

**Final CEIOPS' Advice for
Level 2 Implementing Measures on
Solvency II:**

**Article 130
Calculation of the MCR**

(former CP 55)

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1. Introduction

- 1.1. In its letter of 19 July 2007, the European Commission requested CEIOPS to provide final, fully consulted advice on Level 2 implementing measures by October 2009 and recommended CEIOPS to develop Level 3 guidance on certain areas to foster supervisory convergence. On 12 June 2009 the European Commission sent a letter with further guidance regarding the Solvency II project, including the list of implementing measures and timetable until implementation.
- 1.2. This Paper aims at providing advice with regard to the calculation of the Minimum Capital Requirement (MCR) as requested in Article 130 of the Solvency II Level 1 text¹ ("Level 1 text").
- 1.3. The objective of this paper is to specify the calculation of the MCR in a clear and detailed way, including the following aspects:
 - the calculation of the MCR, including the linear formula subject to the SCR based cap and floor and the absolute floor defined in the Level 1 text,
 - the quarterly calculation of the MCR, required by Article 129(4) of the Level 1 text, and
 - the calculation of the notional life and non-life MCR required for composite undertakings by Article 74(3) of the Level 1 text.
- 1.4. This Paper does not include advice regarding the calibration of the MCR linear formula factors. The calibration of these factors is connected to the calibration of the parameters of the SCR standard formula. CEIOPS will consult on the calibration proposal in its third set of consultation papers on starting in November 2009.

¹ Latest version from 19 October 2009 available at <http://register.consilium.europa.eu/pdf/en/09/st03/st03643-re01.en09.pdf>

2. Extract from Level 1 text

2.1. 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.

2.2. Recitals:

(69) When the amount of eligible basic own funds falls below the Minimum Capital Requirement, the authorisation of insurance and reinsurance undertakings should be withdrawn, where those undertakings are unable to re-establish the amount of eligible basic own funds at the level of the Minimum Capital Requirement within a short period of time.

(70) The Minimum Capital Requirement should ensure a minimum level below which the amount of financial resources should not fall. It is necessary that it is calculated in accordance with a simple formula, which is subject to a defined floor and cap based on the risk-based Solvency Capital Requirement in order to allow for an escalating ladder of supervisory intervention and that it is based on the data which can be audited.

2.3. Articles:

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 policyholders and beneficiaries are exposed to an unacceptable level of risk where insurance and reinsurance undertakings were 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 point (d) of paragraph 1, 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 addition 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 therefore.

(5) The Commission shall submit to the European Parliament and the European Insurance and Occupational Pensions Committee established by Commission Decision 2004/9/EC², by 31 October 2017, a report on Member States' rules and supervisory authorities' practices adopted pursuant to paragraphs 1 to 4.

² OJ L 3, 7.1.2004, p. 34.

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.

2.4. Furthermore, Article 74 of the Level 1 text states the following:

Article 74 – Separation of life and non-life insurance management

[...]

(2), on the basis of the separate accounts referred to in paragraph 6.

Without prejudice to Articles 100 and 128, the insurance undertakings referred to in Article 73(2) and (5) shall calculate:

(a) a notional life Minimum Capital Requirement with respect to their life insurance or reinsurance activity, calculated as if the undertaking concerned only pursued that activity, on the basis of the separate accounts referred to in paragraph 6; and

(b) a notional non-life Minimum Capital Requirement with respect to their non-life insurance or reinsurance activity, calculated as if the undertaking concerned only pursued that activity, on the basis of the separate accounts referred to in paragraph 6

(3) As a minimum, the insurance undertakings referred to in Article 72(2) and (5) shall cover the following by an equivalent amount of eligible basic own fund items:

(a) the notional life Minimum Capital Requirement, in respect of the life activity;

(b) the notional non-life Minimum Capital Requirement, in respect of the non-life activity.

The minimum financial obligations referred to in the first subparagraph in respect of the life insurance activity and the non-life insurance activity shall not be borne by the other activity. [...]

3. Advice

3.1 Explanatory text

3.1.1. Previous advice

- 3.1. Previously, CEIOPS provided advice on the MCR in its **Answers to the European Commission on the second wave of Calls for Advice in the framework of the Solvency II project** (CEIOPS-DOC-07/05, October 2005) and in its **further advice to the European Commission on Pillar 1 issues** (CEIOPS-DOC-08/07, March 2007).
- 3.2. More recently in its **MCR pros and cons paper** (Architecture of the MCR: Pros and cons of different approaches – CEIOPS-DOC-22/07, December 2007) CEIOPS analysed the advantages and disadvantages of different proposed approaches to the design of the MCR in the context of the European Commission's framework Directive proposal. While this paper did not conclude on a final recommended MCR design for the Solvency II framework, it recommended the testing of a linear approach in QIS4.
- 3.3. The combined approach eventually tested in QIS4 did not follow CEIOPS' recommendation but reflected guidance by the European Commission of February 2008. Later, this approach became the basis of the current MCR design included in the Level 1 text.

3.1.2. The MCR in QIS4

- 3.4. The MCR approach tested in QIS4 combined the linear approach recommended by CEIOPS with a cap of 50% and a floor of 20% of the SCR. Overall, this approach was found workable in QIS4. The calculation of the MCR in QIS4 caused little or no practical difficulty for most undertakings. The calibration of the linear component of the MCR in QIS4 was regarded as satisfactory for non-life business, whereas it was also concluded that the calibration of the linear formula for life business would need improvement.

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 (a set or sub-set of 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 129(1)d.

- 3.6. The general rule is that if an undertaking has an approved internal model, then the corridor used for calculating its MCR is determined by the internal model SCR result. However, for no longer than two years after the entry into force of Solvency II, the supervisory authority has the power to require that the corridor is calculated from the SCR standard formula.
- 3.7. The definition of the corridor includes capital add-ons imposed on the undertaking’s SCR in accordance with Article 37.
- 3.8. Although both the SCR and the MCR linear formula are calibrated to a Value-at-Risk measure subject to a given confidence level, some important structural differences between the two should be noted:
 - the linear formula is a simple factor-based measure, while the level of complexity of the SCR calculation is typically higher, involving non-linear calculations and scenario analysis;
 - in particular, as opposed to the SCR, the linear formula includes no allowance for diversification effects,
 - the linear formula is retrospective (e.g. previous year actual volume measures) whereas the SCR is prospective (e.g. next year projected volume measures).

3.1.4. Structure and segmentation of the linear formula

- 3.9. 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.
- 3.10. Following the separation of life and non-life insurance management required in Article 74(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.
- 3.11. 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.

- 3.12. 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.
- 3.13. For the purpose of the calculation of the linear formula, the technical provision net of reinsurance is the difference between the gross technical provision and the reinsurance recoverables (including the adjustment for counterparty default), where the recoverables should not include recoverables from finite reinsurance.
- 3.14. For the purpose of the calculation of the linear formula, the 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.
- 3.15. It appears necessary to exclude finite reinsurance from the volume measures for the MCR in order to ensure that the linear MCR is robust and produces a result in line with the calibration objective of 85% VaR (Article 129(1c) of the Level 1 text). The linear MCR formula is based on the assumption that the risk transfer by reinsurance is proportionate to the reinsurance undertaking's share of premiums and technical provisions. For finite reinsurance the risk transfer is in many cases significantly lower than the reinsurance undertaking's share of premiums and technical provisions. If finite reinsurance was not excluded from the volume measure it would be possible to reduce (in extreme cases even to zero) net premiums and net technical provisions and thereby the linear MCR without a significant reduction of risk. The exclusion of finite reinsurance is consistent with the treatment for the factor-based non-life premium and reserve risk sub-module of the SCR standard formula (see CEIOPS' Advice on Reinsurance mitigation techniques).³
- 3.16. For consistency with the volume measures used in the SCR standard formula, it is suggested that the technical provision volume measures in the linear formula are understood without the risk margin (i.e. the best estimate technical provision should be used).

³ CEIOPS-DOC-44-09 (October 2009), see <http://www.ceiops.eu//content/view/17/21/>.

3.17. The volume measures prescribed in Article 129(2) of the Level 1 text do not allow to explicitly reflect in the linear formula all risks that an undertaking is exposed to. Such risks as e.g. market risk are reflected implicitly in the calibration of the factors.

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

3.18. 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 (a_{job}) of net technical provisions**, reflecting underwriting risk for long-term business;
- **a fixed percentage (β_{job}) of net written premiums**, reflecting underwriting risk for short-term business.

3.19. It is suggested that the segmentation of lines of business for the purposes of this linear formula component should be consistent with the segmentation of non-life technical provisions, and with the segmentation of non-life and health lines of business used in the SCR standard formula (see CEIOPS' Advice on segmentation).⁴ The following segments are suggested:

- A.1 Motor vehicle liability
- A.2 Motor, other classes
- A.3 Marine, aviation, transport
- A.4 Fire and other property damage
- A.5 Third party liability
- A.6 Credit and suretyship
- A.7 Legal expenses
- A.8 Assistance
- A.9 Miscellaneous non-life insurance
- A.10 Non-proportional reinsurance – property
- A.11 Non-proportional reinsurance – casualty
- A.12 Non-proportional reinsurance – marine, aviation, transport
- A.13 Accident
- A.14 Sickness
- A.15 Workers compensation

3.20. The segments A.1 to A.9 and A.13 to A.15 include both insurance and proportional reinsurance accepted. Other reinsurance accepted than proportional reinsurance should be allocated to the segments A.10 to A.12.

⁴ CEIOPS-DOC-22-09 (October 2009), see <http://www.ceiops.eu//content/view/17/21/>.

B. Non-life activities technically similar to life

- 3.21. 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.
- 3.22. Examples of non-life activities that are similar in nature to life insurance include long-term health insurance and non-life annuities.
- 3.23. The rationale for change relative to the QIS4 treatment of this component is that the QIS4 approach may not cover all types of non-life insurance which are similar to life insurance. Furthermore, arbitrage opportunities should be avoided: the MCR should not depend on whether an activity is done by a life or by a non-life insurer.

C. Life activities practised on a life technical basis

- 3.24. This component of the linear formula should be calculated as **the sum of** the following results:
- **a fixed percentage (a_i) of net technical provisions**, at an appropriate granularity, to reflect long-term risks relating to life business; and
 - **a fixed percentage of net capital-at-risk (a)**.
- 3.25. For the purposes of the MCR linear formula, CEIOPS suggests a segmentation that is somewhat different from the life segments suggested in CEIOPS Level 2 advice on the segmentation of technical provisions⁵. The changes mainly affect the second level of the segmentation. Some second-level segments have been introduced to capture major differences in risk profiles. However, because of the need for simplicity and comparability, the granularity of second-level segments is kept at the minimum in the suggested segmentation, which is described below:
- 3.26. **Technical provisions – with-profit segment:** Technical provisions relating to contracts with profit participation clauses are split between the following two sub-segments:
- C.1.1 provisions for guaranteed benefits
 - C.1.2 provisions for future discretionary benefits
- 3.27. As the linear formula charge for the discretionary sub-segment is negative, it is suggested to include a **with-profit floor** (expressed as a percentage of the technical provisions for guaranteed benefits) in the linear formula charge of the overall with-profit segment to prevent it from falling too low.
- 3.28. **Technical provisions – unit-linked segment:** Technical provisions relating to contracts where the policyholder bears the investment risk are split between the following sub-segments:

⁵ CEIOPS-DOC-22/09 (October 2009), see <http://www.ceiops.eu//content/view/17/21/> (former CP27)

C.2.1 provisions for unit-linked contracts without guarantees

C.2.2 provisions for unit-linked contracts with guarantees

3.29. **Technical provisions – without profit segment:** Technical provisions relating to contracts without profit participation clauses are treated as a single segment:

C.3 provisions for contracts without profit participation clauses

3.30. **Technical provisions – life reinsurance:** Reinsurance accepted is not treated as a separate segment in the linear formula but should be apportioned according to the segmentation of direct business, using the same factors as for direct business. The technical provisions of reinsurance accepted of with-profit business should be completely assigned to segment C.1.1.

3.31. **Capital-at-risk** is defined as 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 See CEIOPS'Advice on the Best Estimate⁶.

3.32. CEIOPS considers that splitting capital-at-risk into further segments (like e.g. in QIS4, depending on the outstanding term of contract) does not have a significant potential benefit that would justify the added complexity. Therefore it is suggested that capital-at-risk is treated as a single volume measure in the linear formula with no granularity (C.4).

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

3.33. 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).

Deferred taxes

3.34. According to Article 129 of the Level 1 text, deferred tax liabilities can be used as a variable in the calculation of the linear MCR. However it is also an option under the Level 1 text not to use this variable in the linear formula. The objective of the inclusion of the deferred tax liability in the calculation would be to capture the loss-absorbing capacity of this balance

⁶ See CEIOPS'Advice on the Best Estimate, CEIOPS-DOC-33-09 (October 2009), see <http://www.ceiops.eu//content/view/17/21/>

sheet item: in case an undertaking incurs losses, the deferred tax liabilities potentially decrease and thereby offset a part of the losses. The SCR calculation allows for this effect by an adjustment to the Basic SCR.

3.35. An allowance for deferred taxes in the linear MCR could increase the risk-sensitivity of the formula. On the other hand, there are strong arguments not to allow for deferred taxes in the linear MCR as follows:

- When the MCR becomes relevant, i.e. when the own funds of an undertaking are close to the MCR, it has usually incurred losses in the past that made the deferred tax liabilities vanish. Therefore, deferred tax liabilities are likely only to have a significant effect on the linear MCR in case the MCR itself is not relevant for the undertaking. (Although some stakeholders questioned this counterargument, feedback from QIS4 suggested that at least in some countries this would be the case.)⁷
- The loss-absorbing characteristics of deferred taxes depend on the tax regulation of the state that the undertaking is situated in. It is unclear whether the characteristics of different (probably complex) tax regimes can be reflected in one risk factor. Moreover, there seems to be no database yet for an analysis of this question. The QIS4 results do not appear to be a reliable basis as the participants' approach to deferred taxes differed significantly.

3.36. A number of stakeholders commented that an allowance for deferred taxes should nonetheless be included in the linear formula, arguing that not doing so would lead to inconsistency between the SCR and the MCR, and that such an allowance would improve the risk sensitivity of the MCR.

3.37. There is some merit in the argument that including a deferred taxes allowance could make the linear formula more risk sensitive, and more consistent with the SCR. CEIOPS however notes that these benefits of a deferred taxes allowance would only appear if its calibration were based on reliable data, if its quantitative impacts were properly understood, and if it were interpreted and applied consistently across jurisdictions and undertakings.

3.38. The results of QIS4 showed that the allowance for deferred taxes has been one of the least understood elements of the pillar 1 framework. CEIOPS is concerned that pressing ahead with a deferred taxes allowance in the linear formula under the present circumstances would only lead to added complexity and possible lack of consistent interpretation, which would have an adverse effect on legal certainty of the MCR, for unclear benefits on the side of risk sensitivity.

3.39. For these reasons, CEIOPS considers that the inclusion of deferred tax liabilities in the MCR linear formula would not lead to any significant regulatory benefit. CEIOPS is however open to revisit this question under possible future revisions of Level 2, when more experience will have been

⁷ See CEIOPS-SEC-82/08: CEIOPS' Report on its fourth Quantitative Impact Study (QIS4) for Solvency II, section 9.10.2.2 on page 246.

accumulated about the functioning of the Solvency II treatment of deferred taxes.

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

- 3.40. For composite insurance undertakings – i.e. the insurance undertakings⁸ referred to in Article 73(2) and (5) of the Level 1 text – 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.
- 3.41. While the Level 1 text explicitly requests separate notional life and non-life MCR calculations for composite insurance undertakings, this is not the case for the SCR. This raises the question of how to calculate the cap and the floor as a percentage of the SCR for composites. CEIOPS considers that the corridor needs to be calculated separately for non-life and life activities, and applied to the non-life and life linear formula respectively. Without applying the separate corridors, the supervisory ladder properties of the overall combined approach cannot be retained. In QIS4, the separate corridors in respect of non-life and life were not yet defined: their calculation is a new element in this preparatory advice.
- 3.42. For determining the separate non-life and life corridors, in turn, a notional non-life SCR and a notional life SCR ($NSCR_{NL}$ and $NSCR_{Life}$) need to be calculated. It is noted that 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.
- 3.43. While splitting the linear formula between non-life and life components is self-explanatory, calculating notional non-life and life SCR results is not straightforward.
- 3.44. CEIOPS recommends that, when the two notional SCRs are calculated, the overall SCR of an undertaking is split in such a way that $NSCR_{NL} + NSCR_{Life} = SCR$. This means that CEIOPS recognises the diversification benefits that arise between the non-life and life activities of a composite insurance undertaking.
- 3.45. More precisely, $NSCR_{NL}$ and $NSCR_{Life}$ are calculated directly by splitting the overall SCR charge according to the ratio of the non-life and life MCR linear formula results. The advantages of this method are that:
- it is very simple to calculate;
 - it avoids the burden of calculating the full SCR separately for non-life and life;
 - it is directly applicable regardless of whether the corridor is derived from the standard formula or from an internal model;

⁸ It is noted that Article 74(2) only refers to insurance undertakings. Therefore this section does not relate to reinsurance undertakings.

- given that the linear formula and the corridor are split according to the same ratio, the sum of the notional non-life MCR and the notional life MCR is always equal to the overall MCR.
- 3.46. Furthermore, the absolute floors should apply to the notional non-life and life MCR as follows:
- For “old composites”, i.e. the insurance undertakings referred to in Article 73(5), the notional non-life MCR should not be lower than the non-life absolute floor defined in point (i) of Article 129(1)d, and the notional life MCR should not be lower than the life absolute floor defined in point (ii) of Article 129(1)d of the Level 1 text.
 - For “new composites”, i.e. the insurance undertakings referred to in Article 73(2), the amount of the absolute floor is not defined in the Level 1 text. Since the overwhelming majority of “new composites” are life undertakings that have taken up accessory non-life activities, CEIOPS considers that the economic reality of these undertakings is best reflected if they are treated like life insurance undertakings. That is, the overall absolute floor for a “new composite” undertaking should be equal to the life absolute floor defined in point (ii) of Article 129(1)d of the Level 1 text. The same absolute floor should apply to the notional life MCR of a “new composite” undertaking, whereas a zero absolute floor should apply to its notional non-life MCR.
- 3.47. If capital add-ons are taken into account in the definition of the corridor, then an add-on imposed on a composite insurance undertaking should also be allocated between non-life and life activities for the purposes of calculating the MCR split between life and non-life. The split should be declared by the supervisor imposing the add-on for that particular undertaking.

3.1.6. Quarterly calculation of the corridor

Frequency of calculation

- 3.48. 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.
- 3.49. By way of the corridor, the calculation of the MCR is linked to the calculation of the SCR. Regarding the frequency of the SCR calculations, the Level 1 text in Article 102(1), requires that an undertaking shall calculate its SCR at least once a year. In addition, extraordinary SCR calculations are required whenever there is a significant change in the risk profile.
- 3.50. Therefore, for the purpose of the MCR calculation, the SCR shall be calculated on a quarterly basis.

3.51. Since the objective of the quarterly MCR calculation is to ascertain whether or not the MCR has been breached, the own funds eligible to cover the MCR should also be calculated in parallel on a quarterly basis.

Simplification for the quarterly calculation of the SCR for the purpose of MCR calculation

3.52. When the SCR is calculated using the standard formula, for the quarterly calculation that is not at year end, undertakings are allowed to use a simplification.

3.53. The simplification consists of **a partial recalculation of the last reported SCR**. A partial recalculation means that only those (sub)modules of the SCR whose main risk drivers have changed significantly since the last calculation are recalculated.

3.54. A minority of CEIOPS' members suggested that a simple carry forward of the last reported SCR should be used as a simplification.

3.55. However, no simplifications are allowed in the following cases:

- a. (significant change in risk profile:) if there has been a significant change in the risk profile of an undertaking since the last reported SCR,
- b. (proximity of intervention point:) if the undertaking falls below the following capital thresholds, indicating that there is an increased probability of MCR level intervention in the forthcoming period:
 - i. the undertaking has breached the SCR,
 - ii. the undertaking has breached the MCR, or
 - iii. the undertaking does not hold eligible Tier 1 and Tier 2 basic own funds covering at least 150% of the MCR (i.e. proximity of an MCR breach), without taking into account the absolute floor.

3.56. Under the principle of proportionality (see CEIOPS advice on proportionality⁹), undertakings using undertaking-specific parameters, a partial internal model or a full internal model, shall apply a quarterly calculation that is sufficiently sophisticated.

3.57. Regarding the thresholds in point b, to avoid circularity, if the last full MCR/SCR calculation indicated that any of the thresholds i.–iii. has been breached, then the simplification should not be used. If the simplification has been used but it indicates a breach of any of the thresholds i.–iii., then the undertaking shall not use the simplification.

⁹ See CEIOPS-DOC-24-08, Advice to the European Commission on the Principle of Proportionality in the Solvency II Framework Directive Proposal, http://www.ceiops.eu/media/docman/public_files/publications/submissionstotheec/AdviceProportionality.pdf

3.58. The reason for not taking into account the absolute floor in iii. of point b. above is to avoid demanding extraordinary full SCR recalculations in those cases where the capital requirements are dominated by the absolute floor.

3.2 CEIOPS' advice

3.2.1. Overall MCR calculation

3.59. The MCR of an undertaking should be calculated as follows:

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

where

$MCR_{combined}$ = the combined MCR of the undertaking, i.e. the linear formula result subject to a floor of 25% and a cap of 45% of the SCR,

$AMCR$ = the absolute floor of the MCR, as defined in Article 129(1)d of the Level 1 text. Since the overwhelming majority of "new composites" are life undertakings that have taken up accessory non-life activities, CEIOPS considers that the absolute floor for "new composite" undertakings i.e. the undertakings referred to in Article 73(2) should be regarded as equal to the life absolute floor, defined in point (ii) of Article 129(1)d of the Level 1 text.

3.60. The combined MCR of an undertaking is calculated as follows:

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

where

MCR_{linear} = the linear formula referred to in Article 129(2) of the Level 1 text, whose calculation is further detailed below.

SCR = the SCR of the undertaking, calculated by the standard formula or by an approved internal model in accordance with Article 129(3) of the Level 1 text, including any capital add-on imposed under Article 37.

3.61. The MCR linear formula is calculated as the sum of four components, whose calculation is detailed further below:

$$MCR_{linear} = MCR_A + MCR_B + MCR_C + MCR_D$$

where

MCR_A = the linear formula component for non-life business – activities on a non-life technical basis

MCR_B	=	the linear formula component for non-life business – activities technically similar to life
MCR_C	=	the linear formula component for life business – activities on a life technical basis
MCR_D	=	the linear formula component for life business – supplementary non-life activities

- 3.62. 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.
- 3.63. For the purpose of the calculation of the linear formula, the technical provision net of reinsurance is the difference between the gross technical provision and the reinsurance recoverables, where the recoverables should not include recoverables from finite reinsurance.
- 3.64. For the purpose of the calculation of the linear formula, the 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.
- 3.65. For consistency with the volume measures used in the SCR standard formula, the technical provision volume measures in the linear formula are understood without the risk margin (i.e. the best estimate technical provision should be used)
- 3.66. CEIOPS considers that the inclusion of deferred tax liabilities in the MCR linear formula would not lead to any significant regulatory benefit.

3.2.2. Linear formula component for non-life activities practised on a non-life technical basis

- 3.67. The linear formula component MCR_A for non-life business – activities on a non-life technical basis is calculated by the following function:

$$MCR_A = \sum_j \max(\alpha_j \cdot TP_j; \beta_j \cdot P_j)$$

where

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

The segmentation of lines of business for the above formula is the following (the suggested calibration of the factors a_j and β_j is to be provided in further advice):

j	<i>Line of business</i>
A.1	Motor vehicle liability
A.2	Motor, other classes
A.3	Marine, aviation, transport
A.4	Fire and other property damage
A.5	Third-party liability
A.6	Credit and suretyship
A.7	Legal expenses
A.8	Assistance
A.9	Miscellaneous
A.10	NP reinsurance – property
A.11	NP reinsurance – casualty
A.12	NP reinsurance – MAT
A.13	Accident
A.14	Sickness
A.15	Workers compensation

3.68. The segments A.1 to A.9 and A.13 to A.15 include both insurance and proportional reinsurance accepted. Other reinsurance accepted than proportional reinsurance should be allocated to the segments A.10 to A.12.

3.2.3. Linear formula component for non-life activities technically similar to life

3.69. The calculation of the linear formula component MCR_B should follow the same approach as the calculation of linear formula component MCR_C with the same segmentation, the same factors and the same volume measures in respect of non-life activities practised on a technical basis similar to life insurance.

3.2.4. Linear formula component for life activities on a life technical basis

3.70. The linear formula component MCR_C for life business – activities on a life technical basis is calculated by the following function:

$$MCR_C = \max\{\alpha_{C.1.1} \cdot TP_{C.1.1} + \alpha_{C.1.2} \cdot TP_{C.1.2}; WP_{-floor} \cdot TP_{C.1.1}\} + \sum_{j \in \{C.2.1, C.2.2, C.3\}} \alpha_j \cdot TP_j + \alpha_{C.4} \cdot CAR.$$

where

TP_j = 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 (See CEIOPS' Advice on the Best Estimate, CEIOPS-DOC-33/09).

3.71. The technical provision segments taken into account in this component is the following:

<i>Index (j)</i>	<i>Segment</i>
Contracts with profit participation clauses:	
C.1.1	technical provisions for guaranteed benefits
C.1.2	technical provisions for future discretionary benefits
Contracts where the policyholder bears the investment risk, such as unit-linked business:	
C.2.1	technical provisions for contracts without guarantees
C.2.2	technical provisions for contracts with guarantees
Contracts without profit participation clauses:	
C.3	technical provisions for contracts without profit participation clauses

3.72. 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 with-profit business should be completely assigned to segment C.1.1.

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

<i>Index</i>	<i>Segment</i>
C.4	capital-at-risk for all contracts

3.74. The suggested calibration of the factors in the above formula will be provided in CEIOPS' further advice concerning the calibration of the MCR.

3.2.5. Linear formula component for life activities – supplementary obligations practised on a non-life technical basis

3.75. The calculation of the linear formula component MCR_D should follow the same approach as the calculation of linear formula component MCR_A with the same segmentation, the same factors and the same volume measures in respect of supplementary non-life and health obligations.

3.2.6. Notional non-life and life MCR (for composite insurance undertakings)

3.76. The linear formula result of a composite insurance undertaking (i.e. i.e. the insurance undertakings referred to in Article 73(2) and (5) of the Level 1 text – is split between notional non-life and life components as follows:

$$NMCR_{linear_NL} = MCR_A + MCR_B$$

$$NMCR_{linear_Life} = MCR_C + MCR_D$$

3.77. 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:

$$NSCR_{NL} = \frac{NMCR_{linear_NL}}{MCR_{linear}} \cdot SCR_{no_add-on}$$

$$NSCR_{Life} = \frac{NMCR_{linear_Life}}{MCR_{linear}} \cdot SCR_{no_add-on}$$

where SCR_{no_add-on} is the SCR of the undertaking, calculated by the standard formula or by an approved internal model in accordance with Article 129(3) of the Level 1 text, but not including any capital add-on under Article 37. 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.

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

$$\begin{aligned}
 NMCR_{combined_NL} &= \\
 &= \left\{ \min \left[\max \left(NMCR_{linear_NL}; 0.25 \cdot (NSCR_{NL} + Add_on_{NL}) \right); 0.45 \cdot (NSCR_{NL} + Add_on_{NL}) \right] \right\} \\
 NMCR_{combined_Life} &= \\
 &= \left\{ \min \left[\max \left(NMCR_{linear_Life}; 0.25 \cdot (NSCR_{Life} + Add_on_{Life}) \right); 0.45 \cdot (NSCR_{Life} + Add_on_{Life}) \right] \right\}
 \end{aligned}$$

where

Add_on_{NL} = any capital add-on imposed in accordance with Article 37 of the Level 1 text in respect of the non-life insurance and reinsurance activity of the undertaking

Add_on_{Life} = any capital add-on imposed in accordance with Article 37 of the Level 1 text in respect of the life insurance and reinsurance activity of the undertaking

3.79. When a capital add-on is imposed on a composite insurance undertaking, the supervisor imposing the add-on should define how the add-on is split between the non-life and the life activity of the undertaking for the purpose of calculating the notional non-life and life MCR.

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

$$NMCR_{NL} = \max \{ NMCR_{combined_NL}; AMCR_{NL} \}$$

$$NMCR_{Life} = \max \{ NMCR_{combined_Life}; AMCR_{Life} \}$$

where

$AMCR_{NL}$ = for "old composite undertakings", i.e. the insurance undertakings referred to in Article 73(5): the non-life absolute floor, i.e. the amount set out in point (i) of Article 129(1)d of the Level 1 text

for "new composite undertakings", i.e. the insurance undertakings referred to in Article 73(2): since the overwhelming majority of "new composites" are life undertakings that have taken up accessory non-life activities, CEIOPS considers that a zero absolute floor should apply.

$AMCR_{Life}$ = the life absolute floor, i.e. the amount set out in point (ii) of Article 129(1)d of the Level 1 text

3.2.7. Quarterly calculation of the corridor

- 3.81. For the purpose of the MCR calculation, the SCR shall be calculated on a quarterly basis.
- 3.82. Since the objective of the quarterly MCR calculation is to ascertain whether or not the MCR has been breached, the own funds eligible to cover the MCR should also be calculated in parallel on a quarterly basis.

Simplification for the quarterly calculation of the SCR for the purpose of MCR calculation

- 3.83. When the SCR is calculated using the standard formula, for the quarterly calculation that is not at year end, undertakings are allowed to use a simplification.
- 3.84. The simplification consists in **a partial recalculation of the last reported SCR**. A partial recalculation means that only those (sub)modules of the SCR whose main risk drivers have changed significantly since the last calculation are recalculated.
- 3.85. However, no simplifications are allowed in the following cases:
- a. (significant change in risk profile:) if there has been a significant change in the risk profile of an undertaking since the last reported SCR,
 - b. (proximity of intervention point:) if the undertaking falls below the following capital thresholds, indicating that there is an increased probability of MCR level intervention in the forthcoming period:
 - i. the undertaking has breached the SCR,
 - ii. the undertaking has breached the MCR, or
 - iii. the undertaking does not hold eligible Tier 1 and Tier 2 basic own funds covering at least 150% of the MCR, without taking into account the absolute floor.
- 3.86. Under the principle of proportionality (see CEIOPS advice on proportionality¹⁰), undertakings using undertaking-specific parameters, a partial internal model or a full internal model, shall apply a quarterly calculation that is sufficiently sophisticated.
- 3.87. Regarding the thresholds in point b, to avoid circularity, if the last full MCR/SCR calculation indicated that any of the thresholds i.-iii. has been breached, then the simplification should not be used. If the simplification has been used but it indicates a breach of any of the thresholds i.-iii., then the undertaking shall not use the simplification.

¹⁰ See CEIOPS-DOC-24-08, Advice to the European Commission on the Principle of Proportionality in the Solvency II Framework Directive Proposal, http://www.ceiops.eu/media/docman/public_files/publications/submissionstotheec/AdviceProportionality.pdf