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

SCR standard formula

Article 109 j

Simplifications / Specifications for captives

CEIOPS welcomes comments from interested parties on the following Consultation Paper.

*Please send your comments to CEIOPS by email (Secretariat@ceiops.eu) by **11.12.2009 12.00 CET**, indicating the reference "CEIOPS-CP-79/09".*

*Please note that comments submitted after the deadline or not submitted in the provided template format, **cannot** be processed.*

CEIOPS will make all comments available on its website, except where respondents specifically request that their comments remain confidential.

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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 simplified calculations for the calculation of the solvency capital requirement for captives as requested in Article 109 (j) of the Solvency II Level 1 text.[2]

1.3. The objective of this paper is to elaborate on possible simplifications for the calculation of the solvency capital requirement for captives, due to their specific business model. However, the provisions included in this advice are not to be understood to prevent captives from applying other simplifications developed for non-captive undertakings, which might be stated in other Level 2 or Level 3 measures.

[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 implementing measure

Article 109 - Implementing measures (SCR)

1. In order to ensure that the same treatment is applied to all insurance and reinsurance undertakings calculating the Solvency Capital Requirement on the basis of the standard formula, or to take account of market developments, the Commission shall adopt implementing measures laying down the following:
[…]
(j) the simplified calculations provided for specific sub-modules and risk modules, as well as the criteria that insurance and reinsurance undertakings, including captive and reinsurance undertakings, shall be required to meet in order to be entitled to use each of these simplifications, as set out in Article 108;

Other relevant articles for providing the background to the advice

Recital 6b
References in this Directive to insurance or reinsurance undertakings, should include captive insurance and captive reinsurance undertakings, except where specific provision is made for those undertakings.

Recital 14
The supervisory authorities of the Member States should therefore have at their disposal all means necessary to ensure the orderly pursuit of business by insurance and reinsurance undertakings throughout the Community whether carried on under the right of establishment or the freedom to provide services. In order to ensure the effectiveness of the supervision all actions taken by the supervisory authorities should be proportionate to the nature and the complexity of the risks inherent to the business of an insurance or reinsurance undertaking, regardless of the importance of the undertaking concerned for the over-all financial stability for the market.

Recital 14a
The new solvency regime should not be too burdensome for small and medium-sized insurance undertakings. One of the tools to achieve this objective is a proper application of the proportionality principle. This principle should apply both to the requirements on the insurance and reinsurance undertakings and on the exercise of supervisory powers.

Recital 14b
In particular, the new solvency regime should not be too burdensome for insurance undertakings who specialise in providing specific types of insurance or providing services to specific customer segments, and it should recognise that specialising in this way can be a valuable tool for efficiently and effectively managing risk. In order to achieve this objective, as well as the proper application of the proportionality principle, provision should also be made to specifically allow undertakings to use their own data to calibrate the parameters

in the underwriting risk modules of the standard formula of the Solvency Capital Requirement.

Recital 14c
The new solvency regime should also take account of the specific nature of captive insurance and reinsurance undertakings. As those undertakings only cover risks associated with the industrial or commercial group to which they belong, appropriate approaches should thus be provided in line with the principle of proportionality to reflect the nature, scale and complexity of their business.

Article 13-1a Definitions
captive insurance undertaking means an insurance undertaking owned either by a financial undertaking other than an insurance or a reinsurance undertaking or a group of insurance or reinsurance undertakings within the meaning of point (c) of Article 210(1), or by a non-financial undertaking, the purpose of which is to provide insurance cover exclusively for the risks of the undertaking or undertakings to which it belongs or of an undertaking or undertakings of the group of which the captive insurance undertaking is a member;

Article 13-3a Definitions
captive reinsurance undertaking means a reinsurance undertaking owned either by a financial undertaking other than an insurance or a reinsurance undertaking or a group of insurance or reinsurance undertakings within the meaning of point (c) of Article 210(1) or by a non-financial undertaking, the purpose of which is to provide reinsurance cover exclusively for the risks of the undertaking or undertakings to which it belongs or of an undertaking or undertakings of the group of which the captive reinsurance undertaking is a member;

Article 28 – General principles of supervision
[…]
3. Member States shall ensure that the requirements laid down in this Directive are applied in a manner which is proportionate to the nature, complexity and scale of the risks inherent to the business of each insurance or reinsurance undertaking.

3a. The Commission shall ensure implementing measures include the principle of proportionality, thus ensuring the proportionate application of the Directive, in particular to very small insurance undertakings.

Article 105 – Calculation of the Solvency Capital Requirement
[…]
2. The non-life underwriting risk module shall reflect the risk arising from (…) non-life insurance obligations, in relation to perils covered and the processes used in the conduct of business. It shall take account of the uncertainty in the results of insurance and reinsurance undertakings related to the existing insurance and reinsurance obligations as well as to the new business expected to be written over the next twelve months.

Article 108 – Simplifications in the standard formula
Insurance and reinsurance undertakings may use a simplified calculation for a specific sub-module or risk module where the nature, scale and complexity of the

risks they face justifies it and where it would be disproportionate to require all insurance and reinsurance undertakings to apply the standardised calculation. Simplified calculations shall be calibrated in accordance with Article 101(3).

3. Advice

3.1 Explanatory text

3.1.1 Reasons for providing simplifications for captives

3.1. Due to the nature of the business model of captive (re)insurers, the proportionality principle as laid down in Article 28 of the Level 1 text applies to captives. Articles 108 dealing with simplifications and 108a dealing with undertaking specific parameters for undertakings whose risk profile significantly deviates from the risk profile of the standard insurance undertaking used for the calibration of the standard formula are also of relevance for the treatment of captives.

3.2. Captives are specialised entities limiting their underwriting exclusively to risks faced by one or several undertakings of the group to which they belong. As captives cover a limited number of risks the law of large numbers does not play for them, and the behaviour of their portfolio may thus not be compared to a traditional (re)insurer's portfolio. Business accepted and ceded can change quickly which makes it impossible for captives to rely on historical data in a mechanical way.

3.3. Simplifications similar to the ones suggested have been tested on captives during the QIS4 exercise, along with the standard formula as it was presented in QIS4. Where the simplification led to a higher capital charge than the standard formula for a particular (sub)module, the simplification was considered to be acceptable as the advantage provided by using the simplification is supposed to be counterbalanced by a higher capital charge and is thus an incentive for captives to put in place the necessary resources (like human resources or IT resources) and procedures to possibly 'converge' over time to the standard formula, or a full or partial internal model.

3.4. The simplifications proposed are split in two different categories. Section 3.1.3 is about simplifications only applicable to captives based on their specific business model. Section 3.1.4 deals with simplifications applicable to the ceding undertakings of captive reinsurance undertakings.

3.5. Simplifications for the calculation of the SCR standard formula by captives have been extensively tested in the QIS4 exercise. The supervisory authorities of Luxembourg, Ireland and Malta suggested these simplifications in a national guidance paper.[3] The outcome of each simplification has been compared to the standard formula in the QIS4 Technical Specifications, in order to check the suitability of the suggested simplification. The outcome of the comparison simplifications vs. standard

[3] 'Additional national guidance to the TS for Captive Insurance and Reinsurance Undertakings', see http://www.ceiops.eu/content/view/118/124/.

model for each (sub-)module for the Luxembourg market can be found in Annex A.

3.1.2 Criteria required in order to be entitled to use the simplifications.

3.6. Simplifications suggested in this advice may be applied by entities meeting the definition of captives as stated in Article 13(1a) and 13(3a) of the Level 1 text. The definitions in Articles 13(1a) and 13(3a) are to be understood in the sense that the group of the captive undertaking does not include another insurance or reinsurance undertaking, other than another captive undertaking which meets the requirements (a)-(c) below, besides other provisions stated in those definitions.

3.7. If the undertaking does not meet the legal definition of a captive as stated above, it will be considered as an insurance or reinsurance undertaking. In this circumstance, the undertaking could nevertheless benefit from general simplifications under Solvency II.

3.8. The application of the simplifications will be limited to captives meeting the following requirements (Requirements **a (i-ii), b and c**):

Option 1

(a) (i) The insurance obligations of an insurance captive undertaking only relate to contracts where all insured persons in respect of unexpired risks are legal entities of the group of the captive undertaking and where <u>all insured persons</u> were legal entities of the group at the time the contract was entered into.

(a) (ii) The reinsurance obligations of a captive undertaking only relate to contracts where all insured persons of the underlying direct insurance contracts in respect of unexpired risks are legal entities of the group of the captive undertaking and where all insured persons of the underlying direct insurance contracts were legal entities of the group at the time the contract was entered into.

Option 2

(a) (i) The insurance obligations of an insurance captive undertaking only relate to contracts where all insured persons and beneficiaries in respect of unexpired risks are legal entities of the group of the captive undertaking and where <u>all insured persons and beneficiaries</u> were legal entities of the group at the time the contract was entered into.

(a) (ii) The reinsurance obligations of a captive undertaking only relate to contracts where all insured persons and beneficiaries of the underlying direct insurance contracts in respect of unexpired risks are legal entities of the group of the captive undertaking and where all insured persons and beneficiaries of the underlying direct insurance contracts were legal entities of the group at the time the contract was entered into.

Question to stakeholders: The requirements set out in Option 1 and Option 2 take a different approach towards beneficiaries. CEIOPS has a preference for option 2. CEIOPS would appreciate feedback on both options.

(b) The insurance respectively reinsurance obligations of the captive undertaking do not relate to <u>compulsory third party liability insurance</u>.

(c) In case a captive undertaking reinsures an insurance or reinsurance undertaking, the default of the captive undertaking should not cause a loss to the cedent. This requirement is only relevant for the simplification of the concentration risk sub-module.

Question to stakeholders: There are differing view within CEIOPS whether requirement c should be included. CEIOPS would in particular appreciate feedback on this question.

<u>Explanation of requirement (a)</u>

3.9. According to Article 13(1a) of the Level 1 text,

"captive insurance undertaking means an insurance undertaking owned either by a financial undertaking other than an insurance or a reinsurance undertaking or a group of insurance or reinsurance undertakings, or by a non-financial undertaking, the purpose of which is to provide insurance cover exclusively for the risks of the undertaking or undertakings to which it belongs or of an undertaking or undertakings of the group of which the captive insurance undertaking is a member;"

There is an analogue definition of captive reinsurance undertaking in Article 13(3a).

3.10. According to these definitions, a necessary requirement for a captive is the purpose to provide insurance cover exclusively for the risks of its owners. This requirement needs to be defined more precisely for the following reasons. Firstly, one could hold the view that the purpose mentioned before does not prevent that at least a small part of the captive undertaking's business relates to risks other than the risks of its owner. However, such an interpretation would weaken the protection of the policyholders outside of the owner's group and should therefore be ruled out. Secondly, it is unclear what "risks of the undertaking" means. For example, some captive undertakings insure the employees and the customers of the owning group. These cases are not covered by the definition.

Explanation of requirement (b)

3.11. The rationale of Recital 14c is that in case of default of a captive insurance contract, the harm to the policyholder or insured person is limited because they economically coincide with the provider of the insurance cover. However, the reason why some kinds of insurance are compulsory is not to protect policyholders or insured persons but third party beneficiaries. For example, pharmaceutical third party liability insurance is compulsory in some markets in order to ensure that victims of pharmaceutical failures (i.e. third party beneficiaries) will be compensated for any damage caused. Third party liability insurance is compulsory in this case because without insurance cover the pharmaceutical undertaking may not be able to compensate the victims. If captive undertakings provide compulsory third party liability insurance and the solvency requirements on captives are less accurate as a direct consequence of the use of simplifications, the objective of the compulsory insurance and the protection of the beneficiaries would be undermined.

3.12. This approach is in line with the IAIS guidance paper 'Guidance Paper on the Regulation and Supervision of Captive Insurers', which identifies different regulatory and supervisory approaches for compulsory and voluntary liability insurance (cf. paragraphs 6, 10-11, 63 and 130).[4] In paragraph 6, the IAIS states:

Supervisors should recognise that the regulatory risk inherent in a captive insurer can vary substantially. A pure captive represents the lowest regulatory risk because there are no unrelated party policyholders or potential third party beneficiaries. Those representing the highest regulatory risk are captives underwriting risks for unrelated party policyholders or underwriting compulsory third party liability risks. Such insurers may effectively be commercial insurers and supervisors should consider applying regulatory requirements similar to those for commercial insurers.

Explanation of requirement (c)

3.13. The default of a reinsurance undertaking can have severe effects to its cedents and the financial stability of the insurance system. Where an insurance undertaking insures the risk of the captive owner and passes them on via reinsurance to the captive undertaking, it should be ensured that the default of the captive undertaking does not cause a loss of the insurance undertaking but of the captive owner. Otherwise the situation would not be in line with the rationale of Recital 14a. Usually this is achieved by "simultaneous payment clauses" in the insurance contracts that relieve the insurance undertaking of liability if the captive undertaking defaults.

[4] The guidance paper can be found on the website of the IAIS:
http://www.iaisweb.org/__temp/17__Guidance_paper_No__3_6_on_regulation_and_supervision_of_captive_insurers.pdf

3.14. In addition to these requirements, the particular simplification should be proportionate to the nature, scale and complexity of the risks inherent in business of the captive undertaking. The assessment of proportionality should take into account the defining characteristic of a captive undertaking as stated in Recital 14c.

3.15. Irrespective of whether the captive undertaking meets the requirements (a) to (c) or makes use of particular captive simplifications, it can make use of the general simplifications provided for insurance and reinsurance undertakings, if the criteria of these simplifications can be fulfilled.

3.1.3 Simplifications for captives due to their specific business model

Non-life premium and reserve risk

3.16. The national QIS4 guidance of Luxembourg, Ireland and Malta included a simplified calculation of the non-life premium and reserve risk sub-module. Compared to the QIS4 default calculation, the simplified approach included changes as follows:

(a) The formula was simplified by choosing uniform parameters. For example the same correlation factor for all lines of business.

(b) The risk-mitigating effect of aggregate limits was taken into account.

(c) The expected profit/loss stemming from new business written during the next year was taken into account.

3.17. Groups often use their captive to retain their profits within the group by keeping the risks with a good loss ratio within their captive. The QIS4 standard formula assumes a 100% combined ratio and does therefore not allow for this captive particularity. As also many non-captive insurance and reinsurance undertakings have stable combined ratios below 100%, an allowance for the expected profit/loss only for captive undertakings would not create a level playing field. Hence, CEIOPS believes that if such an element is introduced in the standard formula, it should apply to all undertakings.

3.18. However, there are doubts whether the expected profit/loss can reliably be modelled under the standard formula approach. CEIOPS has received guidance from the European Commission saying that the expected profit/loss from new business is not expected to be modelled in the SCR standard formula.

3.19. The simplification mentioned in letter (a) of paragraph 3.16 is based on the following assumptions:

(a) The risk function ρ of the sub-module calculation can be replaced by a linear approximation: $\rho(\sigma) = 3 \cdot \sigma$.

(b) The standard deviations $\sigma_{(prem,lob)}$ and $\sigma_{(res,lob)}$ for premium and reserve risk for all lines of business are 30%. This is a conservative choice.

(c) The correlation factors for all pairs of lines of business are 35%. This is the average of the factors in the correlation matrix (excluding the diagonal entries).

3.20. Based on these assumptions a simplified formulas as follows can be derived:

$$NL_{pr,lob} = 0.9 \cdot \sqrt{V^2_{(prem,lob)} + 2 * 0.5 \cdot V_{(prem,lob)} \cdot V_{(res,lob)} + V^2_{(res,lob)}}$$

$$NL_{pr} = \sqrt{\sum_{lob} NL^2_{pr,lob} + 0.35 \cdot \sum_{\substack{(r,c) \\ (r \neq c)}} NL_{pr,r} \cdot NL_{pr,c}}$$

where (r,c) denotes a pair of lines of business and

$NL_{pr,lob}$	=	Capital requirement for premium and reserve risk for Line of business lob
$V_{(prem,lob)}$	=	Volume measure for premium risk for line of business lob as defined in CP 48 (final advice: See CEIOPS-DOC-41/09)
$V_{(res,lob)}$	=	Volume measure for reserve risk for line of business lob as defined in CP 48

3.21. The formula in 3.20 may be updated should CEIOPS decide to take into account provisions stated in 3.17.

3.22. The risk mitigating effect of an aggregate limit can be taken into account by modifying the volume measure for premium risk of a line of business in the calculation above as follows:

$$V'_{(prem,lob)} = min\left(\frac{Agg_{lob}}{0.9}; V_{(prem,lob)}\right),$$

where Agg_{lob} is the aggregate limit for line of business lob.

3.23. The aggregate limit shall represent the net retention per line of business, after reinsurance, taken into account the limits stated in acceptance as well as in reinsurance treaties, increased by a possible reinstatement premium. There may be limits in treaties accepted and in treaties reinsured, or in only acceptance or reinsurance. If for one line of business, several treaties are written but for one of them no limit can be defined, the aggregate limit shall not be taken into account. If an aggregate limit covers several lines of business (so called 'umbrella treaties', or 'multi-line treaties'), it should be assured that this overall limit is not taken into account for each line of business. Further work is necessary on the treatment of the aggregate limit at the level of a particular line of business in case of umbrella or multi-line treaties. The choice of the aggregate limit should ensure that the probability of a loss exceeding the aggregate limit has a zero probability.

Non-life catastrophe risk

3.24. QIS4 provided evidence that Method 1 (factor based method) for the calculation on the non-life catastrophe sub-module produced inaccurate capital charges for captives. On the other hand, due to a lack of precise guidelines for Method 3 (scenarios designed by the undertaking itself), many captives simply used the maximum possible liability stated in the respective reinsurance contracts. These two different approaches produced extremely divergent results and capital charges. One regulator highlighted an average ratio Method 3 / Method 1 of 1518% for captives during the QIS4 exercise.

3.25. The CAT risk sub-module in the non-life module is currently under review, but the concrete outcome and parameters of the new sub-module will only be known at a later stage. The particular needs of captives in this process are addressed in CEIOPS' Advice on non-life underwriting risk calibration.[5]

Concentration risk

3.26. Captives are often part of so called cash-pooling arrangements, where a multinational group manages the in– and outflows of the overall cash in the group. Thus a substantial share of a captive's assets is pooled at a single counterparty. But it has to be borne in mind that the captive owner is also the insured so it has a strong interest to support the captive's cash position in case of difficulties, or in order to limit effects of financial difficulties he encounters. In addition captive reinsurance treaties often include provisions where the reinsurer's liabilities may be offset by intra-group exposures the reinsurer may hold on other entities of the group. Thus the credit risk in relation to cash-pooling arrangements with the mother undertaking is of reduced importance.

3.27. QIS4 showed that the capital charge for captives in the concentration risk sub-module represented on average 78% of the total market risk module (ratio SCR_conc/SCR_mkt, before diversification,) and on average 34% of the overall SCR (SCR_conc/SCR). This is due to the fact that the concentration threshold of 5% and 3% in QIS4 was often exceeded by the asset concentration of captives. Following lessons to be learnt from the crisis, CEIOPS has lowered these thresholds to 2% and 1%, leading to an even higher concentration risk charge for captives than it was in QIS4. Captives have on average only 3 or 4 bank deposits at different banks. In

[5] See CEIOPS-CP-71/09.

order to account for the specific business model of captives, CEIOPS suggests allowing for higher concentration thresholds for captives than the thresholds foreseen in paragraph 4.162 of CEIOPS-DOC-40/09 (Advice on the design of the market risk module, former CP47) under the following cumulative conditions:

- the credit institution or cash-pooling entity of the group has a rating of AA;
- the credit institutions do not belong to the same group and have no other dependency between each other;

3.28. CEIOPS suggest keeping for captives the QIS4 exemption of term deposits of less than 3 million EUR, for terms less than 3 months at AA rated banks, for captives. Furthermore, as stated in paragraph 4.140 of CP 47, cash held at bank is submitted to capital charge in the counterparty default risk module, and not in the concentration risk module. Furthermore, CEIOPS' Advice on the design of the market risk module (former CP47) states that bank deposits considered in the concentration risk sub-module can be exempted to the extend their value is covered by a government guarantee scheme in the EEA area, the guarantee is applicable unconditionally to the undertaking and provided there is no double-counting of such guarantee with any other element of the SCR calculation.

As the above simplifications are granted to captives with regard to their particular business features as described above, CEIOPS would like to stress that it does not intend to extend these simplifications to other categories of (re)insurers.

Question to stakeholders: CEIOPS would appreciate feedback on the specific treatment of concentration risk for captives.

Interest rate risk

3.29. As cash-flow projections for assets are not always readily available, the standard calculation of the interest rate sub-module can be too burdensome for captive undertakings from a practical point of view. In line with the proportionality principle an appropriate simplification would be to apply the shocks by grouping the assets by intervals of maturities and by translating the shocks on interest rates into a simple percentage to be deducted from the market value of the assets. This simplification would require that the main part of the asset is to be repaid at maturity. Using the maturity approach in other situations would lead to divergent results.

3.30. Accordingly the shocks on liabilities have been translated into a percentage to be deducted from the undiscounted best estimate of the technical provisions. The discounting proxy provided in TS.IV.I.6 of the QIS4 technical specifications has been extended to translate the shocks on interest rates into a percentage to be deducted from the undiscounted best estimate. Since the information on duration of liabilities in TS.IV.I.6 have been calibrated on direct insurers active in the German market, they cannot be translated without further adjustment to captive business in all cases. Stakeholders are asked to comment on the suitability of the durations per line of business as in TS.IV.I.6.

3.31. As an illustration the shocks on the undiscounted best estimate of technical provisions for the market interest rate shock simplification used for QIS4, considering the durations in TS.IV.I.6 and shocks in TS.IX.B.5 of the QIS4 technical specifications, were as follows :

LOB	**duration**	**Discounting factor**	**upward shock**	**downward shock**
Accident and health	1.8	7.66%	12.95%	4.18%
Motor, third party liability	5.8	22.87%	32.32%	14.99%
Motor, other classes	0.8	3.60%	6.74%	1.80%
Fire and other damage to property	1.1	4.92%	9.15%	2.47%
Third-party liability (private)	2	8.47%	14.28%	4.63%
Third-party liability (other)	5	19.96%	29.04%	12.61%
MAT	1.5	6.42%	10.92%	3.49%
Credit and suretyship	2	8.47%	14.28%	4.63%
Legal expenses	2.5	10.44%	16.78%	6.05%
Assistance	0.7	3.16%	5.92%	1.58%
Miscellaneaous non-life insurance	1.7	7.25%	12.28%	3.95%

3.32. The following shocks for market asset values were applied in the National guidance for captives in QIS4:

- Maturity less than a year: -2% / +1%
- Maturity between 1 and 3 years: -6% / +4%
- Maturity between 3 and 5 years: -10% / +7%
- Maturity between 5 and 10 years: -13% / +11%
- Maturity above 10 years: -17% / +16%

Market spread risk

3.33. The spread risk module changed from a duration approach in QIS4 to a maturity approach as in CP 47. In QIS4, captives argued that it would be too burdensome to investigate on the rating of each single bond. Thus, it was suggested as a simplification to assume that all bonds are rated BBB. The simplification suggested in this advice broadly reflects this concern, but excludes structured bonds and bonds with a rating lower than BBB from its' scope. In practice, this can achieved for instance by indicating respective provisions in asset management mandates set up by the captive.

3.1.4 Simplifications applicable on ceding undertakings to captive reinsurers

3.34. *SCR counterparty risk / recoverables towards a captive:* If an explicit and legally effective guarantee by the captive owner for the liabilities of the captive exists, then the credit rating of the guarantor instead of the captive may be used

- in the calculation of the SCR counterparty default risk module for the ceding undertaking, and
- in the calculation of the adjustment for expected losses due to counterparty default for the recoverables towards the captive.

3.35. *Cut-through liability clauses:* Captives' ceding undertakings may consider the probability of default of the retroceding undertakings of a captive if a 'cut-through-liability' cause exists or a similar binding agreement, for the amounts involved in the transactions with the captive. These amounts can be adjusted accordingly in the counterparty default risk module calculation of the ceding undertaking.

3.2 CEIOPS' advice

3.2.1 Simplifications for captives only

3.36. Simplifications suggested in this advice may be applied by entities meeting the definition of captives as stated in Article 13(1a) and 13(3a) of the Level 1 text. The definitions in Articles 13(1a) and 13(3a) are to be understood in the sense that the group of the captive undertaking does not include another insurance or reinsurance undertaking, other than another captive undertaking which meets the requirements (a)-(c) below, besides other provisions stated in those definitions.

3.37. CEIOPS advices to limit the application of the simplifications for captives in this advice to captives meeting the following requirements:

Option 1

(a) (i) The insurance obligations of an insurance captive undertaking only relate to contracts where all insured persons in respect of unexpired risks are legal entities of the group of the captive undertaking and where <u>all insured persons</u> were legal entities of the group at the time the contract was entered into.

(a) (ii) The reinsurance obligations of a reinsurance captive undertaking only relate to contracts where all insured persons of the underlying direct insurance contracts in respect of unexpired risks are legal entities of the group of the captive undertaking and where all insured persons of the underlying direct insurance contracts were legal entities of the group at the time the contract was entered into.

Option 2

(a) (i) The insurance obligations of an insurance captive undertaking only relate to contracts where all insured persons and beneficiaries in respect of unexpired risks are legal entities of the group of the captive undertaking and where <u>all insured persons and beneficiaries</u> were legal entities of the group at the time the contract was entered into.

(a) (ii) The reinsurance obligations of a reinsurance captive undertaking only relate to contracts where all insured persons and beneficiaries of the underlying direct insurance contracts in respect of unexpired risks are legal entities of the group of the captive undertaking and where all insured persons and beneficiaries of the underlying direct insurance contracts were legal entities of the group at the time the contract was entered into.

Question to stakeholders: The requirements set out in Option 1 and Option 2 take a different approach towards beneficiaries. CEIOPS would appreciate feedback on both options.

(b) The insurance respectively reinsurance obligations of the captive undertaking do not relate to <u>compulsory third party liability insurance</u>.

(c) In case a captive undertaking reinsures an insurance or reinsurance undertaking, the default of the captive undertaking should not cause a loss to the cedent. This requirement is only relevant for the use of the simplification of the concentration risk sub-module defined in paragraphs 3.49 and 3.50.

Question to stakeholders: There are differing view within CEIOPS whether requirement c should be included. CEIOPS would in particular appreciate feedback on this question.

3.38. Requirement (a) is a consequence of the captive definitions in Article 13 of the level 1 text.

3.39. In addition to these requirements, the particular simplification should be proportionate to the nature, scale and complexity of the risks inherent in business of the captive undertaking. The assessment of proportionality should take into account the defining characteristic of a captive undertaking as stated in Article 13.

3.40. *Market interest rate risk:* Undertakings should apply a separate factor to the market value of interest rate sensitive assets, as well as a separate factor to the best estimate in each line of business in order to test the interest rate shock scenario. The factors to be applied to asset values are derived by using the term structure in force, and different maturities. To this end, assets are grouped into maturity intervals as follows:

Maturity of asset	Simplified duration
less than a year	0.5 year
between 1 and 3 years	2 years
between 3 and 5 years	4 years
between 5 and 10 years	7 years
above 10 years	12 years

3.41. The factors derived can be directly applied to market values of assets in case of upward / downward shocks. These shocks on assets have been calibrated, for each maturity above, using the solver to estimate the coupon rate such that the present value of future cash flow equals to the nominal and measuring the difference between the present value of future cash flow using the normal discount rate and the discount rates after shocks.

3.42. The effect of the interest rate shocks on the market value of interest rate sensitive assets MV_i, grouped in maturity intervals i, is calculated as follows:

$$\textit{Interest rate risk asset up} = \sum_i MV_i \cdot dur_i \cdot rate_i \cdot shock_{i,up}$$

$$\textit{Interest rate risk asset down} = \sum_i MV_i \cdot dur_i \cdot rate_i \cdot shock_{i,down}$$

where

dur_i = simplified duration of maturity interval i

$rate_i$ = risk-free rate for simplified duration of maturity interval i

$shock_{i,up}$ = relative upward shock of interest rate for simplified duration of maturity interval *i*

$shock_{i,down}$ = relative downward shock of interest rate for simplified duration of maturity interval *i*

3.43. The simplified calculation should be done separately for assets of different currency.

3.44. For the shocks on liabilities, captives should in a first step asses the duration of the liabilities per LoB. In a second step, the relevant term structure is used to calculate the change in the best estimate BE_{lob} as follows:

$$Interest\ rate\ risk\ best\ estimate\ up = -\sum_{lob} BE_{lob} \cdot dur_{lob} \cdot rate_{lob} \cdot shock_{lob,up}$$

$$Interest\ rate\ risk\ best\ estimate\ down = -\sum_{lob} BE_{lob} \cdot dur_{lob} \cdot rate_{lob} \cdot shock_{lob,down}$$

where

dur_{lob} = modified duration of the best estimate in line of business *lob*

$rate_{lob}$ = risk-free rate for modified duration dur_{lob}

$shock_{lob,up}$ = relative upward shock of interest rate for modified duration dur_{lob}

$shock_{lob,down}$ = relative downward shock of interest rate for modified duration dur_{lob}

3.45. The simplified calculation should be done separately for assets of different currency.

Market spread risk:

3.46. Undertakings may assume all assets to be submitted to the spread risk module are rated BBB.

3.47. For structured bonds, credit derivatives and bonds with a lower rating than BBB the standard calculation of the spread risk module needs to be applied.

Concentration risk:

3.48. Intra-group asset pooling arrangements of captive undertakings may be exempted from the concentration risk module to the extent that there exist legally effective formal provisions where the captive's liabilities can be offset by intra-group exposures it may hold on entities of the group.

3.49. In order to take into account the nature of the business written by captives, the threshold applicable in 4.162 of CEIOPS-DOC-40/09 (Advice on the design of the market risk module, former CP47) shall be a 15 per cent, where as well under option A as under option B the following requirements are met:

- the credit institution or cash-pooling entity of the group has a rating of AA;
- the credit institutions do not belong to the same group and have no other dependency between each other;

3.50. Term deposits with a term of less or equal than 3 million EUR, for a term of less than 3 months at AA rated banks may be exempted from the concentration risk module.

3.51. A look-through approach to intra-group asset pooling arrangements may be applied for the calculation of the market risk module, if the account of the captive undertaking meets the requirements stated for segregated assets in CEIOPS advice on financial mitigation techniques CEIOPS-DOC-26/09 .

Non-life underwriting risk module:

3.52. For non-life premium and reserve risk, simplified formulas as follows can be used:

$$NL_{pr,lob} = 0.9 \cdot \sqrt{V_{(prem,lob)}^2 + 2 \cdot 0.5 \cdot V_{(prem,lob)} \cdot V_{(res,lob)} + V_{(res,lob)}^2}$$

$$NL_{pr} = \sqrt{\sum_{lob} NL_{pr,lob}^2 + 0.35 \cdot \sum_{\substack{(r,c)\\(r \neq c)}} NL_{pr,r} \cdot NL_{pr,c}}$$

where (r,c) denotes a pair of lines of business and

$NL_{pr,lob}$	=	Capital requirement for premium and reserve risk for Line of business lob
$V_{(prem,lob)}$	=	Volume measure for premium risk for line of business lob as defined in CEIOPS advice on the non-life underwriting risk, CEIOPS-DOC-41/09 (former CP 48)
$V_{(res,lob)}$	=	Volume measure for reserve risk for line of business lob as defined in CEIOPS-DOC-41/09

3.53. The formula in 3.51 may be updated should CEIOPS decide to take into account provisions stated in 3.18.

3.54. The risk mitigating effect of an aggregate limit can be taken into account by modifying the volume measure for premium risk of a line of business in the calculation above as follows:

$$V'_{(prem,lob)} = min\left(\frac{Agg_{lob}}{0.9};V_{(prem,lob)}\right),$$

where Agg_{lob} is the aggregate limit for line of business lob.

3.55. The aggregate limit shall represent the net retention per line of business, after reinsurance, taken into account the limits stated in acceptance as well as in reinsurance treaties, increased by a possible reinstatement premium. If for one line of business, several treaties are written but for one of them no limit can be defined, the aggregate limit shall not be taken into account. If an aggregate limit covers several lines of business (so called 'umbrella treaties', or 'multi-line treaties'), it should be assured that this overall limit is not taken into account for each line of business. Further work is necessary on the treatment of the aggregate limit at the level of a particular line of business in case of umbrella or multi-line treaties. The choice of the aggregate limit should ensure that the probability of a loss exceeding the aggregate limit has a zero probability.

3.2.2 Simplifications applicable on ceding undertakings to captive reinsurers

SCR counterparty risk / recoverables towards a captive:

3.56. If an explicit, legally effective and enforceable guarantee by the captive owner for the liabilities of the captive exists, then the credit rating of the guarantor instead of the captive may be used

- in the calculation of the SCR counterparty default risk module for the ceding undertaking and
- in the calculation of the adjustment for expected losses due to counterparty default for the recoverables towards the captive.

Cut-through liability clauses:

3.57. Captives' ceding undertakings may consider the probability of default of the retroceding undertakings of a captive if a legally effective and enforceable 'cut-through-liability' clause exists or a similar binding agreement, for the amounts involved in the transactions with the captive. These amounts can be adjusted accordingly in the counterparty default risk module calculation of the ceding undertaking.

Annex A

Outcome of the comparison simplifications / standard model

A.1. The majority of captives participating in QIS4 were based in Luxembourg. Simplifications / alternatives for captives were suggested in a national QIS4 guidance document produced jointly by Luxembourg, Ireland and Malta.

A.2. The outcome of these simplifications / alternatives has been compared to the standard QIS4 modules and can be found below. Since the QIS4 report, some of the tables below relate to simplifications / alternatives which have been moved to other advices or which have been dropped following decisions taken by CEIOPS. In order to get a full picture of the simplifications / alternatives tested, CEIOPS refers to annex B of the official QIS4 report which can be found at the following address: http://www.ceiops.eu/media/files/consultations/QIS/CEIOPS-SEC-82-08%20QIS4%20Report.pdf

QIS4 country-report for Luxembourg
Addendum to question 15

Spread Risk : ratio NG/Standard						
Minimum	25th Percentile	Median	75th Percentile	Maximum	Average	Companies
37%	127%	145%	371%	900%	267%	23

Interest Rate Risk 1 : ratio NG/Standard						
Minimum	25th Percentile	Median	75th Percentile	Maximum	Average	Companies
0%	43%	94%	108%	439%	90%	35

Interest Rate Risk 2 : ratio NG/Standard						
Minimum	25th Percentile	Median	75th Percentile	Maximum	Average	Companies
0%	0%	100%	180%	1236%	168%	35

Interest Rate Risk 2 : ratio NG/Standard						
Minimum	25th Percentile	Median	75th Percentile	Maximum	Average	Companies
0%	0%	100%	180%	1236%	168%	35

ratio CAT 3 / CAT1						
Minimum	25th Percentile	Median	75th Percentile	Maximum	Average	Companies
66%	591%	845%	1977%	6000%	1518%	34

Combined scenario 1 SCR alt1 / SCR standard						
Minimum	25th Percentile	Median	75th Percentile	Maximum	Average	Companies
7,2%	88%	98%	100%	129%	92%	55

Conclusions:

A.3. most captives confirmed that the proposed alternatives were simplifications better reflecting the characteristics of captives' business than the standard modules.

A.4. the calibration for some simplifications proposed in the National Guidance needs to be revisited as it provided on average for an overall SCR lower than the SCR Standard Model. (e.g. interest rate risk)

A.5. The industry welcomed the simplification exempting captives from the application of the market concentration risk module on assets provided that they use custodians or issuers that are at least A rated or equivalent.

A.6. The proposed alternative for the underwriting module provides for both a sophistication and a simplification compared to the standard model.

The sophistication achieved via an undertaking specific combined ratio (instead of a fixed ratio of 100%) produced a lower solvency requirement as captives typically have a combined ratio of less than 100%.

The simplification achieved by assuming conservatively the standard deviation for $\sigma_{res,}$lob and $\sigma_{prem,lob}$ at 15% has partially diluted the effect of the above mentioned sophistication.

Though it is not possible to precisely distinguish the effect of both movements, the overall effect of both the sophistication and the simplification produces a decrease in the capital charge according to the national guidance compared to the standard model.

A.7. The national guidance did not propose any simplification/alternative for the CAT risk.

The results show that the current scenario 1 is not appropriate for captives or reinsurance in general. The CAT1 results were far below the estimations the captive managers provided of their undertaking CAT risk exposure.

For scenario 3 most companies simulated their overall exposure gross or net of premium income. On average the CAT3 figures were 15.18 times higher than the CAT1 figures.