ECO-SLV-09-231

Comments on Consultation 26-09 Draft L2 Advice on TP - Methods and statistical techniques for calculating the best estimate	
Name company: CEA	
Reference	**Comment**
Introductory remarks	The CEA welcomes the opportunity to comment on the Consultation Paper (CP) No. 26 on TP - Methods and statistical techniques for calculating the best estimate. It should be noted that the comments in this document should be considered in the context of other publications by the CEA. Also, the comments in this document should be considered as a whole, i.e. they constitute a coherent package and as such, the rejection of elements of our positions may affect the remainder of our comments. These are CEA's views at the current stage of the project. As our work develops, these views may evolve depending in particular, on other elements of the framework which are not yet fixed.
Key comments	**The insurer should be in the best position to choose the most appropriate method** – It is the responsibility of the insurer to determine the most appropriate methods for the calculation of the Best Estimate. The insurer will disclose and justify their choice of method. More precisely: Article 47.1b requires the actuarial function to ensure the appropriateness of the methodologies used as well as the assumptions used in the calculation of technical provisions. Article 82 requires the insurance undertaking to compare their experience against the assumptions used. This has to be reviewed as part of the internal control process (Articles 45 and 46). In this sense pillar II requirements ensure that the techniques used are appropriate. Based on Article 50 an insurance undertaking has also to disclose the techniques used to the public. Therefore, the techniques used by a specific insurance undertaking will be compared against the best practices in the market. As a result we do not believe there should be excessive restrictions on the methodology the insurer can use. **Deterministic methods should not always be considered as simplifications, in particular in the case of non-life business** – CP26 as it currently stands would lead to a preference for the use of stochastic models, implying that companies will have to justify the use of deterministic methods. We would be concerned if the deterministic approaches which are currently considered best practice for non-life insurers were to be considered simplifications or proxies under Solvency II. As a result, we request that the paper considers life, non-life and health business separately and that the paper should not attempt

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	to find one technique which would be appropriate for all types of business. In general, stochastic methods are not needed to determine non-life best estimates, therefore for the section on non-life business, we suggest that a more suitable starting point would be the report by the Group Consultatif: "Valuation of Best Estimate under Solvency II for Non-life Insurance" Interim Report 11 November 2008. **The selection of the appropriate model to use should consider the nature, scale and complexity of the risks** – Stochastic models should not by default be required to calculate life or non-life technical provisions. It is important to apply the principle of proportionality to the decision of what method to use, which includes consideration of not only the nature and the complexity of the risk but also the scale. We note that Para 3.14 considers only the nature and complexity of risks and there appears to be no mention of the scale criteria. It may be that stochastic models or simulation approaches are the most relevant for determining the Best Estimate when policyholder options and guarantees exist. However, in the majority of other cases, stochastic methods may not add accuracy to the calculation of the expected value needed for the Best Estimate.
General comments	**Articles 74, 75, 76 and 80 of Level 1 are also relevant** - The calculation of Best Estimate liabilities needs to be referenced back to the overarching principles of Articles 74 and 75. Namely, that the technical provisions (best estimate liability plus market value risk margin) should represent the value at which the liabilities could be transferred, or settled, between knowledgeable and willing parties. The calculation of the technical provisions shall make use of, and be consistent with, the information provided by the financial markets and generally available data on underwriting risks. It should also be stated and noted that, as per Article 76 (3), the risk margin is the amount needing to be added to the Best Estimate liability to produce this “transfer value”. Article 76 (4): The paper gives no analysis of the requirements of article 76 (4) - when there is no requirement to produce a separate calculation of the Best Estimate and the market value risk margin. Articles 80 (recoverables from reinsurance and SPVs) and 85 (g) are also relevant: although a citation in paragraph 2.2 is made that no explanatory text or advice is given for the linkage between gross best estimate, net best estimate and recoverables.

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	Methodologies should be consistent from one valuation to another - The requirement that valuation techniques/methodologies should be consistent between valuation dates (i.e. to avoid manipulation of results) shall be added/included in the advice. In the case the methodology is changed, the change should be described and explained. **It is important to consider the auditability of the Best Estimate** – The paper should concretely consider the auditability of BE under the proposed techniques. The link with CP32 (management actions) should also be considered in this area.
Para 2.2	**Reference should be made to Articles 74, 75 and 76** - Articles 74, 75 and 76 of the Level 1 text are relevant to the calculation of Best Estimate liabilities and not just those stated here (see "general comments" above). ⇨ Reference should also be made to Articles 74, 75 and 76 of the Level 1 text.
Para 3.1	See comments to Para 3.23
Para 3.2	See comments for Para 3.23
Para 3.3	The CEA supports this statement.
Para 3.4	See comments for Para 3.23
Para 3.5	See comments to Para 3.24
Para 3.8	See comments for Para 3.23: **A lack of appropriate capabilities should not be an excuse for using inappropriate techniques.** ⇨ The CEA requests that the penultimate bullet point should be changed to *"(Re)insurance undertakings shall ensure that their capabilities (e.g. actuarial expertise, IT systems) are commensurate with the actuarial and statistical techniques needing to be used, which are subject to the proportionality principle."*

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Para 3.9 and 3.10	See comments to Para 3.30
Section 3.1.3	**More clarity is requested** - More clarity is requested as to the criteria that economic scenarios should satisfy. For example, that they replicate relevant option prices (having regard to the nature and duration of your liabilities) and that the no arbitrage criteria is substantially met.
Para 3.12	More clarity is requested - More clarity is requested in this area, i.e. a maximum acceptable level of sample error. This needs to take into account the materiality of the business to the company and any variance reduction techniques used by the company.
Para 3.13	See comments to Para 3.28
Para 3.14 first sentence	**Closed form solutions could be most appropriate** - It is implied that simulation approaches are necessarily preferable to closed form formulae. As described later in our response to Para 3.28, this need not be the case.
Para 3.15 2nd bullet point	**More clarity is requested** - Companies need sufficient clarity as to the criteria to use in order to determine how to "appropriately calibrate" their market-consistent scenarios. No single stochastic model can accurately reproduce all market prices as these will have been set using a range of different models and assumptions. A pragmatic approach is to require, within certain tolerances, the scenarios to be arbitrage free and to reproduce the market prices of traded instruments that are representative of the company's liabilities in terms of nature and term. **A definition of "economic scenario files" is requested** - The use of the term "*economic scenario files*" in 3.15 (2nd bullet) could be misunderstood as in other areas economic scenario generator has a specific meaning. ⇨ The CEA would request that CEIOPS provides a more precise definition of this term. **Companies should not unnecessarily be discouraged from using sophisticated approaches** - The final sentence of 3.15, 2nd bullet "*The application of more sophisticated techniques is limited to cases where sufficiently robust knowledge/data is available*", may promote the idea that a less sophisticated approach somehow delivers a better answer than a properly

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	applied more sophisticated one. By properly applied we mean that the difficulties in the quantification are understood and given due weight. Companies should be encouraged to consider whether a more sophisticated approach might be appropriate or whether the difficulty and potential subjectivity associated with calibrating it makes the use of a less sophisticated approach more appropriate. The CEA suggests that the sentence be replaced by "*Where a more sophisticated approach reveals a high degree of uncertainty due to limited information to calibrate key assumptions or determine a true underlying risk process and consequences a simpler conservative approach can be preferred on grounds of efficiency*."
Para 3.15 3rd bullet point	**A review on grouping accuracy should be required** - We believe that at least high level view on grouping accuracy criteria should be included. ⇨ The CEA requests that the following sentence is added: "*The (re)insurer should review the grouping accordingly to ensure that important risk characteristics of the portfolio are not neglected."*
Para 3.15 4th bullet point	**Data restrictions may prevent the use of stochastic approaches** - In line with our above comment for the 2nd bullet point in 3.15, it should be noted that data restrictions may also prevent the use of stochastic approaches for all risk factors.
Para 3.15 9th bullet main point, 3nd sub-bullet	**Examples are requested** - The CEA agrees with the point, but examples are requested of the "different techniques/tools" that supervisors expect companies to use.
Para 3.17	**Additional margins for uncertainty should not be included in the Best Estimate** - See comments for Para 3.23. Stating that "*uncertainty is captured in some other way for example through the derivation of the assumptions*" could be interpreted as requiring additional margins on top of best estimate assumptions, other than those already included in the market value risk margin. This is inappropriate where the value of such uncertainty is already captured via the market value risk margin. We suspect that this is not what is intended and instead CEIOPS is taking about when a deterministic method is used to value liabilities with inherent optionality, i.e. only intrinsic and not time value is captured. In such circumstances and subject to materiality and proportionality, it may be appropriate to incorporate a margin in the assumptions or to apply a % loading to

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	the calculated (intrinsic) value. ⇨ The CEA requests that the understanding of this section is clarified.
Para 3.18 3rd bullet point	**Clarification is requested** - We would request clarification as to how insurers will be expected to demonstrate this without being required to incur the cost of developing full blown stochastic models. Furthermore, the undertaking should be responsible for the choice of valuation method. ⇨ The CEA requests clarification as to what demonstration will be required for the use of deterministic techniques.
Para 3.20	**Bootstrapping is incorrectly defined** - The CEA requests the deletion of the following paragraph: "*Bootstrapping: one of the most extended uses of bootstrap within actuarial work is associated with estimation of claims provisions. Starting from a model that explains how losses are paid, it consists of resampling residuals from that model and obtaining a large sample of estimated provisions required to pay future outstanding losses.*" This should be deleted because we do not believe it is correct: For non-life provisioning purposes, Bootstrapping is used for determining the variability of the reserves around the best estimate. Bootstrapping is also commonly used in other areas such as modelling interest rates and bond prices. ⇨ The CEA requests that this paragraph is deleted.
Para 3.21	**Bayesian approaches are not analytical techniques** - Bayesian approaches are examples of simulation techniques and not analytic techniques as they use Monte Carlo simulation. ⇨ The CEA requests the 4th bullet point is deleted. **Reference to the Mack method is not appropriate here** – This paper deals only with the calculation of the Best Estimate. Whereas the Mack method yields two parts: A best estimate and a standard deviation. Therefore the paragraph should be deleted. ⇨ The CEA requests that the following paragraph is deleted: "*The Mack method, also known as the distribution free chain*

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	ladder."
Para 3.22	**The deterministic techniques listed do not sufficiently cover non-life business** – As an example we would request that techniques traditionally used in non-life business are added here. ⇨ The CEA requests that techniques traditionally used in non-life business are included, for example Chain-Ladder and Bornhutter-Ferguson techniques should be added in the examples of deterministic techniques.
Para 3.22 1st bullet point	**Clarification is requested as to when stress and scenario testing is an appropriate alternative to a stochastic calculation** - It is not clear when stress and scenario testing is considered an appropriate alternative to stochastic calculations. I.e. Is a weighted average to be taken of the different scenario results? If so, how should companies determine the scenarios and weights? If not, is it to demonstrate that the results are relatively insensitive to the assumption or perhaps that there is a symmetric distribution and hence a deterministic approach using a best estimate assumption is appropriate?
Para 3.22 6th bullet point	**The statement is unclear** - A more specific statement is required – "*applying different techniques and allowing for any volatility*" is too open ended. More explanation is required.
Para 3.22 7th bullet point	**Clarification is requested** - Companies would request additional clarification as to, for example: When market-consistent as opposed to "real world" weights are required in order to achieve market-consistent results. What is meant by "*deterministic-to-stochastic adjustment*" and "*flat benchmarked percentages*"? Is it envisaged that companies would calculate stochastic and deterministic values on sample policies in order to determine % loadings to apply when deriving deterministic values for the whole of the business? If so, the CEA in principle thinks this could be an appropriate way for many companies, especially smaller companies, to calculate their best estimate liabilities.
Para 3.23	**We would request that the requirement that the Best Estimate needs to "allow for uncertainty in future cash-flows" is removed / replaced** - Stating that the Best Estimate needs to "allow for uncertainty in future cash-flows" is open to misinterpretation. Such an interpretation is inconsistent with the Framework Directive, which requires the Best Estimate to be based on realistic assumptions. An additional amount over and above the expected amount required by potential purchasers to allow for uncertainty is held as the Market Value Risk Margin, required by Article 76(3). The Best Estimate liability should not therefore either explicitly or implicitly allow for such uncertainty. We would be concerned if an additional allowance for

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	uncertainty would introduce the possibility of double counting provisions already held under the risk margin or the SCR. Furthermore, (as discussed in our "general comments" above) deterministic approaches are appropriate for determining best estimate liabilities. This paragraph seems to set a requirement to use stochastic methods which is out of line with current best practices in non-life business. In the aforementioned report by Groupe Consultatif, article 76(2) is interpreted as: "*the best estimate equals the mean on a discounted basis*" and "*the estimation should be unbiased*". In our view, this is a more reasonable interpretation of the directive than the best estimate "*shall allow for the uncertainty in future cash-flows*". ⇨ The CEA suggests that the last sentence is deleted – we do not agree with this interpretation.
Para 3.24	See comments for Para 3.23: **It is not feasible to create a set of probability-weighted legal or social scenarios** - We believe that in life or non-life business, it is neither relevant nor feasible to take into account legal and social changes in scenarios. Therefore modeling legal and social changes would result in a heavy burden, but in an unchanged best estimate. ⇨ The CEA requests that this requirement is removed.
Para 3.25	Misprint, text should read "*paragraph 3.26 below*".
Para 3.26	**Companies should not have to systematically prove the adequacy of their calculations and of their choices** - Although we agree that companies should be ensuring that their Best Estimates are appropriate as part of the Actuarial function, audit and as part of the wider governance structure, the Best Estimate calculations made by the company should be presumed adequate. Only in the case the supervisor has a doubt than he should ask the company for explanation on the calculations and the choices that have been made. If this was not the case, we are concerned that this would result in an excessive load of work for the company. ⇨ In the last bullet point, the CEA requests the text is amended to read "*shall be able to demonstrate*" instead of "*shall demonstrate*".

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	Examples are requested - Companies would request examples as to how to demonstrate that their approaches meet these requirements. In particular, we would suggest clarification of what is meant by "*appropriateness and robustness of the (valuation) techniques*". **Validation and review should be with appropriate frequency** ⇨ To avoid onerous validation and review the CEA would suggest to extend the 4th bullet as follows "*...validated and reviewed by the (re) insurance undertaking with appropriate frequency*" **Drafting suggestions:** ⇨ The CEA requests that "*robustness*" is deleted because it is already part of the meaning of "*appropriateness*" ⇨ The CEA requests that last bullet point is deleted because it is identical to the 1st.
Para 3.27	The CEA supports this statement.
Para 3.28	**Path-dependency should not automatically require simulation approaches** - A simulation approach is generally recommended when there are significant asymmetries in the liabilities. Path-dependency should not in itself give rise to the need for simulation approaches. For example, future cash flows on a unit-linked policy will be "materially" path-dependent, however we would not expect by default to model unit-linked policies using simulation approaches. The existence of path-dependent options and guarantees or management actions is likely to be the relevant consideration for the use of simulation approaches. However, the existence of options and guarantees and management actions are already covered under separate bullet points. **Closed form solutions could be most appropriate** - It should be noted that a closed form formula is an exact solution to a stochastic process and as such has the benefit of having zero simulation error as well as being computationally a lot quicker to calculate. However, we agree that in many instances a simulation approach may be preferable, e.g. where management actions are assumed and policyholder behaviour may impact values. **Proportionality should also take account of the "scale" of risks** – This paragraph, together with Para 3.14, considers

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	only the nature and complexity of risks and there appears to be no mention of the scale criteria. **Clarification is required that the average of the simulation results is used** - In the explanatory text (3.1.4; 3.20) it is mentioned that the mean is the "probability weighted average" for determining the BE. ⇨ The CEA suggests the clarification: "*When using simulation approaches (e.g. for economic scenarios that should be produced by 'accepted / certified' market consistent asset models) the BE value then is determined by the mean value.*"
Para 3.29	**Examples are requested** – We would request examples as to how insurers can demonstrate that the valuation methods they intend to use will meet supervisor's requirements without being required to incur the cost of developing full blown stochastic models (without overly prescriptive or rule-based requirements). It is essential that supervisors apply proportionality when making such assessments in order to avoid burdening companies, especially smaller companies, with the cost of developing expensive valuation systems.
Para 3.30	**Supervisors should only require an alternative approach if it is material and fully justified** - The ability of supervisors to require companies to use an alternative valuation technique should only apply where using the alternative approach would materially improve the accuracy of the overall Best Estimate liabilities, whilst bearing in mind that the sophistication of the technique used should be in line with the proportionality principle. Supervisors should not have an unrestricted right to require the application of alternatives techniques without strong justification. There should be a discussion between the company and the supervisory authority on the appropriateness of the techniques and/or methods used. The actuarial function will be in the best position to determine the most appropriate approach to use and any intervention by the supervisor should be fully justified and should be as a last resort only. ⇨ The CEA suggests an extension of the last sentence as follows: "*....the supervisor should be able to require an alternative technique where that other valuation technique achieves the objective of the valuation in a better way and has a material effect on the results. The supervisor should provide valid and sound reasons for the judgement having regard, inter alia, to accuracy and efficiency".*