Summary of comments on CEIOPS-CP-26/09 CEIOPS-SEC-90/09

Consultation Paper on the Draft L2 Advice on TP - Methods and statistical techniques for calculating the best estimate

CEIOPS would like to thank **AVIVA, ROAM, ABI, Investment & Life Assurance Group** (ILAG), **Centre Technique des Institutions de Prévoyance (CTIP), Groupe Consultatif (GC), FFSA, Dutch Actuarial Society – Het Actuarieel Genootschap (AG), PricewaterhouseCoopers LLP UK (PWC UK), DAV Working Group Solvency II (DAV), Lloyd's, Legal and General Group, Dublin International Insurance & Management Association (DIMA), Ireland's Solvency 2 Group- excluding representatives from the Department of Finance and the Financial Regulator[1] (IE SII group), CRO Forum, European Union member firms of Deloitte Touche Tohmatsu (Deloitte EU), German Insurance Association (GDV), KPMG ELLP, MR Group, PEARL GROUP LIMITED, UNESPA (Association of Spanish Insurers), AMICE, XL Capital Group (including XL Insurance Company Ltd and XL Re Europe Ltd) ("XL"), CEA**

The numbering of the paragraphs refers to Consultation Paper No. 26 (CEIOPS-CP-26/09).

No.	Name	Reference	Comment	Resolution
1.	AVIVA	General comment	Overall we welcome this paper, in particular the proportionate approach to the level of complexity required in calculation of economic liabilities. For example, the criteria for when a stochastic/simulation approach is necessary align well with our view and would mean a deterministic approach can be used for, for example, most unit-linked business. Furthermore, the recognition that deterministic assumptions can be used for option take up rates or mortality, say, within a simulation approach is appropriate. We have minor concerns with aspects of the paper and note these below:	Noted
2.	ROAM	General	Stochastic models are not necessary to calculate the best-estimate in	Noted

[1] The Solvency 2 Group is a high-level group set up by the Irish government for the purpose of contributing to the development of Solvency 2 from an Irish perspective. It is made up of representatives from the insurance industry (life and non-life, direct writers and reinsurers), industry representative bodies, professionals (actuaries, accountants and solicitors) working with insurers, as well as representatives from the Department of Finance and the Financial Regulator. As noted above, the latter two representatives have not contributed to this submission.

		comment	non-life business. A good analysis of data is more important than the method used. The decision to use stochastic model (or not) should be taken by the undertakings	
3.	ROAM	General comment	The consultation paper should be divided in three sections: general provisions, life and non-life.	Not agreed. Our intention is to keep the advice principles-based. As a result, it is our preference to produce principles which are applicable, to a greater or lesser extent, across life and non-life.
4.	ABI	Cover letter	The ABI welcomes this opportunity of commenting on CEIOPS' draft advice on the actuarial and statistical methodologies for calculating the best estimate for Solvency II purposes. We are encouraged to see that CEIOPS has taken a principles-based approach that reflects uncertainties in cash flows. We find this an appropriate approach for these methods. This covering note provides a brief overview of our position and our detailed response is in the attached CEIOPS template as required. Although we believe that CEIOPS did not intend that stochastic methods should be the only method under consideration, the paper does tend to emphasize those techniques more. We believe that there needs to be more discussion of deterministic techniques and when they are appropriate particularly in the advice. To achieve this we believe that Para 3.18 needs to be included in the advice. Best practice in assessing non-life best estimates is strongly linked to deterministic approaches. We would suggest CEIOPS refer to the work by Groupe Consultatif "Valuation of Best Estimate under Solvency II for Non-life Insurance" Interim Report dated 11 November 2008 for more	Noted Noted

			discussion on this point. We agree that supervisors need to have confidence in the information supplied to them and in the valuation methods used by firms. However, in the case where a supervisor requests an alternative method we would suggest that this be accompanied by a rationale for this request and that any method proposed as an alternative by a supervisor must be supported by external validation such as being recognised by actuarial guidance at European level.	We agree. Please see revised advice (3.31).
5.	ABI	General comment	The ABI welcomes this opportunity to respond to CEIOPS' consultation on actuarial and statistical methodologies for calculating the best estimate. The ABI welcomes CEIOPS' principles-based approach to the methods and techniques used to value the best estimate of the technical provisions. We believe that overall this is an appropriate approach for these methods. The paper does appear to recommend stochastic techniques at the expense of deterministic ones. We would suggest that, particularly for non-life insurance, many examples of deterministic techniques are considered best practice. The ABI believes that the Interim Report by Groupe Consultatif "Valuation of Best Estimate under Solvency II for Non-life Insurance" should form the basis for any discussion of these techniques for this business. In some cases the use of stochastic techniques are in line with the general principle of obtaining best estimates but applying them may lead to results that are difficult to explain and may be unstable. In terms of the valuation technique and its results being audited, we believe that the audit trail necessary to support an external audit of	Noted. Noted.

			publicly disclosed financial results may be a good starting point. As an industry we believe that for results and capital requirements to be robust enough, the ability of results to be checked independently is essential. Whilst we can see the necessity for a supervisor to have the ability to ask for additional calculations if required, we believe that any request from the supervisor for alternative valuation techniques should be supported by a rationale and the existence of external validation (e.g. actuarial guidance at European level) that the proposed alternative techniques are appropriate.	Noted. See response to comment 4.
6.	ILAG	General comment	We have a number of points below that are particularly relevant for firms which are currently outside the scope of the Insurance Directives but which will be brought into scope by the new financial limit on technical reserves. In general, complex reserving methods require models with assumptions that replicate closely the real world. Even though a large amount of actuarial and management time has been spent in the past on this topic, we have concerns that we are not close enough yet to this goal (and, possibly, will never arrive). Sometimes, complex models become a prop for management. A simple model with transparent assumptions could make management look more closely and critically at the results with positive effects on risk management.	Noted.
7.	GC	General comment	• We believe that the stochastic methodology proposed for the calculation of best estimate in CP 26 is often too complicated and does not reflect common actuarial standards. This comment is most relevant for non-life insurance where a more suitable starting point should be the Group Consultatif paper "Valuation of Best Estimate under Solvency II for Non-life Insurance" Interim Report 11 November 2008. In life insurance a more	Noted. Please see revised advice (3.33-3.36).

			frequent use of stochastic techniques could be justified, especially for asymmetric risks such as embedded options and guarantees. • It is not always necessary to specify a distribution fully in order to make a good estimate of the mean, and the available data often is constrained. These should be matters for the transparent exercise of professional judgement. See also 4.6 of *Measurement of Liabilities for Insurance Contracts: Current Estimates and Risk Margins* by IAA. • We are aware that CEIOPS has chosen not to make a specific distinction between claims provisions, premium provisions and expense provisions; this allows the paper to discuss the generalities of life and non-life together without distinction. We have read the paper in the context, and note that a distinction may not be required at Level 2, however guidance at Level 3 or by the European Technical Standards (referred to in CP33) will need to discuss some of the technical aspects for each component. Having said this for the avoidance of doubt a clarifying footnote making the link to the terms used today might be useful. • We have read the text in the paper explaining the thought process behind the advice at the back of the paper. If one was to read each part of the paper as potential legal text we would have further comments (for example around the list in 3.2 and the use of stochastic modelling). • In many cases words like highly, significant, materially (eg. 3.13) are used, if they are supposed to have the same qualifying meaning we would suggest the same words are use,	Noted. Please see revised text (3.33-3.36). Noted. Noted. It would be useful to have this feedback as the Commission may take the whole paper into account when drafting Level 2. Agreed. Paper has been amended.

			eg. Material • We would strongly encourage that the interpretation of best estimate in the implementation is the same as the interpretation to be used in IFRS 4 phase II • The clarification in the CP that fully stochastic methods are not required to comply with the requirements of Article 76 of the Directive should be welcomed. • However, the CP puts forward multivariate stochastic techniques as being the ideal approach and one that would normally be required in a number of circumstances that could commonly apply to the majority of UK life assurance business. Given that (re)insurers will need to "demonstrate" that factors which would be expected to be captured by multivariate stochastic approaches are adequately taken into account in an alternative approach, multivariate stochastic approaches may still be required to provide this demonstration as it is difficult to see how this demonstration could alternatively and practicably be achieved. Given the uncertainties of parameterising the risk distributions for many risks, the difficulties of assigning appropriate correlation factors between risk variables and the difficulties of validating the outputs from the model, the use of the multivariate stochastic approach should be approached with some caution and validated against other techniques. • In addition, in assessing alternatives to the multivariate stochastic valuation technique, there are numerous references	Agreed. We note however that IFRS 4 Phase II is also evolving and, as such, it may be difficult to ensure consistency at this stage. Noted. Please see revised text (3.33-3.36). Agreed. Please see revised text (3.33) Noted. See clarification on uncertainty in the revised text

			in the CP requiring the alternative technique to allow for "uncertainty" in cashflows. Some examples of uncertainty are given in the CP (such as fluctuation in the timing, frequency or severity of claim amounts, fluctuation in expenses and fluctuations in market values). Allowing for some of these aspects of uncertainty would seem to introduce the possibility of double counting provisioning between the technical provisions, the risk margin and the SCR or otherwise introducing an element of prudence to the best-estimate provisions. It would seem more appropriate to refer to distributions of risk or contract features (such as options and guarantees) that may result in asymmetric impacts on the cashflows.	(3.28).
			• Overall, the CP and blue text requires more clarity over the criteria that would mean a deterministic method would be appropriate and to include a requirement to carefully demonstrate the appropriateness of any multivariate stochastic valuation result.	Noted.
			• The general approach set out in Para 3.2 is quite demanding and might be not practical and not reasonable because it could lead to critical aspects like stochastic within stochastic ("nested simulation").	Agreed. See revised text (3.3).
8.	FFSA	General comment	While the requirements set in the paper appear globally suitable for life best estimate, FFSA would like to emphasize on the fact that they are not suitable for non life best estimate. Therefore, the paper should distinguish techniques used for life and non life calculations. **1. The criteria for choosing the modeling technique are not adapted to non life**	Agreed. Please see revised text (3.33-3.36).

			Non life business is different from life business, where stochastic models on the asset side require stochastic models on the liability side. In addition, taking into account management actions in life business often leads to stochastic modeling. In the non life business, path-dependency and interdependency between causes of uncertainty can be numerous, but this does not necessarily imply that they need to be modeled nor that a simulation technique is required. Indeed, we believe that in many cases the interdependencies and path-dependencies do not have a material impact on the quantitative results. Let's take the example of construction insurance : there is non linear interdependency between the claims payment dates and the inflation rate of claims payment costs ; the cash flows can also be considered path-dependant, because they are affected by past inflation rates. However, it is commonly accepted that simulation techniques are not necessary to calculate best estimates in construction insurance. In other words, some techniques that are necessary in life business may not be necessary in non life, because their result is not material. It would clearly be unfortunate to oblige the use of a stochastic model to determine the non life best estimate whereas in many cases a stochastic method gives the same results as a deterministic method. **2. Stochastic methods are not necessary to a best estimate calculation in non life direct insurance** We quote here 2 references among others that disclose the idea that stochastic methods are not necessary to a best estimate calculation in	

			non life direct insurance; ▪ P.D. England and R.J. Verall in their article "Stochastic claims reserving in general insurance": *"There is a lack of need for the stochastic models because traditional methods suffice for the calculation of a best estimate. Stochastic claims reserving methods extend traditional techniques to allow the estimation of the variability of claims reserves (prediction error), and the description of the full distribution of predicted reserves (useful in dynamic financial analysis).* *Most of the stochastic models reproduce, or are close to the traditional chain-ladder reserve estimates. And some methods are better suited to modeling paid amounts or numbers of claims than to incurred data, because of negative incremental values.* *Like traditional methods, different stochastic methods will give different results and the starting point is a well-specified statistical model."* ▪ ACAM's working group (21st November 2007) report in favour of using deterministic techniques for non life Best estimate's calculation: *« En raison de leur simplicité et de leur robustesse, les méthodes déterministes sont souvent privilégiées pour la détermination de l'espérance.* *De plus le best estimate n'est pas le résultat d'un simple calcul mathématique mais il est nécessaire d'adapter les méthodes aux*	

			spécificités des catégories de risques afin d'appréhender au mieux les déroulements attendus des différents éléments (souscription , gestion des sinistres, évolution jurisprudentielle, inflation …). » As the article 76 of the Directive says, "the Best Estimate shall correspond to the probability-weighted average of future cash flow […]". We would like to remind that stochastic models (Bayesian techniques, bootstrap) aim at calculating a density distribution of BE, not a Best Estimate itself ; the Mack approach leads to calculating the standard deviation of BE. These elements are useful for the insurer in order to analyze its risks (in particular in internal models) but do not appear necessary for a mean calculation. **In conclusion, CEIOPS should state in its advice that in non life direct insurance, stochastic techniques aren't necessary and that deterministic techniques should be considered as indispensable.**	
9.			Confidential comment deleted	
10.			Confidential comment deleted	
11.			Confidential comment deleted	
12.	PWC UK	General	In overall terms the CP provides some useful guidance however falls	Agreed. CEIOPS believes that Level

		comment	short of articulating how this may be applied or providing any practical guidance. The latter in particular will be important in the context of proportionality.	2 should be principles based with detailed guidance provided at level 3.
13.	DAV	General Comment	We welcome the possibility that not all risks have to be calculated stochastically. For each risk it has to be checked, if a Simulation is necessary. For the choice of segmentation an orientation on SCR-risks could be helpful. Segmentation should be dependent on risk exposure. Same risks should be treated identical in life and non-life.	Agreed. Please see revised text.
14.	Lloyd's	General comment	The calculation of technical provisions is a fundamental element of Solvency II and normally technical provisions will be the single largest element on an undertaking's balance sheet. The consultation paper raises a number of interesting issues which Lloyd's generally agree with. However, the paper also raises a number of concerns: - The consultation paper appears very life assurance oriented. We, as predominantly a non-life insurance market, would like to see more non-life issues specifically covered. - Setting of technical provisions is a complex subject and there is a danger of being too prescriptive in a short paper. For example, specifying when simulation techniques would be appropriate where in reality this would normally depend on a large number of factors. - The paper intimates that simulation/stochastic techniques are superior to deterministic or analytical methods. We strongly	Agreed. Please see revised text. Disagreed. CEIOPS disagrees that the paper suggests that some

			disagree with this comment for non-life insurance and believe all methods are suitable in differing circumstances. This is covered in more detail in the sections below. - The consultation paper lacks any emphasis on expert judgment that is also an integral part of setting technical provisions. Lloyd's strongly believes that a number of the principles outlined in the consultation paper are appropriate and should form the basis for level 2 advice on this area. These are: - The undertaking is responsible for the choice of adequate techniques for calculating the best estimate liabilities. - The methods are consistent with the nature scale and complexity of risks. - The methods are consistent with the data available. - The assumptions should be realistic.	techniques are superior. The paper states explicitly that simulation, deterministic and analytical techniques are all appropriate (3.32). Nevertheless the paper has been amended to clarify this further. Please see revised text (3.33-3.36). Agreed. Please see revised text as well as CEIOPS advice on Actuarial and Statistical methodologies (former CP 39) which contains further advice on expert judgement. Noted.

			- The whole process is validated, auditable, documented and demonstrable. We believe these are sufficient criteria and the more detailed responsibility should then rest with an undertaking's actuarial function to select, parameterise and demonstrate suitability of the process. Any further prescription is unnecessary and potentially could devalue the process by restricting possible solutions. We also note that the convergence of standards around the actuarial function is being proposed in the consultation paper on governance (CP33) which would improve consistency in application and support the principles based approach. Lloyd's notes, and agrees, where the consultation paper highlights that the standards set in article 76 are unlikely to be practical and this point of confirmation should be contained in the level 2 text. This does not mean the standard cannot be met in all circumstances.	Noted. CEIOPS has been asked to provide clear and accurate advice on this important topic. There are areas which are obviously left to the actuarial function such as the development of actuarial techniques. Agreed. Please see revised text (3.33-3.36).
15.	Lloyd's	General comment – stochastic reserving for non-life insurance	The subject of stochastic reserving has been developed and discussed for a number of years in non-life insurance. We do not intend to cover detailed issues but would like to raise a number of key points that we feel are relevant to the consultation paper. These points are: - Stochastic models are generally parameterised by the history available, as are most actuarial techniques. The resulting mean estimates will therefore be based on development similar to that seen in the history and not contain "all possible future outcomes". Stochastic models will add useful insight into ranges around the mean and measures of uncertainty but they will not produce more accurate estimates of the mean which is required for the best estimate calculation under Solvency II.	Noted. Please see revised text (3.33-3.36).

			- Stochastic methods will also not automatically cover all possible future outcomes. This problem is faced by other methods (deterministic or analytical) and judgement is required in making additions or adjustments to the estimates to allow for circumstances not included in the history that need to be incorporated into best estimates (for example binary events). In all the methods judgement rather than the model choice is the key element in satisfying article 76 of the level 1 text. - The above point is strengthened further in non-life insurance where a number of stochastic methods are directly calibrated to (or scaled to) deterministic method results. In these cases the mean will be identical under both methods and the best estimate for Solvency II purposes is the same for either method (before any judgment is applied). - Stochastic models require large volumes of data to parameterise them. Given the limited nature of current data sets available (when compared to the levels required by the models) then it is unlikely there will be enough data to satisfy the standards required under Solvency II of accurate, complete and appropriate. Theoretically, there will never be enough data to model all possible outcomes. We believe there is a danger of assuming stochastic methods are "better" than others available when the level of data requirements in fact reduces the accuracy of mean estimates due to insufficient data credibility. The above issues have and continue to be considered by the actuarial profession globally and this is an area where much further work will occur. However, at the current point in time, stochastic reserving	

			techniques in non-life insurance still have many limitations and it is incorrect to assume they produce the "right" answers for Solvency II. The impact of the current limitations/shortcomings of stochastic methods are demonstrated by the levels they are actually used to set reserves in practice - which is extremely limited. Conversely, they are used widely to estimate uncertainty around the mean estimates but not actually set the reserves or estimate the mean. We would once again highlight that judgement and application can be far more important than the actual model used. The issues surrounding estimates in non-life insurance are covered well in the report by the Group Consultatif: "Valuation of Best Estimate under Solvency II for Non-life Insurance" Interim Report 11 November 2008.	Noted. CEIOPS has taken this document into account when drafting the advice.
16.	IE SII group	General comment	Overall we welcome the paper and the advice. We welcome the fact that the paper is principle based, recognises a range of techniques and reflects the fact that judgement is required in the assessment of provisions for life as well as non-life (re)insurance.	Noted.
17.	CRO Forum	General comments	The general principle expressed in Art 76(2) of Level 1 Text *("… the best estimate shall be equal to the probability-weighted average of future cash-flows, taking account of time value of money (…), using the relevant risk-free interest rate term structure")* is already accepted and shared. Nevertheless this general principle should be adapted differently to	Noted. Agreed. Our intention is to keep the

			Non-Life and Life business. The CP 26 does not make any distinction between the two business and appears to be more focused on Life business than Non-Life business. The CRO Forum takes the opportunity of this paper to point out some further comments concerning both Non-Life Best Estimates (in particular about the distinction between deterministic and stochastic approaches) and Life Best Estimates. The best practice in assessing Non-Life Best Estimates is almost exclusively based on deterministic approaches, as stochastic approaches are relevant only where a reserves distribution (or a volatility parameter) is required. General Best Estimate assessment principle (discounted mean of future cash-flows) would be more easily achieved through the adoption of deterministic approaches. From a theoretical point of view also some stochastic approaches are in line with the general principle, nevertheless their application may lead to results that are difficult to explain and usually unstable. It is important to remember that in Non-Life any stochastic modelling requires a good preliminary deterministic analysis to be consistent. We suggest to revise the CP 26 adopting a different structure of the document. More precisely we would suggest to:	advice principles based. As a result it is our preference to produce principles which are applicable, to a greater or lesser extent, across life and non life. The undertaking shall consider whether the advice or requirements are applicable under their specific circumstances Noted. Please see revised text (3.33-3.36).

			• split the analysis between Life and Non-Life business • aim more concretely to the auditability of Best Estimate assessment Moreover we would suggest to include in the Non-Life section: • a clearer indication of the difference between deterministic and stochastic approaches, identifying separately their criteria, purposes and application (with specific focus on BEL and reserve variability assessment) • a revision of the current implicit suggestion of CP 26 that would lead to use preferably stochastic models, giving the responsibility to the Companies to justify the adoption of deterministic models • a clearer explanation of all the references concerning the "uncertainty in the future cash flows" for Best Estimate assessment. The uncertainty in the future cash flows is mainly quantified to evaluate SCR (Risk Margin) and much less frequently to assess BEL: it would be advisable to avoid misleading suggestions and double counting • a revision of the methods suggested for calculating Non-Life Best Estimates (currently in the paper some indications are misleading, e.g. bootstrapping is used for estimating almost exclusively the claim reserves variability not for assessing Best Estimate) According to this view, the following comments are split between Non-Life and Life perspectives.	

18.	Deloitte EU	General comment	We support the overall proposed definition of "best estimate" as being equal to the probability weighted average of future cash flows taking account of the time value of money, using the relevant risk-free interest rate term structure. However we believe that in certain areas of the guidance and advice, as highlighted below, there are a number of areas which require much further clarification and explanation in order to limit the possibility of varying interpretations across firms, supervisors and member states. In particular, we believe that it is critical that the valuation principles and techniques that are applied to generate the best estimate cash flows should be consistent with those that are, and will be, applied under International Financial Reporting Standards.	Noted. Please refer to further advice on the risk free rate and actuarial and statistical methodologies to calculate the BE (former CP40 and 39). Agreed. We note however that IFRS 4 Phase II is also evolving and, as such, it may be difficult to ensure consistency at this stage.
19.	GDV	General comment	**Generally the GDV supports the comments given by the CEA.** In particular we would like to emphasize the following issues:	Noted. Please refer to responses to CEA.
20.	GDV	General comment	**The selection of the appropriate model to use should consider the nature, scale and complexity of the r**isks – Simulations or 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. 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, simulation methods may not add accuracy to	Noted. Please refer to CEIOPS' advice on proportionality (former CP 45).

			the calculation of the expected value needed for the Best Estimate.	
			We request that the paper considers life non-life and health business separately and that the paper should not attempt to find one technique which would be appropriate for all types of business.	Noted. Our intention is to keep the advice principles based. As a result it is our preference to produce principles which are applicable, to a greater or lesser extent, across life and non life. The undertaking shall consider whether the advice or requirements are applicable under their specific circumstances
			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. We do not believe there should be excessive restrictions on the methodology the insurer can use.	
			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	Agreed. Section 2 of the paper has been amended to reflect this.

			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 no explanatory text or advice is given for the linkage between gross best estimate, net best estimate and recoverables.	Noted Noted. Advice on Article 85 (c) is covered by CEIOPS' former CP41. Noted. Advice on Article 85 (g) is covered by CEIOPS' former CP44.
21.	KPMG	General comment	The calculation of technical provisions is a fundamental element and will be the single largest element on a (re)insurance undertaking's balance sheet. We generally agree with this consultation paper. However, the paper raises a number of concerns: - it appears very life assurance oriented. We would like to see more non-life issues specifically covered - it intimates that simulation/stochastic techniques are superior to deterministic or analytical methods. We disagree with this comment for non-life insurance and believe all methods are suitable in differing circumstances. This is covered in more detail in the section below - it does not emphasise the need for expert judgment, which is clearly also an integral part of setting technical provision - it does not clarify the extent to which approximations and	Agreed. Please see revised text. Expert judgement is further covered by CP39. The application of proportionality is

			simplifications may be used, in particular by small insurance companies Whilst we recognise the need for CEIOPS to provide implementing measures in this area, we believe it may be more appropriate for some of the guidance on which techniques are appropriate and acceptable to be provided by the local actuarial societies so that the standards applied can keep apace of developments in product design and best actuarial practice.	covered by CP45. Noted. The Level 1 text requires to produce advice regarding implementing measure 85a.
22.	KPMG	General comment	We believe that a number of the principles outlined in the consultation paper are appropriate and should form the basis for level 2 advice in this area. In particular, we agree that: - the (re)insurance undertaking should be responsible for the choice of adequate techniques for calculating the best estimate liabilities - the methods should be consistent with the nature, scale and complexity of risks - the methods must be consistent with the data available - the assumptions should be realistic - the whole process needs to be able to be validated, auditable, documented and demonstrable. We believe these are sufficient criteria for the level 2 guidance. We also believe that it should then be for the (re)insurance company's actuarial function to select, parameterise and demonstrate suitability of the process. Any further prescription is, in our view, unnecessary and potentially could devalue the process by restricting possible solutions.	Noted.

23.	KPMG	General comment	We believe further guidance will be needed on specific aspects of the determination of best estimate, such as: - how companies can ensure that they are within the acceptable range of best estimate - the setting of assumptions, for example where there is limited past experience data or where the experience of the undertaking may differ from the average market experience - the application of actuarial judgment and how this should be reflected in the calculation methodology - the extent to which approximations and simplifications may be used, in particular by small insurance companies.	Noted. Some of this information is provided by other CPs which have been published in June. Such as former CP 39. Further guidance will also be provided with Level 3.
24.	KPMG	General comment – stochastic reserving	The subject of stochastic reserving has been developed and discussed for a number of years in non-life insurance and on financial risks for life business. We would like to raise a number of key points: - Stochastic models are generally parameterised by the history available, as are most actuarial techniques. The resulting mean estimates will be based on development similar to that seen in that history and will not therefore contain "all possible future outcomes". Stochastic models will add useful insight into ranges around the mean and measures of uncertainty but they will not produce more accurate estimates of the mean - as required for the best estimate calculation under Solvency II. - Stochastic methods will also not automatically cover all possible future outcomes. This problem is faced by other actuarial methods (deterministic or analytical) as well and actuarial judgement is required in making additions or adjustments to	Noted. Please see revised text.

			the estimates to allow for circumstances not included in the available history that need to be incorporated into best estimates (for example binary events). - Stochastic models require large volumes of data to parameterise them. Given the limited nature of current data sets available (when compared to the levels required by the models) then it is unlikely there will be enough data to satisfy the standards required under Solvency II of accurate, complete and appropriate. We would once again highlight that judgement and application can be far more important than the actual model used.	
25.	MR Group	General comment	The paper seems to refer especially to life business, as it stresses strongly on simulation techniques. These techniques are less relevant in non-life business. Moreover, using a simulation technique might lead to misinterpretations of the results, as it is difficult to check, whether the calculation data is consistent with the distribution underlying the simulation technique. Therefore we would recommend to distinguish explicitly between principles for life and non-life business. We also refer to the general comments supported by CEA. However the principle "same risk same capital" should be respected. This especially concerns products offered by different branches e.g. accident annuities.	Noted. Please see revised text (3.33-3.36).
26.	MR Group	General comment	Currently there is no reference to the principle of proportionality regarding the usage of high sophisticated calculation methods. This might be too burdensome for small portfolios and/ or small	Noted. Please refer to former CP45

			undertakings to calculate the Best Estimate using stochastic models.	
27.	MR Group	General comment	Best estimate should be based upon up-to-date and credible information and realistic assumptions and performed using adequate, applicable and relevant actuarial and statistical methods (see also Art 76 of Level 1 Document 8132/09 of the council of the European union). Only a part of this relevant vocabulary is explained in detail in the CP 26; especially the exact meaning of credible and realistic remains unclear. Also the inherent conflict between a prudent measurement (Article 75 (4) and a realistic assumptions (Article 76 (2)) is not solved. We propose to replace the word "prudent". Most interpretations of 'prudent' go against the principles of the best estimate as set out in Article 76(1) therefore it is reasonable to remove/replace the word.	Noted. See clarification on uncertainty in the revised text. Further explanation of some of the terms mentioned in the L1 text is included in CEIOPS former CP39.
28.	MR Group	General Comment	It is important to assure as far as possible that there won't be any contradictions between this the Level 2 implementing measures and future IFRS-standards. Especially the current discussion seems to point at rather „current fulfilment value" than at "transfer value".	Agreed. We note however that IFRS 4 Phase II is also evolving and, as such, it may be difficult to ensure consistency at this stage.
29.	PEARL GROUP LTD	General comment	We welcome the opportunity to comment on CEIOPS' suggested Level 2 advice on actuarial and statistical methods and techniques for calculating the best estimate liabilities. We welcome CEIOPS' principles-based approach to the methods and techniques used to value the best estimate of the technical provisions. We believe that overall this is an appropriate approach for these methods. In terms of the valuation technique and its results being audited, we	Noted. Noted Noted. For advice on validation

			believe that the audit trail necessary to support an external audit of publicly disclosed financial results may be a good starting point. We believe that for results and capital requirements to be robust enough, the ability of results to be checked independently is essential.	please refer to former CP 39.
			Whilst we can see the necessity for a supervisor to have the ability to ask for additional calculations if required, we believe that any request from the supervisor for alternative valuation techniques should be supported by a rationale and the existence of external validation (e.g. actuarial guidance at European level) that the proposed alternative techniques are appropriate	Noted. See amendment to the revised text paragraph 3.31.
			In this consultation paper "material" risks are referred to (e.g. in Para 3.8 2nd bullet, Para 3.13 etc.). Material should be defined in line with the International Accounting Standards Board's Framework for the Preparation and Presentation of Financial Statements: "Information is material if its omission or misstatement could influence the economic decision of users taken on the basis of the financial statements. Materiality depends on the size of the item or error judged in particular circumstances of its omission or misstatement. Thus, materiality provides a threshold or cut-off point rather than being a primary qualitative characteristic which information must have if it is to be useful."	Noted.
30.	UNESPA	General Comments	**<u>Division of the document into specific sections for Life and Non-Life business.</u>** The main objective of this document is to establish a proposed regulatory system for actuarial methods and statistical techniques considered adequate for calculating the Best Estimate. To this end, we consider that Life and Non-Life businesses should be considered in	Noted. Our intention is to keep the advice principles based. As a result it is our preference to produce principles which are applicable, to a greater or lesser extent, across life and non life. The undertaking shall consider whether the advice or requirements are applicable under

			separate sections. The appropriate statistical and actuarial techniques for each of these two businesses are not the same, and the document should establish clearly in which business it considers that each technique should be used.	their specific circumstances
31.	UNESPA	General Comments	The Consultation Paper regulation proposal concerns the actuarial methods and statistical techniques considered appropriate for calculating technical provisions (Best Estimate), although it goes into greater detail on the uncertainty factors to be modelled and the requirements for such methods and valuation techniques, it is still very generic. In our opinion a greater level of detail and guidance should be demanded at this level (level 2). The main criticism to be made of the proposal is that it appears to require the use of more complex techniques, such as simulation techniques, in the calculation of the BE if one or more factors might have a material impact on the valuation of the technical provisions. In this respect, we consider that regulation in this area should have a certain degree of pragmatism by permitting alternatives to simulation techniques in the calculation of the Best Estimate; this is equally true for both Life and Non-Life business, as many small and medium undertakings, and even some large ones, do not use such complicated techniques when calculating technical provisions.	Noted. Please see revised text (3.33-3.36).

			This is not just a question of proportionality, which is not mentioned anywhere in the Consultation Paper, despite the Directive enshrining this principle. Rather it is also a pragmatic response as many undertakings do not currently have the capacity to use simulation techniques, either for Life or Non-Life. It appears paradoxical therefore that on the one hand the Insurance Undertaking is required (Para 3.26 7th bullet point) to demonstrate that their capacities (actuarial expertise, IT systems, technology, etc.) correspond with the actuarial methods and statistical techniques chosen, whilst at the same time in certain cases (Para 3.28) the use of simulation techniques is required when the undertaking may not be capable of using these. Finally, it should be stated that at this level (level 2) clarifications and further guidance is required on how to value the profit-sharing and the options and guarantees included in the contract for the policyholder; how to model the policyholder's behaviour; and future management actions, using clearer principles and more specific examples, without obliging the use of simulation techniques under any circumstances.	Noted. Proportionality is covered by former CP 45 and implementing measure 85 h. Please also refer to the last bullet of paragraph 3.32. Noted. Valuation of future discretionary benefits, valuation of options and guarantees and policyholder behaviour are covered by former CP39. Management actions are covered by former CP32.
32.	UNESPA	General Comments	***Reinsurance undertakings***. With respect to Reinsurance, given the dependence on data from the insurance company assigning the business, it is planned to establish a section specifying the information which the company assigning the	Noted. CEIOPS believes that it is the responsibility of reinsurance undertakings to incorporate

			business should make available to the reinsurance company so that it can perform its calculations using appropriate and reliable data. In this regard, further technical explanation is required on the implications of reinsurance in calculating the "BE".	information requirements.
33.	AMICE	General comment	Supervisors should not require stochastic methods for calculating the best estimate for non-life business. Deterministic models are considered as appropriate and adequate approaches and they constitute best practice. Therefore, a flexible approach is necessary for the calculation of non-life best estimates. AMICE members believe that setting satisfactory standards on data quality is more relevant than prescribing the valuation technique used in the best estimate.	Noted. Please see revised text (3.33-3.36).
34.	AMICE	General comment	We believe that the advice to the Commission – and eventually probably the level 2 measure – should provide advice with regard to actuarial and statistical methodologies for the calculation of the best estimate in three sections: • general provisions, • life and • non-life insurance business. This would help to understand which approaches are appropriate for life business, non-life business and which can be applied in life and non-life business simultaneously.	Noted. Our intention is to keep the advice principles based. As a result it is our preference to produce principles which are applicable, to a greater or lesser extent, across life and non life. The undertaking shall consider whether the advice or requirements are applicable under their specific circumstances
35.	XL	General comment	XL welcomes the opportunity to comment on CEIOPS' draft advice on the elements of actuarial and statistical methodologies for the calculation of best estimate. (CP No. 26).	Noted.

			Overall this CP appears to provide a principles-based approach which takes into account the principle of proportionality and which we agree is appropriate. The CP appears to regard stochastic techniques as the first choice method, however we strongly believe that for many P&C (re)insurers stochastic reserving is not as appropriate as deterministic techniques and we therefore request that Para 3.18 be included within the CEIOPS Advice. Our more detailed comments are noted below:	Noted. Please see revised text (3.33-3.36).
36.	CEA	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.	Noted.
37.	CEA	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.	Agreed. Please see 3.31,.

			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 to find one technique which would be appropriate for all types of business. In general, stochastic methods are not needed to determine non-life	Noted. Please see revised text (3.33-3.36).

			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.	
38.	CEA	General	**Articles 74, 75, 76 and 80 of Level 1 are also relevant** - The	Noted. See response to comment

		comments	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. **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**	20. Noted. Please see revised text (3.33-3.36). Noted.

			– 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.	
39.	MR Group	1	Also other Articles are relevant for an adequate discussion of best estimate calculations – see e.g. Article 75.	Noted. Please see response to comment 20.
40.	MR Group	1.4	We agree with the position that dependencies between best estimate calculation and the application of future management actions exist. It is therefore reasonable that the main principles of CP 32 (Verifiability, objectivity and realism) should be consistent with the principles in CP 26.	Noted.
41.	AVIVA	1.4	There is not enough clarity on exactly what the advice is seeking to cover and how this will be impacted by subsequent advice. Para 1.4 states CEIOPS will complement this advice with further advice on related issues and will continue to develop further advice on this specific implementing measure. It is difficult to formulate opinions on the current advice when it is clear that the advice is not yet complete.	Noted. Please see advice on former CP 39.
42.	AVIVA	2.1	The opening paragraph seems to have been taken from Article 109 rather than Article 85 as stated.	Agreed. Please see amendment to Section 2.
43.	GDV	2.2	**Reference should be made to Articles 74, 75 and 76**: see "general comments" above	Agreed. Please see response to comment 20.
44.	CEA	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).	Agreed. Please see response to comment 20.

			Reference should also be made to Articles 74, 75 and 76 of the Level 1 text.	
45.	CRO Forum	3.1.1	*"In order to capture the above uncertainty a (re)insurance undertaking shall ideally:* *• Consider all possible future scenarios.* *• Estimate the likelihood/probability of each of those scenarios.* *• Calculate the cash-flows receivable/payable by the insurer in each of those scenarios.* *• Discount the projected cash-flows to reflect the time value of money in each of those scenarios.* *• Take the probability weighted average of the discounted cash-flows from each of those scenarios."* The definition of Best Estimate may be theoretically acceptable from a Non-Life perspective, nevertheless the common practice would rarely apply future scenarios and corresponding probability.	Noted. Refer to 3.28. Please see revised text (3.33-3.36).
46.	DAV	3.1 - 3.4	The usage of a risk margin is not appropriate for a best estimate valuation. It should be ensured that the data used is appropriate and the volume is sufficient.	Noted. Please see clarification on uncertainty in the revised text (3.28).
47.	GDV	3.1	See comments to Para 3.23	Noted. Please see response on paragraph 3.23.
48.	CEA	3.1	See comments to Para 3.23	Noted. Please see response on paragraph 3.23.
49.	GDV	3.2 and 3.4, 3.8	The Best Estimate should not allow for uncertainty – see comment for 3.23: In line with our comments set out in the "general comments" above,	Noted. Please see response to comment 45.

			this is a typical paragraph for life but it is not helpful for non-life. In non-life usually one does not consider "scenarios" as described here in the context of life business.	
50.	ILAG	3.2	We also consider that paragraph 3.30 should specifically mention the principle of proportionality.	Agreed. See amendment to paragraph 3.3.
51.	GC	3.2	The general approach could lead to critical aspects like stochastic within stochastic ("nested simulation") which might not be practical or reasonable. We find it helpful, that 3.17 offers an alternative.	Agreed. This is dealt with in paragraph 3.3.
52.	GC	3.2 and 3.3	Taking these two paragraphs together provides an inconclusive direction to (re)insurers. We suggest replacing "ideally" in paragraph 3.2 with "could" and replacing "shall consider how far the assumptions underlying the valuation approach differ from this ideal" in paragraph 3.3 with "shall consider the limitations of the valuation approach used against the approach outlined in paragraph 3.2".	Noted. CEIOPS considers paragraph 3.2 to be a reflection of the Level 1 text. However CEIOPS recognizes that this standard is difficult to achieve in practice. This is reflected by the word "ideal" and paragraph 3.3.
53.	DAV	3.2	The general approach could lead to critical aspects like stochastic within stochastic ("nested simulation") which wouldn't be practical.	Agreed. This is dealt with in paragraph 3.3.
54.	CRO Forum	3.2 and 3.3	"In order to capture the above uncertainty a (re)insurance undertaking shall ideally:" "The standard above is unlikely to be practical and the (re)insurance undertaking shall consider how far the assumptions underlying the valuation approach are likely to differ from this ideal." We are concerned about the references to 'ideal' – better to re-draft	Noted. Please see response to comment 52.

			this in a more open manner.	
55.	MR Group	3.2	In 3.2 it is mentioned that an insurance undertaking should consider all possible future scenarios. Although this is described by "shall ideally" it seems that CEIOPS ideal assumptions are too demanding. Therefore, "all possible future scenarios" should be replaced by a weaker formula, e.g. "all reasonably expectable scenarios" or some other equivalent wording. This difficulty is also described in Para 3.11, where reasons are given for simplifications or more adequate approaches. See also 3.27.	Noted. Please see response to comment 52.
56.	XL	3.2	While we agree with the statement that "In order to capture the above uncertainty a (re) insurance undertaking should **ideally**: - consider **all** possible future scenarios" we note that in reality it is not possible to consider **all** possible future scenarios.	Noted. Please see response to comment 52.
57.	CEA	3.2	See comments for Para 3.23	Please see response on paragraph 3.23.
58.	DAV	3.3 and 3.4	We support the Para's strongly.	Noted.
59.	GC	3.3 and 3.4	We support the Paragraphs strongly.	Noted.
60.	AVIVA	3.3	Strongly agree that factors set out in 3.2 are unlikely to be achievable for the determination of most GI liabilities. Notably, consideration of all possible future scenarios is not feasible for most liabilities. Allowing for all of these uncertainties via a stochastic model is going to be incredibly complex and would require a lot of development work	Noted. Noted. Please see revised text

			compared with how best estimates are currently calculated. The model would require a huge number of parameters and is likely to be so complex that the results from it would be difficult to interpret. It will also be very difficult to adjust a stochastic model for one off effects or changes in external or market factors such as public attitudes to claiming, judicial decisions and legislation as well as internal factors such as portfolio mix, policy conditions, claims handling procedures etc. Currently a combination of deterministic and analytic approaches are more commonly used. There are theoretical papers demonstrating the existence of stochastic models underlying the deterministic methodologies. Would such analysis render these approaches more acceptable?	(3.33-3.36).
61.	DIMA	3.3	The opportunity to use a simplified method of calculation, where appropriate, rather than the ideals set out in section 3.1 and 3.2, is generally welcomed.	Noted.
62.	IE SII group	3.3	We welcome the option to use a simplified method of calculation, where appropriate, rather than the ideals set out in section 3.1 and 3.2.	Noted.
63.	CEA	3.3	The CEA supports this statement.	Noted.
64.	ABI	3.4	See comments to Para 3.23.	Noted. Please see response on paragraph 3.23
65.	GC	3.4	The use of the concept of "uncertainty" could be taken to be require	Noted. Please see response to

			the use of assumptions that lie on the prudent side of best-estimate. We would suggest deleting "element of uncertainty inherent in cash flows".	comment 46.
66.	CRO Forum	3.4, 3.8 (1st bullet), 3.17, 3.23 and 3.24	"In choosing an appropriate actuarial and statistical method to calculate the best estimate, the (re)insurance undertaking shall consider whether the assumptions underlying the valuation technique appropriately reflect the nature of their (re)insurance obligations and the element of uncertainty inherent in the cash-flows." "The valuation technique chosen shall meet the following requirements: • The (re)insurance undertaking shall be able to demonstrate that the valuation technique and the underlying assumptions are realistic and reflect the uncertain nature of the cash-flows." "The (re)insurance undertaking may also be able to use a technique where the projection of the cash-flows is based on a fixed set of assumptions. The uncertainty is captured in some other way for example through the derivation of the assumptions. This is referred to below as a "deterministic approach"." "The Level 1 text states that the best estimate shall equal to the probability weighted average of future cash-flows taking account of the time value of money, using the relevant risk-free interest rate term structure. This in effect acknowledges that the best estimate	Noted. Please see response to comment 46.

			calculation shall allow for the uncertainty in the future cash-flows." "(Re)insurance undertakings shall reflect all future cash-flows making due allowance for the sources of uncertainty within their cash-flow projection used to calculate the best estimate. In particular, the causes of uncertainty in the cash-flows that shall be identified and taken into account may include the following:" We suggest to add to this paragraph that any allowance for uncertainty in cash flows captured in Best Estimate should be deducted from Risk Margin and SCR.	
67.	CRO Forum	3.4, 3.8 (1st bullet), 3.17, 3.23 and 3.24	"In choosing an appropriate actuarial and statistical method to calculate the best estimate, the (re)insurance undertaking shall consider whether the assumptions underlying the valuation technique appropriately reflect the nature of their (re)insurance obligations and the element of uncertainty inherent in the cash-flows." "The valuation technique chosen shall meet the following requirements: • The (re)insurance undertaking shall be able to demonstrate that the valuation technique and the underlying assumptions are realistic and reflect the uncertain nature of the cash-flows." "The (re)insurance undertaking may also be able to use a technique where the projection of the cash-flows is based on a fixed set of assumptions. The uncertainty is captured in some other way for example through the derivation of the assumptions. This is referred to	Noted. Please see response to comment 46.

			below as a "deterministic approach"." "The Level 1 text states that the best estimate shall equal to the probability weighted average of future cash-flows taking account of the time value of money, using the relevant risk-free interest rate term structure. This in effect acknowledges that the best estimate calculation shall allow for the uncertainty in the future cash-flows." "(Re)insurance undertakings shall reflect all future cash-flows making due allowance for the sources of uncertainty within their cash-flow projection used to calculate the best estimate. In particular, the causes of uncertainty in the cash-flows that shall be identified and taken into account may include the following:" We suggest to add to this paragraph that any allowance for uncertainty in cash flows captured in Best Estimate should be deducted from Risk Margin and SCR.	
68.	MR Group	3.4	We agree with the point that the insurance undertaking shall judge whether the valuation technique used is appropriate. This should be seen in connection with para 3.9.	Noted.
69.	CEA	3.4	See comments for Para 3.23	Please see response to paragraph 3.23.
70.	CRO Forum	3.1.2	"The (re)insurance undertaking will be required to demonstrate the appropriateness and robustness of the techniques, having regard to the nature, scale and complexity of risks (principle of proportionality)."	Noted. Please see revised text, final bullet 3.32.

			"(Re)insurance undertakings shall ensure that their capabilities (e.g. actuarial expertise, IT systems) are commensurate with the actuarial and statistical techniques used." We suggest that the technique should be selected according to the appropriateness and robustness, having regard to the nature, scale, complexity and weight in the portfolio, and not according to the specific capabilities of the undertaking. The (re)insurer shouldn't have the possibility of applying a different approach if it hasn't the necessary capabilities to develop the appropriate approach.	
71.	CRO Forum	3.1.2	"The (re)insurance undertaking will be required to demonstrate the appropriateness and robustness of the techniques, having regard to the nature, scale and complexity of risks (principle of proportionality). This also applies to simplified techniques and approximations. When such demonstration fails, the supervisor shall have the power to ask the insurer to develop more sophisticated techniques or refine the assumption and parameters of the models used." Moreover, according to the proportionality principle, undertakings may use simplified methods and techniques to calculate insurance liabilities, but we suggest to introduce some limits in the share of portfolio that could be valuated via proxy or proportional methods. The requirements to choose the actuarial approach and the evaluation techniques seem too general; at this step (level 2), we think that more detailed and accurate definitions would be recommended.	Further advice on the application of the principle of proportionality is covered by former CP 46.
72.	UNESPA	3.1.2	The causes of uncertainty established in the document (changes in external factors, such as legal, social and economic factors) are difficult to model and it is difficult to understand their influence on the BE. More explanation of this is required.	Noted. Please see response to comment 46 as well as amendments to paragraph 3.28-3.29.

73.	GC	3.5	Some of the causes of uncertainty noted in this paragraph may be more relevant to the assessment of the risk-margin or SCR than the best-estimate. Some further text could be included to highlight the need not to double count between the best-estimate liabilities, the risk margin and the SCR. This should also be included in the blue text.	Noted. Please see response to comment 46.
74.	AVIVA	3.5	Is the list of the causes for uncertainty that may be included supposed to be exhaustive? There should be an allowance for other uncertainties deemed to be appropriate for capture. This feels like it should form part of Level 3 guidance.	The causes of uncertainty are not intended to be an exhaustive list ("include the following").
75.	ABI	3.5	See comments to Para 3.24.	Please see response to 3.24
76.	CTIP	3.5	3.1.2. Selection of valuation techniques Regarding changes in both entity and portfolio specific factors such as legal environment factor, we believe it is necessary to consider future scenarios in a constant law environment as far as it is strongly difficult to forecast the statutory evolutions to come. Of course, differed effects of all known law have to be taken into account.	Please see amendments to paragraph 3.29.
77.	DAV	3.5 – 3.10	A principle based approach giving local supervisors and actuarial associations binding guidance how to apply the directive to local products, might be more promising as life insurance products are quite different in different member states.	Noted.
78.	CRO Forum	3.5 and 3.24	"The causes of uncertainty in the cash-flows that shall be allowed for in the application of the valuation technique, may include the following:[…]	

			• Changes in both entity and portfolio specific factors such as legal, social, or economic environmental factors in particular in interest rates." Both for Life and Non-Life business, it would be difficult to take into account legal and social changes within the sources of uncertainty. Indeed, it is not feasible to create a set of probability-weighted legal or social scenario. In conclusion, modelling legal and social changes would result in a heavy burden, but in an unchanged Best Estimate.	Please see amendments to paragraph 3.29.
79.	CRO Forum	3.5	"The causes of uncertainty in the cash-flows that shall be allowed for in the application of the valuation technique, may include the following: • Fluctuation in the timing, frequency and severity of claim events. • Fluctuation in the period taken to settle claims and/or expenses. • Fluctuation in the amount of expenses. • Changes in the value of an index/market values used to determine claim amounts. • Changes in both entity and portfolio specific factors such as legal, social, or economic environmental factors in particular in interest rates. • Uncertainty in policyholder behaviour. • The exercise of discretion by the (re)insurance undertaking (which may depend on the above-mentioned causes of uncertainty and also on	Noted. Please see response to comment 46.

			entity specific factors). • Path dependency (as per 3.6). • Interdependency between two or more causes of uncertainty (as per 3.7).” Some of the causes of uncertainty noted in this paragraph would be more relevant to the assessment of the Risk Margin or the SCR. The text (as well as the advice) should clarify that double counting is not intended for the avoidance of doubt and to ensure a level playing field.	
80.	GDV	3.5	See comments to Para 3.24	Please see response to paragraph 3.24.
81.	CEA	3.5	See comments to Para 3.24	Please see response to paragraph 3.24.
82.	ABI	3.6	We believe that path dependency may also be related to conditions other than economic conditions from a previous date. For example, if an option on a policy has been exercised at a previous date this may affect future values of the policy. The exercising of the option would not be an economic condition but relates to an individual contract. Management actions are other conditions that require path dependency but are not in themselves economic conditions. We would recommend replacing “economic conditions” with “circumstances including economic conditions”.	Noted. Please see amendment to paragraph 3.7.
83.	PEARL GROUP LTD	3.6	We believe that path dependency may also be related to conditions other than economic conditions from a previous date. For example, if an option on a policy has been exercised at a previous date this may	Noted. Please see amendment to paragraph 3.7.

			affect future values of the policy. The exercising of the option would not be an economic condition but relates to an individual contract. Management actions are other conditions that require path dependency but are not in themselves economic conditions. We would recommend replacing "economic conditions" with "circumstances including economic conditions".	
84.	AVIVA	3.8	We broadly agree with these requirements, but greater clarification is required on the materiality of risks to be considered.	Noted.
			Bullet 6 of paragraph 3.15 recognises that the complexity of the simulation approach may be 'an obstacle to an internal/external audit' and this is in direct conflict with the requirement in 3.8 that the valuation technique and results should be capable of being audited	Agreed. See amendment to the paragraph 3.21.
			Greater guidance on the proportionality principle is required. How would this principle apply to a Group with entities containing differing businesses and capabilities?	Noted. Refer to advice on CP 46.
			There is no reference to the frequency with which the assessments are to be made and the assumptions reviewed.	Agreed. Further advice is provided by former CEIOPS CP 39.
			Is "loss development" an acceptable assumption category? How do	Noted. Past experience, expertise,

			you show that the use of aggregate triangle is "an acceptable grouping process that appropriately allows for the risk characteristics of the individual policies"?	assumptions, judgement.
85.	ABI	3.8	See comments to Para 3.26.	Please see response to 3.26
86.	GC	3.8	Throughout the paper there is a reference to the '(re)insurance undertaking shall..'. It would be worth adding in a footnote to remind the reader that the overall responsibility reside with the 'Administrative or management Body' and make reference to the responsibilities of the Actuarial Function in delivering the best estimates.	Noted. The advice is only covering a specific implementing measure. The responsibilities of management and the actuarial function are covered as part of other advice.
87.	GC	3.8 – 1st bullet	The use of the term "realistic" is unclear. The meaning of this will need to be defined probably at level 3 guidance but using "best-estimate" at this stage may be clearer. As per the comment on paragraph 3.4, the phrase "assumptions … reflect the uncertain nature of the cashflows" is ambiguous and could seemingly be removed.	Noted. Further advice on assumptions is provided as part of former CP 39. Please see response to comment on paragraph 3.4.
88.	GC	3.8 – 5th bullet	This point could be made more general to state the requirement is for (re)insurance companies to demonstrate the appropriateness of any grouping used whether this is on claims or policy data	Agreed. Please see amendment to paragraph 3.9.
89.			Confidential comment deleted	

90.	CRO Forum	3.8 - 5th bullet, 3.14, 3.26	"If policy data is grouped, (e.g. in model points or homogeneous risk groups), the (re)insurance undertaking shall demonstrate that the grouping process appropriately allows for the risk characteristics of the individual policies. " "Analytical and/or deterministic techniques may be applied provided that the (re)insurance undertaking can demonstrate that the above factors have been adequately allowed for." "The (re)insurance undertaking will be required to demonstrate the appropriateness and robustness of the techniques, having regard to the nature, scale and complexity of risks (principle of proportionality)." There are references to "demonstrate" that would set a disproportionate level of proof. It would be more appropriate to refer to "explain".	Noted. We do not agree. Undertakings should be able to demonstrate "applicability and relevance of the methods applied" as per article 83 of the Level 1 directive, whenever this may be required
91.	GC	3.8 – 6th bullet	For the purposes of the Level 2 implementing measures the requirement for (re)insurers to "demonstrate" would seem a little strong. I would suggest that "use" instead of "demonstrate" would be appropriate at this stage.	Noted. Please see response to comment 90.
92.	IE SII group	3.8 – 7th bullet, 3.10 and 3.14	We note that the proportionality principle is addressed on several occasions in close proximity but with slightly different language each time. A single clear paragraph addressing the principle of proportionality would be preferred.	Noted. Further advice on proportionality is covered by former CP45.
93.	DIMA	3.8 Para 8, Section 3.10 Section 3.14	The proportionality principle is addressed on several occasions in close proximity but with slightly different language each time. A single clear paragraph addressing the principle of proportionality would be preferred.	Noted. Further advice on proportionality is covered by former CP45.
94.	GDV	3.8	In line with the general comments we suggest to change the last bullet point: replace "…undertaking shall demonstrate … " into "…undertaking shall be able to demonstrate … "	Noted. Please see response to comment 90.

95.	MR Group	3.8	The underlying assumptions for best estimate calculations should be realistic. Uncertainty, meant as the uncertainty of the outcome, should be best measured by a risk margin. Risk margin and best estimate are separate (see Art. 76 (1)), so only uncertainty in the sense of variability of the cash flow should be reflected by the best estimate assumptions. This should be stated more precisely. An important principle in this paragraph is the principle, that the nature of the liability determines the method of valuation. This principle should also be a guideline for segmentation. Especially numerous problems stemming from health insurance can be solved according to this guideline.	Noted. Please see response to comment 46.
96.	CEA	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."*	Noted. Please refer to the amendment to the final bullet point of paragraph 3.9.
97.	MR Group	3.9	Here the supervisor has the power to alter the valuation technique. A more appropriate formulation would be in this context: "The supervisor can require alternative techniques where he can demonstrate or give evidence that other valuation techniques achieve the objectives of the valuation in a better way." Also there seems to be a inherent conflict between a prudent valuation technique (3.9) and a realistic valuation (3.8). Maybe further guidance is needed to decide which principle is superior to avoid conflicts between insurance undertakings and supervisors.	Noted. Please see amendment to paragraph 3.10.
98.	GDV	3.9 and 3.10	See comments to Para 3.30 and additionally:	Please see response to 3.30.

			The last sentence in both paragraphs is dealing with a very general issue in each of the calculation steps like "best estimate", "risk margin", "SCR", "MCR", "company specific parameters" and so on: how should we deal with situations when the supervisory is convinced that a calculation step is not adequate? Should the supervisory authority have the power to require an alternative calculation or to increase the amount of technical provisions as mentioned in article 84 or to set a capital add-on in the sense of article 37? In article 37, No. 1 the closing conditions for capital add-ons are listed. The power to require an alternative calculation may undermine article 37. CEIOPS is asked to clarify the different situations.	Noted. This advice deals only with the calculation of the technical provisions and the best estimate in particular. As set out in this advice, where the supervisor believes the valuation technique is not consistent with the nature, scale and complexity of the risk, the supervisory authority may require an alternative technique. As set out in Article 84, the supervisory may require undertakings to increase the amount of the technical provisions so that the level of the technical provisions are consistent with the principles set out in Articles 75-82. A capital add-on as set out in Article 37 is not applicable in this case.
			The Best Estimate should be realistic - One of the objectives of the valuation given is that it should be "prudent". As discussed in the comment for 3.1 the best estimate valuation should be based on realistic assumptions, not prudent assumptions. GDV suggests that the word "prudent" is replaced by "realistic".	Noted. Please see response to comment 46
99.	AVIVA	3.9	We would not support the requirement of an alternative technique as currently drafted. Assessing the outcome of alternate approaches is very subjective. What would be the measure to decide if the alternative was 'better'. The Undertaking will have the detailed knowledge required to select the approach and assumptions to value the liabilities.	Noted. Please see amendment to paragraph 3.10.

100.	ABI	3.9	See comments to Para 3.25. However, whilst we agree that a supervisor should be able to suggest an alternative, such a request should be accompanied by a rationale for the request and the alternative technique must have a reliable basis (e.g. in European actuarial guidance/ common use).	Noted. Please see amendment to paragraph 3.10.
101.	GC	3.9, 3.30	Most interpretations of 'prudent' goes against the principles of the best estimate as set out in Article 76(1) and the word should be removed We see a possible contradiction between the requirement for a "prudent" valuation and the overarching requirement for a best estimate calculation. An alternative technique should only be required, if the method used by he company leads to an underestimation of risk. To achieve the objective of the valuation in a better way without this additional condition can hardly be the requirement of the supervisor. A clarification would be helpful to avoid misinterpretation.	Noted. Please see response to comment 46 Noted. Please see amendment to paragraph 3.10.
102.			Confidential comment deleted	
103.	DAV	3.9	Prudent contradicts to a best estimate valuation.	Noted. Please see response to comment 46
104.	DIMA	3.9 and 3.30	We agree that it is reasonable that the supervisor should be able to require an alternative technique to be used where the undertaking has not satisfied the supervisor that their chosen technique meets the requirements of section 3.8. The current wording suggests that a supervisor can require an undertaking to use an alternative technique without justification and regardless of whether the undertaking has already complied with the requirements of section 3.8. The supervisor should not unreasonably disregard the choice of technique selected by the undertaking and should itself provide demonstration of why the alternative technique selected achieves the objective of the valuation in a better way.	Agreed. Please see amendment to paragraph 3.10
105.	DIMA	3.9	Notwithstanding that the word *prudent* appears in the text of the Directive, we believe it is misleading to refer to the objectives of the valuation as *prudent*, reliable and objective in the calculation of best-estimate liabilities. The reference to prudence may imply the selection	Noted. Please see response to comment 46

			of assumptions that include margins above best estimate.	
106.	IE SII group	3.9 and 3.30	We agree that it is reasonable that the supervisor should be able to require an alternative technique to be used where the undertaking has not satisfied it that their chosen technique meets the requirements of section 3.8. The current wording suggests that a supervisor can require an undertaking to use an alternative technique without justification and regardless of whether the undertaking has already complied with the requirements of section 3.8. The supervisor should not unreasonably disregard the choice of technique selected by the undertaking and should itself provide demonstration of why its alternative technique is better at achieving the objective of the valuation.	Agreed. Please see amendment to paragraph 3.10
107.	CRO Forum	3.9	"However, the supervisor should be able to require an alternative technique where that other valuation technique achieves the objective of the valuation (prudent, reliable and objective) in a better way." It would be useful to clarify the meaning of "prudent". Given the Solvency II we believe that this does not refer to the outcomes being in excess of a "best-estimate" but about the process.	Noted. Please see amendment to paragraph 3.10
108.	CEA	3.9 and 3.10	See comments to Para 3.30	Please see response on paragraph 3.30.
109.	ABI	3.10	Whilst we agree that the techniques used should be appropriate to the nature, scale and complexity of the risks, it is difficult to envisage how this could be demonstrated. In many cases, it can be shown *not* to be appropriate by looking at the limitations of the techniques used if the wrong techniques are used, but to prove the positive would be difficult. These decisions are part of the expert judgement that is required in these situations and involve many underlying considerations that the practitioners take into account automatically and cannot always be logically demonstrated.	Agreed. Please see amendment to paragraph 3.11
110.	PEARL GROUP LTD	3.10	Whilst we agree that the techniques used should be appropriate to the nature, scale and complexity of the risks, it is difficult to envisage how this could be demonstrated. In many cases, it can be shown *not* to be appropriate by looking at the limitations of the techniques used if the	Noted. Please see amendment to paragraph 3.11

			wrong techniques are used, but to prove the positive would be difficult. These decisions are part of the expert judgement that is required in these situations and involve many underlying considerations which the practitioners take into account automatically and cannot always be logically demonstrated.	
111.	AVIVA	3.1.3	This section feels like it should form part of subsequent level 3 guidance	Noted.
112.	CRO Forum	3.1.3	"A simulation technique would normally be recommended for valuing cash flows where one or more of the following factors have a material impact on the value of the liability:[…] • The value of options and guarantees is affected by the policyholder behaviour assumed in the model." This paragraph does not give a clear picture of Valuation Techniques because it merges Life and Non-Life approaches. In summary: • stochastic approach (simulation): in Non-Life business stochastic approaches are adopted usually for Reserving Risk capital assessment and much less frequently for Best Estimate assessment. Almost all the descriptions and examples reported in the paper concern Life business. This may produce misinterpretation or confusion "Analytical and/or deterministic techniques may be applied provided that the (re)insurance undertaking can demonstrate that the above factors have been adequately allowed for. Furthermore, CEIOPS recognise that this may not be a proportionate approach for some (re)insurance undertakings." • analytical techniques: in Non-Life business such approaches are not used in the common practice • deterministic approach: in Non-Life business such approach is the most commonly used and more auditable. We would suggest to express it clearly in order to avoid misinterpretation.	Noted. Please see revised text.
113.	ILAG	3.1.3	We note with some concern the wording of paragraphs 3.11 to 3.13.	Noted. Please revised text..

			These give the impression that stochastic modelling and other approaches of this nature are expected to be the default technique and that other approaches, such as those mentioned in paragraph 3.14 are not a preferred option. The last sentence of paragraph 3.14 gives the impression that deterministic techniques may not be in accordance with the proportionate approach. It is difficult to understand why this should be so. We are concerned that there is insufficient allowance for smaller firms to use simple techniques which are in keeping with the size and complexity of the risks they have underwritten. We would like to see stronger wording to permit a simple approach. We agree that any techniques used should be capable of being audited. However we consider that the principal of proportionality should apply to audit requirements to prevent auditors from demanding unduly sophisticated calculations from small firms.	Noted. See advice on proportionality in former CP 45.
114.	CRO Forum	3.1.3	"For many types of uncertainty, there are a very large or possibly infinite number of possible future scenarios. Actuarial and statistical techniques have developed to form a practical approach of estimating the value of (re)insurance liabilities, including stochastic simulation (referred to hereafter as simulation), deterministic and analytical techniques." We agree with CP26 recommendations in choosing the valuation technique of Best Estimate of liabilities between simulation, analytic and/or deterministic, in line with the characteristic and complexity of business (asymmetric and non-linear dependencies between assets and liabilities, dependencies on future management actions, presence of options and guarantees). We would underline that if the default method is too complicate and difficult to model, the undertaking can use a simpler approach, without the onus of justifying the appropriateness of the simplified model. In this case an allowance for the risk due to an inaccurate model should be considered.	Noted. Please see revised text (3.33-3.36).
115.	CEA	3.1.3	**More clarity is requested** - More clarity is requested as to the criteria that economic scenarios should satisfy. For example, that they	Noted. Further advice on the criteria applicable for economic

			replicate relevant option prices (having regard to the nature and duration of your liabilities) and that the no arbitrage criteria is substantially met.	scenarios is included in former CP39.
116.	CTIP	3.11	3.1.3. Valuation techniques Regarding the methodology to be applied for estimating the value of insurance liabilities, the choice of a method must be the decision of the insurance undertaking. Insurance undertakings must keep at their level the possibility of choosing the most adequate actuarial and statistical techniques (deterministic/stochastic), in a proportionate approach.	Partially agree. Please refer to paragraphs 3.9 and 3.10.
117.	DAV	3.11 – 3.19	We agree with CRO Forum comments including the possibility that local insurance associations and/or actuarial societies may assist. CRO Forum: We suggest that the technique should be selected according to the appropriateness and robustness, having regard to the nature, scale, complexity and weight in the portfolio, and not according to the specific capabilities of the undertaking. The (re)insurer shouldn't have the possibility of applying a different approach if it hasn't the necessary capabilities to develop the appropriate approach.	Noted. Please refer to the amendment to the final bullet point of paragraph 3.9.
118.	MR Group	3.11	The approach that an insurance undertaking should consider any possible scenario is reduced to several realistic approaches here. We agree with this point and would welcome a cross reference in a weakened para 3.2.	Noted.
119.	AVIVA	3.12	What is a "suitably large number of scenarios"? Doing Monte Carlo simulations, allowing for all of the uncertainties identified, for all lines of business will require a lot of time and resource	Noted. Further advice on the application of Monte Carlo techniques, including number of scenarios required, may be provided at Level 3. Note that CEIOPS' Level 2 advice does not require simulation to be used for all lines of business.

120.	CEA	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.	Noted. Further advice on the application of Monte Carlo techniques, including number of scenarios required, may be provided at Level 3.
121.	GC	3.13	This paragraph suggests circumstances where a simulation approach would normally be recommended. These seem likely to capture many types of UK insurance business (for example, there are often significant non-linear interactions and options and guarantees (including the option to surrender) are affected by policyholder behaviour assumed in the model through lapses).	Noted. Please see amendment (3.17).
122.	GC	3.13 – 3.19 3.29 – 3.30	• We believe the text allows the Actuarial Function the flexibility to make judgements and select the techniques appropriate to the individual circumstances • The user must understand the assumptions underlying the selected method, as all techniques have their own constraints and model risks. It may be appropriate to reflect this in a separate paragraph (as it is not fully covered within 3.19) • We would like to emphasise that we strongly believe that there are times where deterministic methods are the most appropriate techniques to use and therefore there should not be an in-build expectation that it is the 'last resort' (3.18)	Noted. Please see revised text (3.33-3.36).
123.	Deloitte EU	3.13	Within this section of advice, three different descriptions are used to infer a similar meaning, namely "highly", "materially", and "significant". It is not clear whether these terms should be treated synonymously, or whether they represent different quantitative and qualitative levels. Such ambiguity is likely to lead to varying interpretations and a lack of consistency across firms and member countries. We recommend that both in this instance, and indeed across all areas of L2 guidance, that CEIOPS formulates a consistent and clearly defined language which ensures the use of consistent and well	Agreed. All references to "highly" or "significant" have been replaced with material.

			understood terminology.	
124.	GDV	3.13	See comments to Para 3.28	Please see response to para 3.28
125.	CEA	3.13	See comments to Para 3.28	Please see response to para 3.28
126.	GDV	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.	Agreed. Please see revised text (3.33-3.36).
127.	GC	3.14	• It is difficult to envisage how (re)insurers would be able to demonstrate that a deterministic approach would adequately allow for the factors in paragraph 3.13 without building some form of stochastic model or performing a large number of deterministic sensitivities. Some further clarification on this would be welcome.	Agreed. Please see revised text (3.33-3.36).
128.	CEA	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.	Agreed. Please see revised text (3.33-3.36).
129.	AVIVA	3.15	There is an implication that an undertaking's lack of capability may be a reason for allowing simpler approaches to be used. It should be driven by the nature of the liabilities the undertaking has taken on. On the sub-bullet point that the undertaking shall apply management actions which are "objective, reasonable and verifiable", it will not always be possible for verification where anticipating situations that have not been encountered in the past.	Noted. Please refer to the amendment to the final bullet point of paragraph 3.8. Please see response to comments on former CP32.
130.	DAV	3.15	Delete „necessary capabilities". Basically, the principle of materiality should be followed.	Noted. Please refer to the amendment to the final bullet point of paragraph 3.8.
131.	CRO Forum	3.15	"Where simulation techniques are used, economic scenario files are a	Noted. Further advice on both

			key assumption. Such scenario files could be produced by market consistent asset models which must in turn be calibrated appropriately. This calibration relies both on expert judgement and the availability of market data. The application of more sophisticated techniques is limited to cases where sufficiently robust knowledge/data is available." We welcome CEIOPS recognition that that expert judgment has a legitimate place in the appropriate use of simulation techniques.	economic scenario files and expert judgement is covered by former CP39.
132.	MR Group	3.15	A cross reference should be given to CP 32 to explain objective, reasonable and verifiable management actions (page 8). Also it should be explained whether realistic (CP 32) and reasonable are used as synonyms here.	Agreed. See amendment to paragraph 3.22.
133.	XL	3.15	We strongly agree that "when the number of risk factors is high, a holistic approach treating all the variables stochastically may not be feasible (because the number of required simulations would be excessively high) and so some simplifications may have to be embedded in the model.	Noted
134.	IE SII group	3.15 Introduction	The use of a simulation approach should not depend on the undertaking's capabilities but according to the usual proportionality principle.	Noted. Please refer to the amendment to the final bullet point of paragraph 3.8.
135.	DIMA	3.15 - 1st bullet	The use of the simulation approach should not be based upon the undertaking's capabilities but by the usual proportionality principle.	Noted. Please refer to the amendment to the final bullet point of paragraph 3.8. .
136.	GC	3.15 - 2nd bullet	It is questionable whether there can there ever be sufficiently robust knowledge/data for calibrating simulation models for non-economic risks. This also suggests that stochastic approaches may not be appropriate in illiquid market conditions. CEIOPS might like to comment on the applicability of simulation techniques in circumstances where markets may not be deep and liquid. There may be a need for further guidance on this to ensure maximum harmonisation in times of market stress.	Noted. Further advice on economic scenario files is covered by former CP39. CEIOPS is aware that further guidance may be required to ensure harmonisation in this area, particularly in illiquid market conditions.

137.	CEA	3.15 - 2nd bullet	**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 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*."	Noted. Further advice on economic scenario files is covered by former CP39. CEIOPS is aware that further guidance may be required to ensure harmonisation in this area, particularly in illiquid market conditions. Agreed. See footnote to paragraph 3.21. CEIOPS does not agree that this advice will discourage companies from using more sophisticated approaches. The advice ensures that more sophisticated approaches are properly applied where there is sufficient data and expertise.

138.	IE SII group	3.15 – 2nd bullet	"Where simulation techniques are used, economic scenario files are a key assumption." This should be: "Where simulation techniques are used, economic scenario files are **usually** a key assumption."	Agreed. See amendment to 3.21.
139.	GDV	3.15 – 2nd bullet	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. GDV would request that CEIOPS provides a more precise definition of this term.	Agreed. See footnote to paragraph 3.21.
140.	DIMA	3.15 - 3rd bullet	"Where simulation techniques are used, economic scenario files are a key assumption." This should be amended to read: "Where simulation techniques are used, economic scenario files are usually a key assumption."	Agreed. See amendment to 3.21.
141.	CEA	3.15 - 3rd bullet	**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.*"	Partially agreed. Further advice on grouping of contracts is included in CP39. Paragraph 3.21 has been amended to reflect this.
142.	IE SII group	3.15 – 3rd bullet	This paragraph should also emphasise that it is never acceptable for the grouping of contracts for model points to miss important risk characteristics.	Partially agreed. Further advice on grouping of contracts is included in CP39. Paragraph 3.21 has been amended to reflect this.
143.	DIMA	3.15 – 4th bullet	A statement should be added to this paragraph to clarify that it is never acceptable for the grouping of contracts for model points to miss important risk characteristics.	Partially agreed. Further advice on grouping of contracts is included in CP39. Paragraph 3.21 has been amended to reflect this.
144.	CEA	3.15 - 4th bullet	**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.	Agreed. See amendment to paragraph 3.21.
145.	IE SII group	3.15 – 5th bullet	Examples of systematic and random influences would be useful	Noted. Further detail will be

				provided at Level 3.
146.	DIMA	3.15 – 6th bullet	Examples of systematic and random influences would be useful.	Noted. Further detail will be provided at Level 3.
147.	GC	3.15 – 9th bullet 2	We welcome the recognition that judgement plays a part in stochastic calibration.	Noted. Further advice on stochastic calibration is covered by former CP39.
148.	GC	3.15 – 9th bullet 3	We would suggest that examples of the appropriate techniques are mentioned	Noted. Further detail will be provided at Level 3.
149.	CEA	3.15 - 9th bullet, 3rd 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.	Noted. Further advice on validation is covered by CP39.
150.	CEA	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 the calculated (intrinsic) value. ⇨ The CEA requests that the understanding of this section is clarified.	Please see response to comment 46.
151.	GDV	3.17	The Best Estimate should not allow for uncertainty - 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	Please see response to comment 46.

			inappropriate where the value of such uncertainty is already captured via the market value risk margin (see our introductory remarks). 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 the calculated (intrinsic) value. The understanding of this section should be clarified.	
152.	MR Group	3.17	The reflection of uncertainty by derivation of prudent assumptions is contradictory to realistic assumptions. (see remark para 3.8)	Please see response to comment 46.
153.	ABI	3.18	The ABI strongly agrees with these points. We would suggest that these points be included as part of CEIOPS' advice. The consultation paper could be seen as emphasizing the stochastic approaches in preference to other approaches, which we do not consider to be CEIOPS' intention. All of these methods have their place under differing circumstances, and we believe that by including this paragraph in the advice, it allows for the use of these methods where appropriate.	Noted
154.	XL	3.18	We agree with this paragraph, and recommend that para 3.18 be included within the CEIOPS advice. As a P&C (re)insurance undertaking XL's generally accepted approach is to use analytical and / or deterministic techniques, rather than simulation techniques. Without the inclusion of Para 3.18 the draft advice seems to be weighted in preference of stochastic techniques over other approaches. Given that P&C (re) insurers make up a significant element of the market, we do not believe that this was CEIOPS intention, and feel it is important that para 3.18 be included within the CEIOPS Advice to allow deterministic techniques where appropriate.	Noted. Please see revised text (3.33-3.36).
155.	GC	3.18	This paragraph will be useful to (re)insurers as a basis for arguing against the use of a simulation approach in the valuation. This should be included in the blue text. Also, it appears that there is scope to use	Noted. Please see revised text (3.33-3.36).

			a wide variety of valuation techniques dependent on the nature of the liability being considered and this is sensible given the wide variety of firms that will need to apply the rules. However, more guidance would be useful given that the methodology and results will be subject to audit and because of the ability of supervisors to require alternative valuation approaches (see paragraphs 3.9 and 3.30). This may be in level 3.	
156.	PEARL GROUP LTD	3.18	We agree with these points. We would suggest that these points be included as part of CEIOPS' advice. The consultation paper could be seen as emphasizing the stochastic approaches in preference to other approaches, which we do not consider to be CEIOPS' intention. All of these methods have their place under differing circumstances, and we believe that by including this paragraph in the advice, it allows for the use of these methods where appropriate.	Noted. Please see revised text (3.33-3.36).
157.	GDV	3.18 – 3rd bullet	Guidance is requested - As noted in our response to Para 3.17 companies need guidance on how they will be expected to demonstrate this without being required to incur the cost of developing full blown stochastic models. Furthermore, as stated in our response to Para 3.30, the undertaking should be responsible for the choice of valuation method. ⇨ GDV requests guidance as to what demonstration will be required for the use of deterministic techniques.	Noted. Please see revised text (3.33-3.36).
158.	CEA	3.18 - 3rd bullet	**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.	Noted. Please see revised text (3.33-3.36).
159.	IE SII group	3.18 and 3.29	We believe that there are circumstances where deterministic methods are the most appropriate techniques to use.	Noted. Please see revised text (3.33-3.36).

			Paragraph 3.18 – 3rd bullet point – states 'Where the nature of the liabilities is sufficiently simple or for other reasons of nature such that best estimate assumptions result in a best estimate liability and *this can be demonstrated*'. We would welcome further advice on the ways that 'this can be demonstrated'.	
160.	AVIVA	3.19	This approach could also be used to calculate non-life best estimates.	Noted.
161.	IE SII group	3.1.4	We recommend that this advice be complemented by the European Technical Standards referred to in the CP33 advice.	Noted
162.	AVIVA	3.20	Bootstrapping only takes account of the variability in historic data i.e. it does not really take account of expected future uncertainty due to changes in internal, external or market factors not experienced in the past The mean best estimate derived from bootstrapping may not correspond to the "true" actuarial best estimate	Noted. They are methods that may aid during the calculation of the best estimate. Thus they are valid methods to be used in the calculation of the BE. The objective is to produce an appropriate result and be able to demonstrate this.
163.	GC	3.20	• We recommend this section, and several other parts of CP26, would be most effectively developed in the European Technical Standards referred to in CP33 • The list is not claiming to be complete however there is a risk that people would interpret what is appropriate or not appropriate to use for Solvency II purposes. We would recommend this is covered as part of the developments required	Noted.
164.	GDV	3.20	Bootstrapping is incorrectly defined - GDV 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-	Noted. The text does not say that bootstrapping is only used under such circumstances.

			life provisioning purposes, Bootstrapping may be 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.	
165.	CEA	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.	Noted. The text does not say that bootstrapping is only used under such circumstances.
166.	DIMA	3.20 – 3rd bullet	Additional wording required: "Stochastic variation in non-market assumptions such as lapses and option take-up rates can have significant influence on the valuation of options and guarantees."	Agreed. See amendment to paragraph 3.25.
167.	IE SII group	3.20 – 3rd bullet	Additional wording required: "Stochastic variation in non-market assumptions such as lapses and option take-up rates can have significant influence on **the valuation of** options and guarantees"	Agreed. See amendment to paragraph 3.25.
168.	FFSA	3.21	Bayesian approaches are an example of simulation techniques and not analytic technique. They indeed use Monte Carlo simulations.	Noted.
169.	AG	3.21	The replicating portfolio technique is only mentioned with regard to the time value of options and guarantees. This technique is however also applicable to other parts of the insurance portfolio, such as immediate annuities and endowments.	Noted. These are examples.
170.	GDV	3.21	Reference to the Mack method is not appropriate here – This paper	Noted. They are methods that

			deals only with the calculation of the Best Estimate. Whereas the Mack method yields two parts: A best estimate and a standard deviation. ⇨ GDV requests that the 3rd bullet point is deleted.	may aid during the calculation of the best estimate. Thus they are valid methods to be used in the calculation of the BE. The undertaking needs to produce an appropriate result and be able to demonstrate this.
171.	CEA	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 ladder*."	Noted. Please see response to 170.
172.	GDV	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. GDV 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.	Noted. They are examples and the list is non exhaustive. However please see amendment to 3.27.
173.	AVIVA	3.22	Some of the examples of deterministic techniques seem vague (eg applying different techniques and allow for any volatility) or are non-distinct from other examples (eg sensitivity testing vs scenario testing)	Noted. They are examples
174.	FFSA	3.22	Chain-Ladder and Bornhutter-Ferguson techniques should be added in the examples of deterministic techniques.	Noted. They are examples and the list is non exhaustive. However please see amendment to 3.26.

175.	Lloyd's	3.22	We would have expected standard triangulation techniques (such as chain ladder) to be included in the list. This would be consistent with the importance of these methods.	Noted. They are examples and the list is non exhaustive. However please see amendment to 3.27.
176.	KPMG	3.22	We would have expected standard triangulation techniques (such as chain ladder), for non-life, to be included in the list to be consistent with the importance of these methods.	Noted. They are examples and the list is non exhaustive. However please see amendment to 3.27.
177.	CEA	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.	Noted. They are examples and the list is non exhaustive. However please see amendment to 3.27.
178.	GDV	3.22 – 1st bullet	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?	Noted. The application of methods depends on the specific circumstances. This should be further developed further as part of Level 3 or as part of actuarial standards and guidance and is primarily for the undertaking to determine.
179.	CEA	3.22 - 1st bullet	**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	Please see response to comment 178.

			using a best estimate assumption is appropriate?	
180.	CEA	3.22 - 6th bullet	**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.	Noted. Example has been deleted.
181.	CEA	3.22 - 7th bullet	**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.	Noted. The application of methods depends on the specific circumstances. This should be further developed further as part of Level 3 or as part of actuarial standards and guidance and is primarily for the undertaking to determine.
182.	ABI	3.23	We welcome CEIOPS' comments that the intention behind looking at probability weightings is to include the effects of uncertainties in the cash flows and not merely to create a perfect probability distribution in its entirety.	Noted.
183.	GC	3.23	The advice is that the calculation of best estimate shall allow for the uncertainty in the future cash-flows. This interpretation of article 76(2) in the directive leads the consultation paper to focus on stochastic methods. We believe that a more correct interpretation of the article would be the one in Group Consultatif's paper which says that the best estimate should be unbiased and equals the mean on a discounted basis. In our view stochastic methods are more suitable when calculating the risk margin and SCR. A requirement to use stochastic methods when calculating best estimate could rule out many well established deterministic actuarial methods in non-life insurance.	Partially agreed. Please revised text (3.33-3.36).
184.	GC	3.23 and 3.24	As per the general comments above, the references to allowing for uncertainty are unclear and could be interpreted as requiring prudence to be added to allow for adverse outcomes. It would seem more appropriate to refer to distributions of risk or contract features (such as options and guarantees) that may result in asymmetric impacts on the	Partially agreed. Please see clarification on uncertainty in paragraph 3.29 of the revised text.

			cashflows.	
185.	PWC UK	3.23	The paper refers to 'Uncertainty' in the context of allowing for uncertainty in the best estimate of future cash-flows. It does provide any view on the boundaries or types of uncertainty that should be considered. For example; the uncertainty evident in historic cash-flows, the uncertainty surrounding known changes or events (for example legislative change), or the prospect of unknown events that have been proved to occur from time to time. Some further guidance should be provided in this area as the first definition would be considerably narrower and perhaps too narrow for the purposes of valuation.	Partially agreed Please see clarification on uncertainty in paragraph 3.29 of the revised text.
186.	DAV	3.23	c.f. 3.2: … to the probability weighted average of present values of future cash-flows …	Please see response to 3.2
187.	Legal and General Group	3.23 (blue); 3.1 - 3.4 (white)	There is a danger that the valuation of best estimate liabilities will be made too complex. The SCR should capture the uncertainty in the future obligations of the (re)insurance undertaking. Using a simulation approach to calculate the best estimate liabilities as well as the capital requirements above these is potentially overkill.	Please see revised text (3.33-3.36) as well as clarification on uncertainty in paragraph 3.28 of the revised text.
188.	Deloitte EU	3.23	We support the proposed definition of "best estimate" as being equal to the probability weighted average of future cash flows taking account of the time value of money, using the relevant risk-free interest rate term structure. However, we believe that in order to achieve consistency of treatment across the European Union, further clarification is needed in respect of a number of areas, namely: - clear explanation of what constitutes a "relevant risk-free interest rate term structure", unless this is separately addressed in a future	Noted. Advice on the risk free rate is covered by CP40.

			consultation paper; - valuation techniques applied to generate the best estimate cash flows should be consistent with the techniques applied under the principles of International Financial Reporting Standards; and - specification of permitted adjustments on the risk-free interest rate applied in illiquid markets.	Agreed. We note however that IFRS 4 Phase II is also evolving and, as such, it may be difficult to ensure consistency.
189.	GDV	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 as doing so would involve double counting. 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 simulation which is out of line with current best practices in non-life business. • GDV suggests that the last sentence is deleted – we do not agree with this interpretation.	Partially agreed. Please see clarification on uncertainty in paragraph 3.29 of the revised text. Please see revised text (3.33-3.36).
190.	PEARL GROUP LTD	3.23	We welcome CEIOPS' comments that the intention behind looking at probability weightings is to include the effects of uncertainties in the cash flows and not merely to create a perfect probability distribution in	Noted.

			its entirety.	
191.	AMICE	3.23	We agree with the CEA that Best Estimates should not allow for uncertainty in future cash-flows as this is not in line with article 76(2) on the Level 1 text ("*The calculation of the best estimate shall be based upon* ***up-to-date*** *and credible information and realistic assumptions").*	Partially agreed. Please see clarification on uncertainty in paragraph 3.29 of the revised text.
192.	CEA	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 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.	Partially agreed. Please see clarification on uncertainty in paragraph 3.29 of the revised text. Please see revised text paragraph 3.29.
193.	PEARL	3.24	We agree with the possible causes of uncertainty in the cash flows. We	Noted.

	GROUP LTD		would like to point out that many of these sources of uncertainty, whilst taken into account in different ways, may be difficult to quantify separately and so all of these items may not be reflected explicitly in the cash flows in every case.	
194.	GDV	3.24	The Best Estimate should not allow for uncertainty - In line with the comment for 3.23: ⇨ GDV requests that "uncertainty" in this paragraph is replaced with "future variability". 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. ⇨ GDV requests that this requirement is removed.	Partially agreed. Please see clarification on uncertainty in paragraph 3.29 of the revised text. Not agreed. See amendment to 3.6 and 3.29. For some specific types of business it is absolutely necessary for undertakings to take into account changes in factors as those mentioned.
195.	ROAM	3.24	It is not feasible to create a set of profitability-weighted legal or social scenarios.	Not agreed. See amendment to 3.30. For some specific types of business it is absolutely necessary for undertakings to take into account changes in factors as those mentioned.
196.	ABI	3.24	The ABI agrees with the possible causes of uncertainty in the cash flows. We would like to point out that many of these sources of uncertainty, whilst taken into account in different ways, may be difficult to quantify separately and so all of these items may not be reflected explicitly in the cash flows in every case.	Noted.
197.	FFSA	3.24	FFSA believes that in life or non life business, it is neither relevant nor feasible to take into account legal and social changes inside the sources of uncertainty (see §3.24). Indeed, **it is not feasible to create a set of probability-weighted legal or social scenario**. In conclusion, modeling legal and social changes would result in a heavy burden, but in an unchanged best estimate.	Not agreed. See amendment to 3.30. For some specific types of business it is absolutely necessary for undertakings to take into account changes in factors as those mentioned.

198.	AG	3.24 (3.5)	It is not obvious which sort of changes in legal/social/economic factors are relevant in best estimate valuation, and which sort of legal/social/economic changes should only be handled within SCR and MCR. For example, we think that jurisdiction on lesion damage and longevity trend should be incorporated, but that changes in legislation towards insurance undertakings should not be a part in the best estimate valuation (should only be covered by the capital requirements). We recommend actions to stimulate discussion between stakeholders on handling typical examples of changes in legal, social and economic factors. By this way, the necessary uniformity on European level should be reached. Possibly this will happen within the European Technical Standards, as mentioned in CP33. The Actuarieel Genootschap is willing to contribute to the development of these standards. We would stress that uniformity should not lead to more "rule based" guidelines; Solvency 2 must stay principle based.	Noted. See amendment to 3.30. For some specific types of business it is absolutely necessary for undertakings to take into account changes in factors as those mentioned.
199.	Lloyd's	3.24	Lloyd's agrees that projected future cash-flows should allow for all potential sources of uncertainty. This is different from uncertainty loadings that effectively add prudence to the best estimate. We do not believe margins for uncertainty are consistent with the requirements of Solvency II.	Please see clarification on uncertainty in paragraph 3.29 of the revised text.
200.	DAV	3.24	Stochastic might be needed for deriving current values for financial options and guarantees (basically guaranteed interest rate, and guaranteed surrender values).	Noted
201.	KPMG	3.24	We agree that projected future cashflows should allow for all potential sources of uncertainty.	Noted
202.	AMICE	3.24	We agree with the CEA that it would not be feasible to create a set of probability-weighted legal or social scenarios.	See response to comment 203.
203.	CEA	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	Not agreed. For some specific types of business it is absolutely necessary for undertakings to take into account changes in factors as those mentioned. See amendment to 3.30.

			would result in a heavy burden, but in an unchanged best estimate. ⇨ The CEA requests that this requirement is removed.	
204.	KPMG	3.25	We agree that the responsibility for the choice of techniques employed to calculate the technical provisions should rest with the undertaking.	Noted
205.	AVIVA	3.25	We agree that the responsibility for the choice of adequate techniques for the calculation of the best estimate liability rests with the undertaking.	Noted
206.	ABI	3.25	We strongly agree with this point.	Noted
207.	Lloyd's	3.25	Lloyd's strongly agrees that the responsibility for the choice of techniques employed to calculate the technical provisions should rest with the undertaking.	Noted
208.	MR Group	3.25	Reference should be changed from "3.23" to "3.26".	Agreed.
209.	PEARL GROUP LTD	3.25	We strongly agree with this point.	Noted
210.	XL	3.25	We strongly agree that the responsibility for choice of adequate techniques for the calculation of the best estimate liability rests with the (re)insurance undertaking.	Noted
211.	CEA	3.25	Misprint, text should read "*paragraph 3.26 below*".	Agreed.
212.	PEARL GROUP LTD	3.26	We agree with the recommendations for choosing appropriate valuation techniques. However, we would question how the principle of proportionality could be demonstrated. It could be discussed qualitatively, but we would still like to note that this would be easier to prove in the case of this principle *not* having been met. The principle of proportionality is fundamental to EU legislation, not just Solvency II and is based on expert judgement which is difficult to explain and quantify. The requirement that the valuation technique and its results are audited would ensure that the principle of proportionality is met. External audits of public financial results require an audit trail and this	Noted. Please see further advice on proportionality which is covered by former CP 45.

			would be a good basis for beginning a regulatory audit of valuation methods and results.	
213.	MR Group	3.26	See para 3.8	See response to 3.8
214.	AVIVA	3.26	We agree with the criteria for the chosen valuation technique, although we would question the inclusion in this paragraph of a requirement that the valuation technique and its results shall be capable of being audited. The capability for audit of the valuation technique will depend partly on satisfying the other requirements in this list. Further clarification of additional requirements for audit purposes is needed, which could be provided as level 3 guidance.	Noted.
215.	ROAM	3.26	Companies should not have to systematically prove the adequacy of their calculations and of their choices.	Not agreed. Undertakings should be able to demonstrate the "applicability and relevance of the methods applied" as per article 83 of the Level 1 directive, whenever this may be required.
216.	ROAM	3.26	The proportionality principle should be developed. *The Article 14a of the Directive says: "The new solvency regime should not be too burdensome for small and medium-sized insurance undertakings. One of the tools to achieve this objective is a proper application of the proportionality principle. This principle should apply both to the requirements on the insurance and reinsurance undertakings and on the exercise of supervisory powers."* *The Article 28 of the Directive says: "Member States shall ensure that the requirements laid down in this Directive are applied in a manner which is proportionate to the nature, complexity and scale of the risks inherent in the business of an insurance or reinsurance undertaking."* We ask for clarifications to apply this principle of proportionality for the evaluation of the best estimate. The Directive mentioned that nature, scale and complexity of the risk have to be taken into account but it doesn't define those terms. We think that the criteria could be linked to:	Noted. Please see further advice on proportionality which is covered by former CP 45.

			• the volume of the business, • the nature and the complexity which should be defined following a qualitative approach and considering the duration of the commitments, • the scale of the risk which could be defined as the degree to which the insurer is vulnerable to the risk.	
217.	ABI	3.26	The ABI agrees with the recommendations for choosing appropriate valuation techniques. However, we would question how the principle of proportionality could be demonstrated. It could be discussed qualitatively, but we would still like to note that this would be easier to prove in the case of this principle *not* having been met. The principle of proportionality is fundamental to EU legislation, not just Solvency II and is based on expert judgement which is difficult to explain and quantify. The requirement that the valuation technique and its results are audited would ensure that the principle of proportionality is met. External audits of public financial results require an audit trail and this would be a good basis for beginning a regulatory audit of valuation methods and results.	Noted. Please see further advice on proportionality which is covered by former CP 45.
218.	GC	3.26	As per paragraph 3.9, should "realistic" be "best-estimate". In addition, there are a number of references to the (re)insurer being required to demonstrate appropriateness. It would be more appropriate for the (re)insurer to be able to explain why it considers its approach to be appropriate on the basis that some professional judgement may have been exercised in reaching their conclusion. The second bullet point could also usefully include reference to considering the appropriateness of the technique and assumptions together with the provisions made in the risk margin and the SCR.	Noted. Please see revised text as well as former CP 39 with further advice on Expert judgement.
219.	FFSA	3.26	FFSA doesn't agree with what is inferred in paragraphs 3.26 and 3.29, **the companies should not have to systematically prove the adequacy of their calculations and of their choices**. The best estimate calculations made by the company should be presumed adequate. Only in the case the supervisor has a doubt than he should	Not agreed. Undertakings should be able to demonstrate the "applicability and relevance of the methods applied" as per article 83 of the Level 1 directive,

			ask the company for explanation on the calculations and the choices that have been made. If this was not the case, this would result in an excessive load of work for the company. In other words, there should not be a process of approval on the standard formula.	whenever this may be required.
220.			Confidential comment deleted	
221.	AG	3.26	The first three points and last point have great similarities. Although the overall message is clear, CEIOPS may consider to rephrase the guideline in a more powerful way, giving more clearance on the differences between the mentioned terms (appropriateness, robustness, realistic, reflect uncertain nature, consistent with nature/scale/complexity, etc.).	Agreed. See amendment to 3.32.
222.	AG	3.26 3.28	The advice of CEIOPS has a strong qualitative nature, which is in line with the principle based approach of Solvency 2. Nevertheless we would like to ask attention for the fact that without further guidance, large differences between the countries may arise. Judgment of (re)insurance undertakings and the local supervisors on – for example - appropriateness of techniques and assumptions is rather subjective. Ongoing support with regard to convergence of judgements and principles would be appropriate under Solvency II. We would stress that this should not lead to more "rule based" guidelines; Solvency 2 must stay principle based. Possibly, this convergence could be included as part of the development of European Technical Standards, as mentioned in CP33, for which CEIOPS in this consultation paper envisages to create a European body of representatives of different stakeholders. The Actuarieel Genootschap is willing to contribute to the development of these standards for which we also would see a role of the Groupe Consultatif on European level.	Noted. Further detail will be provided at Level 3.
223.	Lloyd's	3.26	Lloyd's strongly agrees that the chosen method should be proportionate, realistic, reflect the nature of the business, validated, auditable, use appropriate data/risk groups and be within the expertise of the undertaking. With regard to the 6th bullet point on grouping of data. We believe the emphasis should also be on showing that data grouping create demonstrably homogeneous risk groups and to ensure removal of	Noted Agreed. See amendment to 3.32.

			individual losses or policies will not distort the residual data.	
224.	Legal and General Group	3.26 (blue); 3.8 (white)	This seems to imply that the best estimate liabilities will be subject to audit. This has significant implications for cost, and for the resources in the industry. Is it the intention that the liabilities will be audited, or only that they should be capable of being audited?	Noted. The best estimate shall be capable of being audited.
225.	CRO Forum	3.26	"The (re)insurance undertaking will be required to demonstrate the appropriateness and robustness of the techniques, having regard to the nature, scale and complexity of risks (principle of proportionality)." In principle, we agree on that technique should be selected according to the appropriateness and robustness, having regard to the nature, scale, complexity in the portfolio. "The valuation technique and its results shall be capable of being audited." We also agree with the principle that valuation technique and its results shall be capable of being audited. For Non-Life business such requirement would lead to adopt deterministic approaches and not stochastic models.	Noted.
226.	Deloitte EU	3.26	We support the notion that the valuation techniques employed in the calculation of the best estimate should be capable of audit, however we believe there needs to be clarification as to what in practice that would entail, particularly in respect of: - the scope of such an audit, and - what components of the valuation techniques it would cover.	Noted.
227.	GDV	3.26	Companies should not have to systematically prove the adequacy of their calculations and of their choices - Although we agree that companies are responsible 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 agreed. Undertakings should be able to demonstrate the "applicability and relevance of the methods applied" as per article 83 of the Level 1 directive, whenever this may be required.

			not the case, we are concerned that this would result in an excessive load of work for the company. The last bullet point should be deleted because it is identical to first bullet point. Validation and review should be with appropriate frequency To avoid onerous validation and review GDV would suggest to extend the 4th bullet as follows "...validated and reviewed by the (re) insurance undertaking with appropriate frequency" Drafting suggestions: GDV requests that "robustness" is deleted because it is already part of the meaning of "appropriateness".	Noted. Further advice is included in former CP 39. Noted. See amendment to 3.32
228.	KPMG	3.26	We agree that the chosen method should be proportionate, realistic, reflect the nature of the business, validated, auditable, use appropriate data/risk groups and be within the expertise of the undertaking.	Noted
229.	AMICE	3.26	We agree with the CEA that companies should not have to systematically prove the adequacy of their calculations and of their choices. We do not see a respective obligation on insurers on level 1 that justifies the expectations to this end expressed by CEIOPS in their draft advice. We also believe that the proportionality principle should be further developed in this paper in line with the new placing in the Level 1 text of Recital 14a ("should not be too burdensome for small and medium-sized insurance undertakings") immediately after Recital 14 ("proportionate to the nature and the complexity of the risks") and the insertion of a new par. 3a in Art. 28 ("The Commission shall ensure	Not agreed. Undertakings should be able to demonstrate the "applicability and relevance of the methods applied" as per article 83 of the Level 1 directive, whenever this may be required. Noted. Please see further advice on proportionality which is covered by former CP 45.

			implementing measures include the principle of proportionality, thus ensuring the proportionate application of the Directive, in particular to very small insurance undertakings."). These changes to the Framework Directive require in our view the setting of new criteria to reassess the application of the principle of proportionality principle; In our opinion its application could be linked to: • the volume of the business, • the nature and the complexity which should be defined following a qualitative approach and considering the duration of the commitments, • the scale of the risk which could be defined following a quantitative approach with the aim of reflecting to which extent the insurer is vulnerable to the business risks.	
230.	CEA	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*". **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*".	Not agreed. Undertakings should be able to demonstrate the "applicability and relevance of the methods applied" as per article 83 of the Level 1 directive, whenever this may be required. Noted

			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.	We agree. Further advice is included in former CP 39. Noted. Please see amendment to 3.32.
231.	DIMA	3.26 – 2nd bullet	Most of the implementing measures advice concentrates on the valuation techniques. Further advice regarding the underlying assumptions may be useful. For example, advice on the consistency in the choice of the mortality improvements assumption for mortality (term assurance) and longevity (annuity) business may be necessary.	We agree. Further advice is included in former CP 39.
232.	IE SII group	3.26 – 2nd bullet	Most of the implementing measures advice concentrates on the valuation techniques. Further advice regarding the underlying assumptions may be useful. For example, advice on the consistency in the choice of the mortality improvements assumption for mortality (term assurance) and longevity (annuity) business may be necessary.	We agree. Further advice is included in former CP 39.
233.	PWC UK	3.26 - 6th bullet	This paragraph discusses the appropriate grouping of data and that it must allow for the individual characteristics of individual policies. In this context the credibility of data will need to be considered and CEIOPS may choose to provide further guidance in this area.	Noted.
234.	IE SII group	3.26 - 6th bullet	This point could be generalised to state the requirement for (re)insurance companies to demonstrate the appropriateness of any used grouping whether this is on claims or policy data	Noted. Please see amendment to paragraph 3.32.
235.	KPMG	3.27	We believe it is very important that simulation, deterministic or analytical techniques are all considered appropriate, we believe actuarial judgment is a key factor rather than the exact method	Noted. Please see the revised text (3.33-3.36).

			chosen. Whatever method is chosen (subject to proportionality), the need for actuarial judgment is paramount.	
236.	ABI	3.27	The ABI strongly agrees and welcomes the clarity that this statement provides. In addition, we would suggest that paragraph 3.18 be added to reflect some of the instances where deterministic measures may be used.	Noted. Please see revised text (3.33-3.36).
237.	DAV	3.27	The focus should be on the appropriateness of the actuarial and statistical methods instead of the usage of simulations.	Noted. Please see revised text (3.33-3.36).
238.	Lloyd's	3.27	Lloyd's believe it is very important that simulation, deterministic or analytical techniques are all considered appropriate. As outlined above, we believe actuarial judgment is a key factor just as much as the chosen method. We would propose that a point is inserted in the level 2 advice stating that whatever method is chosen then (subject to proportionality) need for actuarial judgment is paramount and "blindly" applying any method is unacceptable.	Noted. Please see revised text (3.33-3.36).
239.	PEARL GROUP LTD	3.27	We strongly agree and welcome the clarity that this statement provides. In addition, we would suggest that paragraph 3.18 be added to reflect some of the instances where deterministic measures may be used.	Noted. Please see revised text (3.33-3.36).
240.	CEA	3.27	The CEA supports this statement.	Noted.
241.	PEARL GROUP LTD	3.28	We strongly agree with the examples used where simulation techniques may be appropriate.	Noted.
242.	AVIVA	3.28	We agree that a simulation approach is required for certain contracts types, in particular for: - participating business; - contracts with guarantees that have an significant asymmetric impact; and - contracts where management actions or policyholder behaviour will cause a material asymmetric outcome.	Noted.
243.	ABI	3.28	The ABI strongly agrees with the examples used where simulation techniques may be appropriate.	Noted.

244.	GC	3.28	• As a consequence of our views in 3.23 we find this advice which lists situations where simulation techniques should be standard as less relevant in non-life insurance. In life insurance and especially for material embedded options and guarantees a simulation approach could on the other hand be relevant (se also comment above). • In bullet point 3 we would suggest asymmetric is replaced by complex. • The wording used in this paragraph strongly suggests that full simulation approaches are required for the majority of insurance products (in particular, the liability cash-flows are typically materially affected by the policyholders ability to surrender). We would suggest that the wording is changed to "A simulation approach may be appropriate….." rather than "A simulation approach would normally be required…..". Paragraph 3.18 or an equivalent should be inserted after 3.28 to provide a stronger indication that deterministic approaches may be appropriate. A further paragraph stating that where, simulation approaches are used, the (re)insurer should be able to explain the appropriateness of the model calibration and the results.	Noted. Please see revised text (3.33-3.36).
245.	FFSA	3.28	See remarks made in general comments regarding non life business for which simulation approach aren't necessarily adequate. A lot of technical studies show that deterministic approaches are suitable for non life best estimate calculation. That said, in non life business more than in life business, the most important criteria to have the better Best estimate is a good analyse of data. Without, even using a high level simulation approach won't give the right best estimate.	Noted. Please see revised text (3.33-3.36).
246.			Confidential comment deleted	
247.	PWC UK	3.28 – 3rd bullet	The paragraph recommends a simulation approach to valuation where one or more factors exist. The third bullet refers to where 'risks have an asymmetric impact on the value of liabilities'. In practical terms nearly all insurance risk leads to an asymmetric impact. As a consequence it would not be appropriate for this to drive the use of a stochastic model which may not be appropriate or add any greater	Noted. Please see revised text (3.33-3.36).

			value particularly when data is limited. In this context, what level of significance should be considered? The contract level or the balance sheet level? Further guidance and clarification should be provided in this area.	
248.	PWC UK	3.28 – 5th bullet	Policy lapses are affected by economic conditions as well as policyholder behaviour. As above it would not be right for this to drive the use of a stochastic model. Further guidance and clarification should be provide in this respect.	Noted. Please see revised text (3.33-3.36)..
249.	Lloyd's	3.28	Lloyd's suggests this paragraph is reworded for clarification. It appears to be aimed at life assurance but if applied to non-life insurance could be interpreted as all non-life business should normally be valued using simulation techniques which we feel is wholly inappropriate. Simulation techniques are valuable instruments for certain types of non-life business and should not be discouraged but neither should they be seen as superior methods given the current status of stochastic reserving methodologies. The reasons are outlined above but it should be re-emphasised that stochastic reserving models for non-life insurance will not necessarily generate superior results to deterministic or analytical techniques as they are parameterised from the same (inadequate) data, are generally calibrated to deterministic methods, do not fully allow for latent claims and rely on judgment like all other methods. Lloyd's strongly supports the need for further research in the field of stochastic modeling in non-life insurance but until significant developments are made do not believe it is appropriate (or correct) to suggest these methods as superior to other methods.	Noted. Please see revised text (3.33-3.36).
250.	Deloitte EU	3.28	While we recognise that there are factors which would indicate the need to use a simulation approach to the valuation technique, we do not believe that "complex reinsurance contracts" necessarily constitute one of those factors, and hence believe reference to this should be removed from this paragraph in the guidance.	Noted. Please see revised text (3.33-3.36).
251.	GDV	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	Noted. Please see revised text (3.33-3.36).

			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 only the nature and complexity of risks and there appears to be no mention of the scale criteria.	Noted. Please see further advice on proportionality which is covered by former CP 45.
252.	KPMG	3.28	This paragraph appears to be aimed at life assurance, but if applied to non-life insurance, could be interpreted that non-life business should normally be valued using simulation techniques. Simulation techniques are valuable instruments for certain types of non-life business but we do not believe they should be seen as superior to other methods of non-life reserving given the current stats of stochastic reserving methodologies. Stochastic reserving models for non-life insurance will not necessarily generate superior results to deterministic or analytical techniques, do not fully allow for latent claims and rely on judgment (as do all other methods).	Noted. Please see revised text (3.33-3.36).
253.	MR Group	3.28	See para 3.13	See response to 3.13
254.	UNESPA	3.28	The obligation in this section to use more complicated techniques, such as simulations, to calculate BE if one or more factors could have a material impact on the valuation of technical provisions is contrary to	Noted. Please see revised text (3.33-3.36).

			the principle of proportionality established in the Directive and contradicts the requirement in Para 3.26, bullet point 7, by which the Insurance undertaking must be able to demonstrate that its capabilities (actuarial expertise, IT systems, technology, etc) correspond to the actuarial methods and statistical techniques chosen (or imposed in this case). There is no sense in having an obligation in the cases covered by this section to use simulation techniques when the undertaking may not have the capabilities to use them; this applies both to Life and Non-Life business. As a result, the drafting of this section should be adapted so that there is no obligation to use simulation techniques, and so that alternative techniques are permitted.	
255.	AMICE	3.28	In this paragraph it is stated that a simulation approach should be required if risks have a significant asymmetric impact on the value of the liabilities, e.g. in the case that contracts include material embedded options and guarantees. When assessing whether the valuation of a cash-flow requires a simulation approach, we believe that the three dimensions of proportionality (nature, scale, complexity) should be tested separately – a joint application would not always give appropriate results.	Noted. Please see former CP45 for further advice on proportionality.
256.	XL	3.28 & 3.29	We would anticipate that P&C (re)insurance undertakings would generally be able to demonstrate that the factors set out in Para 3.28 would not have a material impact on the value of the liability, and hence P&C (re)insurers would generally apply other appropriate valuation techniques as allowed by Para 3.29.	Noted
257.	CEA	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-	Noted. Please see revised text (3.33-3.36).

			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 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.*"	Noted. Please see former CP45 for further advice on proportionality Noted. This seems clear from the Level 1 text which refers to probability weighted average.
258.	AVIVA	3.29	We would strongly support this. The proportionality principle should also be referenced here. Further guidance would be helpful to illustrate how the undertaking is to demonstrate that the factors in 3.28 have been 'adequately' taken in to account.	Noted
259.	AVIVA	3.29	We agree that for certain types of business, other valuation techniques	noted

			including deterministic and other practical approaches are appropriate.	
260.	ABI	3.29	We strongly agree that there are alternative valuation methods that may be used that still reflect the risks adequately. We welcome the fact that CEIOPS has mentioned this in this paper.	Noted
261.	GC	3.29	• In this advice the possibility for deterministic methods is mentioned. We believe that these methods should usually rather be first choice and not an alternative to the, at the moment, not so far developed and used stochastic models. The requisite for using these deterministic methods is in our opinion also too harsh. • It would be difficult to "demonstrate" that deterministic approaches have "adequately" taken into account the factors set out in paragraph 3.28 without performing a simulation approach or a large number of deterministic sensitivities. This assessment may be based on judgement rather than a quantitative demonstration and the wording of this paragraph could usefully reflect this by deleting the current text after "providing" and inserting "The (re)insurance undertaking shall be able to explain how the above factors have been taken into account".	Noted. Please see revised text (3.33-3.36). Noted. This is required where relevant. Undertakings may be able to use judgement or other methods.
262.	FFSA	3.29	Same remark made in Para 3.26	See response to 3.26
263.	DAV	3.29	An alternative could be to prescribe a couple of scenarios by the supervisor which would be obligatory for all insurers.	Noted. The application of methods depends on the specific circumstances. This should be further developed further as part of Level 3 or as part of actuarial standards and guidance and is primarily for the undertaking to determine.
264.	IE SII group	3.29	See earlier comment under 3.18	See response to 3.18
265.	PEARL GROUP LTD	3.29	We strongly agree that there are alternative valuation methods that may be used that still reflect the risks adequately. We welcome the fact that CEIOPS has mentioned this in this paper.	Noted

266.	CEA	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.	Noted. Some further information is provided by other CPs which have been published in June. such as former CP 39. Further guidance will also be provided with Level 3.
267.	IE SII group	3.30	We would welcome further guidance on the application of prudence in a best estimate valuation. We believe that the stated objective more properly applies to the calculation of the Risk Margin constituent of the Technical Provision	Noted. Please see clarification on uncertainty in paragraph 3.28 of the revised text.
268.	AVIVA	3.30	As 3.9 By definition a best-estimate cannot be prudent.	Noted. Please see clarification on uncertainty in paragraph 3.28 of the revised text.
269.	AVIVA	3.30	We disagree with the statement that the supervisor shall be able to require an alternative technique that achieves the objectives of the valuation in a better way, without any apparent limits on this power. As noted under 3.25 we consider that the responsibility for choice of valuation technique rests with the undertaking, subject to meeting the minimum quality criteria. This should not of course preclude undertakings from taking advice from supervisors on improvements to valuation techniques. In addition this paragraph refers to 'prudence' as an objective of the valuation, which appears inconsistent with the principle of a best estimate	Partially agreed. Please see amendment to paragraph 3.31.
270.	ABI	3.30	The ABI agrees that a supervisor may have occasion to require alternative techniques. However, we would suggest that some text is added that requires the supervisor to provide a rationale for this request and that there is sufficient external evidence or validation (e.g. European actuarial guidance) to support the proposed alternative technique and demonstrates why this is a better method.	Partially agreed. Please see amendment to paragraph 3.31.
271.	GC	3.30	We believe this should be subject to a materiality requirement	Partially agreed. Please see

				amendment to paragraph 3.31.
272.	AG	3.30 (3.10)	This seems not to be in line with 3.25, 3.26 and 3.27 which refers to the own responsibility of the (re)insurance undertakings in relation to the choice of adequate techniques. However, it is understandable the supervisor might want to have a tool to impose methodologies to be used by the (re)insurance undertakings. We advise to adjust the current statement and to incorporate that there should be a clear and objective reason why and when a supervisor might act according to this statement. Also, we advise to install a committee that decides in case of disagreement between undertaking and supervisor. This committee may consist of members of the local supervisor, insurance undertaking, the local actuarial society and potentially also the European body of representatives as referred to in our remark under 3.26/3.28.	Partially agreed. Please see amendment to paragraph 3.31.
273.	DAV	3.30	The wording " in a better way" is too general. The supervisory authorities should only be allowed to enforce a new calculation if the calculation is not appropriate. The company has to prove that the methods used are appropriate.	Partially agreed. Please see amendment to paragraph 3.31.
274.	Lloyd's	3.30	Lloyd's agrees but would remove the word prudent to avoid misinterpretation of best estimate (with no margins for optimism or pessimism).	Noted. Please see clarification on uncertainty in paragraph 3.29 of the revised text.
275.	Deloitte EU	3.30	We agree with the principle that the Supervisor should have the authority to require an alternative valuation technique. However, we believe that there needs to be clearer guidance than is currently stated as to the circumstances under which a Supervisor could enforce this requirement, in order to ensure a consistent approach across member states.	Partially agreed. Please see amendment to paragraph 3.31.
276.	GDV	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	Partially agreed. Please see amendment to paragraph 3.31.

			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.	
277.	KPMG	3.30	We agree that the supervisor should be able to challenge the company's choice of techniques employed to calculate the technical provisions and require an alternative method where this is more appropriate. However, it may be helpful to include some guidance as to the circumstances in which this may be invoked. As stated in our first comment, this paper intimates that simulation/stochastic techniques are superior to deterministic or analytical methods, whereas we believe all methods are suitable in differing circumstances. Where a supervisor believes an alternative method should be used, we believe it should provide its justification for reaching this conclusion and allow the (re)insurance undertaking to explain its position, so that both parties agree on the most appropriate approach.	Partially agreed. Please see amendment to paragraph 3.31.
278.	MR Group	3.30	See para 3.9	See response to para 3.9
279.	PEARL GROUP LTD	3.30	We agree that a supervisor may have occasion to require alternative techniques. However, we would suggest that some text is added that requires the supervisor to provide a rationale for this request and that there is sufficient external evidence or validation (e.g. European actuarial guidance) to support the proposed alternative technique and demonstrate why this is a better method. It is stated that alternative valuation techniques must comply with prudent valuation objectives. However, the level 1 directive states that the valuation is to be based on best estimate, not prudent, assumptions. Further clarity on this would be helpful.	Partially agreed. Please see amendment to paragraph 3.31.
280.	XL	3.30	Given Para 3.25 above, we are concerned that Para 3.30 appears to give the Supervisor a blanket ability to require an alternative technique where that alternative achieves the objectives of valuation in a better way, without providing more detailed guidance as to the circumstances in which this may be appropriate, who is to determine that an approach "achieves the objectives of valuation in a better way", and	Partially agreed. Please see amendment to paragraph 3.31.

			how this would be determined.	
281.	CEA	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".*	Partially agreed. Please see amendment to paragraph 3.31.