	Comments Template on Consultation Paper on EIOPA's second set of advice to the European Commission on specific items in the Solvency II Delegated Regulation	Deadline 5 January 2018 23:59 CET
Name of Company:	Actuarial Association of Europe (AAE)	
Disclosure of comments:	Please indicate if your comments should be treated as confidential:	Public
	Please follow the following instructions for filling in the template: ⇨ Do **not** change the numbering in the column "reference"; if you change numbering, your comment cannot be processed by our IT tool ⇨ Leave the last column empty. ⇨ Please fill in your comment in the relevant row. If you have no comment on a paragraph or a cell, keep the row empty. ⇨ Our IT tool does not allow processing of comments which do not refer to the specific numbers below. **Please send the completed template, in Word Format, to CP-17-006@eiopa.europa.eu** **Our IT tool does not allow processing of any other formats.** **The numbering of the reference refers to the sections** of the consultation paper on EIOPA's second set of advice to the European Commission on specific items in the Solvency II Delegated Regulation. Please indicate to which paragraph(s) your comment refers to.	
Reference	**Comment**	
General Comment	We appreciate very much the clear structure of the consultation paper and the comprehensive description of EIOPA's analysis and basis for conclusion. Anaysing the rationale leading to the proposed advice, we have identified some points were we would recommend a reconsideration. We have elaborated especially on volume measure for premium risk, recalibration of mortality risk, interest-rate risk and risk margin. We don't expect the incomplete basis due the non-	

	availability of the results of the data request concerning LAC DT and interest-rate risk to essentially affect our comments. Nevertehless,the advice EIOPA wants to give to the Commission concerning the treatment of LAC DT and the proposed implementation (Delegated regulation, Guideline, etc .) might give rise to further discussion (Par 1383). • The changes being proposed are likely to lead to significantly more onerous capital requirements for the industry (mortality and interest rate shocks), and; • It is notable that there is no change proposed to the structure of the risk margin calculation which is likely to be the most contentious area (as set out in section 18 of the template) • If there are major changes to the standard formula, it could be wise to test and measure the effects of the changes as a whole before changing the regulation and applying the new rules. Two general technical queries regarding any changes to the Standard Formula: • Will there be a time / transition period to adapt to the changes? • How should companies prepare for the new factors in advance of their official adoption date, for example should they anticipate the changes in their ORSA?	
Introduction		
1.1	Our comments on the proposed changes to the calibration of premium and reserve risk are given under section 1.4. Here we pose two wider comments on the calibration of Premium and Reserve Risk	

	- We question whether it is appropriate to apply the same factors across the whole of Europe. It may be possible to apply country specific factors when several years of Solvency II Reporting data becomes available and robust enough. This is especially true for LOB with short tails. Data are already enough for very short tails. A key weakness of the Premium Volume measure is that it is applied to premiums gross of commissions.*Such commissions do not represent the risks concerned by this submodule.* It should be possible to adapt the volatility factors so that they apply to premiums net of commissions. This is a particular problem in the Miscellaneous Financial Loss line of business, which comprises a very heterogeneous mix of risks.	
1.1.1		
1.2.1		
1.2.2		
1.2.3		
1.2.4	Par 44. In 1.2.3 it is shown that the new sample is better than the 2011 JWG sample. However, the gross-to-net ratio of JWG is considered to derive a final figure. Why is this old ratio nevertheless considered sufficient for this purpose? It is also not clear why the gross-to-net ratio only impacts the groups HME and HWC.	
1.3		
1.3.1		
1.3.2	Par 52. The automated elimination of outliers leads to less volatility in the outcomes. Especially given the 3 times automated elimination. We think it is good to disclose how many outliers were eliminated per group. A large number of outliers might raise question concerning the model approach. As a consequence, the determination of outliers could namely consider the specificities of the local market : medical expense activity could highly differ from a country to another.	
1.3.3		

1.3.4		
1.3.5		
1.4	We welcome the updated calibration for these five lines of business but we note that it will cause "step-changes" in capital requirements in some cases. Our main comments are around how the proposed recalibrations will be implemented in practice. For example: • Will there be a time / transition period to adapt to the changes? • How should companies prepare for the new factors in advance of their official adoption date, for example should they anticipate the changes in their ORSA? • Concerning USP: some undertakings have developed USP. In case USP are close to new stress factors of the new standard formula, it could lead to an unequal treatment of undertakings if there is not a possibility for these undertakings to go back to the standard formula. If USPs require more work to ensure the required continuous compliance, undertakings might consider the use of standard formula.	
1.4.1		
1.4.2		
2.1	As an overview over our statement, we would like to summarize our feedback. We think that (i) "Closing the gap" is theoretically correct, but (a) All else being equal, it increases the SCR for one-year business; and (b) The intra-year premium volume measure (and hence SCR) will be unstable for companies which renew their business on a single date as opposed to evenly throughout the year	

	(ii) To address (i)(b) we suggest, for one year business, a pragmatic approach where FP(Existing) is assumed to be 50% of P(Next) (i.e. the average position throughout the year). (iii) If the gap is closed, theoretically the SF premium volume volatility factors should be recalibrated downward, or a dampening factor should be applied to Ps, to reflect that fact that Ps is not all exposed to unexpected risk (iv) Introducing an alpha factor applied to FP (Future) is desirable for multi-year business, even if EIOPA does not decide to "close the gap". This should be aligned with the underwriting/renewal pattern of the company. (v) We would also propose a (potentially different) alpha factor on FP(Existing)	
2.2	Par 79. Recital (45) – To ensure a consistent use that is compliant with this recital in the Delegated Regulation a further explanation of the difference between 'future earned premiums' and 'expected premiums' could be helpful.	
2.3	Par 84. We also advocate a closure of this gap for consistency reasons. A drawback **could** be seen in a potentially slightly increased complexity in case of one-year contracts. This can nevertheless be addressed by a simplified estimation of FP(future) – e.g. by averaging out a one year's expected premium income. Par 90 We also share the view that future business should be reflected in the SCR calculation in line with the requirements of the Solvency II Directive. In doing so, a potential diversification/ correlation between the underlying risks in due course of time should be taken into account. Par 92. We agree that there is no feasible and less complex methodology, which would reduce the dependency on the pricing strategy / level of an insurance undertaking, which would not in turn	

	change the SCR calculation approach significantly. We would like to point out that other means of Solvency II (like ORSA and the assessment of the actuarial function wrt. the undertaking's pricing strategy) are more appropriate safeguards to address under-pricing. It could be considered though to align the treatment of commissions, esp. for companies writing business net of commissions (where distributors add the commissions). In this case an average commission rate (given by the market NSA, for simplicity) or individual commission levels could be added in order to used guarantee a level playing field on applied premiums.	
2.4.1		
2.4.2	Par 137. We agree with the statement that both FP(existing) and FP(future) should be adjusted appropriately, i.e. with a factor below 1 because of the absence of Unexpected Risk 2. This is even more important /emphasized?? the case for FP(existing), since the capital requirement for existing contracts has to cover unexpected risk only. Par 138. Since for several markets with significant exposures in multi-year contracts FP(existing) is relevant, we suggest to **also include an adjustment factor for FP(existing)**. So we strongly suggest extending Option 2 by introducing a factor on FP(existing), too. To give a few examples of business that would be treated significantly inappropriate (and would still be treated identical in the future): - Fire policies with a duration of 3 years with lapse possibility only after 3 years - Credit insurance policies of long duration (e.g. 10 years) without lapse clauses Consequently, we do not agree on EIOPA's opinion stated in paragraph 144: We see the unexpected risk 1 being overestimated in the example given. **Calibration of adjustment factor for FP(future,s):** We agree on the resulting factor of 30%. It appears a plausible ratio for the risk of change compared to the total premium risk.	

	Definition of initial recognition date We agree to keep the current definition of initial recognition and agree that this definition must be applied consistently to the volume measure for premium risk. **Stability of option 2 throughout the year** Par 148. We appreciate the objective of **stability** of the volume measure (after closing the gap) as compared to the current calculations (including the gap). We agree on EIOPA's analysis and seeing the instability as disadvantage. However, we would like to point out that this is a weakness that could be addressed by adding another factor that reflects the actual amount of exposure to the risk of change for FP future, see below.	
2.4.3	Par 176. AAE recommends to close the gap as proposed in **Option 2**, with **additional features** as shown below. The reason is that Option 2 has some drawbacks which should be thoroughly considered: 1. Increased complexity for one-year contracts (most of business) and increased capital charge for these. 2. Increases volume of the SCR for one-year contracts and become then not in line with current P(s): To our view Ps(Existing business) is then overstated. In this approach an Alpha would not only be needed for FP future but also for P(s) to account for the fact that Expected risk as specified in par 131 is already included in the technical provisions and thus should not be accounted for in the SCR. 3. The method will introduce more volatility on the volume measure during the year and can increase some undesirable movements in the SCR quarter by quarter. Therefore, firstly, we see it as important that the premium risk for multi-year contracts is not overestimated.	

As a consequence of the above AAE agrees in introducing **factors on both FP(existing) and FP(future)**. There are more than one proposals on how to do this with equal right. Nevertheless, we detail out the approach, which has been developed and tested by the German DAV in order to make a **consistent suggestion** to EIOPA.

Additional feature for stability of the volume measure and reflection of the risk exposure
We agree with EIOPA on the intention of having more stability of the volume measure than in option 2. Especially to better reflect the risk exposure, while taking into account Article 17 of the Delegated Regulation.
Therefore, we propose that the definition volume measure uses an underwriting scheme weighting factor is addition to the factor 0.3 being used for FP_existing and FP_future:

$$V(prem,s) = \max(Ps;P(last,s)) + 0.3 * FP(existing,s) + 0.3 * u_s * FP(future,s)$$

The underwriting scheme weighting factor u_s is defined as a **weighted sum over the future premium** after the following 12 months. It could be expressed by contract specific evaluation for LoB *s*:

$$u_s = \frac{1}{FP(future,s)} \sum_c u_{(s,c)} * FP(future,s,c)$$

where $u_{(s,c)}$ is the weigth of contract *c*, i.e. $u_{(s,c)} = \frac{\text{evaluation date} + 1\text{year} - \text{initial recognition}_c}{1 \text{ year}}$.

Actually, the expession $u_s * FP(future,s)$ simplifies to $\sum_c u_{(s,c)} * FP(future,s,c)$.

In terms of calibration of the factors to 0.3 there have been detailed considerations of the German and the French associations which come out with results in similar ranges of 0.2 to 0.3.

	We have chosen 0.3 above for prudence, but suggest **further actuarial analyses** to evaluate this calibration. **Simplified calculation scheme** In order to simplify the calculation of $V(prem,s) = \max(Ps;P(last,s)) + 0.3 * FP(existing,s) + 0.3 * u_s * FP(future,s)$ one could use simplified definition of the underwriting scheme-weighting factor u_s, using **monthly or quarterly slices** of *FP*(*future,s)* (instead of a full contract specific evaluation). As a further simplification, one could still allow undertakings to use $u_s = 1$ as a prudent approximation, or $u_s = \frac{1}{3}$ or $u_s = \frac{1}{2}$ for 1-year contracts in lines where inception dates are evenly spread over the year. This could easily be defined on a lob/market level. Reference to French and German calibration **Separate paper including a QIS** For a full explanation and discussion including a quantitative impact study for various lines of business, we refer to the paper added to our comments ("Proposal for a new Volume Measure for Premium Risk using an underwriting scheme weighting factor"). This paper is part of our comment and copied in below. **Conclusion** Based on our analysis, we consider neither option 1 nor option 2 of EIOPA as such being a good approximation of the real risk exposure *for all lines* of business. The formula proposed by AAE with underwriting scheme-weighting factor fully reflects the individual risk exposure (and potential trends in the books) while still not adding to much of complexity, and which allows for a staggered scheme of simplifications if necessary.	

	It is important to observe that whilst underwriting scheme weighting factor at first sight seems to add complexity, but that: - The computational complexity added is limited for the undertakings - This factor is necessary to reflect the highly varying ways of underwriting schemes throughout Europe (varying both between lines of business, countries and even undertakings) and prevent the necessity to introduce market-specific differentiations - Closing the gap without adding the underwriting scheme weighting factor would result in inadequate (dis-)advantages for some undertakings and/or lines of business. - We see several levels of simplification: - Monthly or even quarterly slices instead of contract specific evaluation - Reuse of the factor by multiple undertakings if they are using the same underwriting scheme - Using market-level simplifications as final resort. **<u>Separate study including an impact assessment</u>** **Proposal for a new** **Volume Measure for Premium Risk** **using an underwriting scheme weighting factor** DAV working group Standardformel Non-Life Draft - Dr. Bernd Hirschfeld, 15.12.2017 This paper addresses topics raised in the "Consultation Paper on EIOPA's second set of advice to the European Commission on specific items in the Solvency II Delegated Regulation " (EIOPA-CP-17-006, 6 November 2017).	

A.1. ***Topic and issue addressed in CP 16/008: gap in FP_future***

The **volume measure for premium risk** is defined as

$$V(prem,s) = \max(Ps;P(last,s)) + FP(existing,s) + FP(future,s)$$

The definiton of FP_future shows a gap in the timeline:

> *(d) $FP_{(future,s)}$ denotes the expected present value of premiums to be earned by the insurance and reinsurance undertaking in the segment s for contracts where the initial recognition date falls in the following 12 months but excluding the premiums to be earned during the 12 months after the initial recognition date.*

Closing the gap was suggested by EIOPA in discussion paper CP 16/008:

> Q5.1: Should the definition of $FP_{(future,s)}$ that excludes "the premiums to be earned during the 12 months after the initial recognition date" be changed to only exclude "the premiums to be earned during the following 12 months"? Please explain why.

While opening the discussion for a different volume measure:

> Q5.2: Do you have an alternative proposal for defining the premium risk volume measure? How does the alternative proposal effect the calibration of the risk factors for premium risk?

A.1. ***Premium risk covers different type of potential losses***

In CP 17/006, EIOPA picks up comments received on CP 16/008 and structures the premium risk in several subrisks (see par. 124 in CP 17/006). While expected loss is not relevant for the SCR with respect to existing business, unexpected loss is relevant for all business covered in the future [SII directive, article 101 (3)].

Unexpected loss: an undertaking experiences higher payments than the premiums due to adverse development of underwriting risk. There are two types of unexpected loss:

- permanent rise in costs e.g. inflation, change in legal environment;
- temporary rise in costs e.g. large event.

These risks could also be named

1) Risk of change
2) Risk of random

Obviously,

(1) the risk of random (temporary rise) can only occur during the coverage period of an insurance contract, while
(2) the risk of change (permanent rise) can occur any time between initial recognition and coverage.

According to SII directive, article 101 (3), both type of risks must be considered in the SCR in the next 12 months only.

Consequently, both parts of the volume measure regarding future premium, i.e. *FP*(*existing*,*s*) and *FP*(*future*,*s*) are exposed to the risk of change (permament rise) only.

	Next 12 months		**beyond**	
	Risk of change	**Risk of random**	**Risk of change**	**Risk of random**
Ps	yes	yes	no	no
FP(*existing*,*s*)	yes	no	(yes)	(yes)
FP(*future*,*s*)	yes	no	(yes)	(yes)

Remark: The calibration of sigma for premium risk is based on the premium risk regarding the earned premium of one year.

A.1. ***EIOPA's advice in CP 17/006***

Definition of *FP(future,s)*

176. EIOPA considers two different options for defining *FPfuture*:

- Option 1: no change to *FP(future,s)*
- Option 2: removing the gap and introducing an adjustment factor of 30% in *FP(future,s)*

Consequently, in case of option 2 the formula would change to

$$V(prem,s) = \max(Ps;P(last,s)) + FP(existing,s) + 0.3 * FP(future,s)$$

A.1. ***Volume Measure with underwriting scheme weighting factor***

This new volume measure, introducing a weighting factor to consider the specific underwriting scheme, intends to pick up the positive ideas of EIOPA's option 2 while addressing the remaining weaknesses.

It seems as if the majority in the community agrees on the following:

(3) The gap should be closed.

(4) In addition to closing the gap, further modification to the volume measure are required to correctly reflect the risk intended by article 101 of the directive.

1. Weakness of EIOPA's proposition

The formula proposed by EIOPA (option 2), has two weaknesses:

- While reducing the risk scope for *FP(future,s)* to the risk of change, *FP*(*existing*,*s*) is not. However, *FP*(*existing*,*s*) is neither exposed to the risk of random. The reasoning in par. 137 of CP 17/006 is not plausible.
  Example: Lines of Business with multi-year contracts are affected (such as credit insurance, e.g.).
- The volume measure is unstable throughout the year. This is due to how future contracts are considered. Especially, as shown in par. 172 of CP 17/006, the resulting risk measure is even contra-intuitive: the closer the main renewal date approaches, the smaller the risk measure will be.
  Example: Lines of Business covering motor contracts are touched by this weakness in some countries, as the renewal is rather synchronised to the calendar year.

	2. Formula with underwriting scheme weighting factor While adhering to the 30% ratio for risk of change to total premium risk, the two weakness above are addressed as follows: - *FP*(*existing*,*s*) shall get the same factor of 30% as proposed by EIOPA for *FP(future,s)* - *FP(future,s* shall get an (additional) underwriting scheme weighting factor which reflects the exposure to the risk of change. The full formula is: $V(prem,s) = \max(Ps;P(last,s)) + 0.3 * FP(existing,s) + 0.3 * u_s * FP(future,s)$ Where u_s is the *underwriting scheme-weighting factor*, which needs to be determined by each undertaking individually. While it seems to be an unnecessary burden at first glance, it is indeed the underwriting scheme (or renewal scheme / pattern) which is quite different between Lines of Business and countries throughout Europe. However, the way contracts are written and renewed, has a significant influence on the exposure to the risk of change within premium risk. To explain the underwriting scheme weighting factor u_s, it is best to look at the following scheme. This schemes shows underwriting months (by initial recognition date) in rows, while showing the earned premium by period in columns. This way, it is easy to see when an undertaking becomes exposed to what kind of risk:	

evaluation			**earned premium (weighted as of evaluation date)**																								
31.12.2017	2017	2017	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2020
	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1
initial recognition																											
30.09.2017	0,2	0,2																									
31.10.2017	0,2	0,2																									
30.11.2017	0,1	0,2	6,6	6,5	6,3	6,2	6,0	5,9	5,8	5,6	5,5	5,3	5,2	5,1													
31.12.2017		0,1	1,6	1,6	1,6	1,5	1,5	1,5	1,4	1,4	1,4	1,3	1,3	1,3													
31.01.2018			0,1	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2													
28.02.2018				0,1	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2													
31.03.2018					0,1	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2													
30.04.2018						0,1	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2													
31.05.2018							0,1	0,2	0,2	0,2	0,2	0,2	0,2	0,2													
30.06.2018								0,1	0,2	0,2	0,2	0,2	0,2	0,2													
31.07.2018									0,1	0,2	0,2	0,2	0,2	0,2													
31.08.2018										0,1	0,2	0,2	0,2	0,2													
30.09.2018											0,1	0,2	0,2	0,2													
31.10.2018												0,1	0,2	0,2													
30.11.2018													0,1	0,2	6,6	6,5	6,3	6,2	6,0	5,9	5,8	5,6	5,5	5,3	5,2	5,1	
31.12.2018														0,1	1,6	1,6	1,6	1,5	1,5	1,5	1,4	1,4	1,4	1,3	1,3	1,3	
31.01.2019															0,1	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	
28.02.2019																0,1	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	
31.03.2019																	0,1	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	
30.04.2019																		0,1	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	
31.05.2019																			0,1	0,2	0,2	0,2	0,2	0,2	0,2	0,2	
30.06.2019																				0,1	0,2	0,2	0,2	0,2	0,2	0,2	
31.07.2019																					0,1	0,2	0,2	0,2	0,2	0,2	
31.08.2019																						0,1	0,2	0,2	0,2	0,2	
30.09.2019																							0,1	0,2	0,2	0,2	
31.10.2019																								0,1	0,2	0,2	
30.11.2019																									0,1	0,2	6,6
31.12.2019																										0,1	1,6

The scheme illustrates German motor business as of evaluation date 31.12.2017. The colours indicate the various components of the volume measure:

- *Ps* is shown in light green: the expected earned premium for the following 12 months. Please note that business written in the past is included while business beyond 31.12.2018 cannot be included.
  As explained above, this business is the only one in the following 12 months that is exposed to the complete premium risk.
- *FP*(*existing,s*) is shown in light blue (upper top area). This is empty in this case.

The entirety of this business is exposed to the risk of change during the following 12 months but not to the risk of random (as it will be earned after 31.12.2018).

- *FP*(*future*,*s*) is shown in various colours from light yellow to brown. This is to reflect the decreasing exposure to the risk of change:

  This business is exposed to the risk of change during a fraction of the following 12 months but not to the risk of random (as it will be earned after 31.12.2018). However, the fraction depends on the initial recognition date and varies from 1 (initial recognition date = 01.01.2018) to 0 (initial recognition date = 31.12.2018).

  In the example, we see renewal and new business being written for 2019 in the months 11 and 12 of 2018 (silent renewal and new business, respectively).

Consequently, the underwriting scheme weighting factor u_s is defined as a weighted sum over the future premium after the following 12 months. It could be expressed by contract specific evaluation for lob *s*:

$$u_s = \frac{1}{FP(future,s)} \sum_c u_{(s,c)} * FP(future,s,c)$$

where $u_{(s,c)}$ is the weigth of contract *c*, i.e. $u_{(s,c)} = \frac{\text{evaluation date} + 1\text{year} - \text{initial recognition}_c}{1 \text{ year}}$.

Actually, the expession $u_s * FP(future,s)$ simplifies to $\sum_c u_{(s,c)} * FP(future,s,c)$.

3. Simplified calculation scheme

In order to simplify the calculation of

$$V(prem,s) = \max(Ps;P(last,s)) + 0.3 * FP(existing,s) + 0.3 * u_s * FP(future,s)$$

one could use simplified definition of the underwriting scheme weighting factor u_s, using monthly or quarterly slices of *FP*(*future,s)* (instead of contract specific evaluation).

As a further simplification, one could still allow undertakings to use $u_s = 1$.

A.1. ***Quantitative impact study***

We compared the new weighted volume measure to the other ideas:

(a) EIOPA option 1 (status quo)
(b) EIOPA option 2
(c) EIOPA option 2 applied to both FP_existing and FP_future (same factor 30%); similar to original DAV proposition
(d) New measure with underwriting scheme weighting factor.

Only the latter satisfies all aspects of premium risk:

a. the risk of change is limited to the following 12 months
b. the risk of change depends on the time lag between initial recognition and risk coverage
c. the risk of random is limited to the following 12 months

We compared these methods for three different type of contracts:

(5) motor (1 year policies, initial recognition mainly 30.11., coverage starting 1.1.)
(6) fire (1 year policies)
(7) fire (3 year policies)
(8) exhibition
(9) art
(10) reinsurance mix

We assumed a volume of 100 currency entities as annual earned premium and a continuous premium volume, i.e. lapse being replaced by new business throughout the year.
As the stability throughout the year is important (as also asked for by EIOPA), we evaluate the SCR per month.

1. Results (summary) and conclusion

The different methods result in the following absolute amounts of SCR for premium risk (standalone results per Line of Business):

	motor	fire 1yr	fire 3yr	Exhibition	Art	ReIns
1) option 1	25,2	22,3	43,8	19,2	19,2	55,4
2) option 2	30,3	23,4	35,2	21,1	22,2	58,0
3) FP_ex+fut	30,3	23,1	27,6	21,1	22,2	53,2
4) weighted	24,7	20,7	25,9	19,5	20,5	41,7

In order to allow for better comparison to the current SCR method, we show the results as percentage of current SCR values (option 1 = 100%):

	motor	fire 1yr	fire 3yr	Exhibition	Art	ReIns
1) option 1	100%	100%	100%	100%	100%	100%
2) option 2	120%	105%	80%	110%	116%	105%
3) FP_ex+fut	120%	104%	63%	110%	116%	96%
4) weighted	98%	93%	59%	102%	107%	75%

As a conclusion, neither option 1 nor option 2 are a good approximation of the real risk exposure for all lines of business. Method 3 (applying 0.3 to both FP_existing and FP_future) seems to be an acceptable approximation.

However, only the new definition with underwriting scheme weighting factor fully reflects the risk exposure.

2. Detailed results for Motor

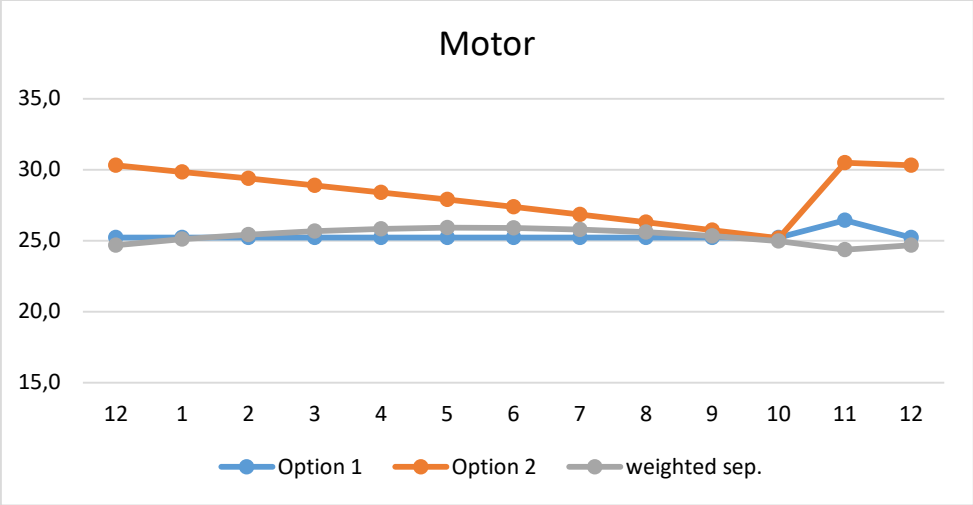
We assume 1 year policies with

(11)80% renewal with initial recognition 30.11., coverage starting 1.1.

(12)20% new business with initial recognition in December, coverage starting 1.1.

(13)25% lapse during the year (replaced by new business)

This results in the following development of the various methods during the year:



(Option 2 and "FP_ex+fut" coincide for motor)

3. Detailed results for Fire (1 year)

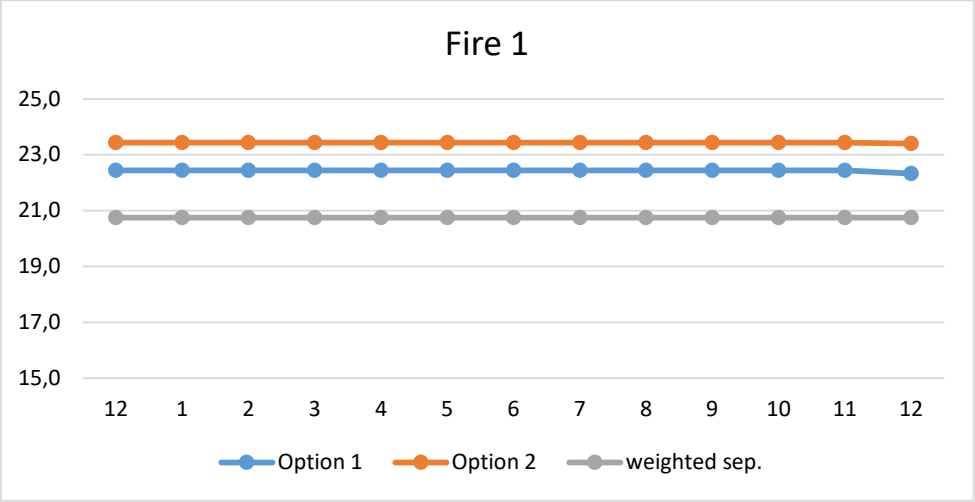
We assume 1 year policies with

(14)Renewal dates / initial recognition of contracts equally distributed throughout the year

(15)Renewal 2 months before coverage (i.e. 2 months lapse period)

(16)0% lapse during the coverage (simplification)

This results in the following development of the various methods during the year:



(Option 2 and “FP_ex+fut” coincide for fire 1 year)

4. Detailed results for Fire (3 years)

We assume 3 year policies with

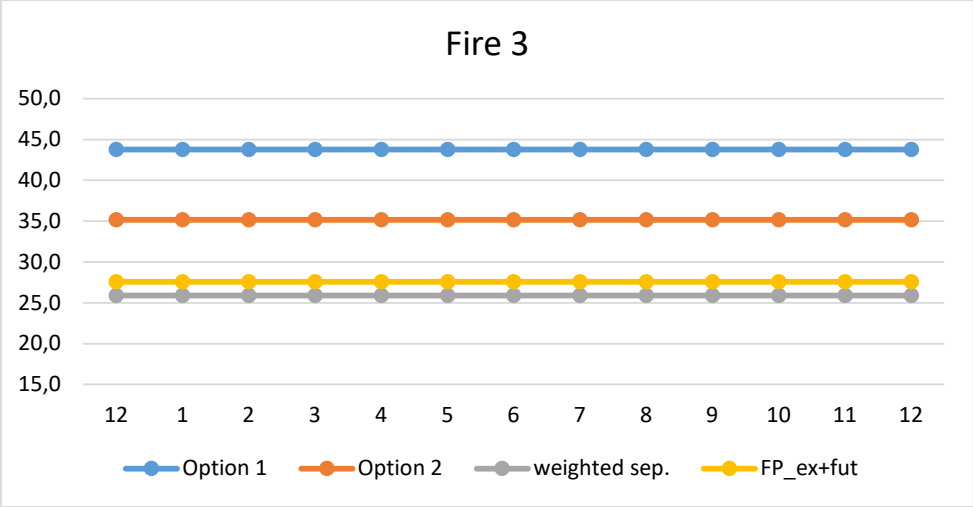
(17)Renewal dates / initial recognition of contracts equally distributed throughout the year

(18)Renewal 2 months before coverage (i.e. 2 months lapse period)

(19)0% lapse during the coverage (simplification)

Please note that it is irrelevant whether the premium is payed upfront or annually.

This results in the following development of the various methods during the year:



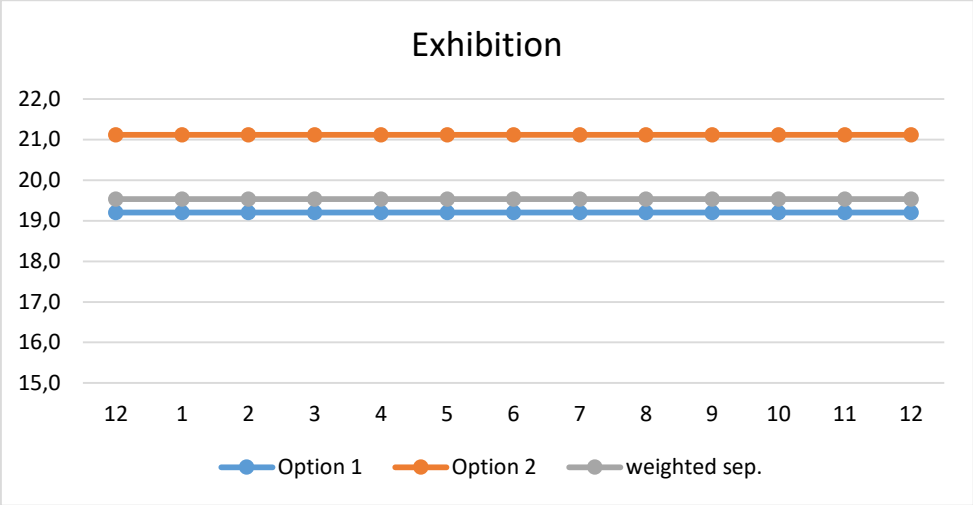
5. Detailed results for Exhibition

We assume 3 months policies with

(20)initial recognition of contracts equally distributed throughout the year

(21)underwriting is 2 months before coverage

This results in the following development of the various methods during the year:



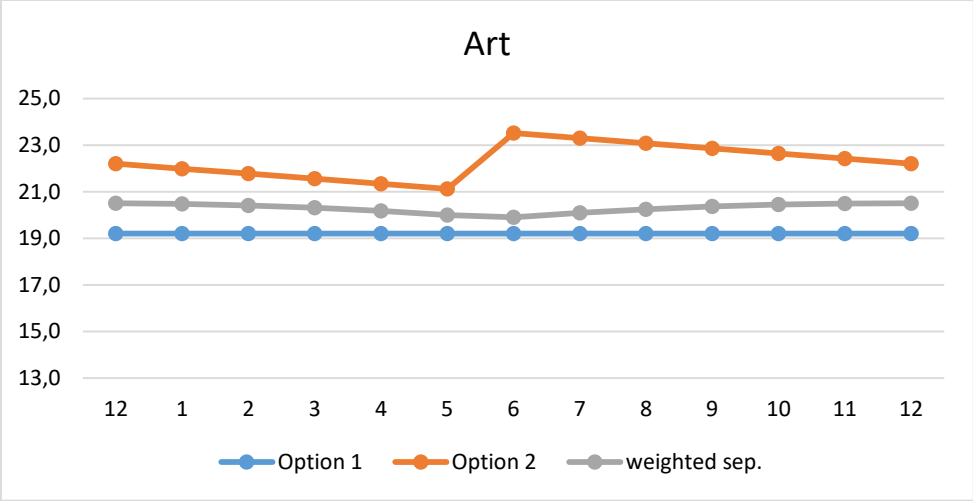
6. Detailed results for Art

We assume 1 year policies with

(22)50% Renewal dates / initial recognition of contracts equally distributed throughout the year

(23)50% Renewal dates / initial recognition of contracts as of 30.06.

This results in the following development of the various methods during the year:



7. Detailed results for Reinsurance

We assume a mix of various reinsurance lines where

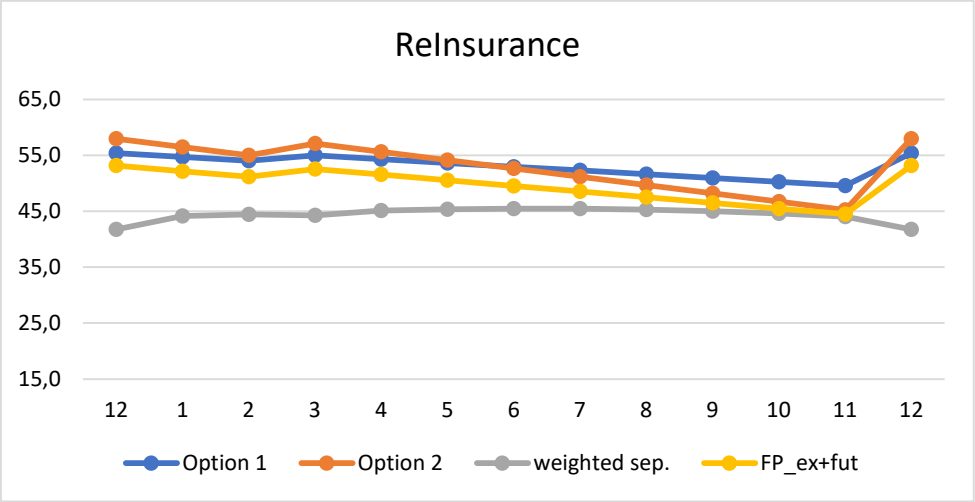
(24)80% Renewal dates / initial recognition of contracts as of 31.12.

(25)20% Renewal dates / initial recognition of contracts as of 31.03.

For each date

(26)80% of the premium is earned within 12 months and

(27)20% of the premium is earned in the second year.

	This results in the following development of the various methods during the year:  	
3.1		
3.2		
3.3	We agree that the Lee-Carter and Cairns-Blake-Dowd models are common in the market. We would like to add to this that multi-population models are getting increasingly common. As such, we would have liked to see these included in the analysis as well. We agree that the HMD as a source of mortality data can be used as basis for the work, but see it essential that before suggesting for any changes EIOPA need to closely investigate the insurance portfolio-specific data. There's a lot of evidence that this data differs quite substantially from the general population tables and we see that this needs to be taken into account. For example, the Continuous Mortality Investigation performed in the UK makes use of an assured lives dataset. Also the French official mortality tables for annuities are based on assured lives dataset which is very different from the general French population.	

3.4.1		
3.4.2	We deem the selection of countries and historical years to be sufficient for the analysis.	
3.4.3	We consider the proposed 25% stress scenario for mortality risk to be on the high end. This shock is calibrated taking into account all mortality rates until the insured person dies, and therefore the shock is higher for lower ages (in the long run both the Lee-Carter and the CBD model produce volatile results). This shock will however also be applied to term life insurance contracts, while these are expected to have a much shorter duration (than upon death of the insured person). It would therefore be more logical either to produce a separate shock for these short run contracts, or to lower the general shock. Taking into account the shorter duration will lead to lower shocks, since the volatility produced by the Lee-Carter and CBD model in the short run is limited. The 2009 CEIOPS' Advice for Level 2 Implementing Measures on Solvency II about Life underwriting risk referred to a sample size of 21 internal model, where the median mortality stress was 22%, with an inter quartile range of 13% to 29%. That showed a large heterogeneity. And we noticed that no sensitivity tests about geographical or time calibration have been included in the discussion paper. The Spanish Institute of Actuaries (IAE has developed a technical note "Proposal for the recalibration of mortality and longevity shocks under the Solvency II framework". Especially for the mortality risk they have identified weak points in the methodological approach chosen by EIOPA. Their analysis led to a mortality stress of only 15%. Although this detailed study is based on data from the Spanish market, the critics concerning the methodology should be considered before changing the stress factor. The paper can be found here: https://www.actuarios.org/papers-proposalrecmortlongshochsii/	

	A more granular approach would lead to better fitting results. However, as such a granularity has to consider specificities of portfolio and tariffs, this would require a higher complexity. A due consideration in the standard formula is hardly possible. We therefore support the proposal to keep the current granularity of the mortality and longevity stresses to avoid too much complexity in the calculation. The use of USPs should be possible as an alternative to better reflect structure and risk inherent in a portfolio. In case EIOPA is in favour of using a single shock for all ages, we would expect a substantiation of the selection of a shock corresponding to an age of 60 years. It remains unclear why this shock is selected. It is certainly not capturing the average risk of insurers portfolios.	
4.1	• "The Mass Accident Scenario creates a disproportionate risk charge for companies exposed to this risk. This is based on our experience across over 10 captive and corporate non-life (re)insurance companies. • For example, for a captive reinsurer of a Bank's Life and PA book, the scenario is that the head office (in every country) is subject to a mass accident. • There are 6,800 FDIC insured banks in America. From a Google search, the only instance we could find of a Mass Accident of this nature, which was the 16-story headquarters of Northwestern National Bank (now Wells Fargo) in Minneapolis being destroyed by fire in 1982, 45 years ago. • This suggests that the specific scenario has a much longer return period that 1-in-200 years	
4.2		
4.3		

4.4		
4.5.1		
4.5.2		
4.5.3	The inclusion of ten-year disability victims created additional complexity in the calculation. We welcome EIOPA's decision to supress this category of victims, which is consistent with the aim of simplifying the standard formula. At this stage, we have no visibility on the impact this change would have for the market. It might be interesting to quantify it. It cannot be excluded that the resulting changes would lead to an overestimation of this risk. EIOPA's proposal is based on the assessment that people who were subject to the 10 years disability scenario effect in the previous calibration, are now in majority subjected to the one-year disability scenario or in minority subjected to permanent disability. A comprehensible justification is missing.	
5.1	In general, we support the development of simplified methods, as the cost of applying the main method may be onerous, especially for smaller entities. We support the change from gross to net exposure basis for all catastrophe scenarios, as this increases risk sensitivity. When changing to a net exposure basis, however, the credit risk of reinsurance should still be considered in case this has material impact. Finally, given recent global developments, we think that the inclusion of a scenario for Cyber risks within the Man-made catastrophe risk module should be considered.	
5.2		
5.3		
5.4.1		
5.4.2		
5.4.2.1		
5.4.2.2		

5.4.2.3	We support the advice to allow for a simplified approach. Particularly for small and medium sized companies, the simplified approach is very helpful. We would recommend providing additional guidance on how to apply the proposed simplification as it can be interpreted in different ways. At this moment, it is not clear how to derive the potential loss from the top-5 exposure for each risk type. Do only the largest five risks need to be considered or the full exposure within a 200m radius around the largest five risks? We agree that the current approach is onerous to implement. It is not straightforward to identify the largest exposure within a given radius. Therefore, a simplification of the main method is desirable, or failing that, an alternative simplified method should be introduced. We also agree with the observations made that the scenario is overly conservative, as a full loss of sum insured within a 200m radius is almost impossible to occur. Furthermore, we think the suggested simplification is still onerous to complete given the difficulty in identifying and evidencing the location with the largest exposure in a portfolio. In addition, it is not clear how to derive the potential loss from the top-5 exposure for each risk type. Do only these need to be considered? Finally, we are of the opinion that, when realistically assessed, the inclusion of this scenario does not add to the risk sensitivity of the SCR calculation. The SCR for premium risk already covers the risk of attritional as well as large losses occurring, and is determined on a highly approximate basis, as it is, for example, not country specific. Moreover, the inclusion of this scenario does, in general, not give rise to a materially higher SCR for P&C Underwriting risk. We could only imagine this scenario to have a material impact on the overall SCR for P&C Underwriting risk in case an insurer were exposed to large, individual risks or risk concentrations without further portfolio diversification. Such portfolio imbalances should however be addressed within overall pillar II/risk management requirements.	

	Annex to Chapter 5 suggests that there is an underpin, which is calculated as follows: average(sum_insured)*500*max(5%;market_share). This formula should be also mentioned explicitly in 5.4.2.3. In case of insurance markets where companies operate mainly or exclusively in specific regions, an application of the market_share calculated for the whole market seems questionable. Hence, we propose that in this case a regional share should replace market_share. 5.4.2.3 No. 308 is suggested to be rephrased as follows: "As a simplified calculation, the identification of the largest risk concentration within a 200m radius circle around exposure address shall be reduced to the analysis of the 5 largest risk exposures per risk type (residential, commercial, industrial) and the risk of these 5 largest exposures to accumulate with each other in a 200m radius. This assessment shall be subject to an underpin based on the market share of the company as outlined in an unpublished proposal for a new volume measure for premium risk using an underwriting scheme weighting factor. (see 2.4.3) For undertakings without geocoded data the risk should be assessed in a consistent way while the underpin ensures an appropriate reflection of the risk.	
5.5.1		
5.5.2.1		
5.5.2.2		
5.5.2.3	We agree with the proposed change.	
5.6.1		
5.7.1		
5.7.2.1		
5.7.2.2		
5.7.2.3	We agree with the proposed change. EIOPA decision to base catastrophe risk on the largest net exposure rather than on the largest gross exposure seems actuarially sound, and consistent with good risk management	

6.2	We appreciate the approach taken by EIOPA to involve NatCat experts from various institutions to work on the suggested advice.	
6.3.1		
6.3.2	In practical cases, there are risk, which may not be allocable to CRESTA zones. Examples are given in Par 364, such that a feasible simplifiacation approach needs to be found. We agree with the conclusion that an optional simplification is preferable to a change of the current SF approach (365)	
6.3.3.1		
6.3.3.2	We agree with the observation made that there is potential cross-border in consistency of country risk factors after a recalibration. In our view this should neither lead to a total change of parameters nor to disregarding the new insight gathered in NatCat risk because potential current restrictions on data and capacity (C.f. 399). We are in favour of a compromise. We agree with the observation made that there is potential cross-border in consistency of country risk factors after a recalibration. In our view this should neither lead to a total change of parameters nor to disregarding the new insight gathered in NatCat risk because potential current restrictions on data and capacity (C.f. 399). We are in favour of a compromise.	
6.3.3.3	We agree with EIOPA to prefer simplification option 5 and the underlying reasoning. The approach is consistent with Article 88 of the Solvency Directive and simple to apply.	
6.4.1		
6.4.2		
6.4.3.1		
6.4.3.2	We appreciate the approach taken to consider additional risk insight gathered since the underlying parameters have been calibrated for the first time as described in 401.	
6.4.3.3	We note that the recalibrations proposed are provisional. It is hard to comment on provisional suggestions. A consequence is that our related comments have to be seen as provisional as well. We support the inclusion of additional country factors and the revision of existing parameters as described in the table in 386. We are not in the position to comment on individual suggested factors, but our consideration of the changes suggested did not result in concerns to be noted.	

6.5.1		
6.5.2	We agree with the conclusion that only an adjustment to the end results should be proposed. The alternatives would lead to overly complex calculations.	
6.5.3.1		
6.5.3.2		
6.5.3.3	We are in favour of the suggested ex-post adjustment. The calculation (C.f. 425) has to be done on the granularity country, zone and peril. In practical cases, deductibles and contractual limits often are not fixed on this level of granularity. Therefore, we suggest opening the formula given in 425 to make it possible that the insurer applies the formula to other more suitable levels of granularity, provided that there is an underlying reasoning based on the conditions in the underlying contracts. We are not sure if this is included in the phrase used in 428 (… in the case of further granularity…).	
7.1		
7.2		
7.3	Par 452: The idea of first extrapolating and then stressing the derived curve seems natural since this is what everyone would do if the curve were complete throughout all maturities or markets deep, liquid and transparent for all maturities higher than 20 years. With illiquid markets, this method leads to an underlying assumption of severe structural economic disruptions when stressing the long-term interest rate UFR. In this context, the objective of actual asset liability management within life insurer companies is the steering of interest rate risk to stabilize own funds against interest rate shocks and to reduce the SCR for interest rate risk. Measures to meet both targets are based on a decrease of the duration gap between assets and liabilities. Unfortunately, the suggestion of EIOPA for the interest rate shock differs substantially from the risk free rate for the valuation of liabilities, and this yields diverging stimuli for the duration gap. The following considerations will illustrate the problem.	

	The current Solvency II approach leads to inconsistencies in the valuation of interest rate changes. From an economic point of view this may result in misleading management decisions for the asset allocation with respect to decreasing interest rates and thus to an overexposure regarding the opposite shock of increasing interest rates. The base curve is derived in the following manner: 1) Obtain data from observable markets up to last liquid point 2) Use UFR defined by solvency II methodology 3) Extrapolate observable curve into illiquid maturities towards UFR The base curve is stressed. Assuming an exact realisation of the stress (e.g. 100 BP down) from one quarter to the other, a consistent approach would result in a new base curve corresponding to the stressed curve from a quarter before. That is not the case, however, since the new base curve takes into account the yield curve up to the LLP. Then extrapolation sets in towards the UFR. In line with Solvency II rules, the UFR might change yearly within limits. Both curves differ substantially. Undertakings management action cannot be consistent anymore. Either, the undertaking strives for stable own funds which leads to not fully incorporate the stressed curve from the previous quarter. Alternatively, the undertaking tries to keep own funds high enough according to the stress. In this case, the stressed risk free curve enforces changes in the investment strategy with an increase of the modified duration on the asset portfolio on average, leading to an overexposure with respect to an upward shock. The problem of the inconsistency regarding steering impulses can be solved, if the risk free rate for the valuation of own funds and the stressed curve for the solvency capital requirement are constructed using the same method, i.e. for interest rate risk calculation the yield curve gets first stressed and then extrapolated: the stressed curve and a future base curve would be identical in that case apart from a potential difference resulting from a shock of the UFR, and own funds management gets a unique and consistent impulse.	

	Moreover, in many mathematical interest rates models, the long term expected rate, the UFR, is non-decreasing (c.f. work of Professor Keller-Ressel at TU Dresden). If the UFR is stressed, this corresponds to the assumption of massive structural change in the EU-zone's economy. This, on the other hand, can no longer be considered a regular interest rate shock, which is supposed to be modelled here. Structural economic shocks should not and are not reflected within the standard formula but instead crucial to additional analysis like the EIOPA-insurer's stress tests, which are issued on a regular basis in addition to the general Solvency II assessment. Par. 455: We do not understand that this method leads to additional complexity due to the fact that the Smith-Wilson methodology has to be applied to the shocked curve. EIOPA publishes every month the basic interest rate curve to which the Smith-Wilson methodology was already applied. So this methodology is well known and it seems to be easy to apply to a second curve. From the legal point of view, we cannot see any reason why it should be impossible to publish a second Smith-Wilson-treated curve. Therefore, we believe that EIOPA is allowed to use the Smith Wilson methodology not only for the basis interest curve but also for the shocked curve to align the implementation. Par 474 – 476: We believe the backtesting contains a methodological error and should thus be reconducted in a consistent way. Trying to reproduce the numbers and effects outlined in figure 7.3, we believe we found that first a trend smoothing was performed. With the smoothed data, risk factors were produced and based on this the original data was tried to be reconstructed using the original non-smoothed data. This will clearly lead to the fact that the data will cross the lower limit and that in general the upper limit will hardly be struck. To solve this flaw, one could either not smoothen the trend and derive risk factors on the original database and thus perform calculations taking the original data for backtesting as well. Or, alternatively, use the trend smoothing both times for deriving risk factors and on the crude data and thus compare smoothed data with smoothed factors.	

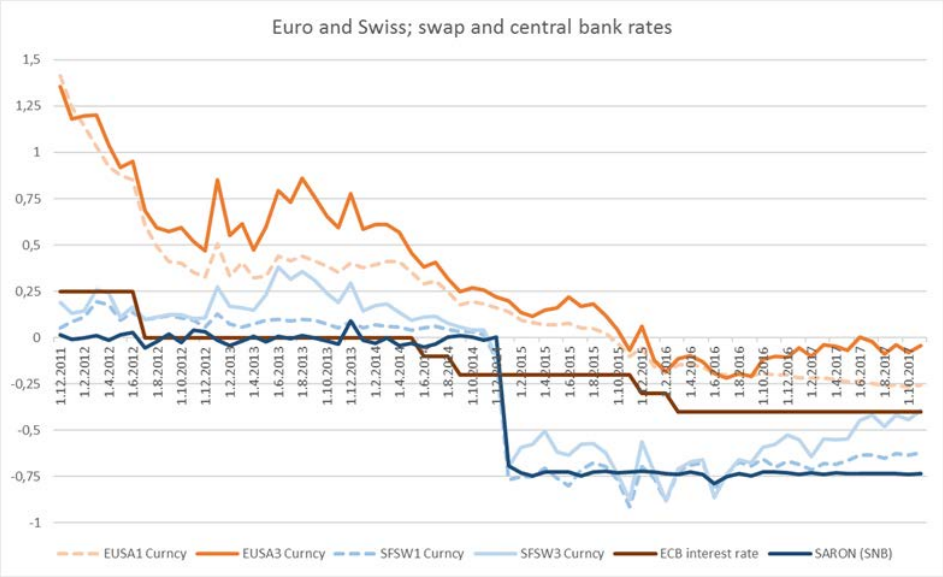
	Under both conditions the backtest will show significantly different effects and would also proof the proposed method as suitable for deriving a shocked yield curve. We strongly recommend to restate the backtest in a consistent manner and to allow the proposed methodology since the stress would be consistently calculated taking into account current market information and actual data reflecting market conditions at time of evaluation. From our point of view, a correctly performed backtest results in a positive consideration of the shifted approach and given the illustrated advantages referred to in 467 – 473, we believe this approach is superior to the other two approaches stated in this CP which were solely for the reason of a misleading backtest EIOPA's preferable solutions outlined in section 7.4.3 (c.f. comments on methodology in 7.4.2)	
7.4.1		
7.4.2	1. shifted approach and backtesting According to par. 475 of EIOPA's consultation paper the shifted approach is not feasible to calculate stressed risk free curves, because in their back test EIOPA identifies 210 breaches (i.e. 210 days on which shifted down rates are actually higher than the base rate of the subsequent year). This would of course not be consistent with a 1-in-200 years event. However, our calculations show only 21 breaches, which would indeed be consistent with a 0.5 percentile and hence would empirically justify the appropriateness of the shifted approach. Our calculations were conducted according to the following specifications: 1. Our dataset consists of daily observations from the 4th of January 2000 to the 30th of December 2016. 2. First, we added a constant 3.5% to the base rate of every respective observation. Then we calculated the percentage change of this rate to the rate one year (261 days) later, according to the following formula: $change_t = \frac{(rate_{t+1}) - (rate_t)}{rate_t}$ This provides 4174 data points.	

	1. Secondly, we calculated the 0.5 and the 99.5 percentile of the $change_t$ values respectively. The 0.5 percentile is approximately at -25% and the 95.5 percentile is at about 13%. 2. The theta parameter is chosen to be 3.5%. We then calculated the Up and Down Shifts according to the below formulas: $Shift_{Down} = (rate_t - \theta) * (1 - 25\%) + \theta$ $Shift_{Up} = (rate_t - \theta) * (1 + 13\%) + \theta$ 3. Finally we plotted the shifted rates against the base rate of the subsequent year. The base rate commences on the 3rd of January 2001, the shifted up and down rates for this date are based on the rate observed on the 4th of January 2000. There are 21 breaches for the up and down curve respectively. This is consistent with the 0.5% respectively the 99.5% percentile. 2. absolute shock Unlike the general assumptions behind the standard formula approach, an absolute minimum shock does not use any given data and does therefore not reflect any actual data and the information therein. For this reason, this approach overestimates realistic shocks and seems too prudent for the standard formula, which is supposed to valuate on a best estimate basis.	
7.4.3	However, some stylised facts about interest rate movements that seem to be supported by behaviour of EIOPA RFR yield curves (without VA and only up to the last liquid point) even in low or negative interest rate environments include: 1. The lower the interest rate (expressed as a spot annualised rate), the less volatile it tends to be (although as noted above, the tapering-off arguably will never reach zero, however low interest rates have fallen)	

	2. For the same interest rate level, interest rates (annualised) further out along the yield curve tend to be less volatile than those at the nearer end (although with volatility not typically falling off by as much as a factor of 1/t, where t is the applicable year along the yield curve) It was previously held to be self-evident that interest rates were floored at zero, but this has proved erroneous. It therefore seems doubtful that there is any fixed floor below which interest rates can never fall, or to put it another way, if interest rates were minus 2% pa (or minus 4% pa, …) we would likely then always be able to identify some reason why they might still fall further. Currently, the most common way of modelling interest rates that does not floor them at zero appears to be the usage of a shifted lognormal approach or some close variant. This includes as a parameter a floor below which it is assumed interest rates cannot fall. However, EIOPA's analysis in sections 474 – 477 suggests that a shifted lognormal approach fitted to recent past data performs poorly in backtesting when applied to EIOPA RFR data; such a model seems to have underestimated the potential size of down movements in yield curves when interest rates are at modest levels This suggests that some refined approach should be applied. One possible approach would be to model interest rates by using a more complicated formula than the one underlying the shifted lognormal approach. For example, instead of modelling interest rate movements according to a formula in which the instantaneous volatility sigma = k * (r – theta) we might model them using a more general formula such as sigma = k * f(r, param1, param2, …). The basic lognormal and shifted lognormal approaches are special cases of such a more generalised approach (in the basic lognormal f = r, in the shifted lognormal sigma = r – theta). We could for example use a 'piecewise-linear shifted' lognormal approach in which f is piecewise linear with more than one line segment, e.g. f = k1 * (r – theta1) below some threshold and k2 * (r – theta2) above some threshold. By making the model arbitrarily complicated, we can in principle fit the past data arbitrarily accurately and achieve a good fit in a backtesting analysis. The fundamental problem with such an approach is that a model optimised to provide the best backtesting results is very likely to be highly overparameterised and hence to characterise the future poorly.	

	The alternative approach is to apply more heuristic refinements based on expert judgement. Both of the approaches being proposed by EIOPA can be seen as attempting to do this in a manner that tries to find a balance between simplicity, robustness and being supported by available data EIOPA note that Proposal A is possibly too simplistic and possibly too prudent in terms of the down stress. It has a saw-tooth type of tapering-off in size of down shock as interest rates fall. Below the level at which the relative approach ceases to bite, the down stress is flat at -200 bp (out to a 20 year maturity), until we are within 200bp of the specified floor (which EIOPA is proposing would be set at -2% for 1 year maturity, falling to -1% at a 20 year maturity) The affine approach of Proposal B results in the down stress tapering-off more in low or negative interest rate environments, which seems more in line with the stylised observation noted in (a). However, maybe EIOPA's specific proposed implementation of this approach still does not taper quickly enough for the down stress, since the down stress still includes a 1% additive term, so presumably the stress would always at least exceed 100bp, except when within 100bp of the specified floor. Retaining a minimum up stress even in such circumstances seems logical, since otherwise the risk of a sharp rise in interest rates might be underestimated. A possible disadvantage of Proposal B is that it is more complicated to specify. It is difficult to identify exactly how it would work at first reading. We recommend that it should be explained more simply in any final text. In practice, EIOPA supplies the up and down stresses to the industry along with the base RFR etc., so the resulting complications can largely be managed centrally by EIOPA rather than falling to individual firms. Arguably both Approach A and B may possibly taper too much at extremely large negative interest rates, since as noted above there probably is no natural lower limit below which interest rates cannot fall if they are already close to that floor. In practice, the risk of reaching such a situation might be deemed remote, but if EIOPA wishes to future-proof its approach then a possible	

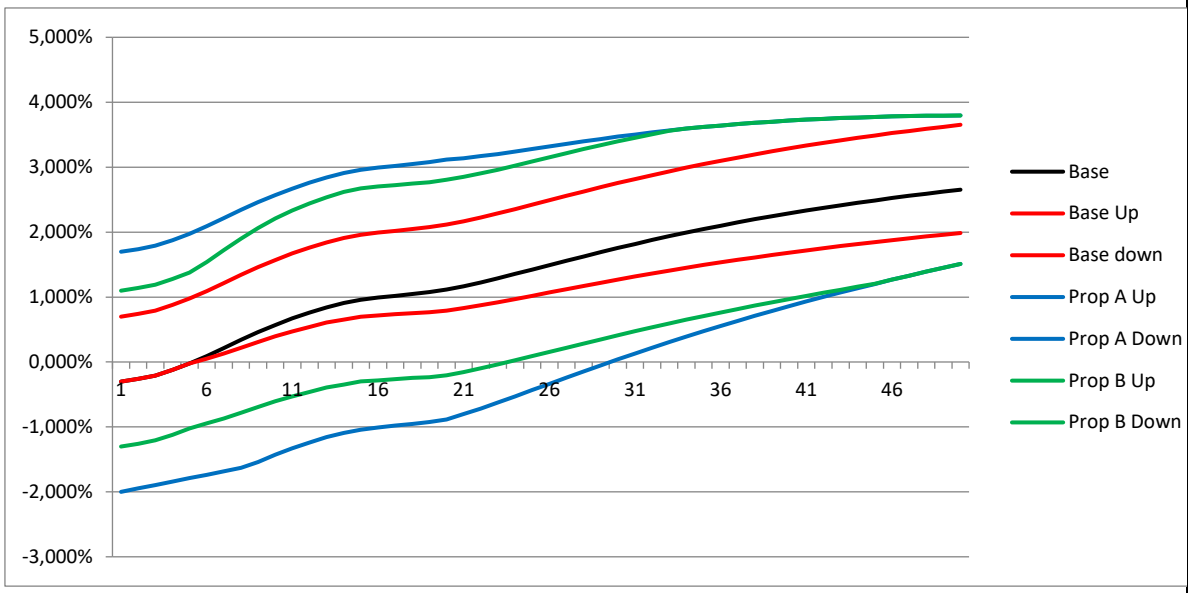
	refinement would be to include a modest absolute minimum down stress, such as 10bps to cater for situations where the otherwise assumed lower limit was close to being reached. Par 484 The -200bps floor has been set from the lowest yield observed from CHF currency from Switzerland, at maturity point of 2 years. This was -122bps below which a prudency margin of -78bps has been suggested. a. Making a reference from CHF into Euro would need a lot of justification. Euro-area can hardly be justified as such safe haven than the Switzerland market is. b. Swap rates have different dynamics than central bank interest rates. The correlation might be strong but swap rates always needs the market behind it, two parties needs to be able to find the rate that suits for both. History? c. It should be closer looked that what kind of market and economy we would be looking if the Euro area short rate would be 200bps? And that do we believe this to be the 99.5% VaR scenario? For instance, small and medium bank might have enormous difficulties in operating even in a short rate environment of -60 to 100bps, which would bring this to a large scale political issue. d. The cost of holding cash should be noted as one possibly minimum level of short rate. From a practical point of view this would be (and already has been) something institutions could start doing, allocation part of their investments into cash. Interest rate shock after LLP should be a straight function of the earlier maturity points, just like when calculating the RFR. There should be no need to design an interest rate shock calculation that cannot be in line with the reality.	



This section concerns interest rate risk calibration.
First, we consider that the current approach with no decrease of negative interest rates may appear as inadequate to measure interest risk.
However, we consider that approach A presents many economic and statistical limitations, among which: pro-cyclicality (absolute shock) and market-inconsistency (floor). Moreover, as underlined in 488.: in a low yield environment, the minimum shock of 2% can be challenged to be an overly prudent approach.
Elsewhere, we deem that the proposal B seems to be more efficient than the approach A; however, we consider that the accuracy of this approach strongly depends on the calibration of different yield environments. In this way, EIOPA should provide more statistical analysis to test this approach.

	Consequently, given that the back-testing results showed by EIOPA seems not to be enough relevant, we cannot conclude on what is the best approach. In any case, EIOPA should draw its attention to operational consequences and in this way should avoid an approach that may lead to overcomplexity. No. 522: AAE agrees that the current relative approach is inappropriate in a low yield environment with negative interest rates. No 523: AAE disagrees with this consideration due to the fact that the backtest needs a correction and will then show that the quantile is met. Thus, the shifted approach should be considered further and eventually be chosen as the future methodology applied. No 524: AAE considers Proposal A yet simple but inappropriate to adequately reflect current market conditions when deriving a shocked interest rate curve. When proposing a lower bound for the low interest rate of -200bps it should be taken into account how the aftershock interest rate DOWN risk would behave. If the interest rate shock would actually happen as suggested in the proposals A or B the aftershock interest risk could not, by definition, be anymore as high as before the shock. For instance, if for some company the interest rate DOWN risk would be €100 million before the shock and then the shock would happen as suggested, the after-shock interest rate down risk would be much lower, say €10 million as the lower bound is nearly reached. And this would give the company a SCR capital relief of €70 million (a -€20 million diversification benefit assumed). Obviously the interest rate risk UP might also behave differently in this example but for insurers with long duration liabilities it might be assumed that the interest rate risk DOWN would still be lower. The example applies especially to the proposal A. This has not been that much of a problem in the current interest rate shock model, with the current limit of zero but if addressing a lower bound of -200bps and the change of the model itself the possible after-shock capital relief needs to be taken into account.	

The consultation paper sets out two possible proposals for the interest rate shocks. Proposal A is more severe and equates to a shift in interest rates of broadly 2% up and down at early durations. Therefore the interest rate down stress is significantly negative at the start of the projection and remains negative for about 30 years. Proposal B is a blend between the current approach and Proposal A and therefore the impact lands between the two. The graph below sets out the detail:



In particular, if the interest rate down shock is most onerous for a company, the impact on the SCR will be significantly larger. To stress negative interest rates downwards by a further amount of up to 2% would appear to be very onerous.

Additionally, for companies with a defined benefit staff pension scheme, stressing a very significant fall in interest rates will result in a large increase in the IAS 19 liability. This, in turn, would lead to

	increased capital requirements for such pension schemes. As the pension scheme is treated as a ring-fenced fund, there is no correlation benefit with the other risks of the company and hence the impact is likely to be very large. Given the already onerous capital requirements for defined benefit pension schemes, this could call into question the ongoing viability of such schemes.	
b8.1		
8.2		
8.3		
8.4.1		
8.4.2		
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9.1	GENERAL COMMENT: The SF formula currently generates significant currency risk for groups operating in different currencies. This encourages hedging 'translation risk'. To the extent that currency hedges are relatively cheap (small bid-offer spread), it should be a red flag that so few companies actually hedge this translation risk. This suggests that the SF formula misses something. Yes, hedging incurs operational risk and requires careful liquidity management. It presupposes significant liquid holdings. But there are two more fundamental reasons why a one-year approach does not match the way companies manage currency risk: (1) Currencies are generally felt to be mean-reverting (purchasing power parity). Given that most currency-exposure is driven by strategic holdings, this suggests that a longer-term perspective is appropriate. You don't want to manage currency exposure of strategic holdings on a one-year basis.	

	(2) To the extent that currency exposure arises from strategic holdings in foreign affiliates, it should be noted that local currency OF may move up and down with a currency, but so does local SCR (in the reference currency). Managing risk involves more than just looking at OF volatility. The feedback statements focus on this second element. EIOPA is correct in its criticism of the current feedback proposals. Let us therefore provide an updated proposal that takes account of this criticism: (group OF -/- group SCR)before shock -/- (group OF -/- group SCR) after shock. The terms (group OF)before shock -/- (group OF)after shock They correspond to 25*(Expfi -/- local liabilities), see 579. The terms (group SCR)before shock -/- group(SCR)after shock capture the impact of currency on group SCR. You can think of it as '25*(local SCR)' from 579 *after diversification at the group level*. The proposal captures two ideas: - Account is taken of the FX impact on SCR. This corrects for the fact that Solvency II only considers the impact on OF (ex RM), implicitly assuming SCR constant. You can think of this term as a first-order correction of the SII-ratio for changes in SCR. - Allowance is made for diversification. If local SCR diversifies a lot at the group level, benefits from this SCR correction will be minimal. If local SCR is considered to be 'non-fungible', maximum benefits arise. Currency risk is largely neutralised. Two main issues with this proposal: - It formally corrects for a systematic weakness in SII. In SII, risk is only assessed based on OF (ex RM). The implicit assumption is that SCR is (relatively) constant. This could be the first time that the assumption is formally dropped. It could therefore lead to more changes.	

	- Re-assessing SCR after a currency shock could be a little complex. Forcing everyone to do this, whether FX exposures are large or small, could be a bit much.	
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9.4.1	EIOPA is proposing in Par 603 that groups have the flexibility to select a local currency other than the one used in their consolidated accounts. This seems logical, since the one used in their consolidated accounts may not in practice match how their currency exposures are expected to behave from the perspective of investors or policyholders. One possible refinement would be to allow a group to use a basket of currencies, rather than 100% in one currency. However, identifying an objective way to determine such a basket is likely to be tricky. If groups have broad freedom to select the basket then they could merely select whatever currency mix matched their existing net exposures, largely or wholly eliminating contribution from currency risk to their SCR, which doesn't feel right. Another possible refinement would be allow the group to use whatever basket of currencies they liked for their own capital but to require the basket to reflect a currency mix derived from the currencies in which the technical provisions were denominated for their best estimate liabilities (presumably for the risk margin the currency risk is assumed hedged, so doesn't contribute to the SCR) It is not clear why such changes should be limited to groups and should not be available to solo entities, since they too might possibly use a currency of account different to the one in which their investors or policyholders might expect them to hold their surplus capital	
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13.1	We welcome the proposals for the additional optional simplification for: • the computation of the LGD for reinsurance arrangements • the risk-mitigating effect of reinsurance arrangements • SCR for type 1 exposures in Article 200 of the Delegated Regulation There is however a risk for too much prudence and would therefore suggest to review if any of the factors in the new proposed simplifications could be changed, for example if the factor of 5 could be lowered in the SCR formula $SCRdef$,1=5 $\cdot\ \sigma$.	

	• Based on the counterparty default risk module being found as the most burdensome module compared to the significance of the capital requirement and that, on average, the counterparty default risk is not a major risk for the undertakings we think there could be room for further simplifications or even a change in the module as such.	
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13.3	**Collateral** In the Delegated Regulation it is stated that the loss-given-default shall be net of the liabilities towards counterparties belonging to the single name exposure. However, it is not clear from the text how this netting should be applied (before or after adjustment for collateral). Suggestion to add the liability exposure to the formulas within Article 192(1). There are situations in which there is a tripartite agreement, in which an exposure towards a counterparty can be netted against a liability towards a third party (in the Netherlands: spaarhypotheken is such an arrangement). This situation can comply with Article 209 and 210 of the Delegated Regulation. However, Article 192(1) does not allow for this risk mitigation. The same holds for certain specific spread risk exposures that can be netted against a specific liability, complying with all the necessary requirements for risk mitigation. **Adjustment for market risk** The way the adjustment for market risk is defined for collateral exposures in Article 197(5) and for mortgages in Article 198(3) introduces ambiguity: • The adjustment for market risk includes diversification benefits within the market risk module. This means that there will be a difference between the risk-adjusted value of collateral/mortgage for the solo and group entity reporting within the same group. It is not clear why this is considered appropriate from a risk perspective. • The counterparty default risk on reinsurance counterparties should be included in the risk margin. As the risk margin *should be based on the assumption that the whole portfolio of insurance and reinsurance obligations is transferred to another insurance or reinsurance undertaking*, it is unclear which (hypothetical) diversification benefits within the market	

	risk module should be taken into account in determining the counterparty default risk to be included in the risk margin. • The delegated acts only prescribe a correction for market risk. However, there are situations in which the collateral itself is subject to counterparty default risk (e.g. cash or swaps as collateral for a reinsurance contract). It is unclear how to incorporate the counterparty default risk on the cash/swaps within the risk-adjusted value of collateral. • The definition of the adjustment for market risk is based on two 'hypothetical' capital requirements for market risk. The definition in Article 197(5)(a) uses the word 'hypothetical', however, the wording suggests that the definition in article 197(5)(a) prescribes the *actual* market risk calculations of the company. Suggest rephrasing this article. • The way the two hypothetical capital requirements for market risk are defined, suggest that Article 197(5)(b) defines a situation in which the (reinsurance) counterparty is in default (that's the reason the collateral assets are on the insurers' balance sheet). The wording in definition in Article 197(5)(b) suggest that both the collateral assets and the recoverable from the reinsurance contract should be included in the market (interest rate) risk calculations. This is a situation that will never occur, as in default the reinsurance recoverable will not be on the balance sheet anymore. Suggestion to exclude the applicable counterparty default risk exposure (for which the risk-adjusted value of collateral is determined) from the hypothetical market risk calculations as described in Article 197(5)(b). **Condition on the 60 % of the counterparty's assets subject to collateral in Article 192(2) of the Delegated Regulation** Agree with the observation that it is hard to determine the 60%. The all-or-nothing option <60% vs. >60% undesirable. A change from 59% of collateralized assets to 61% can have a huge capital impact, which does not reflect the actual risk. Suggestion to introduce an additional step or some sort of sliding scale. The all-or-nothing option introduces difficulty in correctly projecting the SCR for risk margin purposes.	

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17.1	General remark Foremost we appreciate EIOPAs new additional proposed interpretation of the Delegated Regulation on LAC DT. We wish to thank EIOPA for putting a lot of effort in trying to create more	

	solid LAC DT supervisory practice and regulations, meeting the requirement of a more level playing field. We acknowledge the challenges given the different tax regimes. We believe that when creating a sound system of governance as suggested in principle 8 around the LAC DT process and calculation there may be more allowance for principle based instead of rules based (less prescribed parameters) implementation. Nevertheless as a general remark, we would suggest to stay within the principles based foundations of Solvency II and not introduce rules for LAC DT. We acknowledge the different horizon definitions EIOPA introduces: the projection horizon and the sales planning horizon. On a technical point, the consultation paper refers to future profits stemming from (a) new business and (b) returns on assets. We believe that profits from premiums received outside the contract boundary should also be considered. In many instances the contract boundary is immediate based on the Solvency II rules (e.g. unit-linked regular premium business with no rider benefits). However, premiums would be expected to be received beyond the boundary and in many cases this is more certain than new business. Specifically we also have concerns about general limitations of horizons as these might be in conflict with local tax regimes and also the going-concern principle underlying the SCR calculation. We are also of the opinion that the going concern principle should count, for instance in the way new sales are dealt with.	
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17.4.1	<u>Key principle 1: role of compliance with MCR/SCR after shock</u> Compliance with SCR/MCR within the SII timelines is interpreted differently by some NSAs (NL for instance). They see compliance to SCR/MCR level within the SII timelines to be important when	

	projecting future cash flows after shock. EIOPA however does not go this far but requires to take the SCR/MCR level after shock into account in the assumption setting for future profits. This needs to be in line at all NSAs, resulting in convergent practices in member states, to safeguard the level playing field. Referring to paragraph 1300, in the 2nd formula does EIOPA mean by NewBus Future Profits? Clarification would be appreciated. <u>Key principle 2: Future profits stemming from New Business – projection assumptions</u> The ENBV is introduced, assuming this to be in line with the VNB under MCEV (but using SII assumptions). We generally support introducing this concept to enhance the discussion, but would also like to point at the fact that it took some time under the MCEV to agree on a common understanding. We appreciate the differentiation of two time horizon in 1309 and would like to add, that under MCEV, VNB can have a horizon depending on the duration of a contract, long-term life business may have a long projection horizon. Please follow this concept. As a general remark, we would appreciate if the need for comparison to the fiscal carry forward rules for recovering profits would be clearly implemented in the texts although of course as general principle there already. <u>Key principle 3: projection horizon of future profits from new business – projection horizon of future profits from NB</u> We do not support the introduction of over the board capping rules for the whole sector but would suggest to stay with the principles based approach of Solvency II. It is up to the individual insurer/industry to come up with a horizon they believe is suitable to project NB sales and provide evidence for the reliability. NSAs will then of course challenge this, given the concrete risk profile of the undertaking. This is in line with the principle based SII framework instead of rules based implementation.	

	In the possible implementation of key principle 3 (b) EIOPA refers to the CRO forum paper (the 3 years and then a reduction). This is however just an example and also CRO forum refer to a P&C business. EIOPA seems to assume all insurance companies to have the same planning period and equally for life/nonlife or health insurers the same level of uncertainty after the same amount of years. The question is whether this is feasible. <u>Key principle 4: projection horizon of future profits from new business- projection horizon of NB sales</u> In the possible implementation (b) EIOPA suggests to limit the sales period to 5 years irrespective of the company's business planning period. As for key principle 3, we suggest to stay with the principles based approach of Solvency II: We deem it is up to the insurer to plan their business ahead and not to set a maximum period. If a company has done extensive fieldwork and explained in the ORSA ways to create NB sales for a longer period, this should be taken into account. Insurers ought to come up with their own planning period and adequate substantiation hereof. They then have to convince their stakeholders. The NSAs will challenge this. This is in line with the principle-based foundation of Solvency II. Another important point is that irrespective of the sales period, the going concern principle should count. <u>Key principle 5: Future profits from returns on assets</u> Possible implementation Prescribing to use after shock risk free rates for the assets in excess of TP is not in line with the principle-based framework. As such, it is up to insurers to substantiate the aftershock returns based on their economic views, assets in portfolio and projection of the insurance portfolio. Being on the most prudent side of the spectrum (fully complying and not broadly complying with guideline 9) leaves no room for entrepreneurship. 1334: It does not seem to be a problem if companies change their hedging strategy assuring interest rate up risk to be highest if they cannot create enough future profits based on the	

	interest rate after shock when down would be the highest. If there are incentives to do so, then this should be rewarded. <u>Key principle 6: future profits from return on assets in excess of TP - projection horizon</u> 1338: the sales planning period should be considered separately from profits from assets on the balance sheet. Profits from these assets ought to be considered in conjunction with the long-term investment strategy and nature (maturity, duration) of the assets under consideration. <u>Key principle 7: Future management actions</u> 1344: reading this text, contractual agreements with third parties (agreements when in shocked situation) are deemed less certain or probably than FMAs that are at full discretion of the company. This needs more substantiation. There may be situations in which this is the other way around. 1349: can EIOPA please elaborate on the wording 'common understanding'? 1351: shock-loss situation differs completely to pre-stress situation. Therefore, the FMAs to be taken into account may differ and/or be more rigorous in post stress. For instance lowering guarantees in certain products (in a low interest rate situation, like banks do) in situations in which otherwise all policy holders protection is required may be a good management decision post stress but not pre stress. Also, for example there may be incentives to lower expenses post stress should policyholders otherwise be affected. Pre stress there may not be such an incentive. Pre and post shock change in economic environments ought to be taken into account in the applicable FMAs. <u>Key principle 8</u> No comments <u>Key principle 9</u> No comments	

	Simplified method 1370: it needs to be made clear whether or not the taxable profit in the year of the shock is part of the TaxableEconomicProfits	
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18.1	As stated in Par 1388. EIOPA was asked by the Commission to provide • Provide information on the relative size of the risk margin in insurers' balance sheet. • Assess if the methods and assumptions applied in the calculation of the risk margin continue to be appropriate, in view of a changed market environment. In particular, EIOPA is asked to review the Cost-of-Capital rate (CoC rate). While EIOPA has provided the requested information on the relative size of the risk margin and has elaborated on the Cost-of-Capital rate, the assessment of methods and assumption applied in the calculation of the risk margin is missing. We recommend EIOPA to open up and fix some of the issues on the calculation of the risk margin itself. EIOPA should focus more on the risk margin to consider (1) Consistency with IFRS financial reporting and ICS development, which permits wider range of methodologies. (2) Potential for incentivising firms to reinsure longevity risk risk and invest in pro-cyclical manner.	
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18.4.1	Our answer to the Discussion paper in March was based on the evidence collected during the consultation period. We still find these useful for the future work on methodological questions relating to the calculation of the risk margin. The method chosen to justify the retention of the old COC-rate is questionable and does not seem to be adequate in case of Insurance undertakings. On the Risk Margin more specifically: • We deem the prescribed methods to calculate the risk margin not as adequate for the valuation of long term insurance products - especially in the current low interest rate environment. This might cause pressure on pricing of these types of insurance products, which would further affect the policyholders. • The risk margin should reflect only the cost of residual non-hedgable risks of the run-off business. • The current formula causes technical issues for the valuation of the risk margin due to the complexity required for actuarial models to project the SCR. • The use of either the MA or the VA in the calculation of risk margin should be allowed depending on the situation of the undertaking/market. Both VA and MA as well are part of the Solvency II framework and it should be allowed to consider them. Not allowing this also makes the technical calculation more burdensome. • We find several issues on how risk margin works currently and have some numerical examples with the analysis below. On the CoC-rate and the proposal from EIOPA, we see some issues that EIOPA would need to further investigate. In the consultation paper it is suggested that CoC-rate should be equal to cost of holding equity, it should be modelled with CAPM and the CoC-rate should be in the range of 6% - 8%. There's also some evidence of an average 7.5% to 10% equity risk premium (the CoC-rate). We see that:	

	• As noted in 18.4.1, in case of the risk margin set-up there is no future business (only the run-off). It could be analyzed what is the difference between new business and run-off cost of equity premiums (can be found from insurance based analysts' reports etc.) as the evidence of 7.5% to 10% includes both. We see that this would result in a lowering of the equity risk premium. • The reference undertaking in the risk margin set up has no market risk. This should also be taken into account when determining the CoC-rate. Market risk is a substantial part of the risks of an insurer. If there would be no such risk in the assumed run-off of risk margin, the equity risk premiums would need to be lowered accordingly. • EIOPA's assumption that relevant insurers fund their regulatory capital exclusively using equity capital. In practice, companies where the risk margin is of a material size, appear on average to fund a material fraction of their regulatory capital using debt capital or from the value of in-force business.. Both of these are likely to be significantly less 'expensive' to service (in terms of the risk premium being offered) than equity capital. In Par 1410, EIOPA is assuming that insurers are uniquely funded with equity. As an argument, EIOPA is quoting the results of QIS4. The reference to the QIS 4 exercise is out of date, as in the meantime Solvency II has entered into force and the contribution of debt financing on the CoC rate is underestimated. Debt funding can be significant: for large insurance groups subordinated liabilities can represent more than 20%, of the total eligible own funds. The use of debt funding will tend to lower the cost of financing, and hence disregarding this will lead to an overestimation of the true weighted average cost of capital. Therefore, it is important that the cost of capital rate used takes into account the cost of debt as well as equity. A study about the weight of equity or debt in order to take over and meet the underlying insurance and reinsurance obligations could usefully complete the analysis • EIOPA's assumption that an appropriate beta to apply in the derivation of the CoC should be 1.20 based on the characteristics of quoted insurers' equity returns. Part of the reason for the beta of such insurers being above one is their tendency to invest in equity	

	markets. However, the risk margin is derived on the assumption that the reference undertaking hedges away as much market risk as possible. Undertakings doing so can therefore be expected to have lower levels of equity exposure and hence lower betas than the typical quoted insurer, so use of a lower beta than 1.20 seems appropriate. • Value of future profits. The construction of the risk margin tends to overestimate the value of the risk margin. Its current formula leads to an application of a cost of capital on the value of future profits. This point could be addressed by taking into account the share of value of future profits in the calibration of CoC rate. - The risk margin is perhaps the most contentious area covered by the Advice, given its aggregate size and given views expressed both by the industry and by some NSAs that the current risk margin computation has clear weaknesses. The EU Commission's call for advice does not seem to limit EIOPA merely to considering the Cost of Capital (CoC) rate and therefore we believe that EIOPA should consider the methodology itself as in scope of its current deliberations, as well as the CoC rate - There are several ways in which the current risk margin methodology as set out in the Delegated Regulation appears to contradict Article 77(3) of the Directive, which indicates that that the risk margin "*shall be such as to ensure that the value of the technical provisions is equivalent to the amount that insurance and reinsurance undertakings would be expected to require in order to take over and meet the insurance and reinsurance obligations*". The wording of this Directive Article aligns with the broader market consistent focus of the Solvency II Directive. - One example of such a contradiction arises if the undertaking has a unilateral right to terminate a contract early. Consider two otherwise identical unit-linked policies	

	(i) A policy that is essentially certain to last a specific length of time, say 10 years, with the policyholder receiving in 10 years' time whatever EUR 1000 initially invested in a specific asset pool accumulates to at the end of the 10-year period; and (ii) A policy that might last up to 10 years as per (a), but where the insurer has the unilateral right to terminate the contract giving 1 year's notice to the policyholder, with the policyholder receiving whatever EUR 1000 initially invested in the same asset pool has reached at the point the policy is terminated by the insurer or lapsed by the policyholder. In both cases, we assume that the policyholder is free to lapse the policy at any time up to maturity and that if the policyholder does so then he or she receives the accumulated value of the asset pool at the point of lapse. Prior to lapse / maturity, there are some (modest) death benefits, costs and revenues associated with the policy. The second policy is likely to be materially less risky to the insurer than the first. For example, the insurer is free to terminate the policy if expenses rise too much relative to margins present within the contract. To put it another way, the insurer's (unilateral) option to terminate the contact early has an economic value, which should influence the amount that the liabilities could be settled onto a willing third party. It should therefore influence the amount of the risk margin (or possibly the best estimate liability) that should be ascribed to the policy, according to Directive Article 77(3). The current wording of the Delegated Regulations (or perhaps just least EIOPA's current interpretations of some of the wording) indicates that the risk margin should be accumulated until the end of the potential lifetime of the obligation, i.e. ignoring this	

	unilateral option held by the undertaking and therefore leading to a risk margin that is higher than is market consistent. We believe that the current wording (or EIOPA's interpretation of it) of the Delegated Regulation should be altered to allow firms to be able to take some credit for the market consistent value of this option when setting their risk margin. For example, firms could be allowed to limit the size of the risk margin to whatever would result in the overall surplus capital of the firm being the same as would arise were it to be assumed that the firm exercised these rights, bearing in mind any practical constraints on how quickly it might be able to decide to serve such notices on its policyholders. - The current methodology also leads to market inconsistent results for contracts that are particularly long term in nature bearing some types of risk. For example, consider a cohort of policies where on each policy the insurer receives 100 of profit from the policy at maturity *T* years from outset, where *T* = 40, assuming that the policy does not lapse in the meantime. The policyholder has the ability to lapse the policy only in relatively exceptional circumstances, so it is assumed in the BEL that the lapse rate is (close to) 0% pa but in the SCR there is still an allowance for mass lapse risk (it is assumed that the mass lapse risk factor is k = 40%). Suppose also that risk-free rates are 0% pa for all terms, that the insurer has no right to unilaterally terminate the contract early and that the only risk each policy is exposed to is lapse risk. At outset, *t=0*, each policy has a positive value to the insurer of 100, i.e. its contribution to the insurer's BEL would be minus 100. Given the assumed risk-free rate and lapse rate, the policy's projected value and hence BEL in the risk margin projection remains at minus 100 until just before maturity (i.e. here *t=40*) when it becomes zero. The SCR at outset is 0.4 x 100 = 40, and in the current risk margin projection also remains at 40 until just before maturity.	

Given the current CoC rate of 6% (and the assumed risk-free rates of 0% pa at all terms), the risk margin using the methodology currently specified in the Delegated Regulation would thus be:

$$100 \times \text{CoC rate} \times k \times T = 100 \times 0.06 \times 0.4 \times 40 = 96$$

However, such a figure for the risk margin is not market consistent. The maximum possible loss the insurer could sustain even if all the relevant risk crystallised at outset is only 100 (as this is the loss if 100% of the policy cohort lapses immediately). The market consistent ceiling for the sum of the SCR and the risk margin in this situation (ignoring any adjustments for tax) should therefore be 100. The risk margin in isolation should therefore not exceed 60. The larger *T* becomes, the further the current risk margin computation exceeds the market consistent upper bound.

The situation described above is an example of a more general phenomenon in which uncertainties being captured by the risk margin can be expected to emerge through time and where the more the uncertainty has already been crystallised / allowed for up to a given point in time, the lower, typically will be the remaining uncertainties yet to be revealed or needing to be allowed for during the remaining lifetime of the policy. With lapse risk, only the proportion of the cohort that hasn't already lapsed can remain subject to lapse risk in the future. The uncertainties to be included at any point in time in the summation used in the risk margin calculation should therefore take account of:

(i) How much of the uncertainty in future outcomes was allowed for up-front in the SCR; and
(ii) How much of the remaining uncertainty would already have emerged or been allowed for by the point in time being considered in the projection

There are several possible ways of taking this sort of effect into account. For example:

(28) The projected SCR could be tapered downwards as time progresses in the projection (e.g. by a factor /(1 + CoC)^t)
(29) The projected SCR could be left unchanged, but the CoC made time dependent, in a manner that replicates the tapering in (1)
(30) The projected SCR and CoC could remain unchanged, but the discount rate used in the summation formula used to derive the risk margin could be increased (e.g. by the CoC rate).

In each case, the risk margin calculation should ideally include a multiplier, *F*, calculated as:

F=possible loss above that already allowed for in the SCR to be allowed for in the risk marginloss allowed for in the SCR

For several risks, it is possible to justify a value for *F* of approximately 1, which how Directive Article 77(3) appears to require the calculation to be carried out.

All of the above, suitably specified, allow the risk margin to behave in a manner in which the risk margin tends to the market consistent upper bound when *T* reaches infinity. Directive Article 77(5) appears to expect the Delegated Regulation to specify a single CoC rate and doesn't seem to expect a tapering of the SCR, but it is silent over exactly how the discounting in the risk margin formula should operate. Its wording therefore potentially favours approach (3) over (1) and (2).

An alternative interpretation of the same issue, picking up on approach (3) above, is that:

(e) The risk margin assumes that a risk premium would be demanded by a third party willing to accept the liabilities from the insurer, reflecting the uncertainties

	involved and the cost of funding the capital the third party would need to set aside to support these uncertainties (f) The present value of the cost of supporting the SCR at future points in time included in the risk margin calculations should therefore be calculated using a 'risky' yield curve that includes allowance for this risk premium (as otherwise the third party ends up benefiting from an arbitrage at the expense of the insurer) The current risk margin computation uses a 'risk-free' rather than a 'risky' yield curve in its discounting. It can therefore be expected to result in systematic overstatement of the risk margin for at least some types of risk (with the overstatement being most noticeable for contract types with long maturities).	
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