \left(P_I \times BE_{Pool}^{CE} + \Delta RM_{I,Pool}^{CE}\right) - F \cdot Collateral\right)\right)$$

Where:

i) RR_{CE} for a given external counterparty should be equal to:

- 10% if 60% or more of the assets of this external counterparty are subject to collateral arrangements;

- 50% otherwise.

ii) P_I is the insurer's share of risk agreed by the pooling arrangement;

iii) BE_{Pool}^{CE} is the best estimates of the liabilities ceded to the external counterparty (*CE*) by the pooling arrangement as a whole;

iv) $\Delta RM_{I,Pool}^{CE}$ is the external counterparty's (*CE*) contribution to the risk-mitigating effect of the pooling arrangement on the underwriting risk of the insurer (*I*);

v) F denotes the factor to take into account the economic effect of the collateral arrangement in relation to the pooling arrangement;

vi) $Collateral$ is the risk-adjusted value of collateral in relation to the external counterparty of the pooling arrangement.

Simplifications for the loss-given-default for pool exposures of Type B and Type C

2.7.3.21 Best estimate exposure to a counterparty member:

- Where $BE_{CM,Pool}^{Net,internal}$ in 2) above is not known directly, it may be approximated as follows:

$$BE_{CM,Pool}^{Net,internal} = \frac{P_{CM}}{P_I} \times BE_{I,Pool}^{Net,Internal}$$

Where:

○ $BE_{I,Pool}^{Net,Internal}$ is the insurer's or reinsurer's (*I*) best estimate liabilities towards the pooling arrangement as a whole, net of any reinsurance from external counterparties to the pool.

2.7.3.22 Best estimate exposure to an external counterparty:

- Where BE_{Pool}^{CE} in 3) above is not known directly, it may be approximated as follows:

$$BE_{Pool}^{CE} = \frac{1}{P_I} \times BE_{I,Pool}^{CE}$$

Where:

○ Where $BE_{I,Pool}^{CE}$ is the best estimate liabilities ceded to the external counterparty (*CE*) y the pool, in relation to risks ceded by the pool by the insurer (*I*).

2.7.3.23 Risk mitigation exposure to external counterparties:

- Where external counterparties provide risk mitigation to the pooling arrangement in proportions equal to their best estimate shares of the pool as in 3) above, the following approximation can be used:

$$\Delta RM_{I,Pool}^{CE} = \left(BE_{Pool}^{CE} \Big/ \sum_{CE} BE_{Pool}^{CE} \right) \times \Delta RM_{I,Pool}^{All\ CEs}$$

Where:

- BE_{Pool}^{CE} is the best estimate liabilities ceded by the pooling arrangement to the external counterparty (*CE*);

- $\Delta RM_{I,Pool}^{All\ CEs}$ denotes all external counterparties' (*CE*) contribution to the risk-mitigating effect of the pooling arrangement of the underwriting risk of the insurer (*I*).

2.7.3.24 Grouping of single name exposures:

For the purposes of QIS4, the loss-given-default may be calculated for a group of single name exposures. In this case, the group of single name exposures shall be assigned the probability of default on the highest probability of default assigned to a single name exposure included in the group. For each of the pooling exposures of Type A, Type B and Type C, there shall be separate groupings.

2.7.4. Loss-given-default for risk mitigating contracts

2.7.4.1 The LGD of an exposure is conceptually defined to be the loss of basic own funds which the insurer would incur if the counterparty defaulted.

2.7.4.2 In case of default, typically a part of the exposure can still be collected. In order to allow for the potential recovery of the counterparty, the LGD is amended by a factor (1 – RR) where RR denotes the recovery rate of the counterparty. The recovery rate may be different for reinsurance arrangements and securitisations on one hand and for derivatives on the other hand.

2.7.4.3 For a reinsurance arrangement or securitisation i, a RR of 50% is assumed. The loss-given-default, LGD_i, should, therefore, be calculated as follows:

$$LGD_i = \max\left(0; 50\% \cdot \left(Recoverables_i + 50\% \cdot RM_{re,i}\right) - F \cdot Collateral_i\right)$$

Where:

- $Recoverables_i$ are the best estimate recoverables from the reinsurance contract (or SPV), i, plus any other debtors arising out of the reinsurance arrangement or SPV securitisation;

- $RM_{re,i}$ is the risk mitigating effect on underwriting risk of the reinsurance arrangement or SPV securitisation, i;

- $Collateral_i$ is the risk-adjusted value of collateral in relation to the reinsurance arrangement or SPV securitisation, i;

- F is a factor to take into account the economic effect of the collateral arrangement in relation to the reinsurance arrangement or securitisation in case of any credit event related to the counterparty i If in the case of the insolvency of the counterparty the determination of the insurer's or reinsurer's insolvency estate in excess of the collateral does not take into account that the insurer or reinsurer receives collateral, the F factor shall be 100%, else it shall be 50%.

2.7.4.4   The best estimate of the $Recoverables_i$ might be netted with liabilities towards the same legal entity to the extent they could be set off in case of the default of the legal entity. However, if a reinsurance counterparty has tied up an amount for collateralisation commitments (both on and off balance sheet) greater than 60% of the assets on its balance sheet, the RR is assumed to be 10%. The loss-given-default LGD_i should, therefore, be calculated as follows:

$$LGD_i = \max\left(0; 90\% \cdot \left(Recoverables_i + 50\% \cdot RM_{re,i}\right) - F \cdot Collateral_i\right)$$

Where if in the case of the insolvency of the counterparty the determination of the insurer's or reinsurer's insolvency estate in excess of the collateral does not take into account that the insurer or reinsurer receives collateral, the F factor shall be 100%, else it shall be 50%.

2.7.4.5   For a derivative i, the RR is assumed to be 10%. The loss-given-default LGD_i should be calculated as follows:

$$LGD_i = \max\left(0; 90\% \cdot \left(MarketValue_i + RM_{fin,i}\right) - F' \cdot Collateral_i\right)$$

Where:

- $MarketValue_i$ is the value of the derivative i;
- $RM_{fin,i}$ is the risk mitigating effect on market risk of the derivative i;
- $Collateral_i$ is the risk-adjusted value of collateral in relation to the derivative i;
- F' is a factor to take into account the economic effect of the collateral arrangement in relation to the derivative in the case of any credit event related to the counterparty i. If in the case of the insolvency of the counterparty the determination of the insurer's or reinsurer's insolvency estate in excess of the collateral does not take into account that the insurer or reinsurer receives collateral, the F' factor shall be 100%, otherwise it shall be 90%.

2.7.4.6   For a mortgage loan i, the loss-given-default LGD_i should be calculated as follows:

$$LGD_i = \max(0; Loan_i - Mortgage_i)$$

Where:

- $Loan_i$ is the value of the mortgage loan i;
- $Mortgage_i$ is the risk-adjusted value of the mortgage in relation to the mortgage loan i.

Calculation of the risk-adjusted value of mortgage

2.7.4.7   The risk-adjusted value of mortgage referred to in 2.7.4.6 shall be equal to the difference between the value of the residential property held as mortgage, valued in accordance with 2.7.4.4 and the adjustment for market risk, as referred to in 2.7.4.9.

2.7.4.8   The value of the residential property held as mortgage shall be the market value, reduced as appropriate, to reflect the results of the monitoring required under the requirements listed below and to take account of any prior claims on the property.

1) The insurer or reinsurer monitors the value of the property on a frequent basis and at a minimum once every three years. The insurer or reinsurer carries out more frequent monitoring where the market is subject to significant changes in conditions;

2) The property valuation is reviewed when information available to the insurer or reinsurer indicates that the value of the property may have declined materially relative to general market prices. That review is external, independent and carried out by a valuer who possesses the necessary qualifications, ability and experience to execute a valuation and who is independent from the credit decision process.

For the purposes of 1) and 2), insurers or reinsurers may use statistical methods to monitor the value of the property and to identify property that needs revaluation. The external, independent valuation of the property shall be the same or less than the market value.

2.7.4.9 The adjustment for market risk referred to in 2.7.4.7 is the difference between the following capital requirements for each confidence level:

1) The hypothetical capital requirement for market risk of the insurer or reinsurer that would apply if the residential property held as mortgage were not included in the calculation; and

2) The hypothetical capital requirement for market risk of the insurer or reinsurer that would apply if the residential property held as mortgage were included in the calculation.

2.7.4.10 For the purpose of 2.7.4.8, the currency risk of the residential property held as mortgage shall be calculated by comparing the currency of the residential property against the currency of the corresponding loan.

Calculation of the risk mitigating effect

2.7.4.11 The risk mitigating effects $RM_{re,i}$ and $RM_{fin,i}$ are defined as the difference between the following two capital requirements for each confidence level:

1) The hypothetical capital requirement for underwriting and market risk under the condition that the risk mitigating effect of the reinsurance arrangement, SPV or derivative of a particular counterparty is not taken into account in its calculation (SCR^{hyp}). These values are only determined for the purpose of the counterparty default risk shock scenario;

2) The capital requirements for underwriting risk and market risk without any amendments ($SCR^{without}$). These are the requirements as defined in the sections on underwriting risks and market risk. They are available as soon as the calculations of the particular shock scenarios have been made.

2.7.4.12 The hypothetical capital requirement in relation to counterparty i is determined by a recalculation of the shock scenarios which are affected by the risk mitigating contracts with that counterparty. This should be done for life reinsurance and for derivatives as follows:

1) The scenario outcome should be reassessed assuming that the risk-mitigating contract with counterparty i will not provide any compensation for the losses incurred under the scenario;

2) In particular, if a module of the SCR did not allow for the risk mitigating effect of the risk-mitigating contract with counterparty i in the calculation of the capital requirement without any amendments, the two capital requirements coincide and $RM_{re,i}$ and $RM_{fin,i}$ are zero.

2.7.4.13 Where a risk mitigation instrument transfers both underwriting risk and market risk, the risk mitigating effect should be given by the aggregation between the risk-mitigation effect in relation to underwriting risk and the risk-mitigating effect in relation to market risk.

2.7.4.14 For non-life reinsurance, the following method should be applied. If the reinsurance treaties with a counterparty affect only one non-life line of business, then the difference $SCR_{nl}^{hyp} - SCR_{nl}^{without}$ should be approximated by the following term:

$$\sqrt{\begin{array}{c}\left(NL_{cat}^{hyp} - NL_{cat}^{without}\right)^2 + \left(A \cdot \sigma_{(prem,lob)} \cdot \left(P_{lob}^{hyp} - P_{lob}^{without}\right)\right)^2 + \left(A \cdot \sigma_{(res,lob)} \cdot recoverables\right)^2 \\ + \left(A^2 \cdot \sigma_{(prem,lob)} \cdot \left(P_{lob}^{hyp} - P_{lob}^{without}\right) \cdot \sigma_{(res,lob)} \cdot recoverables\right)\end{array}}$$

Where:

- $\left(NL_{cat}^{hyp} - NL_{cat}^{without}\right)$ is the counterparty's share of CAT losses;

- $\left(P_{lob}^{hyp} - P_{lob}^{without}\right)$ is the reinsurance premium of the counterparty in the affected line of business;

- $recoverables$ are the reinsurance recoverables in relation to the counterparty in the affected line of business;

- $\sigma_{(prem,lob)}$ is the standard deviation for premium risk in the affected line of business as used in the premium and reserve risk shock scenario;

- $\sigma_{(res,lob)}$ is the standard deviation for reserve risk in the affected line of business as used in the premium and reserve risk shock scenario.

- A is determined as follows for each confidence level:

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
Co-efficient factor A	3	2.7	2.4

2.7.4.15 If the reinsurance treaties with a counterparty affect more than one non-life line of business, the terms defined above for each line of business can be summed up to determine an approximation for $SCR_{nl}^{hyp} - SCR_{nl}^{without}$.

2.7.4.16 Where a risk mitigation instrument transfers both underwriting risk and market risk, the risk mitigating effect should be given by the aggregation (assuming a correlation factor of 0.25) between the risk-mitigating effect in relation to underwriting risk and the risk-mitigating effect in relation to market risk.

2.7.5. Loss-given-default for Type 1 exposures other than risk mitigating contracts

2.7.5.1 For cash at bank, deposits with ceding institutions and unpaid but called up capital, the loss-given-default should be the value of the corresponding asset.

2.7.5.2 For guarantees, letters of credit, letters of comfort and other commitments which depend on the credit standing of a counterparty, the loss-given default should be the difference between their nominal value and their value in the regulatory balance sheet.

2.7.5.3 If in relation to a counterparty, more than one Type 1 exposure exists, then the loss-given-default for this counterparty should be the sum of the losses-given-default of the single exposures.

2.7.6. Calculation of capital requirement for Type 2 exposures

2.7.6.1 The capital requirement for counterparty default risk of Type 2 exposures is determined as the result of the following pre-defined scenario for each confidence level.

$$SCR_{default,2} = \Delta BOF | Type2CounterpartyDefaultShock$$

Where:

- ΔBOF is the change in the value of basic own funds, not including changes in the risk margin

- $Type2CounterpartyDefaultShock$ is the instantaneous decrease in the value of Type 2 exposures by the following amount:

$$\mathrm{x} \cdot LGD_{receivables>3\ months} + \mathrm{y} \cdot \sum_i LGD_i$$

Where:

- ○ $LGD_{receivables>3\ months}$ is the total losses-given-default on all receivables from intermediaries which have been due for more than three months;
- ○ The sum is taken on all Type 2 exposures other than receivables from intermediaries which have been due for more than three months;
- ○ LGD_i is the loss-given-default on the Type 2 exposure i.
- ○ x and y are determined as follows for each confidence level:

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
Co-efficient factor x	0.9	0.81	0.72
Co-efficient factor y	0.15	0.135	0.12

Requirements for mortgage loans to be treated as Type 2 exposures

2.7.6.2 Retail loans secured by mortgages on residential property (mortgage loans) shall be treated as Type 2 exposures under the counterparty default risk shock scenario provided that the following requirements are met:

1) The exposure shall be either to a natural person or persons or to a small or medium sized enterprise;

2) The exposure shall be one of a significant number of exposures with similar characteristics such that the risks associated with such lending are substantially reduced;

3) The total amount owed to the insurer or reinsurer and, where relevant, to all related entities within the meaning of 2.6.4.3 including any exposure in default, by the counterparty or other connected third party, shall not, to the knowledge of the insurer or reinsurer, exceed £1 million. The insurer or reinsurer shall take reasonable steps to acquire this knowledge;

4) The residential property is, or shall be, occupied or let by the owner;

5) The value of the property does not materially depend upon the credit quality of the borrower;

6) The risk of the borrower does not materially depend upon the performance of the underlying property, but on the underlying capacity of the borrower to repay the debt from other sources. As a consequence, the repayment of the facility does not materially depend on any cash flow generated by the underlying property serving as collateral. For those other sources, the insurer or reinsurer shall determine maximum loan-to-income ratio as part of their lending policy and obtain suitable evidence of the relevant income when granting the loan;

7) The following requirements on legal certainty shall be met:

a) A mortgage or charge is enforceable in all jurisdictions which are relevant at the time of the conclusion of the credit agreement and shall be properly filed on a timely basis;

b) All legal requirements for establishing the pledge have been fulfilled;

c) The protection agreement and the legal process underpinning it enable the insurer or reinsurer to realise the value of the protection within a reasonable timeframe.

2.7.7. Treatment of risk mitigation techniques

2.7.7.1 The counterparty default risk shock scenario should take into account techniques to mitigate default risk like collaterals or netting of receivables with liabilities. Allowance should be made as follows:

Collaterals

2.7.7.2 A 'collateral arrangement' means an arrangement under which either:

1) A collateral provider transfers full ownership of the collateral to the collateral taker for the purpose of securing or otherwise covering the performance of a relevant obligation; or

2) A collateral provider provides collateral by way of security in favour of, or to, a collateral taker, and the legal ownership of the collateral remains with the collateral provider or a custodian when the security right is established.

2.7.7.3 If a collateral meets the two following requirements:

1) The legal mechanism by which collateral is pledged or transferred should ensure that the insurer has the right to liquidate or take legal possession of the collateral, in a timely manner, in case of any default event related to the counterparty ("the counterparty requirement");

2) Where applicable, the legal mechanism by which collateral is pledged or transferred should ensure that the insurer has the right to liquidate or take possession of the collateral, in a timely manner, in case of any default event related to a third party custodian holding the collateral ("the custodian requirement").

Then the loss-given-default (in case of a Type 1 exposure) or the value of the exposure (in case of a Type 2 exposure) may be reduced by the risk-adjusted value of the collateral.

2.7.7.4   The risk-adjusted value of the collateral should be calculated as follows, in cases where both the counterparty requirements and the custodian requirements are met or in cases where full ownership of the risk-adjusted value of the collateral is transferred to the insurer or reinsurer:

$$Collateral = MarketValue_{Collateral} - MarketRisk_{Collateral}$$

Where:

- $MarketValue_{Collateral}$ is the market value of the collateral assets;
- $MarketRisk_{Collateral}$ is the adjustment for market risk.

2.7.7.5   If the collateral is held by or deposited with a third party custodian and the collateral only meets the counterparty requirement, then the risk-adjusted value of the collateral should be calculated as follows:

$$Collateral = 0.9 \cdot (MarketValue_{Collateral} - MarketRisk_{Collateral})$$

2.7.7.6   The adjustment for market risk is the difference between the following capital requirements:

1) The hypothetical capital requirement for market risk of the insurer or reinsurer that would apply if the assets held as collateral are not included in the calculation; and

2) The hypothetical capital requirement for market risk of the insurer or reinsurer that would apply if the assets held as collateral are included in the calculation.

2.7.7.7   If a collateral does not meet the counterparty requirement, then it should not be taken into account as a risk mitigant.

2.7.7.8   For the calculation of the adjustment for market risk, the reduction of the market value of the collateral according to the equity, property, credit spread and currency risk shock scenarios should be determined and aggregated according to the correlation matrix of the market risk capital calculation.

2.7.7.9   For the calculation of the currency risk shock scenario, the currency of the collateral is compared to the currency of the secured credit exposure. If the collateral assets are bank deposits which are not subject to the credit spread risk, the adjustment should be increased by the capital requirement for counterparty default risk of the deposits.

Segregated assets

2.7.7.10 Where, and to the extent that, the liabilities of the counterparty are covered by strictly segregated assets under arrangements which meet the requirements set out in section 2.11 – 'Financial Risk mitigation', the segregated assets should be treated like collaterals in the calculation of the counterparty default risk shock scenario.

Letters of credit

2.7.7.11 If a letter of credit is provided to secure a credit exposure and the arrangement meets the requirement defined in section 2.11 – 'Financial Risk mitigation', then the counterparty of the credit exposure can be replaced by the provider of the letter of credit in the calculation of the counterparty default risk shock scenario. This replacement affects the probability of default that is taken into account in the calculation as well as the assessment whether the counterparty is independent from other counterparties.

2.7.7.12 A letter of credit should not be taken into account in the calculation of the counterparty default risk shock scenario if it is classified as ancillary own funds.

Netting

2.7.7.13 The loss-given-default (in case of a Type 1 exposure) or the value of the exposure (in case of a Type 2 exposure) may be netted with liabilities towards the same legal entity to the extent that they could be offset in case of default of the legal entity. The general requirement defined in sections 2.11 – 'Financial Risk mitigation' and 2.12 – 'Insurance Risk mitigation', should be met in relation to netting if it is taken into account in the calculation. In particular, if the legal situation in relation to netting is unclear, then no netting should be taken into account. No netting should be allowed for if the liabilities are expected to be met before the credit exposure is cleared.

2.7.8. Possible simplifications for risk mitigating effects and risk adjusted values of risk mitigating contracts

Simplifications for the calculation of loss-given-default for risk mitigating contracts – (Type 1 exposure)

2.7.8.1 Insurers may, with prior permission from the FSA, use simplified calculations for the risk-mitigating effect on underwriting and market risks of a reinsurance arrangement, securitisation or derivative. These simplifications should only be used if the following conditions are met:

1) There are no indications that the simplification significantly misestimates the risk mitigating effect;

2) The result of the sophisticated calculation is not easily available.

2.7.8.2 In this case, the simplifications may be calculated as the difference between the following capital requirements:

1) The sum of the hypothetical capital requirement for the shock scenarios of underwriting and market risk of the insurer or reinsurer affected by the risk-mitigating instrument, if the reinsurance arrangement, securitisation or derivative did not exist;

2) The sum of the capital requirements for the shock scenarios of underwriting and market risk of the insurer or reinsurer affected by the risk-mitigating instrument.

Simplified calculation of the risk mitigating effect for reinsurance arrangements or securitisation

2.7.8.3 The risk-mitigating effect on underwriting risk of a reinsurance arrangement or securitisation i may, with prior permission from the FSA, be calculated as follows:

$$RM_{re,all} \cdot \frac{Recoverables_i}{Recoverables_{all}}$$

Where:

- $RM_{re,all}$ is the risk mitigating effect on underwriting risk of the reinsurance arrangements and securitisations for all counterparties calculated in accordance with 2.7.8.4 below;

- $Recoverables_i$ is the best estimate of amounts recoverable from the reinsurance arrangement or securitisation and the corresponding debtors for counterparty i;

- $Recoverables_{all}$ is the best estimate of amounts recoverable from the reinsurance arrangements and securitisations and the corresponding debtors for all counterparties.

2.7.8.4 The risk mitigating effect on underwriting risk of the reinsurance arrangements and securitisations for all counterparties referred to in 2.7.8.3 is the difference between the following capital requirements for each confidence level specified in 2.2.1.2:

1) The hypothetical capital requirement for underwriting risk of the insurer or reinsurer if none of the reinsurance arrangements and securitisations exist;

2) The capital requirements for underwriting risk of the insurer or reinsurer.

2.7.8.5 The risk-mitigating effect on underwriting risk j of a proportional reinsurance arrangement from counterparty i may be calculated as follows for each confidence level:

$$\frac{Recoverables_i}{BE - Recoverables_{all}} \cdot SCR_j$$

Where:

- BE is the best estimate of obligations gross of the amounts recoverable;

- $Recoverables_i$ is the best estimate of amounts recoverable from the reinsurance arrangement and the corresponding debtors for counterparty i;

- $Recoverables_{all}$ is the best estimate of amounts recoverable from the reinsurance arrangements and the corresponding debtors for all counterparties;

- SCR_j is the capital requirements for underwriting risk j of the insurer or reinsurer.

2.7.8.6   A simplified calculation can be used for the risk adjusted value of collateral to take into account the economic effect of the collateral. If it is proportionate to the nature, scale and complexity of the risks inherent in the collateral arrangement that meets both the counterparty and the custodian requirements, and with prior permission from the FSA, a simplification as follows can be applied:

$$Collateral = 0.85 \cdot MarketValue_{Collateral}$$

2.7.8.7   Where the collateral is held by or deposited with a third party custodian and the collateral only meets the counterparty requirement, a simplification as follows can be applied:

$$Collateral = 0.75 \cdot MarketValue_{Collateral}$$

2.8. Non-Life Underwriting Risk

2.8.1. Structure of the non-life underwriting risk capital requirement

2.8.1.1   This section covers the risk arising from the underwriting of non-life insurance and is associated with both the perils covered and the processes followed in the conduct of business.

2.8.1.2   Non-life underwriting risk also includes the risk resulting from uncertainty included in assumptions about exercise of policyholder options like renewal or termination options.

2.8.1.3   The non-life underwriting risk scenarios take account of the uncertainty in the results of undertakings related to existing insurance and reinsurance obligations as well as to the new business expected to be written over the following 12 months.

2.8.1.4   The scope of the non-life underwriting risk capital requirement includes all the non-life insurance and reinsurance obligations as defined in paragraph 1.3.2.6 on segmentation.

2.8.1.5   The calculations of capital requirements in the non-life underwriting risk scenarios are based on specified scenarios. General guidance about the interpretation of the scenarios can be found in subsection 2.

2.8.1.6   The non-life underwriting risk section consists of the following shock scenario categories:

- the non-life premium and reserve risk shock scenario;

- the non-life lapse risk shock scenario;

- the non-life catastrophe risk shock scenarios.

2.8.2. Description

2.8.2.1 The non-life underwriting risk capital requirement is calculated using the input from three stresses that aim to establish the exposure of the participating insurer to premium & reserve, lapse and catastrophe risk.

2.8.2.2 The shock scenarios provide the following information:

- NL_{pr} is the capital requirement for premium and reserve risk;

- NL_{lapse} is the capital requirement for lapse risk;

- NL_{CAT} is the capital requirement for catastrophe risk;

2.8.3. Capital Requirement

2.8.3.1 The capital requirement relating to non-life underwriting risk is calculated by combining the capital requirements listed in 2.8.2.2 using a correlation matrix as follows for each confidence level specified in 2.2.1.2:

$$SCR_{non-life} = \sqrt{\sum_{r,c} NLCorr_{r,c} \cdot NL_r \cdot NL_c}$$

Where:

- The sum includes all possible combinations of the non-life underwriting risk shock scenarios (r,c);

- $NLCorr_{r,c}$ are the entries of the correlation matrix $NLCorr$;

- NL_r and NL_c are the capital requirements for the individual non-life shock scenarios according to the rows and columns of the correlation matrix $NLCorr$;

- $NLCorr$ is defined as follows for all confidence levels:

NLCorr	Prem & Res	Lapse	Catastrophe
Premium & Reserve	1	0	0.25
Lapse	0	1	0
Catastrophe	0.25	0	1

2.8.4. Premium and reserve risk

Description

2.8.4.1 This shock scenario combines a treatment for the two main sources of underwriting risk, premium risk and reserve risk.

Capital requirement

2.8.4.2 The capital requirement for the combined premium risk and reserve risk is determined as follows:

$$NL_{pr} = \theta \cdot \sigma \cdot V$$

Where:

- θ is determined as follows for each confidence level:

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
θ factor	3	2.65	2.3

- V is the volume measure;
- σ is the combined standard deviation for non-life premium and reserve risk.

2.8.4.3 The volume measure V and the combined standard deviation σ for the overall non-life insurance portfolio are determined in two steps as follows:

- For each individual segment, the standard deviations and volume measures for both premium risk and reserve risk are determined;
- The standard deviations and volume measures for the premium risk and the reserve risk in the individual segments are aggregated to derive an overall volume measure V and a combined standard deviation σ.

The calculations needed to perform these two steps are set out below.

Step 1: Volume measures and standard deviations per segment

2.8.4.4 The premium and reserve risk shock scenario is based on the same segmentation into lines of business used for the calculation of technical provisions. However, an insurance line of business and the corresponding line of business for proportional reinsurance are merged, based on the assumption that the risk profile of both lines of business is similar.

	Segment
1, 13	Motor vehicle liability insurance and proportional reinsurance
2, 14	Other motor insurance and proportional reinsurance
3, 15	Marine, aviation and transport insurance and proportional reinsurance
4, 16	Fire and other damage to property insurance and proportional reinsurance
5, 17	General liability insurance and proportional reinsurance
6, 18	Credit and suretyship insurance and proportional reinsurance
7, 19	Legal expenses insurance and proportional reinsurance
8, 20	Assistance and its proportional reinsurance
9, 21	Miscellaneous financial loss insurance and proportional reinsurance
25	Non-proportional casualty reinsurance
26	Non-proportional marine, aviation and transport reinsurance
27	Non-proportional property reinsurance

2.8.4.5 For each segment, the volume measures and standard deviations for premium and reserve risk are denoted as follows:

- $V_{(prem,s)}$ is the volume measure for premium risk;
- $V_{(res,s)}$ is the volume measure for reserve risk ;
- $\sigma_{(prem,s)}$ is the standard deviation for premium risk;

- $\sigma_{(res,s)}$ is the standard deviation for reserve risk.

2.8.4.6   The volume measure for premium risk in the individual segment is determined as follows:

$$V_{(prem,s)} = \max\left(P_s; P_{(last,s)}\right) + FP_{(existing,s)} + FP_{(future,s)}$$

Where:

- P_s is the estimate of the premiums to be earned by the insurer or reinsurer for each segment, s, during the following 12 months;

- $P_{(last,s)}$ is the premiums earned by the insurer or reinsurer for each segment, s, during the last 12 months;

- $FP_{(existing,s)}$ is the expected present value of premiums to be earned by the insurer or reinsurer for each segment, s, after the following 12 months for existing contracts;

- $FP_{(future,s)}$ is the expected present value of premiums to be earned by the insurer or reinsurer for each segment, s, for contracts where the initial recognition date falls in the following 12 months but excluding the premiums to be earned during the 12 months after the initial recognition date.

2.8.4.7   If the insurer or reinsurer has met the following conditions;

1) The administrative, management or supervisory body of the insurer or reinsurer has decided that its earned premiums for each segment during the following 12 months will not exceed P_s;

2) The insurer or reinsurer has established effective control mechanisms to ensure that the limits on earned premiums referred to in 1) above will be met;

3) The insurer or reinsurer has informed its supervisory authority about the decision referred to in 1) above and the reasons for it.

the insurer or reinsurer may calculate the volume measure for premium risk for each segment in accordance with the following formula:

$$V_{(prem,s)} = P_s + FP_{(existing,s)} + FP_{(future,s)}$$

2.8.4.8   Premiums shall be net, after deduction of premiums for reinsurance contracts. However, the following premiums for reinsurance contracts shall not be deducted:

1) Premiums that cannot be taken into account in the calculation of amounts recoverable from reinsurance contracts and special purpose vehicles;

2) Premiums for reinsurance contracts that do not meet the requirements as risk mitigation techniques.

2.8.4.9 The standard deviation for premium risk gross of reinsurance for each segment are:

Segment, s	Standard deviation for premium risk (gross of reinsurance)
1, 13. Motor vehicle liability insurance and proportional reinsurance	10%
2, 14. Other motor insurance and proportional reinsurance	8%
3, 15. Marine, aviation and transport insurance and proportional reinsurance	15%
4, 16. Fire and other damage to property insurance and proportional reinsurance	8%
5, 17. General liability insurance and proportional reinsurance	14%
6, 18. Credit and suretyship insurance and proportional reinsurance	12%
7, 19. Legal expenses insurance and proportional reinsurance	7%
8, 20. Assistance and its proportional reinsurance	9%
9, 21. Miscellaneous financial loss insurance and proportional reinsurance	13%
25.Non-proportional casualty reinsurance	17%
26.Non-proportional marine, aviation and transport reinsurance	17%
27. Non-proportional property reinsurance	17%

2.8.4.10 The standard deviation of a segment shall be equal to the product of the gross standard deviation for each segment set out in the table above and the adjustment factor for non-proportional reinsurance, NP_{lob}, which allows undertakings to take into account the risk-mitigating effect of particular per risk excess of loss reinsurance. Nevertheless, for all segments 25-27 set out in the table above the adjustment factor for non-proportional reinsurance shall be equal to 1.

2.8.4.11 For the purposes of QIS4, for segments 1, 4 and 5 set out in 2.8.4.9 the adjustment factor for non-proportional reinsurance NP_{lob} shall be equal to 80 %. For all other (non-life) segments set out in the table above the adjustment factor for non-proportional reinsurance NP_{lob} shall be equal to 100%. If an insurer believes that the nature of its reinsurance is such that the adjustment factor for non-proportional reinsurance NP_{lob} for a line of business should be different from that specified in this paragraph it should provide details, including justification, with or before the submission of its QIS4 results.

2.8.4.12 The volume measure for reserve risk for each individual segment, s, is determined as follows:

$$V_{(res,s)} = PCO_s$$

Where:

- PCO_s is the best estimate for claims outstanding for each segment, *s*. This amount should be less the amount recoverable from reinsurance contracts and special purpose vehicles, provided that the reinsurance contracts or special purpose vehicles meet the requirements as risk mitigation techniques in 2.12 and the volume measure shall not be a negative amount.

2.8.4.13 The standard deviation for reserve risk net of reinsurance for each segment are:

Segment, *s*	Standard deviation for reserve risk (net of reinsurance)
1, 13. Motor vehicle liability insurance and proportional reinsurance	9%
2, 14. Other motor insurance and proportional reinsurance	8%
3, 15. Marine, aviation and transport insurance and proportional reinsurance	11%
4, 16. Fire and other damage to property insurance and proportional reinsurance	10%
5, 17. General liability insurance and proportional reinsurance	11%
6, 18. Credit and suretyship insurance and proportional reinsurance	19%
7, 19. Legal expenses insurance and proportional reinsurance	12%
8, 20. Assistance and its proportional reinsurance	20%
9, 21. Miscellaneous financial loss insurance and proportional reinsurance	20%
25.Non-proportional casualty reinsurance	20%
26.Non-proportional marine, aviation and transport reinsurance	20%
27.Non-proportional property reinsurance	20%

2.8.4.14 No further adjustments are needed to these results. If an insurer believes that the nature of its reinsurance is such that the standard deviation for reserve risk net of reinsurance for a line of business should be different from that specified in this paragraph it should provide details, including justification, with or before the submission of its QIS4 results.

2.8.4.15 The standard deviation for premium and reserve risk in the individual segment is defined by aggregating the standard deviations for both sub-risks using the following formula

$$\sigma_s = \frac{\sqrt{\left(\sigma_{(prem,s)} \cdot V_{(prem,s)}\right)^2 + \left(\sigma_{(prem,s)} \cdot \sigma_{(res,s)} \cdot V_{(prem,s)} \cdot V_{(res,s)}\right) + (\sigma_{(res,s)} \cdot V_{(res,s)})^2}}{V_{(prem,s)} + V_{(res,s)}}$$

Step 2: Overall volume measures and standard deviations

2.8.4.16 The overall standard deviation σ_{nl} is determined as follows:

$$\sigma_{nl} = \frac{1}{V_{nl}} \sqrt{\sum_{r,c} CorrS_{r,c} \cdot \sigma_r \cdot V_r \cdot \sigma_c \cdot V_c}$$

Where:

- V_{nl} is the sum over all segments, *s*, of V_s;

- The sum includes all possible combinations of risk group *(r,c)* in the form (segment, *s*);
- $CorrS_{r,c}$ are the entries of the correlation matrix $CorrS$;
- V_r and V_c are the volume measures for premium and reserve risk of segments r and c respectively;
- σ_r and σ_c are the standard deviations for non-life premium and reserve risk of segments s and t respectively;
- $CorrS$ is defined as follows for all confidence levels:

CorrS	1	2	3	4	5	6	7	8	9	25	26	27
1. Motor veh liab	1	0.5	0.5	0.25	0.5	0.25	0.5	0.25	0.5	0.25	0.25	0.25
2. Other motor	0.5	1	0.25	0.25	0.25	0.25	0.5	0.5	0.5	0.25	0.25	0.25
3. MAT	0.5	0.25	1	0.25	0.25	0.25	0.25	0.5	0.5	0.25	0.5	0.25
4. Fire	0.25	0.25	0.25	1	0.25	0.25	0.25	0.5	0.5	0.25	0.5	0.5
5. 3rd party liab	0.5	0.25	0.25	0.25	1	0.5	0.5	0.25	0.5	0.5	0.25	0.25
6. Credit	0.25	0.25	0.25	0.25	0.5	1	0.5	0.25	0.5	0.5	0.25	0.25
7. Legal exp	0.5	0.5	0.25	0.25	0.5	0.5	1	0.25	0.5	0.5	0.25	0.25
8. Assistance	0.25	0.5	0.5	0.5	0.25	0.25	0.25	1	0.5	0.25	0.25	0.5
9. Miscellaneous	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.25	0.5	0.25
25. NP reins (cas)	0.25	0.25	0.25	0.25	0.5	0.5	0.5	0.25	0.25	1	0.25	0.25
26. NP reins (MAT)	0.25	0.25	0.5	0.5	0.25	0.25	0.25	0.25	0.5	0.25	1	0.25
27. NP reins (prop)	0.25	0.25	0.25	0.5	0.25	0.25	0.25	0.5	0.25	0.25	0.25	1

2.8.4.17 The overall volume measure for each segment, V_s is obtained as follows for each confidence level:

$$V_s = \left(V_{(prem,s)} + V_{(res,s)}\right) \cdot (0.75 + 0.25 \cdot DIV_s)$$

Where:

$$DIV_s = \frac{\sum_j (V_{(prem,j,s)} + V_{(res,j,s)})^2}{\sum_j (V_{(prem,s)} + V_{(res,s)})^2}$$

- The index *j* denotes the geographical segments as set out in Appendix 6
- $V_{(prem,j,s)}$ and $V_{(res,j,s)}$ denote the volume measures as defined above but taking into account only insurance and reinsurance obligations where the underlying risk is situated in the geographical segment *j*.

2.8.4.18 Furthermore, DIV_s should be set to 1 for segments 6, 25, 26 and 27 set out in 2.8.4.4.

2.8.4.19 Insurers and reinsurers may choose to allocate all of their business in a segment to the main geographical segment in order to simplify the calculation. Therefore, by default, DIV_s should be set to 1.

2.8.5. Lapse Risk

Description

2.8.5.1　Lapse risk is caused by the sensitivity of liabilities due to changes in the expected exercise rates of policyholder options.

2.8.5.2　The relevant options are all legal or contractual policyholder rights to fully or partly terminate, surrender, decrease, restrict or suspend insurance cover or permit the insurance policy to lapse.

2.8.5.3　Where a right allows the full or partial establishment, renewal, increase, extension or resumption of insurance or reinsurance cover, the change in the option exercise rate shall be calculated using an equal but opposite relative stress to that applied in option exercise rates that reduce cover.

2.8.5.4　In relation to reinsurance contracts, the relevant policyholder options shall cover:

1) The rights of the policyholders of the reinsurance contracts;

2) The rights of the policyholders of the insurance contracts underlying the reinsurance contracts;

3) Where the reinsurance contracts cover insurance or reinsurance contracts that will be written in the future, the right of potential policyholders not to conclude those insurance or reinsurance contracts.

2.8.5.5　In the following text, the term "lapse" is used to denote all these policyholder options. For the purpose of determining the loss in basic own funds of the insurer or reinsurer under the lapse shock scenarios, the insurer or reinsurer should base the calculation on the type of discontinuance which most negatively affects the basic own funds on a per policy basis.

Capital Requirement

2.8.5.6　The capital requirement for lapse risk should be equal to the loss in basic own funds of undertakings that would result from the combination of two shocks for each confidence level specified in 2.2.1.2:

$$NL_{lapse} = \Delta BOF | (lapseshock_1, lapseshock_2)$$

Where:

- NL_{lapse} is the capital requirement for lapse risk ;

- ΔBOF is the change in the value of basic own funds (not including changes in the risk margin of technical provisions);

- $lapseshock_1$ is a discontinuance of x% of the insurance policies for which discontinuance would result in an increase of technical provisions without the risk margin. Where x% is defined as follows for each confidence level.

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
X%	40%	36%	32%

- lapseshock$_2$ is a decrease of x% of the number of future insurance or reinsurance contracts used in the calculation of technical provisions associated to reinsurance contracts cover insurance or reinsurance contracts to be written in the future. $lapseshock_1$ and $lapseshock_2$ shall apply uniformly to all insurance and reinsurance contracts concerned. In relation to reinsurance contracts $lapseshock_1$ shall apply to the underlying insurance contracts. Where x% is defined as follows for each confidence level.

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
X%	40%	36%	32%

2.8.5.7 For the purpose of determining the loss in basic own funds of the insurer or reinsurer under $lapseshock_1$, the insurer or reinsurer shall base the stress on the type of discontinuance which most negatively affects the basic own funds of the insurer or reinsurer on a per policy basis.

2.8.6. Catastrophe risk

Description

2.8.6.1 Under the non-life underwriting risk module, catastrophe risk is defined as the risk of loss, or of adverse change in the value of insurance liabilities, resulting from significant uncertainty of pricing and provisioning assumptions related to extreme or exceptional events.

2.8.6.2 Where risk mitigation techniques meet the requirements set out in subsections 2.11, 2.12 and 2.13, their risk-mitigating effect should be taken into account in the analysis of the scenario.

2.8.6.3 Catastrophe risks stem from extreme or irregular events that are not sufficiently captured by the capital requirements for premium and reserve risk. The catastrophe risk capital requirement has to be calibrated at an X% VaR. Where X% is determined as follows for each confidence level:

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
VaR X%	99.5%	99%	98%

2.8.6.4 The catastrophe risk capital requirement, NL_{CAT}, shall consist of the following shock scenarios:

- The natural catastrophe risk shock scenario;
- The catastrophe risk of non-proportional property reinsurance shock scenario;
- The man-made catastrophe risk shock scenario;
- The other non-life catastrophe risk shock scenario.

2.8.6.5 The shock scenarios provide the following information:

- $NLCAT_{natural}$ is the capital requirement for natural catastrophe risk;
- $NLCAT_{npproperty}$ is the capital requirement for the catastrophe risk of non-proportional property reinsurance;

- $NLCAT_{manmade}$ is the capital requirement for man-made catastrophe risk;
- $NLCAT_{other}$ is the capital requirement for other non-life catastrophe risk output.

Capital Requirement

2.8.6.6   The capital requirement relating to non-life catastrophe risk is calculated by combining the capital requirements listed in 2.8.6.5 as follows:

$$NL_{CAT} = \sqrt{\sum_{r,c} CorrCAT_{r,c} \cdot NLCAT_r \cdot NLCAT_c}$$

Where:

- The sum includes all possible combinations of non-life catastrophe risk shock scenarios (*r,c*);
- $CorrCAT_{r,c}$ are the entries of the correlation matrix $CorrCAT$;
- $NLCAT_r$ and $NLCAT_c$ are the capital requirements for the individual non-life catastrophe risk shock scenarios, as referred to in 2.8.6.5, according to the rows and columns of the correlation matrix $CorrCAT$;
- $CorrCAT$ is defined as:

$CorrCAT$	Natural	NP Prop.	Man-Made	Other
Natural	1	1	0	0
NP Prop.	1	1	0	0
Man-Made	0	0	1	0
Other	0	0	0	1

Natural Catastrophe Risk

Description

2.8.6.7   The natural catastrophe risk capital requirement shall consist of the following shock scenarios:
- the windstorm risk shock scenario, $NLNatCat_{windstorm}$;
- the earthquake risk shock scenario, $NLNatCat_{earthquake}$;
- the flood risk shock scenario, $NLNatCat_{flood}$;
- the hail risk shock scenario, $NLNatCat_{hail}$;
- the subsidence risk shock scenario, $NLNatCat_{subsidence}$.

2.8.6.8   The capital requirement for natural catastrophe risk shall be equal to the following:

$$NLCAT_{natural} = \sqrt{\sum_i NLNatCat_i^2}$$

Where:

- The sum includes all possible shock scenarios set out in paragraph 2.8.6.7;

- $NLNatCat_i$ is the capital requirement for the individual natural catastrophe risk shock scenario, *i*.

Windstorm risk

2.8.6.9 The capital requirement for windstorm risk shall be equal to the loss in basic own funds of insurers and reinsurers that would result from an instantaneous loss in relation to each insurance and reinsurance contract that covers one or both of the following:

- Insurance and reinsurance obligations of lines of business 3 or 15 as set out in Appendix 4 that cover onshore property damage by windstorm;

- Insurance and reinsurance obligations of lines of business 4 or 16 as set out in Appendix 4 that cover windstorm risk.

2.8.6.10 The amount of the instantaneous loss referred to in 2.8.6.9 is calculated as follows:

$$NLNatCat_{windstorm} = \theta \cdot (0.5 \cdot DIV_{windstorm} + 0.5) \cdot P_{windstorm}$$

Where:

- θ is determined as follows for each confidence level;

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
θ	1.75	1.575	1.4

- $DIV_{windstorm}$ is calculated in accordance with 2.8.4.17, but based on the premiums in relation to the obligations referred to in 2.8.6.9. The splitting of the premium for calculation of $DIV_{windstorm}$ for policies with exposures in multiple geo zones should be based on exposure split;

- $P_{windstorm}$ is the estimate of the premiums to be earned by insurers and reinsurers for each contract that covers the obligations referred to in 2.8.6.9 during the following 12 months. For this purpose, premiums shall be gross, without deduction of premiums for reinsurance contracts and special purpose vehicles.

Earthquake risk

2.8.6.11 The capital requirement for earthquake risk shall be equal to the loss in basic own funds of insurers and reinsurers that would result from an instantaneous loss in relation to each insurance and reinsurance contract that covers one or both of the following:

- Insurance and reinsurance obligations of lines of business 3 or 15 as set out in Appendix 4 that cover onshore property damage by earthquake;

- Insurance and reinsurance obligations of lines of business 4 or 16 as set out in Appendix 4 that cover earthquake risk.

2.8.6.12 The amount of the instantaneous loss referred to in 2.8.6.11 is calculated as follows:

$$NLNatCat_{earthquake} = \theta \cdot \left(0.5 \cdot DIV_{earthquake} + 0.5\right) \cdot P_{earthquake}$$

Where:

- θ is determined as follows for each confidence level;

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
θ	1.20	1.08	0.96

- $DIV_{earthquake}$ is calculated in accordance with 2.8.4.17, but based on the premiums in relation to the obligations referred to in 2.8.6.11;
- $P_{earthquake}$ is the estimate of premiums to be earned by insurers and reinsurers for each contract that covers the obligations referred to in 2.8.6.11 during the following 12 months. For this purpose, premiums shall be gross, without deduction of premiums for reinsurance contracts and special purpose vehicles.

Flood risk

2.8.6.13 The capital requirement for flood risk shall be equal to the loss in basic own funds of insurers and reinsurers that would result from an instantaneous loss in relation to each insurance and reinsurance contract that covers one or more of the following:

- Insurance and reinsurance obligations of lines of business 2 or 14 as set out in Appendix 4 that cover flood risk;
- Insurance and reinsurance obligations of lines of business 3 or 15 as set out in Appendix 4 that cover onshore property damage by flood;
- Insurance and reinsurance obligations of lines of business 4 or 16 as set out in Appendix 4 that cover flood risk.

2.8.6.14 The amount of the instantaneous loss referred to in 2.8.6.13 is calculated as follows:

$$NLNatCat_{flood} = \theta \cdot \left(0.5 \cdot DIV_{flood} + 0.5\right) \cdot P_{flood}$$

Where

- θ is determined as follows for each confidence level;

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
θ	1.1	0.99	0.88

- DIV_{flood} is calculated in accordance with 2.8.4.17, but based on the premiums in relation to the obligations referred to in 2.8.6.13 and restricted to regions 5 to 18 set out in Appendix 6;
- P_{flood} is the estimate of the premiums to be earned by the insurer or reinsurer for each contract that covers the obligations referred to in 2.8.6.13 during the following 12 months. For this purpose, premiums shall be gross, without deduction of premiums for reinsurance contracts and special purpose vehicles.

Hail risk

2.8.6.15 The capital requirement for hail risk shall be equal to the loss in basic own funds of insurers and reinsurers that would result from an instantaneous loss in relation to each insurance and reinsurance contract that covers one or more of the following:

- Insurance and reinsurance obligations of lines of business 2 or 14 as set out in Appendix 4 that cover hail risk;
- Insurance and reinsurance obligations of lines of business 3 or 15 as set out in Appendix 4 that cover onshore property damage by hail;
- Insurance and reinsurance obligations of lines of business 4 or 16 as set out in Appendix 4 that cover hail risk.

2.8.6.16 The amount of the instantaneous loss referred to in 2.8.6.15 is calculated as follows:

$$NLNatCat_{hail} = \theta \cdot (0.5 \cdot DIV_{hail} + 0.5) \cdot P_{hail}$$

Where:

- θ is determined as follows for each confidence level;

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
θ	0.3	0.27	0.24

- DIV_{hail} is calculated in accordance with 2.8.4.17, but based on the premiums in relation to the obligations referred to in 2.8.6.15 and restricted to regions 5 to 18 as set out in Appendix 6;
- P_{hail} is the estimate of premiums to be earned by the insurer or reinsurer for each contract that covers the obligations referred to in 2.8.6.15 during the following 12 months. For this purpose, premiums shall be gross, without deduction of premiums for reinsurance contracts and special purpose vehicles.

Subsidence risk

2.8.6.17 The capital requirement for subsidence risk shall be equal to the loss in basic own funds of insurers and reinsurers that would result from an instantaneous loss in relation to each insurance and reinsurance contract that covers the following:

- Insurance and reinsurance obligations of lines of business 4 or 16 as set out in Appendix 4 that cover subsidence risk of residential buildings.

2.8.6.18 The amount of the instantaneous loss referred to in 2.8.6.17 is calculated as follows:

$$NLNatCat_{subsidence} = \theta \cdot SI_{subsidence}$$

Where:

- θ is determined as follows for each confidence level;

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
θ	0.0005	0.00045	0.0004

- $SI_{subsidence}$ is the sum insured by the insurer or reinsurer for each contract that covers the obligations referred to in 2.8.6.17. For this purpose, the sum insured shall be gross, without deduction of the amounts recoverable from reinsurance contracts and special purpose vehicles.

Catastrophe risk of non-proportional property reinsurance

2.8.6.19 The capital requirement for catastrophe risk of non-proportional property reinsurance shall be equal to the loss in basic own funds of insurers and reinsurers that would result from an instantaneous loss in relation to each reinsurance contract that covers the following:

- Reinsurance obligations of line of business 27 as set out in Appendix 4 other than non-proportional reinsurance obligations relating to insurance obligations included in lines of business 6 and 18 as set out in Appendix 4.

2.8.6.20 The amount of the instantaneous loss referred to in 2.8.6.19 is calculated as follows:

$$NLCAT_{npproperty} = \theta \cdot \left(0.5 \cdot DIV_{npproperty} + 0.5\right) \cdot P_{npproperty}$$

- θ is determined as follows for each confidence level;

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
θ	2.5	2.25	2.0

- $DIV_{npproperty}$ is calculated in accordance with 2.8.4.17, but based on the premiums in relation to the obligations referred to in 2.8.6.19;

- $P_{npproperty}$ is the estimate of the premiums to be earned by the insurer or reinsurer for each contract that covers the obligations referred to in 2.8.6.19 during the following 12 months. For this purpose premiums shall be gross, without deduction of premiums for reinsurance contracts and special purpose vehicles.

Man-made catastrophe risk

Description

2.8.6.21 The man-made catastrophe risk capital requirement shall consist of the following shock scenarios:

- the motor risk shock scenario, $NLMMCat_{motor}$;
- the fire risk shock scenario, $NLMMCat_{fire}$;
- the marine risk shock scenario, $NLMMCat_{marine}$;
- the aviation risk shock scenario, $NLMMCat_{aviation}$;
- the liability risk shock scenario, $NLMMCat_{liability}$;
- the credit and suretyship risk shock scenario, $NLMMCat_{credit}$.

2.8.6.22 The capital requirement for man-made catastrophe risk shall be equal to the following:

$$NLCAT_{manmade} = \sqrt{\sum_i NLMMCat_i^2}$$

Where:

- The sum includes all possible shock scenarios set out in paragraph 2.8.6.21;

- $NLMMCat_i$ is the capital requirement for the individual man-made catastrophe risk shock scenario, *i*.

Motor vehicle liability risk

2.8.6.23 The capital requirement for motor vehicle liability risk shall be equal to the loss in basic own funds of insurers and reinsurers that would result from an instantaneous loss in relation to each insurance and reinsurance contract that covers the following:

- Insurance and reinsurance obligations of lines of business 1 and 13 as set out in Appendix 4 that cover motor vehicle liability risk.

2.8.6.24 The amount of the instantaneous loss referred to in 2.8.6.23, without deduction of the amounts recoverable from reinsurance contracts and special purpose vehicles, is calculated as follows:

$$NLMMCat_{motor}$$
$$= \theta \cdot \max \left(120; [N_a + 0.95 \cdot \min(20{,}000; N_b) + 0.05 \cdot N_b]^{1/2} \right)$$

Where:

- θ is determined as follows for each confidence level;

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
θ	50,000	45,000	40,000

- N_a is the number of vehicles insured by the insurer or reinsurer for each contract that covers the obligations referred to in 2.8.6.23 with a deemed policy limit above £17.6m;

- N_b is the number of vehicles insured by the insurer or reinsurer for each contract that covers the obligations referred to in 2.8.6.23 with a deemed policy limit below or equal to £17.6m.

2.8.6.25 The number of motor vehicles covered by the proportional reinsurance obligations of the insurer or reinsurer shall be weighted by the relative share of the insurer's or reinsurer's obligations in respect of the sum insured of the motor vehicles.

2.8.6.26 The deemed policy limit referred to in 2.8.6.24 shall be the overall limit of the motor vehicle liability insurance policy or, where no such overall limit is specified in the terms and conditions of the policy, the sum of the limits for damage to property and for personal injury. Where the policy limit is specified as a maximum per victim, the deemed policy limit shall be based on the assumption of ten victims.

2.8.6.27 Note that we have not yet amended the formula in 2.8.6.24 above to remove the minimum component which was commented on by some insurers in QIS2. If an insurer believes the resulting catastrophe scenario to be too high given the scale of their operations they should use the "aggregate cap" functionality in the results template to reduce the impact of the scenario, and provide commentary on the rationale for this reduction. We will use this feedback when considering adjusting the formula for the QIS5 exercise.

Marine risk

2.8.6.28 The capital requirement for marine risk shall be equal to the following:

$$NLMMCat_{marine} = \sqrt{CATMarine_{tanker}^2 + CATMarine_{platform}^2}$$

Where:

- $CATMarine_{tanker}$ is the capital requirement for the risk of a tanker collision
- $CATMarine_{platform}$ is the capital requirement for the risk of a platform explosion.

2.8.6.29 The capital requirement for the risk of a tanker collision, $CATMarine_{tanker}$, shall be equal to the loss in basic own funds of insurers and reinsurers that would result from an instantaneous loss in relation to each insurance and reinsurance contract that covers one or both of the following:

- Insurance and reinsurance obligations of lines of business 3 or 15 as set out in Appendix 4 that cover tanker collision;
- Reinsurance obligations of line of business 26 as set out in Appendix 4 that cover tanker collision.

2.8.6.30 The amount of the instantaneous loss referred to in 2.8.6.29 is calculated as follows:

$$CATMarine_{tanker} = \theta \cdot \max_t(SI_{(hull,t)} + SI_{(liab,t)} + SI_{(pollution,t)})$$

Where:

- θ is determined as follows for each confidence level;

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
θ	1	0.9	0.8

- The maximum relates to all oil and gas tankers insured by the insurer or reinsurer for each contract that covers the obligations referred to in 2.8.6.29.
- $SI_{(hull,t)}$ is the sum insured by the insurer or reinsurer for marine hull insurance and reinsurance in relation to tanker *t* ;
- $SI_{(liab,t)}$ is the sum insured by the insurer or reinsurer for marine liability insurance and reinsurance in relation to tanker *t* ;
- $SI_{(pollution,t)}$ is the sum insured by the insurer or reinsurer for oil pollution insurance and reinsurance in relation to tanker *t* ;
- For this purpose, all of the above sums insured shall be gross, without deduction of the amounts recoverable from reinsurance contracts and special purpose vehicles.

2.8.6.31 The capital requirement for the risk of a platform explosion, $CATMarine_{platform}$, shall be equal to the loss in basic own funds of insurers and reinsurers that would result from an instantaneous loss in relation to each insurance and reinsurance contract that covers one or both of the following:

- Insurance and reinsurance obligations of lines of business 3 or 15 as set out in Appendix 4 that cover platform explosions;

- Reinsurance obligations of line of business 26 as set out in Appendix 4 that cover platform explosions.

2.8.6.32 The amount of the instantaneous loss referred to in 2.8.6.31 is calculated as follows:

$$CATMarine_{platform} = \theta \cdot \max_{p}(SI_{(platform,p)})$$

Where:

- θ is determined as follows for each confidence level;

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
θ	1	0.9	0.8

- The maximum relates to all oil and gas offshore platforms insured by the insurer or reinsurer for each contract that covers the obligations referred to in 2.8.6.31;

- $SI_{(platform,p)}$ is the accumulated sum insured by the insurer or reinsurer for the following insurance and reinsurance obligations in relation to platform p :
  - Obligations to compensate for property damage;
  - Obligations to compensate for the expenses for the removal of wreckage;
  - Obligations to compensate for loss of production income;
  - Obligations to compensate for the expenses for capping of the well or making the well secure;
  - Liability insurance and reinsurance obligations.

- For this purpose, the sum insured shall be gross, without deduction of the amounts recoverable from reinsurance contracts and special purpose vehicles.

Aviation risk

2.8.6.33 The capital requirement for aviation risk shall be equal to the loss in basic own funds of insurers and reinsurers that would result from an instantaneous loss in relation to each insurance and reinsurance contract that covers one or both of the following:

- Insurance and reinsurance obligations of lines of business 3 or 15 as set out in Appendix 4 that cover aviation hull and aviation liability risk;

- Reinsurance obligations of line of business 26 as set out in Appendix 4 that cover aviation hull and aviation liability risk.

2.8.6.34 The amount of the instantaneous loss referred to in 2.8.6.33 is calculated as follows:

$$NLMMCat_{aviation} = \theta \cdot \max_{a}(SI_{(aviation,a)})$$

Where:

- θ is determined as follows for each confidence level;

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
θ	1	0.9	0.8

- The maximum relates to all aircrafts insured by the insurer or reinsurer for each contract that covers the obligations referred to in 2.8.6.33;
- $SI_{(aviation,a)}$ is the sum insured by the insurer or reinsurer for aviation hull insurance and reinsurance and aviation liability insurance and reinsurance in relation to aircraft a . For this purpose, the sum insured shall be gross, without deduction of the amounts recoverable from reinsurance contracts and special purpose vehicles.

Fire risk

2.8.6.35 The capital requirement for fire risk shall be equal to the loss in basic own funds of insurers and reinsurers that would result from an instantaneous loss in relation to each insurance and reinsurance contract that covers the following:

- Insurance and reinsurance obligations of lines of business 4 and 16 as set out in Appendix 4, in relation to each building, that cover damage due to fire or explosion, including as a result of terrorist attacks.

2.8.6.36 The amount of the instantaneous loss referred to in 2.8.6.35 is calculated as follows:

$$NLMMCat_{fire} = \theta \cdot \max_{f}\left(SI_{(fire,f)}\right)$$

Where:

- θ is determined as follows for each confidence level;

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
θ	1	0.9	0.8

- $SI_{(fire,f)}$ is the sum insured for each fire risk concentration, f, of the insurer or reinsurer for each contract that covers the obligations referred to in 2.8.6.35. It relates to a set of buildings where all buildings are partly or fully located within a radius of 200 meters. For this purpose, the sum insured shall be gross, without deduction of the amounts recoverable from reinsurance contracts and special purpose vehicles.

Liability risk

2.8.6.37 The capital requirement for liability risk shall be equal to:

$$NLMMCat_{liability} = \sqrt{\sum_{i,j} CorrLiab_{i,j} \cdot CATLiab_i \cdot CATLiab_j}$$

Where:

- the sum includes all possible combinations of liability risk groups (*i,j*);
- $CorrLiab_{i,j}$ are the entries of the correlation matrix $CorrLiab$;
- $CATLiab_i$ and $CATLiab_j$ are the capital requirements for liability risk per liability risk group according to the rows and columns of the correlation matrix $CorrLiab$;

- *CorrLiab* is defined as:

CorrLiab	1	2	3	4	5
1	1	0	0.5	0.25	0.5
2	0	1	0	0.25	0.5
3	0.5	0	1	0.25	0.5
4	0.25	0.25	0.25	1	0.5
5	0.5	0.5	0.5	0.5	1

2.8.6.38 The liability risk groups are defined as follows:

1) **Professional malpractice liability insurance obligations**

   Liability insurance and proportional reinsurance obligations of lines of business 5 and 17 as set out in Appendix 4 that cover liabilities arising out of professional malpractice in relation to clients and patients. This excludes professional malpractice liability insurance and reinsurance for self-employed craftspersons or artisans;

2) **Employers liability insurance obligations**

   Liability insurance and proportional reinsurance obligations of lines of business 5 and 17 as set out in Appendix 4 that cover liabilities of employers arising out of death, illness, accident, disability or infirmity of an employee in the course of their employment;

3) **Directors and officers insurance obligations**

   Liability insurance and proportional reinsurance obligations of lines of business 5 and 17 as set out in Appendix 4 that cover liabilities of directors and officers of a company, arising out of the management of that company, or losses of the company itself to the extent it indemnifies its directors and officers in relation to such liabilities;

4) **Personal liability insurance obligations**

   Liability insurance and proportional reinsurance obligations of lines of business 5 and 17 as set out in Appendix 4 that cover liabilities of natural persons in their capacity of being private householders. This excludes:
   - obligations included in liability risk groups 1) to 3) above
   - personal liability insurance and proportional reinsurance;
   - professional malpractice liability insurance and reinsurance for self-employed craftspersons or artisans;

5) **Non-proportional liability reinsurance obligations**

   Non-proportional reinsurance obligations in line of business 25 which relate to insurance obligations in lines of business 5 and 17, where the lines of business are as set out in Appendix 4.

2.8.6.39 The capital requirement for liability risk of a particular liability risk group i shall be equal to the loss in basic own funds of insurers and reinsurers that would result from an instantaneous loss in relation to each insurance and reinsurance contract that is referred to in 2.8.6.40.

2.8.6.40 The amount of the instantaneous loss referred to in 2.8.6.39 is calculated as follows:

$$CATLiab_i = \theta_i \cdot P_{(liability,i)}$$

Where:

- θ_i is the risk factor for liability risk group i as set out below for each confidence level:

	θ_i (200)	θ_i (100)	θ_i (50)
i			
1)	100%	90%	80%
2)	160%	144%	128%
3)	160%	144%	128%
4)	100%	90%	80%
5)	210%	189%	168%

- $P_{(liability,i)}$ is the estimate of the premiums to be earned by the insurer or reinsurer during the following 12 months in relation to insurance and reinsurance obligations in liability risk group i. For this purpose, premiums shall be gross, without deduction of premiums for reinsurance and special purpose vehicles.

2.8.6.41 The calculation of the loss in basic own funds shall be based on the following assumptions:

1) the loss of liability risk group i is caused by n_i claims, where n_i is equal to the lowest integer that exceeds the following amount:

$$\frac{\theta_i \cdot P_{(liability,i)}}{1.15 \cdot Lim_{(i,1)}}$$

Where:

- $Lim_{(i,1)}$ is the largest liability limit of indemnity provided by the insurer or reinsurer in liability risk group i.

2) where the insurer or reinsurer provides unlimited cover in liability risk group i, the number of claims n_i is equal to 1.

Credit and Suretyship risk

2.8.6.42 The capital requirement for credit and suretyship risk shall be equal to:

$$NLMMCat_{credit} = \sqrt{CATCredit_{default}^2 + CATCredit_{recession}^2}$$

Where:

- $CATCredit_{default}$ is the capital requirement for the risk of a large credit default;

- $CATCredit_{recession}$ is the capital requirement for recession risk.

2.8.6.43 The capital requirement for the risk of a large credit default shall be equal to the loss in basic own funds of insurers and reinsurers that would result from an instantaneous default of the two largest exposures relating to insurance and reinsurance contracts that cover the following:

- Insurance and reinsurance obligations of lines of business 6 and 18 as set out in Appendix 4 that cover default risk.

2.8.6.44 The amount of the instantaneous default referred to in 2.8.6.43 is calculated as follows for each confidence level:

$$CATCredit_{default} = \theta \cdot \left(\max_i\left(L_{(default,i)}\right) + \max_j\left(L_{(default,j)}\right) \right)$$

Where:

- θ is determined as follows for each confidence level;

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
θ	1	0.9	0.8

- $L_{default,i}$ and $L_{default,j}$ are the losses-given-default, without deduction of the amounts recoverable from reinsurance contracts and special purpose vehicles, of each credit insurance exposure i or j, assuming that the LGD is 10% of the sum insured.

- $\max_i\left(L_{(default,i)}\right)$ is the maximum loss-given-default of all of the insurer's or reinsurer's exposure as referred to in 2.8.6.43;

- $\max_j\left(L_{(default,j)}\right)$ is the second-largest loss-given default of all of the insurer's or reinsurer's exposure as referred to in 2.8.6.43, i.e. where the number of exposures j is 1 less than the number of exposures i (where the largest LGD exposure has been excluded from the calculation).

2.8.6.45 The determination of the two largest exposures of the insurer or reinsurer shall be based on a comparison of the net loss-given-default of the credit insurance exposures, being the loss-given-default after deduction of the amounts recoverable from reinsurance contracts and special purpose vehicles.

2.8.6.46 The capital requirement for recession risk shall be equal to the loss in basic own funds of insurers and reinsurers that would result from an instantaneous loss in relation to each insurance and reinsurance contract that covers the following:

- Insurance and reinsurance obligations of lines of business 6 and 18 as set out in Appendix 4.

2.8.6.47 The amount of the instantaneous loss referred to in 2.8.6.46 is calculated as follows for each confidence level:

$$CATCredit_{recession} = \theta \cdot P_{recession}$$

Where:

- θ is determined as follows for each confidence level;

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
θ	1	0.9	0.8

- $P_{recession}$ is the estimate of the premiums to be earned by insurers and reinsurers for each contract that covers the obligations referred to in 2.8.6.46 during the following 12 months. For this purpose, premiums shall be gross, without deduction of the amounts recoverable from reinsurance contracts and special purpose vehicles.

Other Non-Life Catastrophe risk

2.8.6.48 The capital requirement for other non-life catastrophe risk shall be equal to:

$$NLCAT_{other} = \sqrt{\sum_{i,j} CorrOther_{i,j} \cdot CATOther_i \cdot CATOther_j}$$

Where:

- The sum includes all possible combinations of other catastrophe risk groups, *(i,j)*;
- $CorrOther_{i,j}$ are the entries of the correlation matrix $CorrOther$;
- $CATOther_i$ and $CATOther_j$ are the capital requirements for other catastrophe risk per other catastrophe risk group according to the rows and columns of the correlation matrix $CorrOther$;
- $CorrOther$ is defined as:

CorrOther	1	2	3	4	5
1	1	1	0	0	0
2	1	1	0	0	0
3	0	0	1	0	0
4	0	0	0	1	0
5	0	0	0	0	1

2.8.6.49 The other non-life catastrophe risk groups are defined as follows:

1) Insurance and reinsurance obligations in lines of business 3 and 15 as set out in Appendix 4 other than marine insurance and reinsurance and aviation insurance and reinsurance;

2) Non-proportional reinsurance obligations included in line of business 26 as set out in Appendix 4 other than marine reinsurance and aviation reinsurance;

3) Insurance and reinsurance obligations included in lines of business 9 and 21 as set out in Appendix 4 other than extended warranty insurance and reinsurance obligations provided that the portfolio of these obligations is highly diversified and these obligations do not cover the costs of product recalls;

4) Non-proportional reinsurance obligations in line of business 25 as set out in Appendix 4 other than general liability reinsurance;

5) Non-proportional reinsurance obligations relating to insurance obligations included in lines of business 6 and 18 as set out in Appendix 4.

2.8.6.50 The other non-life catastrophe risk capital requirement shall be equal to the loss in basic own funds of insurers and reinsurers that would result from an instantaneous loss in relation to each insurance and reinsurance contract that covers the obligations referred to in 2.8.6.49.

2.8.6.51 The amount of the instantaneous loss referred to in 2.8.6.50 is calculated as follows for each confidence level:

$$CATOther_i = \theta_i \cdot P_{(other,i)}$$

Where:

- θ_i is the risk factor for the other catastrophe risk group *i* as set out below for each confidence level:

i	Risk factor θ_i (200)	Risk factor θ_i (100)	Risk factor θ_i (50)
1)	100%	90%	80%
2)	250%	225%	200%
3)	40%	36%	32%
4)	250%	225%	200%
5)	250%	225%	200%

- $P_{(other,i)}$ is the estimate of the premiums to be earned by the insurer or reinsurer for each contract that covers risk group *i,* referred to in 2.8.6.49, during the following 12 months. For this purpose, premiums shall be gross, without deduction of the amounts recoverable from reinsurance contracts and special purpose vehicles;

2.8.6.52 For the purpose of risk group 3), 'extended warranty insurance obligation' means insurance obligations which cover the cost of repair or replacement in the event of a breakdown of a consumer good used by the individuals in a private capacity and which may also provide additional cover against eventualities such as accidental damage, loss or theft and assistance in setting up, maintaining and operating the good.

2.9. Health Underwriting Risk

2.9.1. Structure of the health underwriting risk capital requirement

2.9.1.1 This section covers the risk arising from the underwriting of health insurance and reinsurance, and is associated with both the perils covered and the processes followed in the conduct of business.

2.9.1.2 The definition of health insurance and reinsurance obligations is set out in section 1.3.2 on segmentation.

2.9.1.3 The health underwriting risk section consists of the following shock scenario categories:

- the Non-SLT Health underwriting risk shock scenarios;
- the Health catastrophe risk shock scenarios.

2.9.2. Description

2.9.2.1 The health underwriting risk capital requirement is calculated using the input from two sets of stresses that aim to establish the exposure of the participating insurer to underwriting risk (comprising premium & reserve and lapse risks) and catastrophe risk.

2.9.2.2 The shock scenarios provide the following information:

- $Health_{NonSLT}$ is the capital requirement for underwriting risk;
- $Health_{CAT}$ is the capital requirement for catastrophe risk;

2.9.3. Capital Requirement

2.9.3.1 The capital requirement relating to health underwriting risk is calculated by combining the capital requirements listed in 2.8.2.2 using a correlation matrix as follows for each confidence level specified in 2.2.1.2:

$$SCR_{Health} = \sqrt{\sum_{r,c} HCorr_{r,c} \cdot H_r \cdot H_c}$$

Where:

- The sum includes all possible combinations of the non-life underwriting risk shock scenarios (r,c);

- $HCorr_{r,c}$ are the entries of the correlation matrix $HCorr$;

- H_r and H_c are the capital requirements for the individual health shock scenarios according to the rows and columns of the correlation matrix $HCorr$;

- $HCorr$ is defined as:

$HCorr$	Underwriting	Catastrophe
Underwriting	1	0.25
Catastrophe	0.25	1

2.9.4. Non-SLT Health (Not Similar to Life Techniques) underwriting risk capital requirement

2.9.4.1 The Non-SLT Health underwriting risk capital requirement is defined as

$$Health_{NonSLT} = \sqrt{(Health_{pr}^{NonSLT})^2 + (Health_{lapse}^{NonSLT})^2}$$

where $Health_{pr}^{NonSLT}$ = capital requirement for Non-SLT Health premium and reserve risk

$Health_{lapse}^{NonSLT}$ = capital requirement for Non-SLT Health lapse risk

Non SLT Health premium and reserve risk

Description

2.9.4.2 This shock scenario combines a treatment for the two main sources of underwriting risk: premium risk and reserve risk.

Capital requirement

2.9.4.3 The capital requirement for the combined premium risk and reserve risk is determined as follows:

$$Health_{pr}^{NonSLT} = \theta \cdot \sigma \cdot V$$

Where:

- θ is determined as follows for each confidence level;

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
θ	3	2.65	2.3

- V is the volume measure for Non-SLT Health (re)insurance obligations;

- σ is the combined standard deviation for Non-SLT Health premium and reserve risk.

2.9.4.4 The volume measure V and the combined standard deviation σ for the overall non-life insurance portfolio are determined in two steps as follows:

- For each individual segment, the standard deviations and volume measures for both premium risk and reserve risk are determined;

- The standard deviations and volume measures for the premium risk and the reserve risk in the individual segments are aggregated to derive an overall volume measure V and a combined standard deviation σ.

The calculations needed to perform these two steps are set out below.

Step 1: Volume measures and standard deviations per segment

2.9.4.5 The premium and reserve risk shock scenario is based on the same segmentation into lines of business used for the calculation of technical provisions. However, an insurance line of business and the corresponding line of business for proportional reinsurance are merged, based on the assumption that the risk profile of both lines of business is similar.

	Segment
10, 22	Medical expense insurance and proportional reinsurance
11, 23	Income protection insurance and proportional reinsurance
12, 24	Workers' compensation insurance and proportional reinsurance
28	Non-proportional health reinsurance

2.9.4.6 For each segment, the volume measures and standard deviations for premium and reserve risk are denoted as follows:

- $V_{(prem,s)}$ is the volume measure for premium risk;

- $V_{(res,s)}$ is the volume measure for reserve risk ;

- $\sigma_{(prem,s)}$ is the standard deviation for premium risk;

- $\sigma_{(res,s)}$ is the standard deviation for reserve risk.

2.9.4.7 The volume measure for premium risk in the individual segment is determined as follows:

$$V_{(prem,s)} = \max\left(P_s; P_{(last,s)}\right) + FP_{(existing,s)} + FP_{(future,s)}$$

Where:

- P_s is the estimate of the premiums to be earned by the insurer or reinsurer for each segment, *s*, during the following 12 months;

- $P_{(last,s)}$ is the premiums earned by the insurer or reinsurer for each segment, *s*, during the last 12 months;

- $FP_{(existing,s)}$ is the expected present value of premiums to be earned by the insurer or reinsurer for each segment, *s*, after the following 12 months for existing contracts;

- $FP_{(future,s)}$ is the expected present value of premiums to be earned by the insurer or reinsurer for each segment, *s*, for contracts where the initial recognition date falls in the following 12 months but excluding the premiums to be earned during the 12 months after the initial recognition date.

2.9.4.8   If the insurer or reinsurer has met the following conditions;

4) The administrative, management or supervisory body of the insurer or reinsurer has decided that its earned premiums for each segment during the following 12 months will not exceed P_s;

5) The insurer or reinsurer has established effective control mechanisms to ensure that the limits on earned premiums referred to in 1) above will be met;

6) The insurer or reinsurer has informed its supervisory authority about the decision referred to in 1) above and the reasons for it.

the insurer or reinsurer may calculate the volume measure for premium risk for each segment in accordance with the following formula:

$$V_{(prem,s)} = P_s + FP_{(existing,s)} + FP_{(future,s)}$$

2.9.4.9   Premiums shall be net, after deduction of premiums for reinsurance contracts. However, the following premiums for reinsurance contracts shall not be deducted:

3) Premiums that cannot be taken into account in the calculation of amounts recoverable from reinsurance contracts and special purpose vehicles;

4) Premiums for reinsurance contracts that do not meet the requirements as risk mitigation techniques.

2.9.4.10 The standard deviation for premium risk gross of reinsurance for each segment are:

Segment, *s*	Standard deviation for premium risk (gross of reinsurance)
10, 22: Medical expense insurance and proportional reinsurance	5%
11, 23: Income protection insurance and proportional reinsurance	8.5%
12, 24: Workers' compensation insurance and proportional reinsurance	8%
28. Non-proportional health reinsurance	17%

2.9.4.11 The standard deviation of a segment shall be equal to the product of the gross standard deviation for each segment set out in the table above and the adjustment factor for non-proportional reinsurance, NP_{lob}, which allows undertakings to take into account the risk-mitigating effect of particular per risk excess of loss reinsurance. Nevertheless, for all segments set out in the table above the adjustment factor for non-proportional reinsurance shall be equal to 1.

2.9.4.12 If an insurer believes that the nature of its reinsurance is such that the adjustment factor for non-proportional reinsurance NP_{lob} for a line of business should be different from that specified in the previous paragraph it should provide details, including justification, with or before the submission of its QIS4 results.

2.9.4.13 The volume measure for reserve risk for each individual segment, s, is determined as follows:

$$V_{(res,s)} = PCO_s$$

Where:

- PCO_s is the best estimate for claims outstanding for each segment, *s*. This amount should be less the amount recoverable from reinsurance contracts and special purpose vehicles, provided that the reinsurance contracts or special purpose vehicles meet the requirements as risk mitigation techniques in 2.12 and the volume measure shall not be a negative amount.

2.9.4.14 The standard deviation for reserve risk net of reinsurance for each segment are:

Segment, *s*	Standard deviation for reserve risk (net of reinsurance)
10, 22: Medical expense insurance and proportional reinsurance	5%
11, 23: Income protection insurance and proportional reinsurance	14%
12, 24: Workers' compensation insurance and proportional reinsurance	11%
28. Non-proportional health reinsurance	20%

2.9.4.15 No further adjustments are needed to these results. If an insurer believes that the nature of its reinsurance is such that the standard deviation for reserve risk net of reinsurance for a line of business should be different from that specified in this paragraph it should provide details, including justification, with or before the submission of its QIS4 results.

2.9.4.16 The standard deviation for premium and reserve risk in the individual segment is defined by aggregating the standard deviations for both sub-risks using the following formula

$$\sigma_s = \frac{\sqrt{\left(\sigma_{(prem,s)} \cdot V_{(prem,s)}\right)^2 + \left(\sigma_{(prem,s)} \cdot \sigma_{(res,s)} \cdot V_{(prem,s)} \cdot V_{(res,s)}\right) + \left(\sigma_{(res,s)} \cdot V_{(res,s)}\right)^2}}{V_{(prem,s)} + V_{(res,s)}}$$

Step 2: Overall volume measures and standard deviations

2.9.4.17 The overall standard deviation σ_{nl} is determined as follows for each confidence level:

$$\sigma_{nl} = \frac{1}{V_{nl}}\sqrt{\sum_{r,c} CorrS_{r,c} \cdot \sigma_r \cdot V_r \cdot \sigma_c \cdot V_c}$$

Where:

- V_{nl} is the sum over all segments, *s*, of V_s;

- The sum includes all possible combinations of risk group *(r,c)* in the form (segment, *s*);

- $CorrS_{r,c}$ are the entries of the correlation matrix $CorrS$;

- V_r and V_c are the volume measures for premium and reserve risk of segments r and c respectively;

- σ_r and σ_c are the standard deviations for non-life premium and reserve risk of segments s and t respectively;

- $CorrS$ is defined as follows:

CorrS	10	11	12	28
10. Medical expense	1	0.5	0.5	0.5
11. Income protection	0.5	1	0.5	0.5
12. Workers' comp	0.5	0.5	1	0.5
28. NP health reins	0. 5	0. 5	0.5	1

2.9.4.18 The overall volume measure for each segment, V_s is obtained as follows:

$$V_s = \left(V_{(prem,s)} + V_{(res,s)}\right) \cdot (0.75 + 0.25 \cdot DIV_s)$$

Where:

$$DIV_s = \frac{\sum_j (V_{(prem,j,s)} + V_{(res,j,s)})^2}{\sum_j (V_{(prem,s)} + V_{(res,s)})^2}$$

- The index *j* denotes the geographical segments as set out in Appendix 6

- $V_{(prem,j,s)}$ and $V_{(res,j,s)}$ denote the volume measures as defined above but taking into account only insurance and reinsurance obligations where the underlying risk is situated in the geographical segment *j*.

2.9.4.19 DIV_s should be set to 1 for segment 28 - Non-Proportional Health Reinsurance.

2.9.4.20 Insurers and reinsurers may choose to allocate all of their business in a segment to the main geographical segment in order to simplify the calculation. Therefore, by default, DIV_s should be set to 1.

Lapse Risk

Capital requirement

2.9.4.21 The capital requirement for lapse risk should be equal to the loss in basic own funds of undertakings that would result from the combination of two shocks for each confidence level specified in 2.2.1.2:

$$Health_{lapse}^{NonSLT} = \Delta BOF|(lapseshock_1, lapseshock_2)$$

Where:

- $Health_{lapse}^{NonSLT}$ is the capital requirement for lapse risk ;
- ΔBOF is the change in the value of basic own funds (not including changes in the risk margin of technical provisions);
- $lapseshock_1$ is a discontinuance of x% of the insurance policies for which discontinuance would result in an increase of technical provisions without the risk margin. X% is defined as follows for each confidence level.

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
X%	40%	36%	32%

- $lapseshock_2$ is a decrease of x% of the number of future insurance or reinsurance contracts used in the calculation of technical provisions associated to reinsurance contracts cover insurance or reinsurance contracts to be written in the future. X% is defined as follows for each confidence level.

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
X%	40%	36%	32%

2.9.4.22 $lapseshock_1$ and $lapseshock_2$ shall apply uniformly to all insurance and reinsurance contracts concerned. In relation to reinsurance contracts $lapseshock_1$ shall apply to the underlying insurance contracts.

2.9.4.23 For the purpose of determining the loss in basic own funds of the insurer or reinsurer under $lapseshock_1$, the insurer or reinsurer shall base the stress on the type of discontinuance which most negatively affects the basic own funds of the insurer or reinsurer on a per policy basis.

2.9.5. Health catastrophe risk capital requirement

2.9.5.1 Health catastrophe risk is defined as the risk of loss, or of adverse change in the value of insurance liabilities, resulting from significant uncertainty of pricing and provisioning assumptions related to major accidents and epidemics, as well as the unusual accumulation of risks under such extreme circumstances.

2.9.5.2 Where risk mitigation techniques meet the requirements set out in subsections 2.11, 2.12 and 2.13, their risk-mitigating effect should be taken into account in the analysis of the scenario.

2.9.5.3 Catastrophe risks stem from extreme or irregular events that are not sufficiently captured by the capital requirements for premium and reserve risk. The catastrophe risk capital requirement has to be calibrated at a x% VaR. Where X% is determined as follows for each confidence level:

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
VaR X%	99.5%	99%	98%

2.9.5.4 The catastrophe risk capital requirement, $NL_{healthCAT}$, shall consist of the following shock scenarios:

- The mass accident shock scenario;
- The concentration shock scenario;
- The pandemic shock scenario.

2.9.5.5 Catastrophe risks stem from extreme or irregular events that are not sufficiently captured by the capital requirements for premium and reserve risk. The catastrophe risk capital requirement has to be calibrated at a 99.5% VaR.

2.9.5.6 The shock scenarios provide the following information:

- $Health_{massaccident}$ is the capital requirement for mass accident risk;
- $Health_{concentration}$ is the capital requirement for concentration risk;
- $Health_{pandemix}$ is the capital requirement for pandemic risk.

2.9.5.7 Insurers shall apply:

- The mass accident risk scenario to health insurance and reinsurance obligations other than workers' compensation insurance and reinsurance obligations;
- The accident concentration risk scenario to workers' compensation insurance and reinsurance obligations and to group income protection insurance and reinsurance obligations;
- The pandemic risk scenario to health insurance and reinsurance obligations other than workers' compensation insurance and reinsurance obligations.

Capital Requirement

2.9.5.8 The capital requirement relating to health catastrophe risk is calculated by combining the capital requirements listed in 2.9.5.6, assuming they are independent, as follows for each confidence level:

$$NL_{HealthCAT} = \sqrt{Health_{massaccident}^2 + Health_{concentration}^2 + Health_{pandemic}^2}$$

Health Mass Accident Risk

Description

2.9.5.9 The Health Mass Accident risk aims to capture the risk of having lots of people in one place at one time and a catastrophic event affecting such location and people.

Capital Requirement

2.9.5.10 The capital requirement for mass accident risk shall be equal to the following:

$$Health_{massaccident} = \sqrt{\sum_c Health_{ma,c}^2}$$

Where the sum is over all countries and $Health_{ma,c}$ denotes the capital requirement for mass accident risk for country c.

2.9.5.11 The capital requirement for mass accident risk for a particular country c, $Health_{ma,c}$, shall be equal to the loss in basic own funds of the insurer that would result from an instantaneous loss of an amount that, before deduction of the amounts recoverable from reinsurance and special purpose vehicles is calculated as follows:

$$L_{ma,c} = r_c \cdot \sum_e x_e \cdot E_{(e,c)}$$

Where

- r_c= ratio of persons affected by the mass accident in country c

- x_e= ratio of persons which will be affected by event type e as the result of the accident for each confidence level

- $E_{(e,c)}$= sum insured of the insurer for event type e in country c, and is defined as

$$E_{(e,c)} = \sum_i SI_{(e,i)}$$

where the sum includes all insured persons i of the insurer who are insured against event type e and are inhabitants of country c, and $SI_{(e,i)}$ denotes the value of the benefits payable for the insured person i in case of event type e.

2.9.5.12 The ratios r_c for each country are given in Appendix 7.

2.9.5.13 The event types e to be considered in the mass accident scenario, and the corresponding ratios x_e are as follows:

Event type e	x_e (200)	x_e (100)	x_e (50)
Death caused by an accident	10%	9%	8%
Permanent disability caused by an accident	1.5%	1.35%	1.2%
Disability lasting 10 years, caused by an accident	5%	4.5%	4%
Disability lasting 12 months, caused by an accident	13.5%	12.15%	10.8%
Medical treatment caused by an accident	30%	27%	24%

2.9.5.14 In determining $SI_{(e,i)}$, the value of the benefits shall be the sum insured, or where the insurance contract provides for recurring benefit payments the best estimate of the benefit payments in case of event type e. Where the benefits of an insurance contract depend on the nature or extent of any injury resulting from event e, the calculation of the value of the benefits shall be based on the maximum benefits obtainable under the contract which are consistent with the event. For medical expense insurance obligations the value of the benefits shall be based on an estimate of the average amounts paid in case of event e, assuming the insured person is disabled for the duration specified and taking into account the specific guarantees the obligations include.

Accident Concentration Risk

Description

2.9.5.15 The Accident Concentration risk aims to capture the risk of having concentrated exposures, the largest of which is affected by a disaster. For example, a disaster within densely populated office blocks in a financial hub.

Capital Requirement

2.9.5.16 The capital requirement for mass accident risk shall be equal to the following:

$$Health_{concentration} = \sqrt{\sum_c Health_{con,c}{}^2}$$

Where the sum is over all countries and $Health_{con,c}$ denotes the capital requirement for accident concentration risk for country c.

2.9.5.17 For each country c, the insurer shall determine its largest accident risk concentration, C_c, in that country, which shall be equal to the largest number of persons for which all of the following conditions are met:

- the insurance or reinsurance undertaking has a workers' compensation insurance or reinsurance obligation or an group income protection insurance or reinsurance obligation in relation to each of the persons;

- the obligations in relation to each of the persons cover at least one of the events set out in 2.9.5.19;

- the persons are working in the same building which is situated in country c.

2.9.5.18 The capital requirement for accident concentration risk for a particular country c, $Health_{con,c}$, shall be equal to the loss in basic own funds of the insurer that would result from an instantaneous loss of an amount that, before deduction of the amounts recoverable from reinsurance and special purpose vehicles is calculated as follows:

$$L_{ma,c} = \sum_e x_e \cdot E_{(e,c)}$$

Where

- x_e = ratio of persons which will be affected by event type e as the result of the accident for each confidence level

- $E_{(e,c)}$ = sum insured of the insurer for concentration group C_c for event type e in country c, and is defined as

$$E_{(e,c)} = \sum_i SI_{(e,i)}$$

where the sum includes all insured persons i of the insurer who are insured against event type e and are members of concentration group C_c, and $SI_{(e,i)}$ denotes the value of the benefits payable for the insured person i in case of event type e.

2.9.5.19 The event types e to be considered in the accident concentration scenario, and the corresponding ratios x_e are as follows:

Event type e	x_e (200)	x_e (100)	x_e (50)
Death caused by an accident	10%	9%	8%
Permanent disability caused by an accident	1.5%	1.35%	1.2%
Disability lasting 10 years, caused by an accident	5%	4.5%	4%
Disability lasting 12 months, caused by an accident	13.5%	12.15%	10.8%
Medical treatment caused by an accident	30%	27%	24%

2.9.5.20 In determining $SI_{(e,i)}$, the value of the benefits shall be the sum insured, or where the insurance contract provides for recurring benefit payments the best estimate of the benefit payments in case of event type e. Where the benefits of an insurance contract depend on the nature or extent of any injury resulting from event e, the calculation of the value of the benefits shall be based on the maximum benefits obtainable under the contract which are consistent with the event. For medical expense insurance obligations the value of the benefits shall be based on an estimate of the average amounts paid in case of event e, assuming the insured person is disabled for the duration specified and taking into account the specific guarantees the obligations include.

Pandemic Risk

Description

2.9.5.21 The Pandemic risk aims to capture the risk that there could be a pandemic that results in non-lethal claims, e.g. where victims infected are unlikely to recover and could lead to a large disability claim.

2.9.5.22 It will impact the following products:

- Disability income (both long and short term)

- Products covering permanent and total disability either as a standalone benefit or as part of another product, such as a standalone critical illness product

Capital Requirement

2.9.5.23 The capital requirement for pandemic risk, $Health_{pandemic}$, shall be equal to the loss in basic own funds of the insurer that would result from an instantaneous loss of an amount that, before deduction of the amounts recoverable from reinsurance and special purpose vehicles is calculated as follows for each confidence level:

$$L_p = X \cdot E$$

Where X is determined as follows for each confidence level:

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
X	0.000075	0.0000675	0.00006

2.9.5.24 The pandemic exposure of an insurer shall be equal to the following:

$$E = \sum_i E_i$$

where the sum includes all insured persons *i* covered by income protection insurance or reinsurance obligations other than workers' compensation insurance or reinsurance obligations and E_i denotes the value of the benefits payable by the insurer for the insured person *i* in case of a permanent work disability caused by infectious diseases. The value of the benefits shall be the sum insured or where the contract provides for recurring benefit payments the best estimate of the benefit payments assuming that the insured person is permanently disabled and will not recover.

2.10. Ring-fenced funds

2.10.1. Introduction

2.10.1.1 This section deals with the treatment of ring-fenced funds for the purposes of QIS4. It sets out the circumstances under which an adjustment has to be made to the own funds due to the existence of a ring-fenced fund and any consequential impact on the calculation of the Solvency Capital Requirement. It also sets out the approach for making these adjustments.

2.10.1.2 The insurer or reinsurer must perform the following steps in order to determine any adjustment to own funds with respect to ring-fenced funds:

1) The insurer or reinsurer must assess whether any own fund items have a reduced capacity to fully absorb losses on a going concern basis due to their lack of transferability within the insurer or reinsurer as described in subsection 2.10.2.1.

2) The insurer or reinsurer must identify all assets and liabilities and own funds subject to the arrangement giving rise to a ring-fenced fund in accordance with subsection 2.10.4.

3) The insurer or reinsurer must calculate the notional Solvency Capital Requirement of a ring-fenced fund in accordance with subsection 2.10.5 and subsection 2.10.6. The insurer or reinsurer must carry out these calculations before making any adjustment to own funds as set out in subsection 2.10.7 to avoid any circularity in the calculation.

4) The insurer or reinsurer must compare the amount of the restricted own-fund items within the ring-fenced fund with the notional Solvency Capital Requirement of the ring-fenced fund, as described in subsection 2.10.7.

5) The insurer or reinsurer must calculate the Solvency Capital Requirement of the insurer or reinsurer as a whole in accordance with subsection 2.10.8. The insurer or reinsurer must carry out these calculations before making any adjustment to own funds as set out in section 2.10.7 to avoid any circularity in the calculation.

2.10.2. Materiality

2.10.2.1 Where a ring-fenced fund is not material, insurers or reinsurers may, as an alternative to the approach set out in subsection 2.10.7, exclude the total amount of restricted own-fund items from the amount eligible to cover the SCR and the Minimum Capital Requirement ("MCR"). In this case, an insurer or reinsurer is not required to calculate a notional SCR for the ring-fenced fund. However, the insurer or reinsurer should include the assets and liabilities of the non-material ring-fenced fund within the remaining part of the insurer or reinsurer. These assets and liabilities will form part of the insurer or reinsurer's overall SCR calculation.

The insurer or reinsurer should consider the materiality of a ring-fenced fund by assessing:

1) The nature of the risks arising from or covered by the ring-fenced fund;

2) The nature of the assets and liabilities within the ring-fenced fund;

3) The amount of restricted own funds within the ring-fenced fund, the volatility of these amounts over time and the proportion of total own funds represented by restricted own funds;

4) The proportion of the insurer's or reinsurer's total assets and capital requirements that the ring-fenced fund represents, individually or combined with other ring-fenced funds;

5) The likely impact of the ring-fenced fund on the calculation of the SCR due to the reduced scope for risk diversification.

2.10.3. Identification of a ring-fenced fund

2.10.3.1 A ring-fenced fund arises as a result of the restriction on a going concern basis of own funds items so that they can only be used to cover losses:

1) On a defined portion of the insurer or reinsurer's insurance contracts;

2) In respect of certain policyholders or beneficiaries; or

3) Arising from particular risks.

2.10.3.2 The insurer or reinsurer must identify the nature of any such restrictions affecting assets and own funds within its business and the liabilities in respect of the contracts, policyholders or risks for which such assets and own funds can be used. The assets and liabilities and own funds identified by this process constitute the ring-fenced fund. The existence of a restriction on assets in relation to liabilities which would lead to restricted own funds is the defining characteristic of a ring-fenced fund.

2.10.3.3 Profit participation is not a defining characteristic of a ring-fenced fund but may be present as part of the arrangements. Ring-fenced funds may arise where profit participation forms part of the arrangement and also in the absence of profit participation.

2.10.3.4 While the ring-fenced assets and liabilities should form an identifiable unit in a manner as though the ring-fenced fund were a separate insurer or reinsurer, it is not necessary that these items are managed together as a separate unit or form a separate sub-fund for a ring-fenced fund to arise.

2.10.3.5 Where proceeds of or returns on the assets in the ring-fenced fund are also subject to the ring-fenced fund arrangement, they should be traceable at any given time, i.e. the items need to be identifiable as covered by or subject to the arrangement giving rise to a ring-fenced fund.

2.10.3.6 Restrictions on assets giving rise to a ring-fenced fund might require arrangements for separate management to be put in place but this is not the defining characteristic.

2.10.3.7 2.10.10 lists arrangements and products that are generally outside the scope of ring-fenced funds.

2.10.3.8 Restrictions which give rise to a ring-fenced fund can arise in a number of ways, including by virtue of:

1) Contractual terms in a policy or that apply to a number of policies;

2) A separate legal arrangement that applies in addition to the terms of a policy;

3) Provisions in the articles of association or statutes of the insurer or reinsurer;

4) National legislation or regulations in respect of product design or the conduct of the relationship between insurer or reinsurers and their policyholders: ring-fenced funds would arise where, as a result of legal provisions protecting the general good in a particular country, an insurer or reinsurer must apply particular assets only for the purposes of a particular part of its business;

5) Provisions of national law, whether transposed or directly applicable;

6) Arrangements specified by order of a court or other competent authority which require separation of or restrictions on assets or own funds in order to protect one or more groups of policyholders.

2.10.3.9 As a minimum, the insurer or reinsurer must compare arrangements within its business with the following types of ring-fenced funds as part of its identification of characteristics and restrictions giving rise to ring-fenced funds:

1) **Legally binding arrangement or trust created for the benefit of policyholders:**

This could fall within 2.10.3.8 (1) or (2), where, within or separate to the policy documentation, an agreement calls for certain proceeds or assets to be placed in trust or subject to a legally binding arrangement or charge for the benefit of the specified policyholders.

2) **Provisions in the articles of association or statutes of the insurer or reinsurer:**

The ring-fenced fund would reflect the restrictions on particular assets or own funds as specified in the articles of association or statutes of the insurer or reinsurer.

3) **National legislation:**

This covers the situation where a ring-fenced fund would arise to reflect the effect of restrictions or arrangements specified in national law.

2.10.3.10   Examples for types of arrangements that give rise to ring-fenced funds according to national legislation are listed below:

1) Criteria that could lead to ring-fenced funds are:

   a) Assets are separately identified within the coverage assets (for the case of insolvency);

   b) It has been contractually agreed between the undertaking and the policyholders of the fund (in most cases employees of a particular company) that only the profit of particular assets results in a profit for these policyholders; and

   c) This profit may not be reduced because of a loss occurring outside the ring-fenced fund.

2) Companies which comprise individual cells (protected cell companies). Detail on the regulation and guidance of PCCs in the Isle of Man is provided in the Protected Cell Companies Act 2004, Companies Act 2006, and the Insurance (Protected Cell Companies) Regulations 2004. Although, together, PCCs comprise a single legal entity, the cells operate as distinct units on both a going and gone concern basis. One cell cannot be called upon to support the liabilities of another, or of the undertaking as a whole. The assets of the general account or core are not normally available to meet liabilities of individual cells. However, the general account may in some cases be relied on to support an individual cell provided that the assets attributable to the relevant cell have been exhausted.

2.10.4. Identification of assets and liabilities in a ring-fenced fund

2.10.4.1 The assets in a ring-fenced fund are those arising from the investment of premiums received by the insurer or reinsurer in relation to the policies which comprise the ring-fenced fund along with any other payments into and/or assets provided to the fund. Under different arrangements, the assets might comprise specific assets or a pool of assets identified in the contractual arrangements giving rise to the ring-fenced fund.

2.10.4.2 The liabilities in a ring-fenced fund comprise those liabilities attributable to the policies or risks covered by the ring-fenced fund. These include the technical provisions including any future discretionary benefits which the insurer or reinsurer expects to pay. The insurer or reinsurer has to attribute liabilities to the ring-fenced fund only where honouring such liabilities would entail an appropriate and permitted use of the restricted assets or own funds.

2.10.4.3 The methodology and assumptions applied in deriving the technical provisions, including future discretionary benefits, for the purposes of the ring-fenced fund calculations have to be the same as those used in respect of the same obligations in the calculation of overall technical provisions.

2.10.5. Calculation of notional Solvency Capital Requirements

2.10.5.1 Where ring-fenced funds exist, a notional Solvency Capital Requirement has to be calculated for each ring-fenced fund, as well as for the remaining part of the insurer or reinsurer, as if those ring-fenced funds and the remaining part of the insurer or reinsurer were separate insurers or reinsurers.

2.10.5.2 Where multiple ring-fenced funds within an insurer or reinsurer exhibit similar characteristics, the calculation methodology applied to one ring-fenced fund may also be applied to any similar ring-fenced fund, provided the methodology produces sufficiently accurate results for all of the similar ring-fenced funds.

2.10.6. Calculation of notional Solvency Capital Requirements with the Standard Formula

2.10.6.1 The notional Solvency Capital Requirement of a ring-fenced fund is derived by applying the Standard Formula Solvency Capital Requirement calculation to those assets and liabilities within the ring-fenced fund as if it were a separate insurer or reinsurer.

2.10.6.2 Where the calculation of the capital requirement for a risk shock scenario of the Basic Solvency Capital Requirement is based on the impact of a scenario on the basic own funds of the insurer or reinsurer, the impact of the scenario on the basic own funds at the level of the ring-fenced fund and the remaining part of the insurer or reinsurer has to be calculated. The basic own funds at the level of the ring-fenced fund are those restricted own fund items that meet the definition of basic own funds set out below.
Basic own funds shall consist of the following items:

1) The excess of assets over liabilities where assets are valued using the fair value approach to valuation. Liabilities should also be valued in accordance to 1.2. The excess amount referred to here shall be reduced by the amount of own shares held by the insurer or reinsurer.

2) Subordinated liabilities.

2.10.6.3 Notwithstanding 2.10.5.1, the notional Solvency Capital Requirement for each ring-fenced fund is calculated using the scenario-based calculations under which basic own funds for the insurer or reinsurer as a whole are most negatively affected.

2.10.6.4 For the purpose of determining the scenario under which basic own funds are most negatively affected for the insurer or reinsurer as a whole, the insurer or reinsurer must first calculate the sum of the results of the impacts of the scenarios on the basic own funds at the level of each ring-fenced fund, in accordance with 2.10.6.2. The totals at the level of each ring-fenced fund are then added to one another and to the results of the impact of the scenarios on the basic own funds in the remaining part of the insurer or reinsurer.

2.10.6.5 In the case of bidirectional scenarios, if the worst case scenario produces a negative result for a particular capital charge, after taking into account any potential increase of liabilities due to profit participation mechanisms, and would therefore result in an increase in basic own funds within the fund then that charge is set to zero.

2.10.6.6 The notional Solvency Capital Requirement includes a capital requirement for operational risk.

2.10.6.7 The notional Solvency Capital Requirement for each ring-fenced fund is determined by aggregating the capital requirements under the scenario referred to in 2.10.6.3 for each risk scenario of the Basic Solvency Capital Requirement using the procedure for aggregation of the standard formula prescribed by 2.2.1. Diversification of risks within the ring-fenced fund is therefore permitted.

2.10.7. Adjustments for ring-fenced funds

2.10.7.1 This section outlines the adjustment to own funds for ring-fenced funds.

2.10.7.2 An adjustment to the reconciliation reserve in accordance with 4.3.1.5. 4) is required for restricted own-fund items in a ring-fenced fund.

2.10.7.3 Without prejudice to the requirement set out in 4.3.1.5. that foreseeable dividends and distributions are excluded from the reconciliation reserve, the restricted own fund items in a ring-fenced fund do not include the value of future transfers attributable to shareholders.

2.10.7.4 The insurer or reinsurer has to adjust the reconciliation reserve in accordance with 4.3.1.5 4) to reflect the existence of ring-fenced funds by comparing the amount of the restricted own-fund items within the ring-fenced fund against the notional Solvency Capital Requirement for that ring-fenced fund, calculated in accordance with the standard formula.

2.10.7.5 For each ring-fenced fund where the restricted own-fund items exceed the notional Solvency Capital Requirement for that ring-fenced fund, the amount of restricted own-fund items in excess of the notional Solvency Capital Requirement is excluded from the amount of own-fund items eligible to cover the Solvency Capital Requirement and the amount of basic own-fund items eligible to cover the Minimum Capital Requirement.

2.10.7.6 If the amount of own funds within a ring-fenced fund is equal to or less than the notional Solvency Capital Requirement of the ring-fenced fund, no adjustment to own funds is made. In this case, all of the own funds within the ring-fenced fund are available to meet the Solvency Capital Requirement and the Minimum Capital Requirement.

2.10.8. Calculation of the Solvency Capital Requirement for the insurer or reinsurer as a whole with the Standard Formula

2.10.8.1 The Solvency Capital Requirement for the insurer or reinsurer as a whole is the sum of the notional Solvency Capital Requirements for each ring-fenced fund and the notional Solvency Capital Requirement for the rest of the insurer or reinsurer.

2.10.8.2 No diversification benefits among ring-fenced funds and/or between ring-fenced funds and the rest of the insurer or reinsurer are reflected in the calculation.

2.10.8.3 Any negative notional Solvency Capital Requirements is set to zero before being aggregated with any positive notional Solvency Capital Requirements of ring-fenced funds and the rest of the insurer or reinsurer.

2.10.9. Deriving the Solvency Capital Requirement split by risk scenario when using the Standard Formula

2.10.9.1 The following principle is proposed to derive the SCR by shock scenario at entity level, when the insurer or reinsurer has one or several ring fenced funds. The principle implies the following two-step calculation in order to identify the effects of non-diversification due to the presence of ring fenced funds:

1st step: calculate the SCR of the entity "as if there were no RFF constraints" (full recognition of diversification effects).

2nd step: calculate the difference between the result of 1st step and the sum of notional SCRs, and allocate this difference between risk scenarios.

2.10.9.2 As this approach implies possibly complex calculations, the effects of non-diversification may be quantified by using one of the following simplifications:

Simplification 1: identify the effects of non-diversification between ring fenced funds at the level of each (high level) risk shown in 2.1.1.1 (e.g. market risk, default risk, underwriting risk etc.), and reallocate these effects between different risks.

Simplification 2: identify the effects of non-diversification between ring fenced funds at the level of the risk shock scenario for each sub-risk shown in 2.1.1.1 (e.g. interest rate risk, equity risk etc.), and reallocate these effects between sub-risks and risks.

2.10.10. Arrangements and products that are generally outside the scope of ring-fenced funds

2.10.10.1 Provisions (including technical provisions and equalisation provisions) and reserves set up in accounts or financial statements prepared under the requirements applying in a particular jurisdiction. These provisions and reserves do not constitute ring-fenced funds solely by virtue of being set up in such financial statements.

2.10.10.2 Conventional reinsurance business, to the extent that individual contracts do not give rise to restrictions on the assets of the undertaking.

2.10.10.3 Coverage assets and similar arrangements that are established for the protection of policyholders in the case of winding-up proceedings, either for the policyholders of the insurer or reinsurer as a whole or for separate sections or groups of policyholders of the insurer or reinsurer; more specifically, assets identified as representing technical provisions.

2.10.10.4   The requirement for the separation of life and non-life business in composite insurers or reinsurers which carry out simultaneously life and non-life and/or health insurance activities. However, a ring-fenced fund may still arise within either or both of the component parts of a composite insurer depending on the nature of the underlying business and arrangements affecting the business.

2.10.10.5   Surplus funds are not ring-fenced solely by virtue of being surplus funds, but could be if they are generated within a ring-fenced fund.

2.10.10.6   Transfer of a portfolio into an insurer or reinsurer during a re-organisation of a business. The separation of assets in respect of the existing business of the receiving insurer from the assets of the transferred portfolio does not constitute a ring-fenced fund if this separation has been put in place under national law to protect the existing business from the fund that is being transferred in only on a temporary basis.

2.11. Financial risk mitigation

2.11.1. Scope

2.11.1.1 This subsection covers financial risk mitigation techniques. For the purposes of QIS4, financial risk mitigation techniques include the purchase or issuance of financial instruments (such as financial derivatives) which transfer risk to the financial markets.

2.11.1.2 The use of special purpose vehicles and reinsurance to mitigate underwriting risks are not considered to be financial risk mitigation techniques and are covered in subsection 2.12 – 'Insurance Risk Mitigation'.

2.11.1.3 The following are examples of financial risk mitigation techniques covered by this subsection:

1) Put options bought to cover the risk of falls in the value of assets;

2) Protection bought through credit derivatives or collateral to cover the risk of failure or downgrade in the credit quality of certain exposures;

3) Currency swaps and forwards to cover currency risk in relation to assets or liabilities;

4) Swaptions acquired to cover variable/fixed risks.

2.11.1.4 The allowance of the above financial risk mitigation techniques is subject to the requirements in this subsection and Appendix 2 being met.

2.11.2. Conditions for using financial risk mitigation techniques

2.11.2.1 The contractual arrangements and transfer of risk of the risk mitigation technique are legally effective and enforceable in all relevant jurisdictions.

2.11.2.2 The insurer or reinsurer has taken all appropriate steps to ensure the effectiveness of the arrangement and to address the risks related to that arrangement.

2.11.2.3 The insurer or reinsurer is able to monitor the effectiveness of the arrangement and the related risks on an ongoing basis.

2.11.2.4 The insurer or reinsurer has, in the event of a default, insolvency or bankruptcy of a counterparty or other credit event set out in the transaction documentation for the arrangement, a direct claim on that counterparty.

2.11.2.5 The calculation of the SCR using the standard formula should allow for the effects of risk mitigation techniques through a reduction in requirements commensurate with the extent of risk mitigation and an appropriate treatment of any corresponding risks embedded in the use of financial risk mitigation techniques. These two effects should be separated.

2.11.2.6 There should be no double counting of mitigation effects in both own funds and the calculation of the SCR or within the calculation of the SCR.

2.11.2.7 (Re)insurers should not, in their use of risk mitigation techniques, anticipate the shocks considered in the SCR calculation. The SCR is intended to capture unexpected risks.

2.11.2.8 The calculation should be made on the basis of assets and liabilities existing at the date of reference of the solvency assessment and the risk mitigating technique being in force for at least the next 12 months or, if the technique will be in force for a period shorter than 12 months, it should be taken into account prorata temporis for the shorter of the full term of the risk exposure covered or the period that the risk mitigation technique is in force.

2.11.2.9 Where contractual arrangements governing the risk mitigation techniques will be in force for a period shorter than the next 12 months and the insurer or reinsurer intends to replace that risk mitigation technique at the time of its expiry with a similar arrangement, the risk mitigation technique shall be fully taken into account in the Basic Solvency Capital Requirement provided the following qualitative criteria are met:

1) The insurer or reinsurer has a written policy on the replacement of that risk mitigation technique;

2) The replacement of the risk mitigation technique shall not take place more often than every three months;

3) The replacement of the risk mitigation technique is not conditional on any future event which is outside of the control of the insurer or reinsurer. Where the replacement of the risk mitigation technique is conditional on any future event that is within the control of the insurer or reinsurer, then the conditions should be clearly documented in the written policy referred to in point 1);

4) The replacement of the risk mitigation technique shall be realistic, based on replacements undertaken previously by the insurer or reinsurer and consistent with its current business practice and business strategy;

5) The risk that the risk mitigation technique cannot be replaced due to an absence of liquidity in the market is not material;

6) The risk that the cost of replacing the risk mitigation technique increases during the following 12 months is reflected in the SCR;

2.11.2.10   With the exception of rolling hedging programmes (see subsection 2.11.5), risk mitigation techniques (for example financial stop-loss processes) not in place at the date of reference of the solvency assessment should not be allowed to reduce the calculation of the SCR with the standard formula.

2.11.2.11   The contractual arrangements governing the risk mitigation technique shall ensure that the extent of the cover provided by the risk mitigation technique and the transfer of risk is clearly defined and incontrovertible.

2.11.2.12   The contractual arrangement shall not result in material basis risk or in the creation of other risks.

2.11.2.13   Basis risk is material if it leads to a misstatement of the risk mitigating effect on the insurer's or reinsurer's Basic Solvency Capital Requirement that could influence the decision-making or judgement of the intended user of that information, including the supervisory authorities.

2.11.2.14   The determination that the contractual arrangements and transfer of risk is legally effective and enforceable in all relevant jurisdictions shall be based on the following:

1) Whether the contractual arrangement is subject to any condition which could undermine the effective transfer of risk, the fulfilment of which is outside the direct control of the insurer or reinsurer;

2) Whether there are any connected transactions which could undermine the effective transfer of risk.

2.11.3. Basis Risk

2.11.3.1 Where the underlying assets or references of the financial mitigation instrument do not perfectly match the exposures of the insurer, the financial risk mitigation technique should only be allowed in the calculation of the SCR with the standard formula if the undertaking can demonstrate that the basis risk is not material compared to the mitigation effect. Insurers shall consider that a risk mitigation technique does not contain material basis risk where the following conditions are simultaneously met:

1) The exposure covered by the risk mitigation technique has a sufficiently similar nature to the risk exposure actually held by the insurer; and

2) The changes in value of the exposure covered by the risk mitigation technique closely mirror the changes in value of the risk exposure of the insurer or reinsurer under all scenarios considered in the relevant risk shock scenarios of the SCR.

2.11.3.2 Before allowing for a financial risk mitigation technique in the calculation of the SCR with the standard formula, insurers and reinsurers shall ascertain that they are able to provide sufficient evidence on the fulfilment of the requirements according to the following principles:

1) The materiality of the basis risk shall be assessed with reference to the exposure covered by the risk mitigation technique and the risk exposure of the insurer or reinsurer, without considering other elements of the balance sheet, unless, any other element keeps a continuous and necessary connection with the risk exposure of the insurer or reinsurer;

2) The similarity of the nature of the exposures shall be assessed taking into account at least the type of instruments or arrangements involved, their terms and conditions, the rules governing the markets where their prices are derived, and a comparison with other risk mitigation techniques having the same nature as the risk exposure of the insurer or reinsurer;

3) The assessment should refer to the behaviour of both exposures under the scenario considered in the relevant risk shock scenarios of the SCR, keeping in mind that such scenarios represent an event aimed to achieve the confidence level of X% over a one-year period. Where x% is determined as follows:

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
VaR X%	99.5%	99%	98%

In addition, the assessment shall at least allow for:

   a) The degree of symmetry among both exposures;
   b) Any non-linear dependencies under the relevant scenario;
   c) Any relevant asymmetry of the behaviours in case of bi-directional scenarios;
   d) The levels of diversification of each respective exposure;
   e) Any relevant risks not captured explicitly in the standard formula;
   f) The whole payout distribution applying to the risk mitigation technique.

2.11.3.3 Where the assessment, set out in 2.11.3, results in a lack of sufficient evidence that the change in value of the exposure, covered by the risk mitigation technique, will mirror all material changes in the value of the risk exposure of the insurer or reinsurer, insurers and reinsurers shall consider that the risk mitigation technique has a material basis risk.

2.11.4. Credit quality of the counterparty

2.11.4.1 For the purposes of QIS4, only financial protection provided by counterparties with a credit quality step equal or equivalent to at least 3 should be allowed in the assessment of the SCR. For unrated counterparties, the insurer should be able to demonstrate that the counterparty meets at least the standard of a company with a credit quality step of 3.

2.11.4.2 In the event of default, insolvency or bankruptcy of the provider of the financial risk mitigation instrument – or other credit events set out in the transaction document – the financial risk mitigation instrument should be capable of liquidation in a timely manner or retention.

2.11.4.3 If the financial risk mitigation technique is collateralised, the assessment of the credit quality of the protection should consider the collateral if the requirements set out in subsection 2.11.6 are met, and the risks arising from the collateral are appropriately captured in the SCR (i.e. the counterparty default shock scenario).

2.11.5. Credit derivatives

2.11.5.1 The reduction of the SCR based on the mitigation of credit exposures by using credit derivatives should only be allowed where insurers have in place generally applied procedures for this purpose and consider generally admitted criteria. Requirements set out in other financial sectors for the same mitigation techniques may be considered as generally applied procedures and admitted criteria.

2.11.5.2 In order for a credit derivative contract to be recognised, the credit events specified by the contracting parties must at least cover:

1) Failure to pay the amounts due under the terms of the underlying obligation that are in effect at the time of such failure (with a grace period that is closely in line with the grace period in the underlying obligation);

2) Bankruptcy, insolvency or inability of the obligor to pay its debts, or its failure or admission in writing of its inability generally to pay its debts as they fall due, and analogous events; and

3) Restructuring of the underlying obligation, involving forgiveness or postponement of principal, interest or fees that results in a credit loss event.

2.11.5.3 A mismatch between the underlying obligation and the reference obligation under the credit derivative or between the underlying obligation and the obligation used for purposes of determining whether a credit event has occurred is permissible only if the following conditions are met:

1) The reference obligation or the obligation used for the purposes of determining whether a credit event has occurred, as the case may be, ranks pari passu with, or is junior to, the underlying obligation; and

2) The underlying obligation and the reference obligation or the obligation used for the purposes of determining whether a credit event has occurred, as the case may be, share the same obligor (i.e. the same legal entity) and there are in place legally enforceable cross-default or cross-acceleration clauses.

2.11.6. Collateral

2.11.6.1 'Collateral arrangements' means arrangements under which either:

1) A collateral provider transfers full ownership of the collateral to the collateral taker for the purpose of securing or otherwise covering the performance of a relevant obligation; or

2) A collateral provider provides collateral by way of security in favour of, or to, a collateral taker, and the legal ownership of the collateral remains with the collateral provider or a custodian when the security right is established.

2.11.6.2 In the calculation of the Basic Solvency Capital Requirement, collateral arrangements shall only be recognised where, in addition to the requirements in 2.11.2.1–2.11.2.7, the following criteria are met:

1) The insurer or reinsurer transferring the risk shall have the right to liquidate or retain, in a timely manner, the collateral in the event of a default, insolvency or bankruptcy or other credit event of the counterparty;

2) There is sufficient certainty as to the protection achieved by the collateral because either:

   a) It is of sufficient credit quality and liquidity and is sufficiently stable in value; or

   b) It is guaranteed by a counterparty, other than a counterparty referred to in 2.7.3.7 who has been assigned a risk factor for concentration risk of 0 %;

3) There is no material positive correlation between the credit quality of the counterparty and the value of the collateral;

4) The collateral is not securities issued by the counterparty or a related entity of that counterparty.

2.11.7. Segregation of assets

2.11.7.1 Where the liabilities of the counterparty are covered by strictly segregated assets, under arrangements that ensure the same degree of protection as collateral arrangements, then the segregated assets should be treated as if they were collateral with an independent custodian.

2.11.7.2 The segregated assets should be held with a deposit-taking institution with a credit quality step equal or equivalent to at least 3.

2.11.7.3 The segregated assets should be individually identifiable and should only be changed subject to the consent of the insurer or reinsurer.

2.11.7.4 The insurer or reinsurer should have a right to directly obtain ownership of the assets without any restriction, delay or impediment in the event of the default, insolvency or bankruptcy of the counterparty or other credit event set out in the transaction documentation.

2.12. Insurance risk mitigation

2.12.1. Scope

2.12.1.1 This subsection, together with Appendix 2, covers how insurance risk mitigation techniques may be reflected in the calculation of the SCR. For the purposes of QIS4, insurance risk mitigation techniques include the use of reinsurance contracts or special purpose vehicles to transfer underwriting risks.

2.12.2. Conditions for reflecting insurance risk mitigation techniques in the SCR

2.12.2.1 The contractual arrangements and transfer of risk of the risk mitigation technique are legally effective and enforceable in all relevant jurisdictions.

2.12.2.2 The insurer or reinsurer has taken all appropriate steps to ensure the effectiveness of the arrangement and to address the risks related to that arrangement. The mere fact that the probability of a significant variation in either the amount or timing of payments by the insurer, reinsurer or SPV is remote does not by itself mean that the insurer, reinsurer or SPV has not assumed risk.

2.12.2.3 The insurer or reinsurer is able to monitor the effectiveness of the arrangement and the related risks on an ongoing basis.

2.12.2.4 The insurer or reinsurer has, in the event of a default, insolvency or bankruptcy of a counterparty or other credit event set out in the transaction documentation for the arrangement, a direct claim on that counterparty.

2.12.2.5 The calculation of the SCR using the standard formula should allow for the effects of risk mitigation techniques through a reduction in requirements commensurate with the extent of risk mitigation, and an appropriate treatment of any corresponding risks embedded in the use of financial risk mitigation techniques. These two effects should be separated.

2.12.2.6 There should be no double counting of mitigation effects in both own funds and the calculation of the SCR or within the calculation of the SCR. The contractual arrangements and transfer of risk of the risk mitigation technique are legally effective and enforceable in all relevant jurisdictions.

2.12.2.7 Insurers should not, in their design and use of risk mitigation techniques, anticipate the shocks considered in the SCR calculation. The SCR is intended to capture unexpected risks.

2.12.2.8 The calculation should be made on the basis of assets and liabilities existing at the date of reference of the solvency assessment and the risk mitigating technique being in force for at least the next 12 months, or, if it will be in force for a period shorter than 12 months, it should be taken into account prorata temporis for the shorter of the full term of the risk exposure covered or the period that the risk mitigation technique is in force.

2.12.2.9 Where contractual arrangements governing the risk mitigation techniques will be in force for a period shorter than the next 12 months and the insurer or reinsurer intends to replace that risk mitigation technique at the time of its expiry with a similar arrangement, the risk mitigation technique shall be fully taken into account in the SCR provided the following criteria are met:

1) The insurer or reinsurer has a written policy on the replacement of that risk mitigation technique;

2) The replacement of the risk mitigation technique shall not take place more often than every three months;

3) The replacement of the risk mitigation technique is not conditional on any future event which is outside of the control of the insurer or reinsurer. Where the replacement of the risk mitigation technique is conditional on any future event that is within the control of the insurer or reinsurer, then the conditions should be clearly documented in the written policy referred to in 1);

4) The replacement of the risk mitigation technique shall be realistic, based on replacements undertaken previously by the insurer or reinsurer and consistent with its current business practice and business strategy;

5) The risk that the risk mitigation technique cannot be replaced due to an absence of liquidity in the market is not material;

6) The risk that the cost of replacing the risk mitigation technique increases during the following 12 months is reflected in the SCR;

2.12.2.10   Risk mitigation techniques not in place at the date of reference of the solvency assessment should not be allowed to reduce the calculation of the SCR with the standard formula.

2.12.2.11   The contractual arrangements governing the risk mitigation technique shall ensure that the extent of the cover provided by the risk mitigation technique and the transfer of risk is clearly defined and incontrovertible.

2.12.2.12   The contractual arrangement shall not result in material basis risk or in the creation of other risks, unless these are properly captured in the SCR.
Basis risk is material if it leads to a misstatement of the risk mitigating effect on the insurer's or reinsurer's SCR that could influence the decision-making or judgement of the intended user of that information, including the supervisory authorities.

2.12.2.13   The determination that the contractual arrangements and transfer of risk is legally effective and enforceable in all relevant jurisdictions shall be based on the following:

1) Whether the contractual arrangement is subject to any condition which could undermine the effective transfer of risk, the fulfilment of which is outside the direct control of the insurer or reinsurer;

2) Whether there are any connected transactions which could undermine the effective transfer of risk.

2.12.2.14   In addition, the following conditions must be met in order for insurers and reinsurers to take into account the insurance risk mitigation technique in the SCR. In the case of reinsurance contracts the counterparty shall be:

1) An insurer or reinsurer which complies with the Solvency Capital Requirement under the FSA's risk-based solvency regime or, in the case of an insurer or reinsurer located in an EU member state, under EIOPA's Solvency II regime;

2) A third-country insurer or reinsurer, situated in a country whose solvency regime is deemed by EIOPA to be equivalent to Solvency II and which complies with the solvency requirements of that third country; or

3) A third-country insurer or reinsurer, which is not situated in a country whose solvency regime is deemed equivalent to Solvency II which has been assigned to credit quality step 3 or better in accordance with Appendix 4.

2.12.2.15   Finite reinsurance, or similar arrangements, where the lack of effective risk transfer is comparable to that of finite reinsurance, that meet the requirements set out in this section, shall be recognised in the calculation of the Basic Solvency Capital Requirement only to the extent underwriting risk is transferred to the counterparty of the contract.

Where finite reinsurance means:

• Reinsurance under which the explicit maximum loss potential, expressed as the maximum economic risk transferred, arising both from a significant underwriting risk and timing risk transfer, exceeds the premium over the lifetime of the contract by a limited but significant amount, together with at least one of the following features:

1) Explicit and material consideration of the time value of money;

2) Contractual provisions to moderate the balance of economic experience between the parties over time to achieve that target risk transfer.

2.12.2.16   The allowance of insurance risk mitigation techniques is subject to the requirements in this subsection being met.

2.12.3. Basis Risk

2.12.3.1 When an insurance risk mitigation technique includes basis risk (for example as might happen where payments are made according to external indicators rather than directly related to losses) the insurance risk mitigation instruments are only permissible in the calculation of the SCR with the standard formula if the undertaking can demonstrate that the basis risk is not material compared to the mitigation effect.

2.12.3.2 Basis risk is material if it leads to a misstatement of the risk mitigating effect on the insurer's or reinsurer's SCR that could influence the decision-making or judgement of the intended user of that information, including the supervisory authorities.

2.12.3.3 Insurers shall consider the risk mitigation technique to have material basis risk where:

1) The differences in behaviour resulting from the assessment have, or may have, an actual or potential material impact on the outcome of the risks of the insurer covered by such arrangement; or

2) The exposure covered by the financial risk mitigation technique is expressed in a currency different from the risk exposure actually held by the insurer, unless the currencies involved are pegged within a sufficiently narrow corridor.

Material basis risk resulting from currency risk in insurance risk mitigation techniques

2.12.3.4 In cases where insurers and reinsurers transfer underwriting risk using a reinsurance contract or special purpose vehicles which create additional currency risk, the insurer or reinsurer may take into account the risk mitigation effect arising from these insurance risk mitigation techniques in the calculation of the standard formula SCR for the different confidence levels specified in 2.2.1.2, provided that this calculation is carried out in accordance with 2.12.3.5 and 2.12.3.6.

2.12.3.5 Where there is any material currency risk stemming from the risk mitigation effects linked to the underwriting risk shock scenarios, and this currency risk is not already included in the SCR currency risk shock scenario, it shall be taken into account, for each foreign currency, in the respective underwriting risk shock scenarios at the most granular level of the standard formula application by adding to the capital requirement calculated according to Section 2, a x% difference between:

1) The hypothetical capital requirement for underwriting risk at the most granular level of the standard formula application that would apply if the risk of the currency shock scenario would materialise with the standard shock;

2) The capital requirement for underwriting risk at the most granular level of the standard formula application.

Where X% is defined as follows:

Confidence level	1 in 200 year	1 in 100 year	1 in 50 year
X%	25%	22.5%	20%

2.12.3.6 Where the same insurance risk mitigation technique with basis risk is used in several scenarios of the underwriting risk capital requirement, the overall risk charge for basis risk in a reinsurance contract or special purpose vehicle (as a difference between the hypothetical solvency capital requirement that would apply if the risk of the currency shock scenario would materialise with the standard shock and the overall solvency capital requirement) shall not exceed X% of the capacity of the non-proportional reinsurance contract or special purpose vehicle arrangement, where X% is 25% for 1 in 200, 22.5% for 1 in 100, or 20% for 1 in 50. For the purpose of QIS4, the capacity of a non-proportional reinsurance contract or special purpose vehicle arrangement should be consistent with the maximum capacity which has been used within shock scenarios which are based on the impact of a scenario on the basic own funds of insurers and reinsurers for these insurance risk mitigation techniques.

2.12.4. Credit quality of the counterparty

2.12.4.1 For the purposes of QIS4, providers of insurance risk mitigation should meet the following requirements:

1) Reinsurance entities should meet their current capital requirements or have a credit quality step equal or equivalent to at least 3;

2) Isle of Man or EEA SPVs that are currently authorised should meet the requirements set out in Manx law or the national law of the Member States in which they are authorised;

3) Non-EEA SPVs should fully fund their exposure to the risks assumed from the undertaking through the proceeds of a debt issuance or other financing mechanism, and, the repayments rights of the providers of such debt or financing mechanism should be subordinated to the reinsurance obligations of the undertaking.

2.12.4.2 The assessment of the above should be based on the latest available information, which should be no more than 12 months old.

2.12.4.3 Notwithstanding the above, to the extent that collateral, meeting the requirements in subsection 2.11.6 has been provided, the risk mitigation technique should be recognised up to the amount of the collateral.

2.12.4.4 Risk mitigation may be used to mitigate the credit risk arising from reinsurance counterparties.

2.13. Simplifications applicable on ceding undertakings to captive reinsurers

2.13.1. SCR counterparty risk / recoverables towards a captive

2.13.1.1 If an explicit, legally effective and enforceable guarantee by the captive owner for the liabilities of the captive exists, then the credit quality step of the guarantor instead of the captive may be used

- In the calculation of the SCR counterparty default risk scenario for the ceding undertaking and
- In the calculation of the adjustment for expected losses due to counterparty default for the recoverables towards the captive

2.13.2. Cut-through liability clauses

2.13.2.1 Captives' ceding undertakings may consider the probability of default of the retroceding undertakings of a captive if a legally effective and enforceable 'cut-through-liability' clause exists, or a similar binding agreement, for the amounts involved in the transactions with the captive. These amounts can be adjusted accordingly in the counterparty default risk module calculation of the ceding undertaking.

2.14. Solo treatments of participations

2.14.1. Introduction

2.14.1.1 The intention of this section is to provide an overview of the treatment of participations in each area of these technical specifications.

2.14.1.2 Once a participation has been identified in accordance with 2.14.2, the treatment of equity investments in that related entity, valued in accordance with subsection 2.14.5, and of any other own-fund items, held in that related entity by the participating undertaking is provided in 2.14.6.

2.14.2. Characteristics of a participation

2.14.2.1 A participation is constituted by share ownership or by the exertion of a dominant or significant influence over another entity. The following sub-sections describe how both types of participation can be identified.

2.14.2.2 The identification is based on an assessment from a solo perspective.

2.14.3. Participations by virtue of share ownership

2.14.3.1 When identifying a participation based on share ownership, directly or by way of control, the participating insurer has to identify:

1) Its percentage holding of voting rights and whether this represents at least 20% of the potential related entity's voting rights; and

2) Its percentage holding of all classes of share capital issued by the related entity and whether this represents at least 20% of the potential related entity's issued share capital.

Where the participating insurer's holding represents at least 20% in either case its investment should be treated as a participation.

2.14.3.2 Where the participation is in an insurer or reinsurer subject to the FSA's new risk-based regulatory regime or the European Solvency II regime, the assessments under 2.14.3.1. 1) above only relate to paid-in ordinary share capital referred to in 4.3.1.3 whilst participations under 2.14.3.1. 2) relate to both paid-in ordinary share capital referred to in 4.3.1.3 and paid-in preference shares.

2.14.4. Participations by virtue of the exertion of dominant or significant influence

2.14.4.1 When identifying a related entity on the basis that the insurer can exert a dominant or significant influence over another undertaking, the Isle of Man Financial Services Authority will consider the following:

1) Current shareholdings and potential increases due to the holding of options, warrants or similar instruments;

2) Membership rights of a mutual or mutual-type undertaking and potential increases in such rights;

3) Representation on the administrative, management or supervisory board of the potential related undertaking;

4) Involvement in policy-making processes, including decision making about dividends or other distributions;

5) Material transactions between the participating undertaking and potential related undertaking;

6) Interchange of managerial personnel;

7) Provision of essential technical information;

8) Management on a unified basis.

The FSA will consider any initial assessment by the participating undertaking in accordance with points 1) to 8) of this paragraph.

2.14.5. Valuation

2.14.5.1 For the purposes of QIS4, holdings in related entities are to be valued at the quoted market price in an active market. If this valuation is not possible:

1) For holdings in insurers and reinsurers:

a) Subsidiary insurers have to be valued with the equity method that is based on the FSA's risk-based regulatory regime (or a Solvency II consistent recognition and measurement for subsidiary insurers located in an EU member state) for the subsidiary's balance sheet.

b) Related insurers, other than subsidiaries, would also be valued with the equity method using the FSA's risk-based regulatory regime (or a Solvency II consistent recognition and measurement for related insurers located in an EU member state) for the holding's balance sheet. However, if this is not possible, an alternative valuation method in accordance with the requirements in Section 1 should be used.

2) For holdings in entities other than in insurers and reinsurers:

a) Holdings in entities other than insurers and reinsurers have to be valued with the equity method that is based on a recognition and measurement consistent with the FSA's risk-based regulatory regime for the subsidiary's balance sheet. If that is not practicable, the equity method would be applied to the related entity's balance sheet following IFRSs– with the amendment that goodwill and other intangible assets would need to be deducted. If this is not possible for related entities, other than subsidiaries, an alternative valuation method in accordance with the requirements in Section 1 should be used.

2.14.6. Treatment of participations in the calculation of the Solvency Capital Requirement with the Standard Formula

2.14.6.1 The calculation of the Solvency Capital Requirement in accordance with the standard formula for participations does not require the aggregation of the investment in own funds items in respect of each participation. The equity risk charge relevant to the investment in ordinary or preference share capital of the related entities is determined independently from the application of the relevant risk charges (e.g. interest, spread, concentration, currency) to any investment in subordinated liabilities of the related entity, which is treated as financial instruments.

2.14.6.2 When applying the standard formula to the equity and subordinated liability components of a participation, the undertaking has to:

1) Apply the interest and spread risk shock scenarios set out in subsection 2.6.5 and 2.6.9 relevant for financial instruments to holdings of subordinated liabilities.

2) Apply the relevant equity risk charges to equity holdings as set out in subsection 2.6.6.

3) Apply additional market risk shock scenarios, such as currency, where appropriate.

3. Minimum Capital Requirement

[To be consulted on and tested at a later date]

4. Own Funds

4.1. Introduction

4.1.1.1 This section provides specifications for the classification and eligibility of own funds.

4.1.1.2 QIS4 will operate on the basis of applying the approach set out in this section to all existing items of own funds. Full criteria are specified for three tiers of classification of own funds, and the extent to which the own funds within each tier may be used to cover capital requirements.

4.2. Definitions (for this Own Funds section):

4.2.1.1 'Alternative coupon satisfaction mechanism (ACSM)' means a term in the contractual arrangements governing an own-fund item that negates the obligation to pay a distribution in cash by issuing ordinary share capital to the holder of the own-fund item instead.

4.2.1.2 'Instrument' means a security relating to an own-fund item.

4.2.1.3 'Principal stock settlement' means a term in the contractual arrangements governing an own-fund item that requires the holder of the own-fund item to receive ordinary shares in the event that a call is not exercised.

4.2.1.4 'Repayment or redemption' means the repurchase or buyback of any own-fund item or any other arrangement that has the same economic effect. This includes share buybacks, tender operations, repurchase plans and repayment of principal at maturity for dated items as well as repayment or redemption following the exercise of an issuer call option.

4.2.1.5 'Retained earnings' means the portion of net income which is retained by an insurer that is not immediately distributed to shareholders as dividends.

4.2.1.6 'Share premium account' means a separate account or reserve to which share premiums are transferred in accordance with Manx or other relevant national legislation.

4.2.1.7 'Share premium' means the amount between the value received at issuance and the nominal value of the share at issuance.

4.2.1.8 'Step-up' means a term in the contractual arrangements governing an own-fund item that leads to distributions on the item being increased after a specified date or event.

4.3. Tier 1 Own Funds

4.3.1.1 Basic own-fund items shall be classified in Tier 1 where they are listed in 4.3.1.2 and display the features set out in 4.4.

List of own-fund items

4.3.1.2 The following basic own-fund items shall be classified in Tier 1, where those items display the features set out in 4.4:

1) The part of the excess of assets over liabilities, valued in accordance with Section 1 of this Technical Specification, comprising the following items:

   a) Paid-in ordinary share capital and the related share premium account;

   b) Paid-in initial funds, members' contributions or the equivalent basic own-fund item for mutual and mutual-type insurers;

   c) Paid-in subordinated mutual member accounts;

   d) Surplus funds that are not considered insurance and reinsurance liabilities;

   e) Paid-in preference shares and the related share premium account;

   f) A reconciliation reserve as defined in 4.3.1.5;

2) Paid-in subordinated liabilities valued in accordance with Section 1 of this Technical Specification.

Paid-in ordinary share capital

4.3.1.3 For the purposes of 4.3.1.2. 1) a), paid-in ordinary share capital shall be identified by the following properties:

1) The shares are issued directly by the insurer with the prior approval of its shareholders or, where permitted, its management body, and

2) The shares entitle the owner to claim on the residual assets of the insurer or reinsurer in the event of its winding-up. The claim shall be proportionate to the amount of such items issued, not fixed nor subject to a cap.

4.3.1.4 Where an insurer describes more than one class of share as ordinary share capital:

1) The criteria for classification as ordinary share capital are applied to each class separately.

2) A class of ordinary shares is only classified as ordinary share capital provided that it meets all relevant criteria, in particular those specified in 4.4.

3) Differences between classes which provide for one class to rank ahead of another or which create any preference as to distributions have to be identified and only the class which ranks after all other claims and has no preferential rights is classified as ordinary share capital.

4) Classes ranking ahead of the most subordinated class or which have other preferential features which do not satisfy the criteria for ordinary share capital are classified as preference shares provided they meet all relevant criteria for that item.

Reconciliation reserve

4.3.1.5 The reconciliation reserve referred to in point 4.3.1.2. 1) f) equals the total excess of assets over liabilities reduced by:

1) The amount of own shares held by the insurer and reinsurer;

2) Any foreseeable dividends, distributions and charges;

3) The basic own-fund items included in points (a) to (e) of 4.3.1.2. 1), 4.5.1.2. 1) and 4.7.1.2. 1);

4) The restricted own-fund items that

   a) Exceed the notional Solvency Capital Requirement in the case of ring-fenced funds determined in accordance with 2.10.7;

   b) Are excluded in accordance with 2.10.7;

4.3.1.6 The excess of assets over liabilities referred to in 4.3.1.5 includes the amount that corresponds to the expected profit included in future premiums.

4.3.1.7 The determination of whether, and to what extent, the reconciliation reserve displays the features set out in section 4.4 shall not assess the features of the assets and liabilities that are included in computing the excess of assets over liabilities or the underlying items in the insurers' financial statements.

Own shares and foreseeable dividends

4.3.1.8 For the purposes of 4.3.1.5. 1), own shares held by the insurer shall include direct and indirect holdings.

4.3.1.9 For the purposes 4.3.1.5. 2), foreseeable dividends and distributions shall fulfil the following criteria:

1) A dividend or distribution shall be foreseeable at the latest when it is declared or approved by the administrative, management or supervisory body of the insurer or reinsurer and the other persons who effectively run the insurer, regardless of any requirement for formal approval at the annual general meeting;

2) Where an insurer holds a participation in another insurer which has a foreseeable dividend, the former insurer shall make no reduction to its reconciliation reserve for that foreseeable dividend.

4.4. Features determining classification as Tier 1

4.4.1.1 The basic own-fund items listed in 4.3.1.2 shall display the following features in order to be classified as Tier 1.

4.4.1.2 The own-fund items listed in 4.3.1.2. 1) a), b) and d) shall be assessed against the following features.

Subordination

4.4.1.3 To be eligible as Tier 1, the basic own-fund item must:

1) In the case of items referred to in 4.3.1.2. 1) a) and b), rank after all other claims in the event of winding-up proceedings regarding the insurer or reinsurer;

2) In the case of items referred to in points 4.3.1.2. 1) c) and e) and 4.3.1.2. 2), rank to the same degree as, or ahead of, the items referred to in 4.3.1.2. 1) a) and b), but after items listed in 4.5.1.2 and 4.7.1.2 that display the features set out in 4.5.1.4 and 4.8.1.1 respectively and after the claims of all policyholders and beneficiaries and non-subordinated creditors.

Absence of features causing or accelerating insolvency

4.4.1.4   To be eligible as Tier 1, the basic own-fund item must not include features which may cause the insolvency of the insurer or reinsurer or may accelerate the process of the insurer becoming insolvent.

4.4.1.5   In the case of an item referred to in 4.3.1.2. 1) a), b) and d),features which may cause the insolvency of the insurer or reinsurer or accelerate the process of the insurer becoming insolvent include:

1) The holder of the security relating to an own-fund item is in a position to petition for the insolvency of the issuer in the event of distributions not being made;

2) The item would be treated as a liability in a determination of whether the liabilities of an insurer exceed its assets in a test of insolvency under Manx law;

3) The holder of the security relating to an own-fund item may, as a result of a distribution being cancelled, be granted the ability to cause full or partial payment of the amount invested, or to demand penalties or any other compensation that could result in a decrease of own funds.

4.4.1.6   In the case of an item referred to in 4.3.1.2. 1) c), e) and 2), features which may cause the insolvency of the insurer or reinsurer or accelerate the process of the insurer becoming insolvent include:

1) The holder of the security relating to an own-fund item is in a position to petition for the insolvency of the issuer in the event of distributions not being made;

2) The item would be treated as a liability in a determination of whether the liabilities of an insurer exceed its assets in a test of insolvency under Manx law;

3) The terms of the contractual arrangement governing the own-fund item could prevent the insurer from continuing to do business as a going concern in the best interests of the policyholders, other beneficiaries and senior creditors in priority to the interests of the holders of the security, by specifying circumstances or conditions which, if met, would require the initiation of insolvency or any other procedure which would prejudice the continuance of the insurer or its business as a going concern;

4) The holder of the security relating to an own-fund item may, as a result of a distribution being cancelled, be granted the ability to cause full or partial payment of the amount invested, or to demand penalties or any other compensation that could result in a decrease of own funds.

Immediate availability to absorb losses

4.4.1.7   To be eligible as Tier 1 the basic own-fund item must be immediately available to absorb losses.

4.4.1.8   A basic own-fund item complies with 4.4.1.7 provided it is able to absorb losses immediately if there is non-compliance by the insurer with the Solvency Capital Requirement and does not hinder the recapitalisation of the insurer;

4.4.1.9 An own-fund item is immediately available to absorb losses, if:

1) The terms of the contractual arrangement governing the own-fund item do not include any terms which prevent or act as a disincentive to new own funds being raised.

2) The terms of the contractual arrangement do not require that any own funds arising from a new or increased own-fund item improve or maintain the position of existing holders of an original item;

3) The terms of the contractual arrangement governing the own-fund item do not include terms that prevent distributions on other own-fund items;

4) The terms of the item, or any connected arrangement, do not provide that:

   a) Any new own funds items raised by the insurer are junior to that item in conditions of stress or other circumstances where additional own funds may be needed, or

   b) The item is subject to an automatic conversion into a more senior item in terms of subordination, in conditions of stress, other circumstances where own funds may be needed or structural change including a merger or acquisition.

Principal loss absorbency

4.4.1.10 To be eligible as Tier 1, a basic own-fund item, in the case of items referred to in 4.3.1.2. 1) c), e) and 2), must possess one of the following principal loss absorbency mechanisms to be triggered at the trigger event specified in 4.4.1.31:

1) The nominal or principal amount of the basic own-fund item is written down as set out below;

2) The basic own-fund item automatically converts into a basic own-fund item listed in 4.3.1.2. 1) a) or b) as set out below; or

3) A principal loss absorbency mechanism that achieves an equivalent outcome to the principal loss absorbency mechanisms set out in points 1) or 2).

4.4.1.11 For the purposes of 4.4.1.10. 1), the nominal or principal amount of the basic own-fund item shall be written down in such a way that all of the following are reduced:

- The claim of the holder of that item in the event of winding-up proceedings;
- The amount required to be paid on repayment or redemption of that item;
- The distributions paid on that item.

4.4.1.12 For the purposes of 4.4.1.10. 2), the provisions governing the conversion to the basic own-fund item listed in points 4.3.1.2. 1) a) or b) shall specify either of the following:

- The rate of conversion and a limit on the permitted amount of conversion;
- A range within which the instruments will convert into the basic own funds item listed in 4.3.1.2. 1) a) or b).

Duration

4.4.1.13 To be eligible as Tier 1, a basic own-fund item:

1) In the case of items referred to in points 4.3.1.2. 1) a) or b), is undated or, where the insurer or reinsurer has a fixed maturity, is of the same maturity as the insurer;

2) In the case of items referred to in points 4.3.1.2. 1) c), e) and 2), is undated and the first contractual opportunity to repay or redeem the basic own-fund item does not occur before five years from the date of issuance;

4.4.1.14 For the purposes of 4.4.1.13. 2) the item must not include a contractual term providing for a call option prior to five years from the date of issuance, including call options predicated on unforeseen changes, outside the control of the insurer, related to the treatment of an own fund item. Subject to all relevant criteria being met and to prior supervisory approval, arrangements predicated on unforeseen changes, which are outside the control of the insurer, that would give rise to transactions or arrangements which are not deemed to be repayment or redemption shall be permitted.

Repayment or redemption and absence of incentives to redeem

4.4.1.15 To be eligible as Tier 1, a basic own-fund item referred to in 4.3.1.2. 1) c), e) and 2) may only allow for repayment or redemption of that item between 5 and 10 years after the date of issuance where the insurer's Solvency Capital Requirement is exceeded by an appropriate margin taking into account the solvency position of the insurer including the insurer's medium-term capital management plan.

4.4.1.16 To be eligible as Tier 1, the basic own-fund item, in the case of items referred to in points 4.3.1.2. 1) a), b), c), e) or 2), is only repayable or redeemable at the option of the insurer or reinsurer and the repayment or redemption of the basic own-fund item is subject to prior supervisory approval.

4.4.1.17 For the purpose of 4.4.1.16:

1) The terms of the item or any associated arrangement must not provide for any incentive to redeem as set out in 4.9.1.2.

2) Redemption is permissible at the discretion of the insurer, but the insurer must do nothing to create an expectation at issuance that the item will be redeemed or cancelled nor must the contractual terms governing the own-fund item contain any term which might give rise to such an expectation, other than the inclusion of a contractual maturity, for a dated instrument, which is itself suspended on non-compliance with the Solvency Capital Requirement.

3) The item shall be treated as repaid or redeemed with effect from the date of notice to holders of the item or the date of supervisory approval, if no notice is required, and shall be excluded from own funds as at that date.

4.4.1.18 To be eligible as Tier 1, a basic own-fund item, in the case of items referred to in 4.3.1.2. 1) a), b), c), e) or 2), must not include any incentives to repay or redeem that item that increases the likelihood that an insurer or reinsurer will repay or redeem that basic own-fund item where it has the option to do so.

Suspension of repayment or redemption in case of non-compliance with the SCR

4.4.1.19 To be eligible as Tier 1, the basic own-fund item, in the case of items referred to in 4.3.1.2. 1) a), b), c), e) or 2), must provide for the ability to suspend repayment or redemption of that item in the event that there is non-compliance with the Solvency Capital Requirement or repayment or redemption would lead to such non-compliance until the insurer complies with the Solvency Capital Requirement and the repayment or redemption would not lead to non-compliance with the Solvency Capital Requirement.

4.4.1.20 Notwithstanding 4.4.1.19, to be eligible as Tier 1, a basic own-fund item may only allow for repayment or redemption of that item in the event that there is non-compliance with the Solvency Capital Requirement or repayment or redemption would lead to such non-compliance, where the following conditions are met:

1) The FSA has exceptionally waived the suspension of repayment or redemption of that item;

2) The item is exchanged for or converted into another Tier 1 own-fund item of at least the same quality;

3) The Minimum Capital Requirement is complied with after the repayment or redemption.

Cancellation of distributions in case of non-compliance with the SCR

4.4.1.21 To be eligible as Tier 1:

1) In the case of items referred to in 4.3.1.2. 1) a) or b), either the legal or contractual arrangements governing the item or Manx legislation allow for the distributions in relation to that item to be cancelled in the event that there is non-compliance with the Solvency Capital Requirement or the distribution would lead to such non-compliance until the insurer complies with the Solvency Capital Requirement and the distribution would not lead to non-compliance with the Solvency Capital Requirement;

2) In the case of items referred to in 4.3.1.2. 1) c), e) and 2) the terms of the contractual arrangement governing the own-fund item provide for the cancellation of distributions in relation to that item in the event that there is non-compliance with the Solvency Capital Requirement or the distribution would lead to such non-compliance until the insurer complies with the Solvency Capital Requirement and the distribution would not lead to non-compliance with the Solvency Capital Requirement.

4.4.1.22 Notwithstanding 4.4.1.21, the basic own-fund item may only allow for a distribution to be made in the event that there is non-compliance with the Solvency Capital Requirement or the distribution on a basic-own-fund item would lead to such non-compliance, where the following conditions are met:

1) The Isle of Man Financial Services Authority has exceptionally waived the cancellation of distributions;

2) The distribution does not further weaken the solvency position of the insurer or reinsurer;

3) The Minimum Capital Requirement is complied with after the distribution is made.

4.4.1.23 For the purpose of 4.4.1.22:

1) An alternative coupon satisfaction mechanism may only be included in the terms of the contractual arrangement governing the own-fund item where the mechanism provides for distributions to be settled through the issue of ordinary share capital;

2) An alternative coupon satisfaction mechanism may only be included if it achieves the same economic result as the cancellation of the distribution and there is no decrease in own funds;

3) Any distributions under the alternative coupon satisfaction mechanism must occur as soon as permitted using unissued ordinary share capital which has already been approved or authorised under Manx law or under the statutes of the insurer;

4) The alternative coupon satisfaction mechanism may not use own shares held as a result of repurchase; and

5) The terms of the contractual arrangement governing the own-fund item:

a) Provide for the operation of any alternative coupon satisfaction mechanism to be subject to an exceptional waiver from the FSA under 4.4.1.22. 1) on each occasion that coupon cancellation is required;

b) State that the waiver is intended to operate on an exceptional basis, and

c) Do not oblige the insurer to operate the alternative coupon satisfaction mechanism.

Full discretion over distributions

4.4.1.24 Notwithstanding 4.4.1.21, a basic own-fund item shall be eligible as Tier 1 capital, in the case of items referred to in 4.3.1.2. 1) a), b), c), e) or 2), if it provides the insurer with full flexibility over the distributions on the basic own-fund item.

4.4.1.25 Full flexibility over the distributions, in the case of basic own-fund items referred to in 4.3.1.2. 1) a) or b), shall mean that:

1) There is no preferential distribution treatment regarding the order of distribution payments and the terms of the contractual arrangement governing the own-fund item do not provide preferential rights to the payment of distributions;

2) Distributions are paid out of distributable items;

3) The level of distributions is not determined on the basis of the amount for which the own-fund item was purchased at issuance and there is no cap or other restrictions on the maximum level of distribution;

4) There is no obligation for an insurer or reinsurer to make distributions;

5) Non-payment of distributions does not constitute an event of default of the insurer or reinsurer;

6) The cancellation of distributions imposes no restrictions on the insurer.

4.4.1.26 Full flexibility over the distributions, in the case of basic own-fund items referred to in 4.3.1.2. 1) c), e) and 2), shall mean that:

1) Distributions are paid out of distributable items;

2) Insurers and reinsurers have full discretion at all times to cancel distributions in relation to the own-fund item for an unlimited period and on a non-cumulative basis and the institution may use the cancelled payments without restriction to meet its obligations as they fall due;

3) There is no obligation to substitute the distribution by a payment in any other form;

4) There is no obligation to make distributions in the event of a distribution being made on another own-fund item;

5) Non-payment of distributions does not constitute an event of default of the insurer or reinsurer;

6) The cancellation of distributions imposes no restrictions on the insurer or reinsurer.

4.4.1.27 Full flexibility over the distributions shall also mean that the terms of the contractual arrangement governing the own-fund item:

1) Do not require distributions to be made on the items in the event of a distribution being made on any other security relating to an own-fund item issued by the insurer;

2) Do not require the payment of distributions to be cancelled or prevented on any other item of the insurer in the event that no distribution is made in respect of the item; and

3) Do not provide for the linking of the payment of distributions to any other event or transaction which has the same economic effect as in 1) or 2) above.

Absence of encumbrances

4.4.1.28 To be eligible as Tier 1, a basic own-fund item must be free from encumbrances and is not connected with any other transaction, which when considered with the basic own-fund item, could result in that basic own-fund item not satisfying the requirements set out in 4.4.

Exchange or conversion and repayment

4.4.1.29 For the purposes of section 4.4, the exchange or conversion of a basic own-fund item into another Tier 1 basic own-fund item or the repayment or redemption of a Tier 1 own-fund item out of the proceeds of a new basic own-fund item of at least the same quality shall not be deemed to be a repayment or redemption, provided that the exchange, conversion, repayment or redemption is subject to the approval of the FSA.

4.4.1.30 To be eligible as Tier 1, the nominal or principal amount of the basic own-fund item shall absorb losses at the trigger event defined in 4.4.1.31. Loss absorbency resulting from the cancellation of, or reduction in, distributions shall not be deemed to be sufficient to meet the requirement in 4.4.1.10 for a principal loss absorbency mechanism.

4.4.1.31 The trigger event referred to in 4.4.1.10 is significant non-compliance with the Solvency Capital Requirement. Non-compliance with the Solvency Capital Requirement is significant where at least one of the following conditions is met:

1) The amount of own-fund items eligible to cover the Solvency Capital Requirement is equal to or less than the 75% of the Solvency Capital Requirement;

2) The amount of own-fund items eligible to cover the Minimum Capital Requirement is equal to or less than Minimum Capital Requirement;

3) Compliance with the Solvency Capital Requirement is not re-established within a period of three months of the date when non-compliance was observed.

4.4.1.32 Insurers may specify in the provisions governing the instrument one or more trigger events in addition to the events referred to in points 4.4.1.31. 1) to 3).

4.4.1.33 For the purposes of 4.4.1.8, 4.4.1.19 and 4.4.1.21, references to the Solvency Capital Requirement shall be read as references to the Minimum Capital Requirement in the event that non-compliance with the Minimum Capital Requirement occurs before non-compliance with the Solvency Capital Requirement.

4.4.1.34 For the purposes of 4.4.1.24 and in the case of an item referred to in 4.3.1.2. 1) a) and b),

1) The level of distribution may not in any way be linked to the amount paid in at issuance and is not subject to a contractual cap (except to the extent that an insurer is unable to pay distributions that exceed the level of distributable items);

2) There are no preferential distributions of income or capital, including in relation to other items referred to in 4.3.1.2. 1) a) and b), and the terms governing the instruments do not provide preferential rights for the payment of distributions;

3) Distributable items shall comprise retained earnings, including profit for the year ended prior to the year of distribution, and distributable reserves as defined under Manx law or by the statutes of the insurer, reduced by the deduction of any interim net loss for the current financial year from retained earnings;

4) The amount of distributable items shall be determined on the basis of the individual accounts of the insurer and not on the basis of consolidated accounts;

5) Where Manx law imposes a restriction on an insurer's distributable items by reference to consolidated accounts, this restriction shall be reflected in the determination of the insurer's distributable items;

6) The terms of the contractual arrangements governing the own-fund item and any terms in any other own-fund item shall not pre-define the level or amount of distribution to be made on the item referred to in 4.3.1.2. 1) a) and b), including pre-defining the distribution at zero;

7) The terms of the contractual arrangement governing the own-fund item do not require a distribution to be made in the event of a distribution being made on any other item issued by the insurer.

Principal loss absorbency mechanisms

4.4.1.35 For the purposes of 4.4.1.10:

1) The loss absorbency mechanism to be used, including the trigger point, is clearly defined in the terms of the contractual arrangement governing the own-fund item and legally certain;

2) The loss absorbency mechanism achieves effective loss absorbency at the point of the trigger, without delay and regardless of any requirement to notify holders of the item;

3) Any write-down mechanism that does not allow for future write-up provides that the amounts written down in accordance with 4.4.1.10 cannot be restored;

4) Any write-down mechanism that allows for a future write-up of the nominal or principal amount provides that:

   a) Write-up is permitted only after the insurer has achieved compliance with the Solvency Capital Requirement;

   b) Write-up is not activated by reference to own-fund items issued or increased in order to restore compliance with the Solvency Capital Requirement;

   c) Write-up only occurs on the basis of profits which contribute to distributable items made subsequent to the restoration of compliance with the Solvency Capital Requirement in a manner that does not undermine the loss absorbency intended by 4.4.1.10.

5) Any conversion mechanism provides that:

   a) The basis on which the security relating to an own-fund item converts into ordinary share capital on significant non-compliance with the Solvency Capital Requirement is specified clearly in the terms of the contractual arrangement governing the security;

   b) The conversion terms do not fully compensate the nominal amount of a holding by allowing an uncapped conversion rate in the event of falls in the share price;

   c) The maximum number of shares the holder of the security might receive shall be certain at the time of issuance of the security;

   d) The conversion will result in a situation where losses are absorbed on a going concern basis and the basic own-fund items that arise as a result of the conversion do not hinder re-capitalisation;

   e) The choice of a conversion rate takes into account the impact on the scope for and timing of any future recapitalisation; and

   f) Shares are available to be issued, so sufficient shares have already been authorised in accordance with Manx law or the statutes of the insurer.

4.4.1.36 For the purposes of 4.4.1.7 and in the case of an item referred to in 4.3.1.2. 1) a), b), c), e) or 2), an item is only immediately available to absorb losses if the item is paid in and there are no conditions or contingences in respect of its ability to absorb losses.

4.5. Tier 2 Basic Own Funds

4.5.1.1 Basic own-fund items shall be classified in Tier 2 where they are listed in 4.5.1.2 and display the features set out in 4.6.

4.5.1.2 The following basic own-fund items shall be classified in Tier 2, where those items display the features set out in section 4.6.

1) the part of the excess of assets over liabilities, valued in accordance with Section 1 of this Technical Specification, comprising the following items:

   a) Ordinary share capital and the related share premium account;

   b) Initial funds, members' contributions or the equivalent basic own-fund item for mutual and mutual-type insurers;

   c) Subordinated mutual member accounts;

   d) Preference shares and the related share premium account;

2) Subordinated liabilities valued in accordance with Section 1 of this Technical Specification.

Time period between call and payment for unpaid share capital or members' contributions

4.5.1.3 For the purposes of 4.5.1.2. 1)a), 1)b) and 1)d):

1) Unless specified under Manx law, the time period between calling on shareholders or members to pay and the item becoming paid in shall not be longer than three months. During this time the own funds are considered called up but not paid in and are classified as Tier 2 basic own funds provided that all other relevant criteria are met.

2) For items which are called up but not paid in, the shareholder or member of the item shall still be obliged to pay the outstanding amount in the event of the insurer becoming insolvent or entering into winding-up procedures prior to payment on called up items being received, and the amount shall be available to absorb losses.

4.5.1.4 The basic own-fund items listed in 4.5.1.2 shall display the features set out in 4.6 in order to be classified as Tier 2.

4.6. Features determining classification as Tier 2

Subordination

4.6.1.1 To be eligible as Tier 2, the basic own-fund item must rank after the claims of all policyholders and beneficiaries and non-subordinated creditors.

Absence of features causing or accelerating insolvency

4.6.1.2 To be eligible as Tier 2, the basic own-fund item must not include features which may cause the insolvency of the insurer or reinsurer or may accelerate the process of the insurer becoming insolvent.

Duration

4.6.1.3   To be eligible as Tier 2, the basic own-fund item is undated or has an original maturity of at least 10 years; the first contractual opportunity to repay or redeem the basic own-fund item does not occur before 5 years from the date of issuance.

4.6.1.4   For the purpose of 4.6.1.3, the item does not include a contractual term providing for a call option prior to 5 years from the date of issuance, including call options predicated on unforeseen changes, outside the control of the insurer, related to the treatment of an own-fund item. Subject to all relevant criteria being met and to prior supervisory approval, arrangements predicated on unforeseen changes which are outside the control of the insurer, that would give rise to transactions or arrangements which are not deemed to be repayment or redemption shall be permitted.

Discretion on repayment or redemption and incentives to redeem

4.6.1.5   To be eligible as Tier 2, the basic own-fund item must be only repayable or redeemable at the option of the insurer or reinsurer and the repayment or redemption of the basic own-fund item is subject to prior supervisory approval.

4.6.1.6   For the purpose of 4.6.1.5, the terms of the item or any associated arrangement may include limited incentives to redeem as set out in 4.9.1.2 to 4.9.1.5. The item shall be treated as repaid or redeemed with effect from the date of notice to holders of the item or the date of supervisory approval, if no notice is required, and shall be excluded from own funds as at that date.

4.6.1.7   The basic own-fund item may include limited incentives to repay or redeem that basic own-fund item, provided that these do not occur before 10 years from the date of issuance.

Suspension of repayment or redemption in case of non-compliance with the SCR

4.6.1.8   To be eligible as Tier 2, the basic own-fund item should provide for the suspension of repayment or redemption of that item in the event that there is non-compliance with the Solvency Capital Requirement or repayment or redemption would lead to such non-compliance until the insurer complies with the Solvency Capital Requirement and the repayment or redemption would not lead to non-compliance with the Solvency Capital Requirement.

4.6.1.9   Notwithstanding 4.6.1.8, the basic own-fund item may only allow for the repayment or redemption of that item in the event that there is non-compliance with the Solvency Capital Requirement or repayment or redemption would lead to such non-compliance, where the following conditions are met:

1) The Isle of Man Financial Services Authority has exceptionally waived the suspension of repayment or redemption of that item;

2) The item is exchanged for or converted into another Tier 1 or Tier 2 basic own-fund item of at least the same quality;

3) The Minimum Capital Requirement is complied with after the repayment or redemption.

Deferral of distributions in case of non-compliance with the SCR

4.6.1.10 To be eligible as Tier 2, the basic own-fund item:

1) In the case of items referred to in 4.5.1.2. 1)a) and 1)b), either the legal or contractual arrangements governing the item or Manx legislation allow for the distributions in relation to that item to be deferred in the event that there is non-compliance with the Solvency Capital Requirement or the distribution would lead to such non-compliance until the insurer complies with the Solvency Capital Requirement and the distribution would not lead to non-compliance with the Solvency Capital Requirement;

2) In the case of items referred to in 4.5.1.2. 1)c), 1)d) and 2) the terms of the contractual arrangement governing the own-fund item provide for the distributions in relation to that item to be deferred in the event that there is non-compliance with the Solvency Capital Requirement or the distribution would lead to such non-compliance until the insurer complies with the Solvency Capital Requirement and the distribution would not lead to non-compliance with the Solvency Capital Requirement.

4.6.1.11 Notwithstanding 4.6.1.10, the basic own-fund item may only allow for a distribution to be made in the event that there is non-compliance with the Solvency Capital Requirement or the distribution on a basic-own-fund item would lead to such non-compliance, where the following conditions are met:

1) The Isle of Man Financial Services Authority has exceptionally waived the deferral of distributions;

2) The payment does not further weaken the solvency position of the insurer or reinsurer;

3) The Minimum Capital Requirement is complied with after the distribution is made.

Absence of encumbrances

4.6.1.12 To be eligible as Tier 2, the basic own-fund item must be free from encumbrances and shall not be connected with any other transaction, which when considered with the basic own-fund item, could result in that basic own-fund item not satisfying the requirements set out in 4.6.

Grading down

4.6.1.13 To be eligible as Tier 2, the basic own-fund item may display the features set out in section 4.4 that are relevant for basic own-fund items referred to in points 4.3.1.2. 1) c), e) and 2), but be in excess of the limit set out in 4.13.1.3.

Exchange or conversion and repayment

4.6.1.14 For the purposes of this section, the exchange or conversion of a basic own-fund item into another Tier 1 or Tier 2 basic own-fund item or the repayment or redemption of a Tier 2 basic own-fund item out of the proceeds of a new basic own-fund item of at least the same quality shall not be deemed to be a repayment or redemption, provided that the exchange, conversion, repayment or redemption is subject to the approval of the FSA.

4.6.1.15 For the purposes of 4.6.1.8 and 4.6.1.10, references to the Solvency Capital Requirement shall be read as references to the Minimum Capital Requirement in the event that non-compliance with the Minimum Capital Requirement occurs before non-compliance with the Solvency Capital Requirement.

4.6.1.16 For the purposes of 4.6.1.2, 4.4.1.4 shall apply to Tier 2 basic own-fund items in the same way it does to items referred to in 4.3.1.2. 1) c), e) and 2).

4.6.1.17 For the purposes of 4.6.1.10, the terms of the contractual arrangement governing the own-fund item must be such that the operation of the deferral overrides the requirement to redeem at contractual maturity.

4.7. Tier 3 Basic own funds

List of own-fund items

4.7.1.1 Any basic own-fund items which do not fall under 4.3.1.2 or 4.5.1.2 shall be classified in Tier 3.

4.7.1.2 The following basic own-fund items shall be classified in Tier 3, where those items display the features set out in 4.8:

1) The part of the excess of assets over liabilities, valued in accordance with Section 1 of this Technical Specification, comprising the following items:

a) Subordinated mutual member accounts;

b) Preference shares and the related share premium account;

c) An amount equal to the value of net deferred tax assets;

2) Subordinated liabilities valued in accordance with Section 1 of this Technical Specification.

4.8. Features determining classification as Tier 3

4.8.1.1 The basic own-fund items listed in 4.7.1.2 shall display the following features in order to be classified as Tier 3.

Subordination

4.8.1.2 To be eligible as Tier 3, the basic own-fund item, in the case of items referred to in 4.7.1.2. 1) a), b) and 2), must rank after the claims of all policyholders and beneficiaries and non-subordinated creditors.

Absence of features causing or accelerating insolvency

4.8.1.3 To be eligible as Tier 3, the basic own-fund item must not include features which may cause the insolvency of the insurer or may accelerate the process of the insurer becoming insolvent.

Duration

4.8.1.4 To be eligible as Tier 3, the basic own-fund item, in the case of items referred to in 4.7.1.2. 1) a), b) and 2), is undated or has an original maturity of at least 5 years, where the maturity date is the first contractual opportunity to repay or redeem the basic own-fund item.

4.8.1.5   For the purpose of 4.8.1.4, the item shall not include a contractual term providing for a call option prior to 5 years from the date of issuance, including call options predicated on unforeseen changes, outside the control of the insurer, related to the treatment of an own-fund item. Subject to all relevant criteria being met and to prior supervisory approval, arrangements predicated on unforeseen changes which are outside the control of the insurer, that would give rise to transactions or arrangements which are not deemed to be repayment or redemption shall be permitted.

Repayment or redemption and limited incentives to redeem

4.8.1.6   To be eligible as Tier 3, the basic own-fund item, in the case of items referred to in 4.7.1.2. 1) a), b) and 2), is only repayable or redeemable at the option of the insurer or reinsurer and the repayment or redemption of the basic own-fund item is subject to prior supervisory approval.

4.8.1.7   For the purpose of 4.8.1.6, the terms of the item or any associated arrangement may include limited incentives to redeem as set out in 4.9.1.2 to 4.9.1.5.The item shall be treated as repaid or redeemed with effect from the date of notice to holders of the item or the date of supervisory approval, if no notice is required, and shall be excluded from own funds as at that date.

4.8.1.8   To be eligible as Tier 3, the basic own-fund item, in the case of items referred to in 4.7.1.2. 1) a), b) and 2), may include limited incentives to repay or redeem that basic own-fund item.

Suspension of repayment or redemption in case of non-compliance with the SCR

4.8.1.9   To be eligible as Tier 3, the basic own-fund item, in the case of items referred to in 4.7.1.2. 1) a), b) and 2), shall provide for the suspension of repayment or redemption in the event that there is non-compliance with the Solvency Capital Requirement or repayment or redemption would lead to such non-compliance until the insurer complies with the Solvency Capital Requirement and the repayment or redemption would not lead to non-compliance with the Solvency Capital Requirement.

4.8.1.10   For the purpose of 4.8.1.9, the terms of the contractual arrangement governing the own-fund item shall include provision for the suspension of the repayment or redemption of the item at any point up until the date of repayment or redemption in the event of non-compliance with the Solvency Capital Requirement or if the repayment or redemption would result in such non-compliance.

4.8.1.11   Notwithstanding 4.8.1.9, the basic own-fund item may only allow for the repayment or redemption of that item in the event that there is non-compliance with the Solvency Capital Requirement or repayment or redemption would lead to such non-compliance, where the following conditions are met:

1) The FSA has exceptionally waived the suspension of repayment or redemption of that item;

2) The item is exchanged for or converted into another Tier 1, Tier 2 basic own-fund item or Tier 3 basic own-fund item of at least the same quality;

3) The Minimum Capital Requirement is complied with after the repayment or redemption.

Deferral of distributions in case of non-compliance with the SCR

4.8.1.12 To be eligible as Tier 3, the basic own-fund item, in the case of items referred to in 4.7.1.2. 1) a), b) and 2), provides for the deferral of distributions in the event that there is non-compliance with the Minimum Capital Requirement or the distribution would lead to such non-compliance until the insurer complies with the Minimum Capital Requirement and the distribution would not lead to non-compliance with the Minimum Capital Requirement.

4.8.1.13 For the purposes of 4.8.1.12, the terms of the contractual arrangement governing the own-fund item shall be such that the operation of the deferral overrides the requirement to redeem at contractual maturity.

Absence of encumbrances

4.8.1.14 To be eligible as Tier 3, the basic own-fund item shall be free from encumbrances and is not connected with any other transaction, which when considered with the subordinated liability, could undermine the features that the item is required to possess in accordance with 4.8.

Exchange or conversion and repayment

4.8.1.15 For the purposes of this section, the exchange or conversion of a basic own-fund item into another Tier 1, Tier 2 or Tier 3 basic own-fund item or the repayment or redemption of a Tier 3 basic own-fund item out of the proceeds of a new basic own-fund item of at least the same quality shall not be deemed to be a repayment or redemption, provided that the exchange, conversion, repayment or redemption is subject to the approval of the FSA.

4.8.1.16 For the purpose of 4.8.1.11, references to the Solvency Capital Requirement shall be read as references to the Minimum Capital Requirement in the event that non-compliance with the Minimum Capital Requirement occurs before non-compliance with the Solvency Capital Requirement.

4.8.1.17 For the purposes of 4.8.1.3, 4.4.1.4 shall apply to Tier 3 basic own-fund items in the same way it does to items referred to paragraph 4.3.1.2. 1) c), e) and 2).

4.9. Encumbrance and Incentives to Redeem

Encumbrances

4.9.1.1 For the purposes of 4.4.1.28, 4.6.1.12 and 4.8.1.14:

1) The assessment as to whether an own-funds item is encumbered shall be made on the basis of the economic effect of the encumbrance and the nature of the item, applying the principle of substance over form.

2) Encumbrances shall include, but shall not be limited to:

   a) Rights of set off;

   b) Restrictions;

   c) Charges or guarantees;

   d) A holding by the insurer of its own own-fund items;

e) The effect of a transaction or a group of connected transactions which have the same effect as any of (i) to (iv) above, and

f) The effect of a transaction or a group of connected transactions which otherwise undermine an item's ability to meet the criteria for classification as an own-fund item.

3) An encumbrance arising from a transaction or group of transactions which is equivalent to the holding of own shares includes the case where an insurer holds its own Tier 1, Tier 2 or Tier 3 items.

4) Where the encumbrance is equivalent to the holding of own shares, the insurer shall reduce the reconciliation reserve by the amount of the encumbered item.

5) If an item is encumbered to the extent that it no longer satisfies the criteria for classification, the item shall not be classified as own funds.

6) If an item is encumbered but when the effect of the encumbrance is taken into account, it meets the criteria for a lower tier of own funds, the item shall be classified on the basis of the combined characteristics of the item and the encumbrance.

Incentives to redeem

4.9.1.2   For the purposes of 4.4.1.16, 4.6.1.5 and 4.8.1.6, insurers shall consider incentives to redeem that are not limited as not permitted in any tier.

4.9.1.3   Incentives to redeem that are not limited include:

1) Principal stock settlement combined with a call option;

2) Mandatory conversion combined with a call option;

3) A change in the distribution structure from a fixed to a floating rate combined with a call option;

4) An increase in the principal amount which is applicable subsequent to the call date, combined with a call option;

5) Any other provision or arrangement which might reasonably be regarded as providing an economic basis for the likely redemption of the item.

4.9.1.4   In the case of items referred to in 4.5.1.2, insurers shall be able to include limited incentives to redeem if they do not occur before 10 years after the issue date of the item. In the case of items referred to in 4.7.1.2, insurers shall be able to include limited incentives if they do not occur before 5 years after the issue date of the item.

4.9.1.5   Incentives to redeem in the form of a step-up associated with a call option are limited if the step-up takes the form of a single increase in the coupon rate and results in an increase over the initial rate that is no greater than the higher of the following two amounts:

1) 100 basis points, less the swap spread between the initial index basis and the stepped-up index basis; or

2) 50% of the initial credit spread, less the swap spread between the initial index basis and the stepped-up index basis.

4.10.Tier 2 Ancillary own funds

4.10.1.1 Ancillary own funds are items of capital other than basic own-funds which can be called up to absorb losses. They can comprise the following items to the extent they are not basic own-funds items:

1) Unpaid share capital or initial fund that has not been called up;

2) Letters of credit or guarantees;

3) Any other legally binding commitments received by insurers and reinsurers.

4.10.1.2 Insurers are requested to disclose the amount of any such Tier 2 Ancillary own funds in their QIS4 return, for information purposes to assist the FSA with defining the Own Funds requirements in the final specification. Tier 2 Ancillary own funds should not at this stage be assumed to be eligible as own funds and should not be included in own funds for stress scenario purposes in calculating the SCR.

4.11.Tier 3 Ancillary own funds

4.11.1.1 For the purpose of the QIS, existing arrangements currently eligible to meet solvency requirements which would constitute ancillary own funds under the approach set out in this paper, but which would not be eligible as Tier 2 ancillary own funds because that item would not be classified in Tier 1 if it were called up and paid in may be classified as Tier 3 ancillary own funds.

4.11.1.2 Insurers are requested to disclose the amount of any such Tier 3 Ancillary own funds in their QIS return, for information purposes to assist the FSA with defining the Own Funds requirements in the final specification. Tier 3 Ancillary own funds should not at this stage be assumed to be eligible as own funds and should not be included in own funds for stress scenario purposes in calculating the SCR.

4.12.Items not on the list

4.12.1.1 Where a basic own-fund item is not covered by the lists set out in articles 4.3.1.2, 4.5.1.2, 4.7.1.2 but (a) can be used to meet the available solvency margin in accordance to existing laws, regulations and administrative provisions, and (b) displays the features set out in section 4.4, 4.6 or 4.8, it may perhaps in future be considered as basic own funds. Insurers are requested to disclose the amount of any such own fund items in their QIS return, for information purposes to assist the FSA with defining the Own Funds requirements in the final specification. Any such items should not at this stage be assumed to be eligible as own funds and should not be included in own funds for stress scenario purposes in calculating the SCR.

4.13.Eligibility of Own Funds

4.13.1.1 As far as compliance with the Solvency Capital Requirement is concerned:

1) The eligible amount of Tier 1 items shall be at least 50% of the Solvency Capital Requirement;

2) The eligible amount of Tier 3 items shall be less than 15 % of the Solvency Capital Requirement;

3) The sum of the eligible amounts of Tier 2 and Tier 3 items shall not exceed 50 % of the Solvency Capital Requirement.

4.13.1.2 As far as compliance with the Minimum Capital Requirements is concerned, the eligible amount of Tier 1 items shall be at least 80 % of the Minimum Capital Requirement.

4.13.1.3 Within the limits referred to 4.13.1.1 1) and 4.13.1.2, the sum of the following basic own-fund items (restricted Tier 1 items) shall make up less than 20 % of the total amount of Tier 1 items

1) Items referred to in 4.3.1.2. 1) c);

2) Items referred to in 4.3.1.2. 1) e);

3) Items referred to in 4.3.1.2. 2).