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Consultation Paper No. 73

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

Article 128

Calibration of the MCR

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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]

1.2. This Paper aims at providing advice with regard to the calculation of the Minimum Capital Requirement (MCR) as requested in Article 128 of the Solvency II Level 1 text[2].

1.3. This paper follows CP 55 which was published in June 2009, and for which the consultation period closed on 11 September 2009.

1.4. The objective of this paper is to give draft advice on the calibration of the MCR, in particular on the calibration of the linear function referred to in Article 127(1b) of the Level 1 text.

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[1] See http://www.ceiops.eu/content/view/5/5/

[2] Text adopted by the European Parliament on 22 April 2009, see http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+TA+20090422+SIT-03+DOC+WORD+V0//EN&language=EN

2. Extract from Level 1 Text

Legal basis for the implementing measure

2.1. Article 128 – Implementing measures:

The Commission shall adopt implementing measures specifying the calculation of the Minimum Capital Requirement, referred to in Articles 126 and 127.

Other relevant Level 1 text for providing background to the advice

2.2. Recitals:

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falls below the Minimum Capital Requirement, the authorisation of insurance and reinsurance undertakings should be withdrawn, if those undertakings are unable to re-establish the amount of eligible basic own funds at the level of the Minimum Capital Requirement within a short period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

(43) 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 127 – Calculation of the Minimum Capital Requirement

(1) The Minimum Capital Requirement shall be calculated in accordance with the following principles:

[...]

(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;

[...]

(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 not fall below 25% nor exceed 45%, of the undertaking's Solvency Capital Requirement, calculated in accordance with Chapter VI, Section 4, Sub-sections 2 or 3, and including any capital add-on imposed in accordance with Article 37. [...]

3. Advice

3.1. Background

3.1. The MCR approach tested in QIS4 combined a linear formula with a cap of 50% and a floor of 20% of the SCR. Overall, this approach was found workable in QIS4. The Level 1 text sets out an MCR calculation method similar to QIS4, yet with a narrower corridor (25% to 45% of the SCR).

3.2. 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] The subject of this paper is the refinement of the QIS4 calibration, as well as its adjustment to post-QIS4 changes of the MCR and the SCR.

3.3. This paper builds on the the definitions and notations used in CEIOPS' advice on Article 128: Calculation of the MCR (CEIOPS-DOC-47/09)[4].

3.4. The Level 1 text requires that the MCR linear formula is calibrated to a 85% Value-at-Risk confidence level over a one-year time horizon. It is not expected, however, that a simple linear formula will accurately reflect a prescribed level of confidence. Therefore, instead of an independent modelling of the 85% VaR confidence level, CEIOPS calibrated the MCR linear formula relative to the SCR standard formula. The life linear formula was fitted to a benchmark percentage (35%) of the SCR standard formula; whereas the non-life calibration was built on the standard deviation parameters used in the premium and reserve risk submodule of the SCR standard formula.

3.5. Admittedly, the relationship between the 85% and 99.5% confidence levels can not be described by a fixed percentage across all probability distributions. CEIOPS however considers that the 35% ratio – which corresponds to the middle of the 25%–45% corridor – is broadly consistent with the range of distribution assumptions used in the SCR standard formula.

3.6. From this approach it follows that the calibration of the MCR linear formula is closely linked to the calibration of the SCR standard formula. This also means that when there is a significant change in the calibration of the SCR standard formula, the MCR linear formula should also be recalibrated.

3.7. Accordingly, the change of the level of the linear formula in this advice relative to QIS4 largely mirror the impact of CEIOPS' revised proposals for SCR standard formula calibrations.

3.8. It is also noted that, from the 20%–50% corridor used in QIS4, the Level 1 text narrowed down the corridor to between 25% and 45% of the SCR. Therefore it is expected that, despite calibration refinements, a larger percentage of linear formula results will fall outside the corridor than was observed in QIS4.

[3] CEIOPS provided background for the QIS4 MCR linear formula calibration in *CEIOPS–DOC–02/2008: QIS4 Background Document – Calibration of SCR, MCR and proxies* (1 April 2008).

[4] CEIOPS-DOC-47/09 (October 2009), see http://www.ceiops.eu//content/view/17/21/.

3.2 Non-life linear formula

3.9. 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 technical provisions 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
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

3.10. Following the results of QIS4, CEIOPS concluded that the QIS4 calibration approach was broadly satisfactory for property and casualty undertakings. CEIOPS therefore retains its general approach to the calibration of the non-life linear formula, whereby the factors were derived from the SCR standard formula premium and reserve risk parameters.

3.11. The suggested linear formula factors are derived from the SCR premium and reserve risk standard deviations as follows:

- technical provision factor: $\alpha_{lob} = K \cdot \rho_{85\%}\left(\sigma_{res,lob}\right)$
- written premium factor : $\beta_{lob} = K \cdot \rho_{85\%}\left(\sigma_{prem,lob}\right)$

where the steps of the process, and the meaning of the $\rho(\sigma)$ function and the adjustment factor K are explained below:

3.12. Step 1 – Determine the 85% VaR factor corresponding to the premium and reserve risk standard deviations: Following the lognormal assumptions of the SCR premium and reserve risk module, this is done by applying the $\rho(\sigma)$ function similar to that used in the SCR standard formula (see CEIOPS-DOC-41/09 on the non-life underwriting risk), but reflecting a 85% quantile instead of 99.5%:

$$\rho_{85\%}(\sigma) = \frac{\exp\left(N_{0.85} \cdot \sqrt{\log\left(\sigma^2 + 1\right)}\right)}{\sqrt{\sigma^2 + 1}} - 1$$

where $N_{0.85}$ is the 85% quantile of the standard normal distribution. (An indicative value of the $\rho_{85\%}(\sigma)$ to $\rho_{99.5\%}(\sigma)$ ratio is 0.35, varying slightly according to line of business.)

3.13. Step 2 – Apply an adjustment factor to reflect risks other than premium and reserve risk: In the first step, only premium and reserve risk has been explicitly reflected. To implicitly reflect all other risks in the SCR (non-life CAT risk, market risk, operational risk, counterparty default risk etc.) an adjustment factor K is applied.

3.14. On the basis of the QIS4 calibrations of the SCR standard formula, the correct choice of the adjustment factor would have been 1.18. This means that a 1.18 factor would scale up the $\rho_{85\%}$ factors such that the weighted average of the linear formula to SCR ratio for property and casualty undertakings is equal to 35%, where the SCR is calculated by the QIS4 standard formula.

3.15. It is estimated that, after the calibration changes suggested by CEIOPS, the SCR premium and reserve risk sub-module would increase by a factor of 1.35, whereas the overall SCR for property and casualty undertakings would increase by a factor of 1.65. This leads to an adjustment factor of $K = 1.18 \cdot 1.65/1.35 = 1.4$.

3.16. The results of the above steps are the following:

Factor	**Segment**	**SCR standard deviation** ($\sigma_{res,lob}$)	**Step 1** $\rho_{85\%}(\sigma)$	**Step 2** $K \cdot \rho_{85\%}(\sigma)$
Volume measure: technical provisions				
$\alpha_{A.1}$	Motor vehicle liability	12.5%	12.9%	18%
$\alpha_{A.2}$	Motor, other classes	12.5%	12.9%	18%
$\alpha_{A.3}$	Marine, aviation, transport	17.5%	17.9%	25%
$\alpha_{A.4}$	Fire and property	15%	15.4%	22%
$\alpha_{A.5}$	Third-party liability	20%	20.4%	29%
$\alpha_{A.6}$	Credit and suretyship	20%	20.4%	29%
$\alpha_{A.7}$	Legal expenses	12.5%	12.9%	18%
$\alpha_{A.8}$	Assistance	12.5%	12.9%	18%
$\alpha_{A.9}$	Miscellaneous	20%	20.4%	29%
$\alpha_{A.10}$	NP reinsurance – property	30%	29.8%	42%
$\alpha_{A.11}$	NP reinsurance – casualty	30%	29.8%	42%
$\alpha_{A.12}$	NP reinsurance – MAT	30%	29.8%	42%
$\alpha_{A.13}$	Accident	17.5%	17.9%	25%
$\alpha_{A.14}$	Sickness	12.5%	12.9%	18%
$\alpha_{A.15}$	Workers compensation	12.5%	12.9%	18%

Factor	Segment	SCR standard deviation ($\sigma_{prem,lob}$)	Step 1 $\rho_{85\%}(\sigma)$	Step 2 $K \cdot \rho_{85\%}(\sigma)$
Volume measure: written premiums				
$\beta_{A.1}$	Motor vehicle liability	10%	10.3%	14%
$\beta_{A.2}$	Motor, other classes	10%	10.3%	14%
$\beta_{A.3}$	Marine, aviation, transport	20%	20.4%	29%
$\beta_{A.4}$	Fire and property	12.5%	12.9%	18%
$\beta_{A.5}$	Third-party liability	17.5%	17.9%	25%
$\beta_{A.6}$	Credit and suretyship	20%	20.4%	29%
$\beta_{A.7}$	Legal expenses	7.5%	7.8%	11%
$\beta_{A.8}$	Assistance	10%	10.3%	14%
$\beta_{A.9}$	Miscellaneous	20%	20.4%	29%
$\beta_{A.10}$	NP reinsurance – property	30%	29.8%	42%
$\beta_{A.11}$	NP reinsurance – casualty	30%	29.8%	42%
$\beta_{A.12}$	NP reinsurance – MAT	30%	29.8%	42%
$\beta_{A.13}$	Accident	10%	10.3%	14%
$\beta_{A.14}$	Sickness	7.5%	7.8%	12%
$\beta_{A.15}$	Workers compensation	10%	10.3%	16%

3.17. The results of Step 2 reflect the factors suggested by CEIOPS. The MCR factors have been derived based on the factors calibrated for the SCR standard formula. Therefore in case a different calibration is adopted in the SCR standard formula, the calibration of the MCR linear formula factors should be adjusted accordingly, following the procedure described above.

3.3 Life linear formula

3.3.1 Linear fitting techniques

3.18. Following CEIOPS' advice in 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

3.19. It is noted that, in its draft advice in CP55 CEIOPS had suggested more granular capital-at-risk factors (with three segments depending on the outstanding term of contract, factors C.4.1 to C.4.3). Following stakeholder feedback on CP55, capital-at-risk is now treated as a single segment. However, a large part of the calibration work had been completed before this change; therefore some of the following explanations refer to multiple capital-at-risk factors.

3.20. To derive the calibration of the life linear formula factors, CEIOPS applied least-squares linear regression techniques to the data collected in QIS4, using 35% of the SCR standard formula as a proxy for the target confidence level (85% VaR).

3.21. The linear properties of these techniques allowed to carry out a linear fitting exercise without collecting individual undertaking data in a central database. This was possible because the coefficient matrices of the resulting linear equation systems are additive across populations of undertakings. Therefore it was sufficient to collect the relevant coefficient matrices for each country market instead of centralising individual undertaking data.

3.22. In light of the QIS4 results, it was expected that applying linear fitting techniques to the problem of life MCR calibration would face significant difficulties, including the following ones:

- possible significant non-linearity in the target function,
- possible material effect of hidden variables, e.g. market risk of assets and deferred taxes,
- lack of consistent interpretation or comparability of part of the data, especially with regard to future discretionary benefits.

3.23. Aware of these difficulties, CEIOPS tested several variants of least-squares linear regression techniques on QIS4 data in two iterations, and compared their results against each other and against expert judgement. The factors resulting from linear fitting tests were treated with extreme caution. It was recognised that linear regression alone, without expert judgement, was unlikely to lead to a satisfactory calibration.

3.24. Linear fitting was attempted both on an *absolute distance* and on a *relative distance* basis. The absolute vs. relative distance approaches seek to minimize, respectively, the following square distance functions:

$$\sum D_{absolute} = \sum_i \left(\sum_j \alpha_j V_{ij} - Z_i \right)^2$$

$$\sum D_{relative} = \sum_i \left(\frac{\sum_j \alpha_j V_{ij} - Z_i}{Z_i} \right)^2$$

Where:

- *i* is the running index for undertakings;
- *j* is the running index for volume measures;
- a_j is the linear formula factor for volume measure *j*;
- V_{ij} is volume measure *j* for undertaking *i*; and
- Z_i is the target function for undertaking *i.*

3.25. Regarding the choice of the target function, *net* and *gross* fitting approaches were both tested. By net and gross we refer to the adjustment of the SCR standard formula for the risk absorbing effect of future profit sharing.

3.26. In the net approach, the target function was 35% of the SCR of each undertaking, that is,

$$Z = 0.35 \cdot SCR \text{ ,}$$

$$D_{absolute} = \left(\sum_j \alpha_j V_j - Z \right)^2 \text{,}$$

$$D_{relative} = \left(\frac{\sum_j \alpha_j V_j - Z}{Z} \right)^2 .$$

3.27. In the gross approach, linear fitting was applied separately for the gross SCR *(BSCR + SCR_{Op})* and for the adjustment term for future profit sharing *(Adj_{FDB})*, with

$$Z^{gross} = 0.35 \cdot \left(BSCR + SCR_{OpRisk} \right) \text{,}$$

$$Z^{FDB} = -0.35 \cdot Adj_{FDB} \text{,}$$

$$D^{gross}_{absolute} = \left(\sum_j \alpha_j V_j - Z^{gross} \right)^2$$

$$D^{FDB}_{absolute} = \left(\alpha_{C.1.2} \cdot V_{C.1.2} - Z^{FDB} \right)^2 \text{, and}$$

$$D^{gross}_{relative} = \left(\frac{\sum_j \alpha_j V_j - Z^{gross}}{Z^{gross}} \right)^2$$

$$D^{FDB}_{relative} = \left(\frac{\alpha_{C.1.2} \cdot V_{C.1.2} - Z^{FDB}}{Z^{FDB}} \right)^2 .$$

Note that in this approach $\alpha_{C.1.2}$ (the factor for technical provisions for discretionary benefits) is finally derived as the sum of a positive and a negative fitted factor (resulting from the Z^{gross} target and the Z^{FDB} target, respectively).

3.28. For the target function of the life side of composite undertakings, a proxy "life SCR" was disaggregated from the overall SCR result. This was calculated by decomposing the market risk and counterparty default risk modules, as well as the adjustment for deferred taxes according to the ratio of the life technical provisions to the total technical provisions, and by recalculating the operational risk charge from the life side volume measures.

3.29. The more unknown parameters are included in the fitting test or are calibrated at the same time, the less reliable the result becomes. Therefore the number of fitted factors was reduced to five in the first iteration, and to just two in the second one:

- In the 5-factor fitting, the $a_{C.2.2}/a_{C.2.1}$, $a_{C.4.2}/a_{C.4.1}$ and $a_{C.4.3}/a_{C.4.1}$ ratios were fixed identically to QIS4, i.e. only one independent factor was left for unit-linked technical provisions and capital-at-risk each[5].

- In the 2-factor fitting, all factors except $a_{C.1.1}$ and $a_{C.1.2}$ (the factors for technical provisions for guaranteed and discretionary benefits in respect of participating contracts) were fixed. The setting of the fixed factors was identical to the respective QIS4 parameters; however a set of increased capital-at-risk factors (1.5 times higher than in QIS4) was also tested in parallel to inform expert judgement.

- Furthermore, only when fitting for the gross target in the gross approach, no disctinction was made between the guaranteed and discretionary part of technical provisions (a single factor was fitted for both).

3.3.2. Linear fitting results

3.30. The first iteration of the exercise took into account QIS4 data of 334 life and 225 composite undertakings in 29 countries. The second iteration included QIS4 data of 340 life and 225 composite undertakings in 29 countries. (Some undertakings whose data were thought to be grossly unreliable were excluded by national QIS analysts.)

3.31. Generally, the relative distance approaches failed to yield meaningful factors. In the relative distance approach, small and large undertakings influence the outcome by an equal weight, however, this approach apparently introduced such a level of noise to the target function that masked any possible linear trend.

3.32. In the absolute distance approaches, the fitted factors $a_{C.2.1}$ to $a_{C.4.3}$ (relating to the unit-linked, non-participating, and capital-at-risk segments) showed an unstable behaviour too. Only for the first two factors $a_{C.1.1}$ and $a_{C.1.2}$ (the factors for technical provisions for guaranteed and discretionary benefits in respect of participating contracts) were the results reasonably stable; however the net and the gross approaches yielded markedly different overall results:

[5] Please note that the decision to move to a single capital-at-risk factor in the linear formula design was made afterwards.

- Net fitting results (absolute distance basis):

	5-factor fitting	**2-factor fitting, QIS4 CaR factors**	**2-factor fitting, high CaR factors**
life undertakings			
$a_{C.1.1}$	2.9%	2.6%	2.4%
$a_{C.1.2}$	0.7%	-0.2%	-0.4%
composite undertakings			
$a_{C.1.1}$	1.0%	1.4%	1.3%
$a_{C.1.2}$	-1.4%	-1.4%	-1.3%
life and composite undertakings			
$a_{C.1.1}$	2.0%	1.7%	1.5%
$a_{C.1.2}$	-0.7%	-0.4%	-0.4%

- Gross fitting results (absolute distance basis):

	5-factor fitting	**2-factor fitting, QIS4 CaR factors**	**2-factor fitting, high CaR factors**
life undertakings			
$a_{C.1.1}$	7.9%	7.4%	7.2%
$a_{C.1.2}$	-10.8%	-11.6%	-11.7%
composite undertakings			
$a_{C.1.1}$	3.0%	3.3%	3.2%
$a_{C.1.2}$	–6.2%	–5.8%	–5.9%
life and composite undertakings			
$a_{C.1.1}$	4.8%	4.9%	4.8%
$a_{C.1.2}$	–8.5%	–8.5%	–8.6%

3.33. Combined with further analysis of data, these results indicated that the gross SCR had a stronger linear relationship with the volume measures than the net SCR. The analysis also indicated that in the net approach, both factors are more sensitive to the non-linear effects and random distortions in the QIS4 data regarding discretionary benefits and SCR adjustments. For these reasons, the results of the gross fitting approach was selected as the starting point for the choice of the linear formula factors.

3.34. It is noted that, despite the effort put into finding the correct linear factors, a major improvement in the overall quantitative effect relative to QIS4 cannot be expected. In QIS4, the linear formula result was inside the 25%–45% SCR band for 154 out of 558 life and composite undertakings (28% of the results). Since QIS4, CEIOPS back-tested a range of alternative calibration proposals on the QIS4 datasets. In addition to testing the results of the above linear fitting

Factor	Segment	QIS4	Step 1	Step 2	Step 3
Volume measure: technical provisions					
WP_floor	participating/guaranteed	1.5%	1.5%	1.4%	2.5%
$a_{C.1.1}$	participating/guaranteed	3.5%	4.8%	4.4%	7.7%
$a_{C.1.2}$	participating/discretionary	−9%	−8.5%	-7.7%	−13%
$a_{C.2.1}$	unit-linked without guarantees	0.5%	0.5%	0.45%	0.8%
$a_{C.2.2}$	unit-linked with guarantees	1.75%	1.75%	1.6%	2.8%
$a_{C.3}$	non-participating	1%–3.5%	2%	1.8%	3.2%
Volume measure: capital-at-risk					
$a_{C.4}$	total capital at risk	0.05% – 0.125%	0.095%	0.085%	0.14%

approaches, independent expert adjustments of the QIS4 factors were also tested. None of the tested alternatives did materially increase the proportion of the results falling within the 25%–45% corridor. Restricting the majority of the life linear formula results to the corridor between 25% and 45% of the SCR would require a strong linear relationship between the volume measures and the (net) SCR, while the analysis of the data indicates that such a strong linear relationship is not present.

3.3.3. Choice of factors

3.35. Following the above analysis, the choice of the life linear formula factors was derived in the following three steps:

3.36. Step 1 – Set initial calibration to reflect the results of the gross fitting approach: Following the gross fitting results, $a_{C.1.1}$ and $a_{C.1.2}$ were set to 4.8% and −8.5% respectively. For the remaining factors, the QIS4 calibration was retained (adjusted for changes in the segmentation). These QIS4 factors had been informed by expert judgement during the preparation for QIS4, reflecting a ranking of the risks of the respective segments. The with-profit floor parameter was also left unchanged at 1.5%. This parameter resulted too from expert judgement, however the net fitting results might seem to indicate that the choice of this parameter was in the correct range.

3.37. Step 2 – Remove bias from the weighted average: Next, the weighted averages of the linear formula to SCR ratio were calculated for each country, and the weighted average of the country weighted averages was calculated (where countries were weighted according to the number of relevant undertakings in the QIS4 sample). The initial calibration was then adjusted by a factor of 0.91 to adjust the weighted average of country averages to the 35% target.

3.38. Step 3 – Adjust for changes in SCR calibration: A single-factor adjustment was applied to the calibration in order to take into account to overall change in the level of the SCR standard formula following the proposed new calibrations. The setting of the adjustment factor (1.75) took into account the average relative weight of each sub-module in QIS4 for the relevant undertakings, the estimated average change of each sub-module relative to QIS4, and the revised correlation parameters.

3.39. The results of the above steps are the following:

3.40. The results of Step 3 reflect the factors suggested by CEIOPS. The MCR factors have been derived based on the factors calibrated for the SCR standard formula. Therefore in case a different calibration is adopted in the SCR standard formula, the calibration of the MCR linear formula factors should be adjusted accordingly, following the procedure described above.

3.4 CEIOPS' advice

3.41. The advice below supplements CEIOPS' advice in advice in CEIOPS-DOC-47/09 on the calculation of the MCR. The present advice covers the calibration of the parameters of the MCR linear formula, using the definitions and notations in the paper referred to above.

3.42. The non-life technical provision and written premium factors by line of business are defined below (the same factors apply to linear formula components A – Non-life activities practised on a non-life technical basis and D – Life activities: supplementary obligations practised on a non-life technical basis):

Index	Segment	TP factor (α_j)	Premium factor (β_j)
A.1	Motor vehicle liability	18%	14%
A.2	Motor, other classes	18%	14%
A.3	Marine, aviation, transport	25%	29%
A.4	Fire and property	22%	18%
A.5	Third-party liability	29%	25%
A.6	Credit and suretyship	29%	29%
A.7	Legal expenses	18%	11%
A.8	Assistance	18%	14%
A.9	Miscellaneous	29%	29%
A.10	NP reinsurance – property	42%	42%
A.11	NP reinsurance – casualty	42%	42%
A.12	NP reinsurance – MAT	42%	42%
A.13	Accident	25%	14%
A.14	Sickness	18%	12%
A.15	Workers compensation	18%	16%

3.43. The life technical provision and capital-at-risk factors are defined below (the same factors apply to linear formula components C – Life activities practised on a life technical basis and B – Non-life activities technically similar to life):

Index	Segment	Factor
	With-profit floor parameter	
WP_floor	participating contracts, guaranteed benefits	2.5%
	Volume measure: technical provisions	
C.1.1	participating contracts, guaranteed benefits	7.7%
C.1.2	participating contracts, discretionary benefits	−13%
C.2.1	unit-linked contracts without guarantees	0.8%
C.2.2	unit-linked contracts with guarantees	2.8%
C.3	non-participating contracts	3.2%
	Volume measure: capital-at-risk	
C.4	total capital-at-risk	0.14%

3.44. The above factors have been calibrated so that, on the average, the linear formula match the centre of a 25%–45% corridor based on the SCR standard formula. The suggested factors are linked to CEIOPS' draft advice on the calibration of the SCR standard formula. In case a different SCR standard formula calibration is adopted, then the calibration of the MCR linear formula factors should be adjusted accordingly, following the procedure described in the explanatory text.