**Solvency Assessment and Management:**

**Steering Committee**

**Position Paper 74[1] (v 4)**

**Minimum Capital Requirement (MCR)**

## EXECUTIVE SUMMARY

Having compared the IAIS ICPs and alternative approaches taken in other countries, it is recommended that the Solvency II approach to the MCR should be used in the South African context with some minor adjustments:

- Add 13 week's operating expenses to the absolute floor
- Change the absolute minimum values to R15m for life and non-life companies.
- Change the exposure measure for discretionary participation business in the life linear formula from technical provisions to BEL_min as defined in the SCR discretionary participation calculation.
- Adjust for the segmentation from Solvency II to SAM as set out in Discussion Document 29
- Parameterisation as per SAM QIS3

## 1. INTRODUCTION AND PURPOSE

This document sets out the recommendations of the MCR working group with respect to the level of minimum capital to be held under SAM.

## 2. INTERNATIONAL STANDARDS: IAIS ICPs

IAIS is the international standards setting body for insurance supervisors. The FSB as a member of the IAIS aims to adhere to these standards. The standards are principles based, and as such are difficult to ascribe to individual risk modules. However, the following are relevant within the broad framework of the capital requirements. (**"Insurance Core Principles, Standards, Guidance and Assessment Methodology – Consultation Draft February 2011"):**

The IAIS requires insurers to distinguish between regulatory capital, referred to as the prescribed capital requirement (PCR), and the minimum capital required to protect policyholders, referred to as the minimum capital requirement (MCR). The PCR is a risk-based assessment of the insurer's capital requirement and gives the minimum requirement

[1] Discussion Document 74 (v 4) was approved as a FINAL Position Paper by the SAM Steering Committee 0n 27 March 2015.

for an insurer to operate as a going concern. The MCR is the absolute minimum to protect policyholders. It is recognised that the two forms of capital are interrelated and may be determined by independent methods. The IAIS does not prescribe or give guidance for the calculation of the MCR. It does reference that it may be a combination of a minimum monetary amount and a simple method. The purpose of the MCR must be clear and easy to explain in court.

Supervisors must clearly specify intervention levels. These are a function of both the PCR and the MCR.

The treatment of long-term and short-term insurers is the same. Groups are also mentioned, but this topic is beyond the scope of the MCR working group.

There are four key documents that address the approach to minimum capital, namely:

- Insurance Core Principles: ICP 17: Capital Adequacy;
- Principles on Capital Adequacy & Solvency;
- Guidance paper on the structure of regulatory capital requirements; and
- Standard on the structure of regulatory capital requirements.

Other considerations also covered are licensing requirements and minimum capital for group supervision.

The key considerations for the MSCR work group are given below.

**From 'ICP 17: Capital Adequacy'**

"In the context of insurance legal entity capital adequacy assessment, the regulatory capital requirements establish:

i) a solvency control level above which the supervisor does not intervene on capital adequacy grounds. This is referred to as the Prescribed Capital Requirement (PCR). The PCR is defined such that assets will exceed technical provisions and other liabilities with a specified level of safety over a defined time horizon.

ii) a solvency control level at which, if breached, the supervisor would invoke its strongest actions, in the absence of appropriate corrective action by the insurance legal entity. This is referred to as the Minimum Capital Requirement (MCR). The MCR is subject to a minimum bound below which no insurer is regarded to be viable to operate effectively."

From '**Principles on Capital Adequacy & Solvency**" Principle 8: Minimum capital

"A minimum level of capital has to be specified…

33. The regulatory framework has to set out a threshold minimum capital requirement for companies.

34. This minimum level of capital is designed to provide a minimum assurance of the financial capacity and soundness of the insurer.

35. The amount of the minimum capital should take into account the types of risk that are intended to be covered. The required minimum capital should by no means be used to compensate for normal foreseeable fluctuations in the development of certain risks. Nor should the setting-up costs of a new enterprise be covered by this minimum capital. Insurance regulatory authorities may impose a higher level of initial capital on the start-up of an insurer to support the business during its formative years."

From '**Guidance paper on the structure of regulatory capital requirements**'

Requirement 3

The solvency regime should include a range of solvency control levels which trigger different degrees of intervention by the supervisor with an appropriate degree of urgency.

Requirement 4

The solvency regime should ensure coherence between the solvency control levels established and the associated corrective action that may be at the disposal of the insurer and/or the supervisor. Corrective action may include options to reduce the risks being taken by the insurer as well as to raise more capital.

Requirement 7

The regulatory capital requirements in a solvency regime should establish a solvency control level which defines the supervisory intervention point at which the supervisor would invoke its strongest actions, if further capital is not made available. This is referred to as the Minimum Capital Requirement (MCR).

Requirement 8

The solvency regime should establish a minimum bound on the MCR below which no insurer is regarded to be viable to operate effectively.

From '**Standard on the structure of regulatory capital requirements**'

The regulatory capital requirements in a solvency regime should establish a solvency control level which defines the supervisory intervention point at which the supervisor would invoke its strongest actions, if further capital is not made available. This is referred to as the Minimum Capital Requirement (MCR).

The solvency regime should establish a minimum bound on the MCR below which no insurer is regarded to be viable to operate effectively.

For completeness, the following papers are also relevant:

**The IAIS Common Structure for the Assessment of Insurer Solvency:**

Structure Element 14:

There should be a number of solvency control levels which trigger different degrees of intervention by the supervisor in a timely manner. The solvency regime should have due regard to the coherence of the solvency control levels and any corrective action that may be at the disposal of the insurer, and of the supervisor, including options to reduce the risks being taken by the insurer as well as to raise more capital.

**Supervisory Standard on Licensing**

Minimum capital

28. An important licensing requirement is the establishment of sufficient free capital. This is an absolute amount fixed by the supervisor or by law (minimum capital). The amount of the minimum capital should take into account the type of risk that is intended to be covered. If the applicant company proposes to write several classes it is possible either to require the highest of the amounts fixed for the individual classes or to add up the amounts of the individual classes.

## 3. EU DIRECTIVE ON SOLVENCY II: PRINCIPLES (LEVEL 1)

Relevant extracts from the Solvency II Level 1 principles are provided below. As is the case with the IAIS core principles, the Solvency II level 1 principles are high level, rather than providing the detail that will be used for the Minimum Capital Requirement (MCR). However, it provides the framework within which the MCR will be looked at and calculated.

**Minimum capital requirement**

***Article 128***

***General provisions***
*Member States shall require that insurance and reinsurance undertakings hold eligible basic own funds, to cover the Minimum Capital Requirement.*

***Article 129***

***Calculation of the Minimum Capital Requirement****.*
*1. The Minimum Capital Requirement shall be calculated in accordance with the following principles:*

*(a) it shall be calculated in a clear and simple manner, and in such a way as to ensure that the calculation can be audited;*

*(b) it shall correspond to an amount of eligible basic own funds below which policy holders and beneficiaries are exposed to an unacceptable level of risk were insurance and reinsurance undertakings allowed to continue their operations;*

*(c) the linear function referred to in paragraph 2 used to calculate the Minimum Capital Requirement shall be calibrated to the Value-at-Risk of the basic own funds of an insurance or reinsurance undertaking subject to a confidence level of 85 % over a one-year period;*

*(d) it shall have an absolute floor of:*

*(i) EUR 2 200 000 for non-life insurance undertakings, including captive insurance undertakings, save in the case where all or some of the risks included in one of the classes 10 to 15 listed in Part A of Annex 1 are covered, in which case it shall be no less than EUR 3 200 000,*

*(ii) EUR 3 200 000 for life insurance undertakings, including captive insurance undertakings,*

*(iii) EUR 3 200 000 for reinsurance undertakings, except in the case of captive reinsurance undertakings, in which case the Minimum Capital Requirement shall be no less than EUR 1 000 000,*

*(iv) the sum of the amounts set out in points (i) and (ii) for insurance undertakings as referred to in Article 73(5).*

*2. Subject to paragraph 3, the Minimum Capital Requirement shall be calculated as a linear function of a set or sub-set of the following variables: the undertaking's technical provisions, written premiums, capital-at-risk, deferred tax and administrative expenses. The variables used shall be measured net of reinsurance.*

*3. Without prejudice to paragraph 1(d), the Minimum Capital Requirement shall neither fall below 25 % nor exceed 45 % of the undertaking's Solvency Capital Requirement, calculated in accordance with Chapter VI, Section 4, Subsections 2 or 3, and including any capital add-on imposed in accordance with Article 37.*

*Member States shall allow their supervisory authorities, for a period ending no later than 31 October 2014, to require an insurance or reinsurance undertaking to apply the percentages referred to in the first subparagraph exclusively to the undertaking's Solvency Capital Requirement calculated in accordance with Chapter VI, Section 4, Subsection 2.*

*4. Insurance and reinsurance undertakings shall calculate the Minimum Capital Requirement at least quarterly and report the results of that calculation to supervisory authorities.*

*Where either of the limits referred to in paragraph 3 determines an undertaking's Minimum Capital Requirement, the undertaking shall provide to the supervisory authority information allowing a proper understanding of the reasons therefor.*

*5. The Commission shall submit to the European Parliament and the European Insurance and Occupational Pensions Committee established by Commission Decision 2004/9/EC(1) OJ L 3, 7.1.2004, p. 34. (1), by 31 October 2017, a report on Member States' rules and supervisory authorities' practices adopted pursuant to paragraphs 1 to 4.*

*That report shall address, in particular, the use and level of the cap and the floor set out in paragraph 3 as well as any problems faced by supervisory authorities and by undertakings in the application of this Article.*

***Article 130***

***Implementing measures***

*The Commission shall adopt implementing measures specifying the calculation of the Minimum Capital Requirement, referred to in Articles 128 and 129.*

*Those measures, designed to amend non-essential elements of this Directive, by supplementing it, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 301(3).*

***Article 131***

***Transitional arrangements regarding compliance with the Minimum Capital Requirement***

*By way of derogation from Articles 139 and 144, where insurance and reinsurance undertakings comply with the Required Solvency Margin referred to in Article 28 of Directive 2002/83/EC, Article 16a of Directive 73/239/EEC or Article 37, 38 or 39 of Directive 2005/68/EC respectively on 31 October 2012 but do not hold sufficient eligible basic own funds to cover the Minimum Capital Requirement, the undertakings concerned shall comply with Article 128 by 31 October 2013.*

*Where the undertaking concerned fails to comply with Article 128 within the period set out in the first paragraph, the authorisation of the undertaking shall be withdrawn, subject to the applicable processes provided for in the national legislation.*

**Changes to EU Directive under SAM**

In general, the EU Level 1 Directive principles have been adopted for SAM MCR with the following key differences:

- Rand value minima have been used for the absolute floor; and
- 25% of operating expenses in the preceding year have been included in the absolute floor calculation.

## 4. MAPPING ANY PRINCIPLE (LEVEL 1) DIFFERENCES BETWEEN IAIS ICP & EU DIRECTIVE

There are no differences between the ICP and EU principles.

## 5. STANDARDS AND GUIDANCE (LEVELS 2 & 3)

### 5.1 IAIS standards and guidance papers

This was covered in section 2 above.

### 5.2 CEIOPS CPs (consultation papers)

The level 2 advice covers Article 128: Calculation of the MCR (CP55) and Article 130: Calibration of the MCR (CP73). These are outlined below:

**<u>CP 55: Calculation of the MCR</u>**

### *3.1.3. The overall structure of the MCR in the combined approach*

*3.5. Article 127 of the Level 1 text sets out a combined approach for calculating the MCR. This combined approach consists of*

- *a "linear formula", i.e. a simple factor-based combination of basic volume measures (written premiums, technical provisions, capital-at-risk, deferred taxes and administrative expenses),combined with*

- *a cap of 45% and a floor of 25% of the SCR (calculated using either the standard formula or an internal model) to ensure a proper ladder of supervisory intervention. The cap and the floor together are hereafter referred to as the "corridor".*

*In the final step, an absolute floor is applied to the result of the above calculation. The values of the absolute floor for different types of undertakings are set out in Article 127(1)d.*

### *3.1.4. Structure and segmentation of the linear formula*

*3.8. This section describes the structure of the linear formula as recommended by CEIOPS, including the segmentation of the volume measures used in the linear formula. The linear formula structure suggested below is based on the formula tested in QIS4, however some changes to the segmentation are suggested.*

*3.9. Following the separation of life and non-life insurance management required in Article 73(1) of the Level 1 text, the MCR linear formula is divided between life and non-life activities. When the word "activities" is used in this paper, the distinction between "life activities" and "non-life activities" reflects the legal classification for administrative authorisation.*

*3.10. In addition to the split reflecting the legal distinction between life and non-life activities, a second split is made according to the technical nature of insurance obligations (whether they are technically similar to life or non-life). The combination of these two splits defines the following four components of the linear formula:*

*A. Non-life activities practised on a non-life technical basis*
*B. Non-life activities technically similar to life*
*C. Life activities practised on a life technical basis*
*D. Life activities – supplementary obligations practised on a non-life technical basis*

*For the purposes of determining the MCR, health obligations are divided between the above life and non-life categories A to D according to the nature of the contracts and their underwriting, in line with the criteria set out below.*

*3.11. The volume measures referred to in the linear formula, in particular technical provisions, written premiums and capital-at-risk, should be allocated between the above four components without double counting. It*

*is also suggested that all volume measures in the linear formula are subject to a floor of zero.*

***A. Non-life activities practised on a non-life technical basis***

*3.16. This component of the linear formula should be calculated as the sum over all lines of business of the higher of the following two results:*

- *a fixed percentage ($\alpha_{lob}$) of net technical provisions, reflecting underwriting risk for long-term business;*
- *a fixed percentage ($\beta_{lob}$) of net written premiums, reflecting underwriting risk for short-term business.*

***B. Non-life activities technically similar to life***

*3.20. The calculation of this linear formula component should be the same as the calculation for life activities, with the same segmentation and the same factors as described below in component C.*

***C. Life activities practised on a life technical basis***

*3.23. This component of the linear formula should be calculated as the sum of the following results:*

- *a fixed percentage ($\alpha_i$) of net technical provisions, excluding non-retail unit linked business, at an appropriate granularity, to reflect long-term risks relating to life business; and*
- *a fixed percentage of net capital-at-risk ($\beta_i$), at an appropriate granularity, depending on the outstanding term of the contract.*

***D. Life activities – supplementary obligations practised on a non-life technical basis***

*3.32. The calculation of this linear formula component is the same as the calculation for non-life activities practised on a non-life technical basis, with the same segmentation and the same factors (although some classes are unlikely as supplementary insurance, it is not in the scope of this advice to decide which supplementary classes should be possible).*

***3.1.5. Notional non-life and life MCR for composite undertakings***

*3.36. For composite undertakings, the notional non-life and life MCR ($NMCR_{NL}$ and $NMCR_{Life}$) are capital requirements that must be covered by eligible basic own funds with respect to the non-life and life activity.*

***3.1.3. Quarterly calculation of the corridor***

*Frequency of calculation*

*3.44. According to the Level 1 text Member States shall require that insurance and reinsurance undertakings hold eligible basic own-funds to cover the MCR, that the calculation of the MCR shall be carried out at least quarterly and that the results should be reported to supervisory authorities*

**CP 73**

### *3.2 Non-life linear formula*

*3.14. Following CEIOPS' advice in CEIOPS-DOC-47/09 on the calculation of the MCR, similarly to the QIS4 approach, the non-life linear formula is expressed as a function of net technical provisions and net written premiums according to the segmentation defined below. The linear formula charge for each line of business is the higher of a fixed percentage of technical provisions and a fixed percentage of written premiums. The non-life linear formula is the sum of charges over all lines of business.*

| *Index* | *Segment* |
|---|---|
| *Volume measure: technical provisions & written premiums* | |
| *A.1* | *Motor vehicle liability* |
| *A.2* | *Motor, other classes* |
| *A.3* | *Marine, aviation, transport* |
| *A.4* | *Fire and property* |
| *A.5* | *Third-party liability* |
| *A.6* | *Credit and suretyship* |
| *A.7* | *Legal expenses* |
| *A.8* | *Assistance* |
| *A.9* | *Miscellaneous* |

### *3.3 Life linear formula*

#### *3.3.1 Linear fitting techniques*

*3.24. Following CEIOPS' advice in CEIOPS-DOC-47/09 on the calculation of the MCR, the life linear formula is expressed as a function of the volume measures listed below. The formula specified in CEIOPS' advice is a linear combination of the variables, with the exception of the application of the with-profit floor, which sets a minimum value for the capital charge for participating contracts.*

| ***Index*** | ***Segment*** |
|---|---|
| *Volume measure: technical provisions* | |
| *C.1.1* | *participating contracts, guaranteed benefits* |
| *C.1.2* | *participating contracts, discretionary benefits* |
| *C.2.1* | *unit-linked contracts without guarantees* |
| *C.2.2* | *unit-linked contracts with guarantees* |
| *C.3* | *non-participating contracts* |

| *Volume measure: capital-at-risk* | |
|---|---|
| *C.4* | *total capital-at-risk* |

### 5.3 Other relevant jurisdictions (e.g. OSFI, APRA)

#### Canadian approach (OSFI)

For both life and non-life insurers, there is no linear formula for the MCR.

Specifically for life insurers, there is an absolute minimum of 5000 Canadian dollars. Two additional measures are defined: the Minimum Continuing Capital and Surplus Requirement (MCCSR) and the Test of Adequacy of Assets in Canada and Margin Requirements (TAAM).The minimum ratio of MCCSR/TAAM is 120% and the target ratio is 150%.

For non-life insurers, there is no absolute minimum. However, the ratio of capital available to capital required i.e. the Minimum Capital Test (MCT) must be higher than 100% with the target ratio being 150%.

#### Australian approach (APRA)

Under the Australian Prudential Standard GPS110, which was effective from 1 July 2010, an insurer is required to hold capital in excess of its minimum capital requirement. This applies to both life insurers and general insurers. The required capital comprises:

- The Minimum Capital Requirement (MCR). This can either be calculated using an internal Model or by a prescribed method, which covers insurance risk, investment risk and concentration risk. The MCR cannot be less than A$2m or A$5m depending on the class of insurer.
- Any additional capital in the nature of a supervisory adjustment required by the authorities.

### 5.4 Mapping of differences between above approaches (Level 2 and 3)

The approaches differ in detail but all have similar aims and objectives. The APRA approach specifies the equivalent of an SCR under Solvency II.

## 6. ASSESSMENT OF AVAILABLE APPROACHES GIVEN THE SOUTH AFRICAN CONTEXT

### 6.1 Discussion of inherent advantages and disadvantages of each approach

The current Solvency II approach meets all of the requirements set out in the IAIS's core principals. It makes allowance for an MCR which specifies the lowest level of capital at which the FSB can introduce its most severe levels of intervention. The calculation structure is complete in that an absolute floor, corridor as a percentage of the SCR and a linear formula is specified.

None of the other approaches discussed in this document suggest an alternative to the Solvency II approach which is significantly different.

### 6.2 Impact of the approaches on EU 3rd country equivalence

Demonstrating equivalence would be easier using an approach similar to the Solvency II approach. It is likely that much reliance can be placed on the calibrations done by CEIOPS.

### 6.3 Comparison of the approaches with the prevailing legislative framework

The current South African legislative framework for life insurers specifies a standard formula calculation for the calculation of the capital adequacy requirement (CAR), which is subject to a minimum, specified as the higher of:

- R10 million;
- an amount representing operating expenses, multiplied by 13 and divided by 52 or, if different, the number of weeks included in the reporting period; or
- an amount equal to 0.3% of its gross contingent liabilities under unmatured policies.

For non-life insurers, the capital calculation is specified as 25% of written premium net of approved reinsurance over the preceding 12 months, of which 10% of net written premium is held as a contingency reserve. The minimum capital requirement is R5 million.

### 6.4 SA QIS3 feedback

Overall there were no significant concerns raised in the SAM QIS3 feedback with 91% of respondents being either fully prepared, or just struggling with data (and not methodology). The main themes of feedback were as follows:

- The definition of the Sum at Risk used in the life linear formula was unclear to some participants (2 out of 72 life participant)
- Clarity regarding the application to individual cells (2 out of 153 participants)

The Sum at Risk definition was reviewed and left unchanged as most participants did not have any concerns and the definition had already been adjusted in response to QIS1 feedback where more companies raised concerns.

The MCR calculation applies at a licence level and therefore no consideration is given to the approach for individual cells. Consideration of individual cells falls outside the scope of this discussion document.

### 6.5 Conclusions on preferred approach

The Solvency II approach is preferred.

## 7. RECOMMENDATION

It is proposed that the Solvency II approach should be followed for the MCR under SAM with the following changes to the absolute floor:

- Add 13 week's operating expenses to the absolute floor
- Change the minimum values to R15m for life and non-life companies.

Based on QIS3 feedback it is proposed that the QIS3 methodology is used with the following adjustment:

- Updated segmentation as set out in Discussion Document 29

Below is the extract from QIS3, adjusted for the above recommendation, explaining the calculation of MCR:

### MCR.1. Introduction

a. This section provides instructions for calculating the Minimum Capital Requirement (MCR) of the insurer. The calculation of the MCR combines a linear formula with a floor of 25% and a cap of 45% of the SCR (whether calculated using the standard formula or an internal model). The MCR is subject to an absolute floor, expressed in Rands, depending on the nature of the insurer and also includes an allowance for operating expenses.

b. For composite insurers, the notional non-life and life MCR are also calculated.

### MCR.2. Overall MCR calculation

Input

a. The following input information is required:

| | | |
|---|---|---|
| $MCR_{NL}$ | = | the linear formula component for non-life insurance or reinsurance obligations |
| $MCR_L$ | = | the linear formula component for life insurance or reinsurance obligations |
| $SCR$ | = | the SCR of the insurer |
| $AMCR$ | = | the absolute floor of the MCR. |

b. Where an insurer provides information both on its SCR calculated using the standard formula and its SCR calculated using a full or partial internal model, the MCR should be calculated twice, first using the SCR standard formula and second using the internal model SCR.

c. The segmentation approach for the purposes of determining the linear formula components for life and non-life insurance and reinsurance obligations should follow the same approach as that set out in subsection V.2.1 (Segmentation).

d. For the purpose of SA QIS3, the capital add-on, which is required (if relevant) to be included in the calculation of the MCR corridor, is considered to be zero for all insurers. When these requirements are implimented the MCR will be increased by any capital add-on specified by the regulator.

e. The values of the absolute floor AMCR are the higher of:

   i. ZAR 15 000 000 for non-life insurers, including captive insurers conducting non-life insurance business,

   ii. ZAR 15 000 000 for life insurers, including captive insurers conducting life insurance business,

   iii. the sum of the amounts set out in points (i) and (ii) for composite insurers.

   iv. 25% of the annualised operating expenses of the preceding 12 months.

f. Operating expenses are defined as gross expenses incurred in carrying on the insurer's day-to-day activities including but not limited to claims handling expenses, management expenses, asset management and fund management fees. The following should be excluded:

   i. Acquisition expenses relating to the cost of acquiring new business

   ii. Depreciation of inventories to net realisable value

   iii. Depreciation of property, plant and equipment to recoverable amount and the reversal of such write-downs

   iv. The cost of restructuring the activities of the insurer and the reversal of any provisions for the cost of restructuring

   v. The disposal of property, plant and equipment

   vi. The realisation of long-term investments

   vii. Gains and losses arising from natural disasters and expropriation

   viii. Asset management and fund management fees directly related to linked policies.

g. The values specified in i and ii above will de adjusted annually to ensure that they do not reduce in real terms.

Output

h. The calculation delivers the following output:

| | |
|---|---|
| *MCR* | the Minimum Capital Requirement of the insurer |

i. The following intermediate outputs are also calculated:

| | | |
|---|---|---|
| $MCR_{linear}$ | = | the linear formula, whose calculation is further detailed below. |
| $MCR_{combined}$ | = | the combined MCR of the insurer, i.e. the linear formula result subject to a floor of 25% and a cap of 45% of the SCR (without taking into account the absolute floor) |

Calculation

j. For insurers other than composites, the MCR linear formula is calculated as the sum of the two components, whose calculation is detailed further below. Composites should calculate the MCR using the approach set out in subsection MCR.6:

$$MCR_{linear} = MCR_{NL} + MCR_{L}$$

k. The combined MCR of the insurer is calculated as follows:

$$MCR_{combined} = \{\min[\max(MCR_{linear}; 0.25 \cdot (SCR)); 0.45 \cdot (SCR)]\}$$

l. The MCR of the insurer should be calculated as follows:

$$MCR = \max\{MCR_{combined}; AMCR\}$$

## MCR.3. Linear formula – General considerations

a. The volume measures referred to in the linear formula should be allocated between the two components $MCR_{NL}$, $MCR_{L}$ without double counting.

b. For the purpose of the calculation of the linear formula, technical provisions net of reinsurance is the difference between the gross technical provisions and the reinsurance recoverables. Recoverables should not include recoverables fromfinite reinsurance.

c. For the purpose of the calculation of the linear formula, premiums net of reinsurance are the premiums written less the reinsurance premiums which correspond to these premiums. The reinsurance premiums should not include payments of reinsurance premiums for finite reinsurance.

d. For consistency with the volume measures used in the SCR standard formula, the technical provisions volume measures in the linear formula are understood to be without the risk margin (i.e. the best estimate technical provision should be used)

## MCR.4. Linear formula component for non-life insurance or reinsurance obligations

Input

a. The following input information is required:

$TP_j$ = technical provisions (not including the risk margin) for each line of business, net of reinsurance, subject to a minimum of zero

$P_j$ = written premiums in each line of business over the last 12-month period, net of reinsurance, subject to a minimum of zero

Output

b. The calculation delivers the following output:

$MCR_{NL}$ = the linear formula component for non-life insurance or reinsurance obligations

Calculation

c. The linear formula component $MCR_{NL}$ for non-life insurance or reinsurance obligations is calculated by the following function:

$$MCR_{NL} = \sum_j \max\left(\alpha_j \cdot TP_j ; \beta_j \cdot P_j\right)$$

d. The segmentation of lines of business for the above formula and the calibration of the factors $\alpha_j$ and $\beta_j$ is the following:

| *j* | *Reporting Class* | *Reporting Class reference (DD29)* | $\alpha_j$ | $\beta_j$ |
|---|---|---|---|---|
| **Direct and corresponding proportional reinsurance business** | | | | |
| 1 | Motor | 1a, 1b, 17a, 17d | 13% | 11% |
| 2 | Property | 2a, 2b, 17a, 17d | 14% | 13% |
| 3 | Agriculture | 3a, 3b, 3c, 17a, 17d | 20% | 17% |
| 4 | Engineering | 4a, 4b, 17a, 17d | 14% | 13% |
| 5 | Marine | 5a, 5b, 17a, 17d | 18% | 22% |
| 6 | Aircraft | 6a, 6b, 17a, 17d | 18% | 22% |
| 7 | Transport | 7a, 7b, 17a, 17d | 18% | 22% |
| 8 | Rail | 8a, 8b, 17a, 17d | 18% | 22% |
| 9 | Legal Expense | 9, 17a, 17d | 20% | 17% |
| 10 | Liability | 10a-g, 17a, 17d | 14% | 20% |
| 11 | Consumer Credit | 11, 17a, 17d | 25% | 28% |
| 12 | Trade Credit | 12, 17a, 17d | 25% | 28% |
| 13 | Guarantee | 13, 17a, 17d | 25% | 28% |
| 14 | Accident and Health | 14, 17a, 17d | 20% | 17% |
| 15 | Travel | 15, 17a, 17d | 20% | 17% |

| | | | | |
|---|---|---|---|---|
| 16 | Miscellaneous | 16a, 16b, 16c, 17a, 17d | 20% | 17% |
| **Non-Proportional and other business** | | | | |
| 17 | Reinsurance | 17 b, c, e, f | 26% | 21% |

## MCR.5. Linear formula component for life insurance or reinsurance obligations

Input

a. The following input information is required:

| | | |
|---|---|---|
| *TP* | = | technical provisions (not including the risk margin) for each segment included in this component, net of reinsurance, subject to a minimum of zero |
| *CAR* | = | capital-at-risk, i.e. the sum of financial strains for each policy on immediate death or disability where it is positive. The financial strain on immediate death or disability is the amount currently payable on death or disability of the insured and the present value of annuities payable on death or disability of the insured less the net technical provisions (not including the risk margin) and less the increase in reinsurance recoverables which is directly caused by death or disability of the insured. As a starting point, the calculation should be based on a policy-by-policy approach, but reasonable actuarial methods and approximations may be used in accordance with the calculation of the best estimate. |

Output

b. The calculation delivers the following output:

| | | |
|---|---|---|
| $MCR_L$ | = | the linear formula component for life insurance or reinsurance obligations |

Calculation

c. The linear formula component $MCR_L$ for life insurance or reinsurance obligations is calculated by the following function:

$$MCR_L = \max\left\{\alpha_{C.1.1} \cdot C_{1.1} + \alpha_{C.1.2} \cdot C_{.1.2};\ WP\_floor \cdot C_{1.1}\right\} + \\ + \sum_{j \in \{C.2.1, C.2.2, C.3\}} \alpha_j \cdot C_j + \alpha_{C.4} \cdot CAR.$$

d. The floor for discretionary participation business *WP_floor* is equal to 2.0% of BEL_min as defined in the calculation of the loss absorbing capacity of technical provisions in the SCR. The definitions of $C_j$ in this component and the calibration of the factors $\alpha_j$ are as follows:

| *Index (j)* | *Segment* | $\alpha_j$ | ***Reporting Class reference (DD29)*** |
|---|---|---|---|
| Contracts with discretionary participation: | | | 3a(iv), 3b(iv), 3c(iv), 4a(x), 4b(x), 5a(x), 5b(x), 5c(x) |
| C.1.1 | Minimum liability calculated as BEL_min, as defined in the calculation of the loss absorbing capacity of technical provisions in the SCR | 6.2% | |
| C.1.2 | Loss absorbing capacity of technical provisions calculated as BEL – BEL_min, as defined in the calculation of the loss absorbing capacity of technical provisions in the SCR | -6.7% | |
| Contracts where the policyholder bears the investment risk: | | | |
| C.2.1 | technical provisions for contracts without guarantees | 0.5% | 3a(ii), 3a(iii), 3b(ii), 3b(iii), 3c(ii), 3c(iii), 4a(viii), 4a(ix), 4b(viii), 4b(ix), 5a(viii), 5a(ix), 5b(viii), 5b(ix), 5c(viii), 5c(ix) |
| C.2.2 | technical provisions for contracts with guarantees | 1.8% | 3a(i)P*, 3b(i)P, 3c(i)P, 4a(vii)P, 4b(vii)P, 5a(vii)P, 5b(vii)P, 5c(vii)P |
| Contracts without profit participation: | | | All business not included in C1 or C2 above |
| C.3 | technical provisions for contracts without profit participation | 2.9% | |

**P is used to refer to partially guaranteed business. Fully guaranteed business is included in C3.*

e. Technical provisions for reinsurance accepted should be apportioned according to the segmentation of direct classes, using the same factors as for direct business.

The technical provisions of reinsurance accepted of discretionary participation business should be completely assigned to segment C.1.1.

f. Capital-at-risk is treated as a single volume measure in the linear formula with no granularity, with the following risk factor:

| *Index* | *Segment* | $\alpha_{C.4}$ |
|---|---|---|
| C.4 | capital-at-risk for all contracts | 0.1% |

## MCR.6. Linear formula component for composite insurers

a. In order to calculate a notional non-life and notional life MCR, composite insurers should calculate a linear MCR for life insurance activities and for non-life activities.

b. A linear formula with four components should be calculated as follows:

$$MCR_{linear} = MCR_{NLnl} + MCR_{NLl} + MCR_{Ll} + MCR_{Lnl}$$

Input

c. The following input information is required:

| | | |
|---|---|---|
| $MCR_{NLnl}$ | = | the linear formula component for non-life insurance or reinsurance obligations relating to non-life activities |
| $MCR_{NLl}$ | = | the linear formula component for non-life insurance or reinsurance obligations relating to life activities |
| $MCR_{Ll}$ | = | the linear formula component for life insurance or reinsurance obligations relating to life activities |
| $MCR_{Lnl}$ | = | the linear formula component for life insurance or reinsurance obligations relating to non-life activities |
| $SCR$ | = | the SCR of the insurer |
| $AMCR_{NL}$ | = | the non-life absolute floor, i.e. the amount set out in point (a) of MCR.2 |
| $AMCR_{Life}$ | = | the life absolute floor, i.e. the amount set out in point (b) of MCR.2 |

d.

Output

e. The calculation delivers the following outputs:

| | | |
|---|---|---|
| $NMCR_{NL}$ | = | the notional non-life MCR of the insurer |
| $NMCR_{Life}$ | = | the notional life MCR of the insurer |

f. The following intermediate outputs are also calculated:

| | | |
|---|---|---|
| $NMCR_{linear\_NL}$ | = | the notional non-life component of the linear formula |
| $NMCR_{linear\_Life}$ | = | the notional life component of the linear formula |
| $NSCR_{NL}$ | = | the notional non-life component of the SCR |

$NSCR_{Life}$ = the notional life component of the SCR

$NMCR_{combined\_NL}$ = the notional non-life combined MCR result

$NMCR_{combined\_Life}$ = the notional life combined MCR result

Calculation

g. The linear formula result of a composite insurer is split between notional non-life and life components as follows:

$$NMCR_{linear\_NL} = MCR_{NLnl} + MCR_{Lnl}$$

$$NMCR_{linear\_Life} = MCR_{Ll} + MCR_{NLl}$$

h. The notional split of the SCR (needed to calculate the corridor for the notional non-life and life MCR) into non-life and life components is determined according to the ratio of the notional non-life and life linear formula components as follows:

$$NSCR_{NL} = \frac{NMCR_{linear\_NL}}{MCR_{linear}} \cdot SCR$$

$$NSCR_{Life} = \frac{NMCR_{linear\_Life}}{MCR_{linear}} \cdot SCR$$

i. The notional non-life and life SCR results do not constitute a capital requirement on their own: they are regarded as interim results of the notional non-life and life MCR calculations.

j. The notional combined non-life and life MCR results are calculated from the above results by the following formula:

$$NMCR_{combined\_NL} = \left\{\min\left[\max\left(NMCR_{linear\_NL}; 0.25 \cdot NSCR_{NL}\right); 0.45 \cdot NSCR_{NL}\right]\right\}$$

$$NMCR_{combined\_Life} = \left\{\min\left[\max\left(NMCR_{linear\_Life}; 0.25 \cdot NSCR_{Life}\right); 0.45 \cdot NSCR_{Life}\right]\right\}$$

k. For the purpose of SA QIS3, the capital add-on, which is required (if relevant) to be included in the calculation of the MCR corridor, is considered to be zero for all insurers. When these requirements are implimented the MCR will be increased by any capital add-on specified by the regulator.

l. From the results of the above calculation steps, the notional non-life MCR and the notional life MCR of a composite insurer are determined as follows:

$$NMCR_{NL} = \max\left\{NMCR_{combined\_NL}; AMCR_{NL}\right\}$$

$$NMCR_{Life} = \max\left\{NMCR_{combined\_Life}; AMCR_{Life}\right\}$$