Summary of Comments on Consultation Paper 69 - CEIOPS-CP-69/09 CEIOPS-SEC-171-09

CP No. 69 - L2 Advice on Design of the equity risk sub-module

CEIOPS would like to thank ABI, ACA, Adveq , AFA , AFS, AMICE, Assuralia, Braunschreiber, CAPDYN, CEA, CRO Forum, CTIP, Deloitte , DIA Danish Insurance Association, DIMA, Equitable Life Assurance Society (UK), EVCA, FFSA, GDV , GROUPAMA, Groupe Consultatif, HDF Finance, Institut des actuaires , IUA, KPMG ELLP, Legal & General Group, Munich Re, Partners Group AG, PWC, RBS Insurance, ROAM, RSA Insurance Group, SIGNAL , UNESPA , WBCSD, and XL Capital Ltd

The numbering of the paragraphs refers to Consultation Paper No. 69 (CEIOPS-CP-69/09)

No.	Name	Reference	Comment	Resolution
1.	ABI	General Comment	Proposed calibration of the equity risk 1. The proposed parameters for the calculation of the equity risk will result in a significantly larger capital requirement than provided by QIS4. We believe the consequences of such increases should be carefully considered as this will have a significant effect on the opportunities for insurance companies to take on market risk, in particular when combined with the effects of the changes proposed to the correlation parameters (CP 74) and the market risk module (CP 70), not least spread risk. We support a 99.5% one year VaR calibration and believe that further thought should be given to assessing whether recent past data go beyond that confidence level. We believe the calibration for "other equities" is too harsh and present evidence below to support a level close to 45% as consistent with 99.5% 1 year VaR. Proposed definition of equities: global vs. others We do not agree with the proposed components of the category "other equities" and its use as a "catch all" for investments other than direct equity investments. We believe this category to be too broad and a different capital charge should apply to the various components. In particular, applying a 60% charge to hedge funds	Noted. CEIOPS is actively considering the interaction of all the risk factors, it is concerned with a calibration which combines 1:200 stresses to risk factors, with appropriate 1:200 correlations. Partially agreed. As discussed in the revised paper, introducing further granularity at this stage produces significant calibration and definitional issues, as well as

			could have procyclical and damaging consequences for hedge funds holders which would not be in the interest of policyholders. In addition, indirect EEA / OECD holdings (e.g. unit trust) should be allowed under the standard risk charge. We therefore believe there should be a more granular treatment of the "other" equities category. We also believe the definition of OECD should also account for the growing economies of the world and at least include Singapore and Hong Kong. Pillar I dampener and duration approach We believe the complexities associated with the Pillar I dampener are not compatible with the notion of the standard formula which needs to be kept at a reasonably simple level. We believe this would be better dealt with under Pillar II. The Pillar I dampener will need to be carefully considered as its effects may exaggerate the stress faced by insurers at inappropriate points. We should ensure this mechanism delivers the right outcome which is to dampen stress conditions and not to make them worse. 2. We are also very concerned that the Pillar I dampener will undermine confidence and transparency as investors and analysts come to see the SCR as unreliable moving target rather than a simple and clear standard. We believe the duration approach will introduce an unlevel playing field between market players as the levels of stress proposed by CEIOPS in CP 69 diverge significantly between the standard approach and the duration approach, without any proper justification. In any event, both the Pillar I dampener and the duration approach will need to be balanced by appropriate treatment in Pillar II and III as far as this is possible.	conflating the problem that there stocks in one risk category may have very different volatilities (e.g. high risk hedge funds vs low risk hedge funds). As such CEIOPS has concluded a marginally lower stress for other equity is appropriate (the driver for this being a view that the hedge fund index introduced selection bias, and the PE index was not wholly appropriate, and that there would be some small correlations between the assets). See also response to comment 155. See also the update specifying the use of the look through test. Noted, although the pillar 1 dampener is specifically allowed for in the directive text. Noted

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			Equity volatility stress We would like to highlight that the consideration of volatility risks, as it is proposed in this CP (multiplicative approach and perfect correlation) are pro-cyclical and extreme. The equity volatility stress of +60% will be excessive when volatilities are already high and it may be too low when volatilities are very low; there should perhaps be some symmetric adjustment or a simpler alternative may be to apply a cap and floor to the adjustment in terms of the absolute change in volatility. Furthermore, we would emphasise the need to avoid a double counting of risks within the equity stress, through both level and volatility stresses. We believe a 100% correlation between equity risk and equity volatility risk is excessive and has not been justified. We explain below why we believe a 50% correlation is consistent with the events of 2008.	Noted, although the duration dampener is prescribed in the level 1 directive. Noted. As per comments on this issue below, CEIOPS believes an additive stress to be imprudent. In stressed conditions, it is more important to have a multiplicative stress to protect policyholders against equity volatility stress. See response to comment 257. Partially agreed. See the revised correlation of 0.75 contained in the paper.
2.	ACA	General Comment	We support CEA's comments. In particular, more granular treatments are necessary for the "other" category and, the standard equity stress including the dampener should be calibrated to the 99.5% VaR. We noted a contradiction between :	Partially agreed. See the revised paper on the first issue, regarding the second issue, CEIOPS advice is an attempt to calculate the total charge to a 99.5% VaR, and include an extra layer to combat procyclicality. As such it believes it has calibrated to a 99.5% VaR.

			1. The choice of -45 % shock for the "global equities" which is based on a non normal hypothesis of stock prices distribution (see 3.15 at 3.17) 2. The choice of -22% shock for the "duration dampener" approach which is based on a normal hypothesis of stock prices distribution(Brownian hypothesis in 3.85) There is no evidence that the indexes and observation periods used in this paper to calibrate the equity risk sub-model are the most adequate for this purpose. We have the strong feeling that other data could as well be used and justified, leading to quite distinct results.	Noted. In all cases data and indices throughout have been chosen to provide a maximum amount of relevant data at as representative a level for a European firm as possible.
3.	AFA	General Comment	CEIOPS proposes, in the light of the recent financial crisis, that the stresses for different market risks, and their correlations, that are used as input for calculating the solvency capital requirement (SCR), should be increased. Even though there is a fundamental epistemological problem in trying to estimate a bicentennial event, i.e. the 99.5% value-at-risk (VaR), with only some decades' worth of data, the crisis does suggest increased parameters. We fear, however, that in aggregating all these increases, the SCR is overestimated, since the result is considerable higher than what we prudently estimate to be our current requirements. If insurance companies at all times are expected to fulfil such an	Noted

			extreme SCR, the European insurance industry would be forced to take much less financial risk compared with today, and this would have severe consequences for the industry and the economy as a whole: The diminished expected return of an investment in insurance companies would cause significant difficulties in raising equity, and insurance companies would not be able to invest as much in the broader economy through the stock market. The high SCR would also raise the barrier of entry into the insurance market, thus decreasing competition, and some insurance products might cease to exist since it will no longer be feasible to provide them. We think that the focus on the SCR, which should represent the 99.5% VaR, is misguided. To temporarily lack the full SCR does not mean that a company is close to insolvency in the common sense of the word — an inability of the company to fulfil its obligations to the policy holders might still be some two hundred years away on average — as long as the capital in excess of liabilities is greater than the minimum capital requirement (MCR). The supervisors' response to a minor lapse should therefore not be binary but gradual and proportional to the actual risks to the policy holders. Therefore we propose a shift of focus from the SCR to the MCR in order not to stifle the European insurance industry. To summarise, AFA Insurance think that the proposed level of SCR, if interpreted as a hard constraint, will impair the functioning of insurance industry as a whole, with wider effects on the economy.	Noted, it is the case that the SCR is defined as a 1:200 shock, and is calibrated as such. CEIOPS notes the ladder of supervisory intervention and the work performed in other papers regarding process around breach of MCR and SCR. Noted.
4.	AFS	General Comment	The Association of Friendly Societies represents the friendly society sector in the UK. We have around 50 friendly society members,	

			who are all member-owned mutual organisations. Typically they offer long term savings and protection policies, with generally low minimum premiums. Friendly societies are typically small, though well-capitalised, and have a distinctly different business model to shareholder-owned insurers. We would like to thank CEIOPS for the chance to comment on this paper. We have the following general comments: 1) There appears to be a significant strengthening of both "global" and "other" equity stresses compared to QIS4. Although the QIS4 stresses (32% for global and 45% for other) were considered low, the new stresses (45% for global and 60% for other) represent a considerable increase (which is exacerbated by the possible 10% adjustment in both) which we believe is too prudent. 2) There has also been an introduction of an equity volatility stress since QIS4. We believe that the proposed upward stress of 60% is unduly prudent as it is much stronger than that currently used by many insurers.	Noted. The CP explains the analysis which has arrived at these figures, and the alternative views and analysis contained in the paper. Partially agreed. Please note the revised calibration.
5.	AMICE	General Comment	These are AMICE´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. ☐ The parameters used for calculation of the equity risk, as presented in CP 69, will cause a substantially lager capital requirement compared to the requirements requested in QIS 4. We would urge CEIOPS to revise the calibration of the equity risk module.	Noted

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			☐ We believe that the effect of the tougher capital requirements for equities should be thoroughly examined by CEIOPS. From our perspective, the new requirements will most certainly have a significant effect on the possibilities for insurance companies to take on equity risk. Besides the negative effect on expected returns, there is a large possibility that the regulation will also have an impact on economic growth in all European countries, when insurance companies no longer will be able to provide the financial markets with risk capital as it happened before the crisis. ☐ Going forward, we would like to request CEIOPS to adopt a longer perspective, not only when evaluating the risks associated with the equity markets, but also when analyzing the future role of the insurance companies as actors on the financial markets. The design of the capital requirement is far from being the single decisive factor for the resistance to a financial crisis (a good example of this the current banking crisis vs Basel II regulation), in contrast to the determinant and immediate effect that it will have on asset allocation and potential economic growth.	Noted. CEIOPS is examining the capital requirements, and has modified its advice in some cases. It is also aware of the combined capital impact, and has taken this into account in formulating it's final advice. Noted. Please see response above.
6.	Assuralia	General Comment	☐ equity shocks (both "global" and "others") We would appreciate if CEIOPS or the Commission could explain the rationale of the suggested shocks of 45% and 60% on shares, that we consider to be very high. We are afraid that such a requirement will discourage insurers from investing in such instruments although - in the long run - they show a lower volatility of their annual return while offering a higher expected return than bonds. They may also be considered as the best protection against inflation to cover long term liabilities.	Noted. The rationale for these proposals is contained in the CEIOPS led analysis within the paper.

			Further, we also would like to stress the importance of ensuring a level playing field across financial sectors (banking, insurance, pension funds). We would like that CEIOPS, together with CEBS and CESR, considers making a comparison between solvency requirements that will have to be applied to institutions selling similar savings and / or retirement products to avoid any kind of prudential arbitrage once Solvency II comes into force.	Noted. Regulatory arbitrage is a concern which CEIOPS is considering.
			☐ "other equity" shock We believe it would be appropriate to apply a more granular approach, based on the "look through" concept, so as to split the single block "other equity" into more homogeneous segments. We are indeed of the opinion that adopting the position that "each equity other than "global equity" is by definition more risky" is incorrect.	Partially agreed, see revised paper and response to comment 1 for a discussion of CEIOPS' rationale. See also the clarification of the look through test in the paper, as well as the revised approach to 'other' equities.
			In our understanding, the proposed methodology will be such that some types of equity are going to fall into the "other equity" segment whereas in reality a much lower equity shock should be applied. For example, an insurer could buy shares from an investment fund which has only/mainly invested in property or cash as assets. Thus having to apply a 60% shock to such shares would be inadequate.	The look through test may be applied in such circumstances.
			The correlation matrix (with justified and fair correlation parameters) should also be adopted in such a way that our suggested more granular approach is correctly taken into account.	However. CEIOPS considers that an increase to the correlation matrix to include many more equity classes would increase

				complexity and decrease transparency.
			☐ Symmetric adjustment mechanism We fear that this mechanism, especially if based on a 260 day averaging period, will lead to increased uncertainty about the equity shock that will have to be applied. We suggest that the precise rules - that remain to be adopted - lead to more constant shocks on equity so that insurers - in order to decrease or control their SCR - would not be encouraged to massively sell shares just after distressed markets start showing signs of recovery. ☐ Equity shock of 22% which cover certain liabilities (linked to retirement provision, ring fenced, duration > 12 years). We are of the opinion that it is correct to stress shares covering those liabilities with a fixed equity shock of 22% and strongly believe that - from an economic point of view - such a shock should also be applied to shares covering other long term liabilities, even those including non life whose average duration may exceed 12 years and whose claims development patterns are largely independent from stock markets evolutions.	Noted Noted
7.			Confidential comments deleted.	
8.	CEA	General Comment	1. The CEA welcomes the opportunity to comment on the Consultation Paper (CP) No. 69	

			on Design of the equity risk sub-module. 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. **Moreover, it should be noted that this consultation has been carried on an extremely short time frame which has not allowed a complete analysis of all the advice. Therefore, the following comments focus only on the main aspects of Ceiops' advice and are likely to be subject to further elaboration in the future.** **More transparency over the derivation of the calibrations is requested** We request that Ceiops provides greater transparency over the rationale for the data period selected, observation frequency, modelling approaches selected (and rejected) and the methods for testing the fitness of any models. A greater consistency in approach between the derivations of the stresses for all of the market risks would be helpful.	Noted. In most cases CEIOPS has used data over the maximum period it can get, or sees as relevant for the analysis. Daily overlapping years produces the most data point, and research indicates does not introduce a material autocorrelation bias. CEIOPS cannot list every modelling technique used, but has generally mentioned it's rationale for choosing modelling

				approaches within the paper.
			Careful consideration needs to be made by Ceiops to ensure the total capital requirements are sustainable The parameters used for calculation of the equity risk, as presented in CP69, will cause a substantially larger capital requirement compared to the requirements given by QIS4. We would urge Ceiops to revise the calibration of the equity risk module. Ceiops needs to adopt a longer-term perspective, not only when evaluating the risks associated with the equity markets, but also at the future role of the insurance companies as players on the financial markets. The design of the capital requirement is far from being the single decisive factor for the resistance to a financial crisis compared to the immediate effect that it will have on the ability for insurers to take on market risk, their asset allocation and potential economic growth. Ceiops' proposals mean that the asset allocation will be pushed away from a diversified portfolio structure towards a concentration on certain low yield products, in particular government bonds. Besides the negative effect on expected returns, there is a large possibility that the regulation also will have an impact on economic growth in the European countries, when insurance companies no longer will be able to provide the financial markets with risk capital to the same extent as before.	Agreed. CEIOPS is carefully considering the impact of all modules, and their interaction. Regarding this module, in several cases CEIOPS has responded to feedback by lowering the stresses, for example in equity volatility.
			The classification into "global" and "other" equities is not appropriate Currently the definition of "global" equities appears too narrow, as this classification could also be appropriate for equities listed on	See response to comment 1 and revised paper for discussion of the calibration of the "other" module and justification of maintaining lack of granularity.

			several other markets as well as for indirect holdings of these listed equities. Furthermore, the classification of all other equities into the "other" category is inappropriate. The data shown in this CP clearly highlights that there are significantly different risks across the assets included in "other" and the stress should be split into a more granular segmentation. **The 45% "global" equity stress and the 60% "other" equity stress are not appropriate** We disagree with Ceiops' analysis of the "global" equity shock, which in our view should be calibrated based on a price index rather than a total return index and which should be calibrated in line with the 1 in 200 year event, rather than the worst observed data point. We believe that the alternative proposal for a 39% stress is most appropriate. As discussed above, the 60% "other" equity stress is not appropriate for all the assets classified within "other". Furthermore, these stresses have been calibrated ignoring the fact that Ceiops then applies the symmetric adjustment mechanism. Ceiops needs to consider the effect of this mechanism working together with the standard shocks in order to ensure the final calibration is to the 1 in 200 level. **We are not convinced that the inclusion of the equity volatility shock, as it is currently proposed, is appropriate** The introduction of this additional stress could lead to an over-estimation of capital requirements for equity as it could include a double-counting of equity risk. This needs to be carefully	Regarding the definition of global, see response to comment 10. Noted. In fact the indices used in the analysis supporting 45% was a price index. See paragraph 3.15 for details of the indices used. Partially agreed. See revised paper. Partially agreed, see first response to comment 2. Noted. See response to comment 215, and the revised paper with a correlation factor between volatility and equity.

			considered and the current proposals are not justified. If an equity volatility shock is taken into account in the shock scenario, the calibration of the volatility shock and the level shock should be such so as to ensure that the total capital requirements reflect the 1 in 200 year event and should not result in capital requirements for equity which are far in excess of the 1 in 200 level. We should also note that the suggested volatility stresses will increase pro-cyclicality as the use of a multiplicative stress will lead to higher capital requirements in stressed markets when volatility is also expected to be high. Furthermore, in distressed situations there could potentially be a huge demand for instruments that hedge volatility risk, which could cause market volatility to increase. If a volatility stress is introduced, then the following conditions must be met: ☐ **The stress should apply only over a one year period of time**. Otherwise the assumed level volatility stress is inconsistent with historical data because any volatility spike is usually observed over a very short period of time. ☐ **Any double counting with the level stress should be avoided to keep consistency with the 99.5% VAR level**. The combination of the two stresses with no analysis to ensure that the combined capital requirements do not exceed the 99.5th% level is inappropriate. Furthermore Ceiops assumes that the stresses are perfectly correlated and allows for no diversification between the risks which does not appear appropriate. ☐ **The application of the volatility stress should not be pro-cyclical.** The stress should be additive and not multiplicative	

			and the stressed volatility (once the stress is applied) should be capped and floored, otherwise the capital requirements will be higher in stresses market conditions. Furthermore, a simplified approach to allow for equity volatility shocks should be included. **The dampener and duration approaches need to be complemented with Pillar II and III measures** In this consultation document Ceiops presents more detailed guidance on the equity dampener and duration approaches. We support the aim of these approaches which is to mitigate pro-cyclicality. However, we should be careful to ensure that they do not deviate from the original 1 in 200 year shock and so inappropriately mask a breach of the SCR. In particular the Pillar I dampener needs to be carefully considered as its effects may exaggerate the stress faced by insurers at inappropriate points. We should ensure this mechanism delivers the right outcome which is to dampen stress conditions and not to make them worse. Finally, the presented approaches should always be supplemented by appropriate internal measures in Pillars II and III in line with the provisions set out in the Framework Directive, which do not appear to have been covered in this CP.	See response to comment 288 Agreed, Pillar V should supplement Pillar 1 at all times.

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9.			Confidential comments deleted.	
10.	CRO Forum	General Comment	**A. It is clear from the paper that the dampener does not give sensible results in practice (priority: very high)** We would like to make reference to the CRO Forum memo "Addressing the pro-cyclical nature of Solvency II", which was published in November 2008, for the CRO Forum view regarding	See response to comment 127

			the treatment of equity in the dampener approach. The CRO Forum is still of the opinion that the pro-cyclical effects of all risks should be treated in Pillar II, however we recognize that SII directive requires equity dampener to be treated in Pillar I. We are concerned with the proposed calibration of the Pillar 1 equity dampener. In our view the proposed equity dampener does not achieve the stated objectives to reduce pro-cyclical effects. The proposed dampener impacts the shock at all times, while we believe that it should only start to impact the shock after a significant event has occurred, in either direction (e.g. a 1 in 10yr event). We are also concerned that the current implementation of the dampener would consider recovering markets (from a severe down turn) as "good conditions" and result in a shock closer to 55%, as the dampener kicks in. Moreover, in our view the dampener should kick in gradually based on the significance of the observed market event that has taken place. This observed market event should at least consider a 1yr horizon and perhaps even longer. CRO Forum is open to discuss ideas with CEIOPS on how a better implementation of the dampener can be designed. **B. The Advice on the parameterisation of the equity volatility shock (as is in 3.79) is highly pro-cyclical (priority: high)** The CRO Forum has recommended the introduction of this equity implied volatility shock as it reflects the price of options. (cf. CROF paper on calibration published in May 2009). But as currently written, the advice implies a 100% correlation between pure shock and the volatility shock, which is not justified. Even if we recognize that these 2 risks are quite correlated, the advice should at least mention and allow a part of diversification (e.g. 75% correlated in line with Industry players).	See response to comment 215 addressing multiplicativity. See revised paper, regarding a 75% correlation factor.

			But we are concerned with the calibration of the shock %.With such parameterisation, we have very high shocks in times of high volatility and low shocks in times of low volatility. We believe that there exists a mean reversion for the volatility. Therefore we suggest that the calibration of the shock should be set in absolute changes and not in % (percent) to avoid pro-cyclical effect during a highly stressed event. **C. A more granular breakdown of the "Other" equity section would be recommended to give better incentives to risk management / investment decisions (priority: high)** We strongly disagree with the shock retained for Hedge Fund and Private Equity at 60%, and recommend maintaining the QIS4 shock (shocks should be calibrated on real price and not listed index). For instance, there is absolutely no evidence that a diversified portfolio of hedge funds have ever moved more than 20%-25% in the past (the consultation paper quotes 23.11% in para 3.60). **D. The definition of "global equities" should be adjusted (priority: medium)** We agree that a stress size of 45% is reasonable for a diversified portfolio of global equities, but given the combined impact of CP69, 70 and 74, it implies that non-EUR equity is shocked at more than 60% due to the equity shock and the FX shock combined, which is not justified. In addition, we welcome CEIOPS definition of "global equities" to include EEA and OECD countries. We propose that CEIOPS update the list of countries whose listed equities is considers "global", such as Hong Kong, Singapore and considerations should be given to some of the growing economies like China, India and Brazil.	See response to comment 1, and revised paper. Disagreed. CEIOPS considers that if a firm with Euro liabilities invests in non euro stocks, it is exposed to both FX and Equity risk, the correlation of these is considered in CP74. Disagreed. CEIOPS considers that the OECD list provides an impartial, and updated list of suitable economies. It notes both that OECD membership

				continually updates, and that many of the stock markets mentioned have seen significantly volatility in the past than most OECD markets (for example the empirical historical 99.5th VaR for MSCI BRIC is just over 60%).
11.			Confidential comments deleted.	
12.	Deloitte	General Comment	European Union member firms of Deloitte Touche Tohmatsu are currently involved in the Level 2 Impact Assessment of Solvency II conducted by the European Commission. "Equity risk – Pillar 1 dampener" and is one of the policy issues and options dealt with by this impact assessment. As a consequence, we have restricted our comments to those areas where there is no overlap with the issues addressed in the Impact Assessment.	Noted.
13.	DIA Danish Insurance Association	General Comment	There is considerable uncertainty as to the scenario which constitutes a 99.5 percentile VaR event. CEIOPS now proposes an underlying standard stress for global equities of 45 per cent (60 for "other equities"). This is a significant increase compared to the QIS rounds and the consensus target arising from those rounds. Naturally, there is a need to incorporate lessons learned from the financial crisis but there is no hard evidence that 45 per cent is more correct than the alternative of 39 per cent. In this respect, it must be remembered that the SCR is a soft, not a hard target. The DIA supports a stress of 39 per cent or lower. If the 22 per cent stress proposed under the duration approach is maintained, however, the general median stress for "global" equities should not exceed 32 per cent (see comments below). Similarly, a substantial reduction of the stress of "other" equities can be warranted to ensure level playing field across the European Union.	Noted. See response to these duration dampener comments 391 below

			In our view, the duration approach according to Article 305b is, fundamentally, not in line with the economic approach which the directive aims to achieve. This is why the use of the duration approach must be authorised by member states – and this is why there are restrictions to the use of the approach (reference to Article 305b). If it were possible in practice to give policyholders the same protection under this approach as under the general, risk sensitive approach, these measures would be redundant. In our view, the duration approach with the proposed 22 per cent stress on equity holdings conflicts with the aim to establish a single European level playing field. If it becomes possible to apply a 22 per cent capital charge under the duration approach as compared to the 45/60 per cent equity risk calibration proposed under the risk based calculation, there will be an immense pressure in Europe for authorities to allow the use of the duration approach and competition will not be at an equal footing across Europe.	
14.	DIMA	General Comment	DIMA welcomes the opportunity to comment on this paper. Comments on this paper may not necessarily have been made in conjunction with other consultation papers issued by CEIOPS. DIMA welcomes the comprehensive analysis in the explanatory text which supports the advice; furthermore DIMA supports the implementation of the symmetric adjustment mechanism to dampen down the impact of systemic pro-cyclicality. It is additionally worth noting that as the adjustment references a standard reference index and not an undertaking's own performance as such, there are potentially unintended or unanticipated idiosyncratic capital charges that may arise which will disrupt individual undertakings' risk management. As an extension of the policy of dampening pro-cyclicality would	Noted Noted, although for the standard formula consistency of approach has to take place. Disagreed. CEIOPS considers

			propose that some level of dampening is applied to the volatility stress test, whether through the application of a fixed loading or more preferably the use of some high watermark volatility stress which will deliver a symmetric adjustment due to the test being lower in periods of high volatility and higher in periods of low volatility. The Level 1 Text advocates that supervisory authorities take into account the potential pro-cyclical effects of their actions and identify that this obligation is not limited to the establishment of the dampeners within the Standard Formula.	that a symmetric adjuster applied to volatility is likely to be excessively complicated. See response to comment 215 for reasons why CEIOPS disagrees with an additive stress. Noted
15.	Equitable Life Assurance Society (UK)	General Comment	We are concerned about the magnitude of the equity stress being proposed. The upper end is much higher than in QIS4 and more extreme than observed in the data that was analysed. When combined with the newly proposed equity volatility shock, this creates a stress which will increase capital requirements to such an extent that it could force insurers to rethink the proportion of investments held in equities which could itself result in markets falling. In addition, reduced equity backing ratios may conflict with policyholders' expectations set when products were sold.	Noted, please note the reduction in correlations with volatility. CEIOPS considers the proposals are in line with an overall 1:200 stress to equities as required.
16.	FFSA	General Comment	CEIOPS has strengthened all the stress tests but care is needed that excess conservatism is not introduced. FFSA considers that equity risk should be considered as a single stress. Hence, FFSA believes that no volatility stress should be added to the standard formula as it's not a major risk for insurance companies but also for consistency and practical matters. Volatility stress seems more relevant when using internal model for specific portions of the undertakings activity subject to short-term volatility.. FFSA believes that the 1-year averaging period is neither appropriate nor supported by historical data and we recommend using a 3-year averaging period.	Disagreed. CEIOPS considers equity volatility is a significant stress for many European insurers. Those who can demonstrate it is not a risk, need not perform the stress. Noted. See response to comment 127.

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17.			Confidential comments deleted.	
18.	GDV	General Comment	**GDV recognises CEIOPS' effort regarding the implementing measures and likes to comment on this consultation paper. In general, GDV supports the detailed comment of CEA. Nevertheless, the GDV highlights the most important issues for the German market. It should be noted that our comments might change as our work develops.** **Based on our experience during the previous two consultation waves we also want to express our concerns with regard to CEIOPS decisions:** **1. restricting the consultation period of the 3rd wave to less than 6 six weeks** **2. splitting the advice to the EU-commission in two parts ((1) first+second wave and (2) third wave) although both parts are highly interdependent** **3. not taking into account many comments from the industry due to the high time pressure (first+second wave)** **These decisions could reduce the quality of the outcome of this consultation process. Therefore we might deliver further comments after we fully reviewed the documents.** **From our point of view, it could be foreseen that especially the calibration of the QIS5 will not be appropriate nor finalised when beginning in August 2010. Especially parameters have been strongly increased and do not reflect the economical view.**	Noted Noted

			More transparency over the derivation of the calibrations is requested We request that CEIOPS provides greater transparency over the rationale for the data period selected, observation frequency, modelling approaches selected (and rejected) and the methods for testing the fitness of any models. A greater consistency in approach between the derivations of the stresses for all of the market risks would be helpful.	See response to comment 8
			Careful consideration needs to be made by CEIOPS to ensure the total capital requirements are sustainable 1. The parameters used for calculation of the equity risk, as presented in CP69, will cause a substantially larger capital requirement compared to the requirements given by QIS4. We would urge CEIOPS to revise the calibration of the equity risk module. CEIOPS needs to adopt a longer-term perspective, not only when evaluating the risks associated with the equity markets, but also at the future role of the insurance companies as players on the financial markets. The design of the capital requirement is far from being the single decisive factor for the resistance to a financial crisis compared to the immediate effect that it will have on the ability for insurers to take on market risk, their asset allocation and potential economic growth. 2. We believe that the effect of the tougher capital requirements for equities should be thoroughly examined by CEIOPS. From our perspective, the new requirements will most certainly have a significant effect on the possibilities for insurance companies to take on market risk. This aspect becomes even more	See response to comment 8

			obvious, when also taking the requirements of CPs 63, 70 and 74 into account where we see numerous increases in capital charges for market risk which, taken together, will have an extreme effect. 3. CEIOPS' proposals mean that the asset allocation will be pushed away from a diversified portfolio structure towards a concentration on certain low yield products, in particular government bonds. Besides the negative effect on expected returns, there is a large possibility that the regulation also will have an impact on economic growth in the European countries, when insurance companies no longer will be able to provide the financial markets with risk capital to the same extent as before.	
			The classification into "global" and "other" equities is not appropriate Currently the definition of "global" equities appears too narrow, as this classification could also be appropriate for equities listed on several other markets as well as for indirect holdings of these listed equities. Furthermore, the classification of all other equities into the "other" category is inappropriate. The data shown in this CP clearly highlights that there are significantly different risks across the assets included in "other" and the stress should be split into a more granular segmentation.	See response to comment 8
			The 45% "global" equity stress and the 60% "other" equity stress are not appropriate We disagree with CEIOPS' analysis of the "global" equity shock, which in our view should be calibrated based on a price index rather than a total return index and which should be calibrated in line with the 1 in 200 year event, rather than the worst observed	See response to comment 8

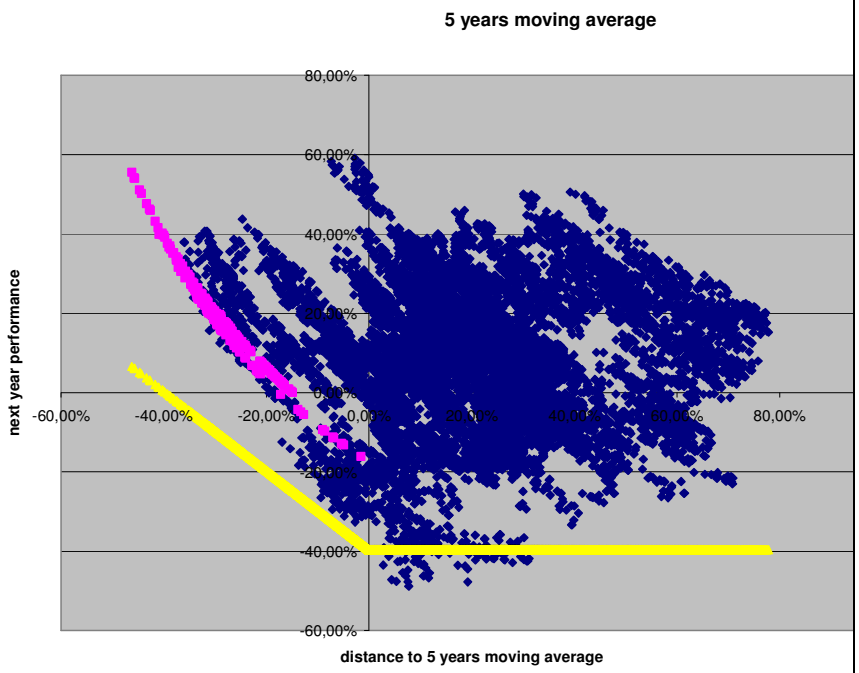
			data point. We believe that the alternative proposal for a 39% stress is most appropriate. As discussed above, the 60% "other" equity stress is not appropriate for all the assets classified within "other". Furthermore, these stresses have been calibrated ignoring the fact that CEIOPS then applies the symmetric adjustment mechanism. CEIOPS needs to consider the effect of this mechanism working together with the standard shocks in order to ensure the final calibration is to the 1 in 200 level. **We object against the introduction of an equity volatility shock as volatility shocks are already implicitly included within the equity shock itself. We would like to highlight that the consideration of volatility risks, as it is proposed in this CP (multiplicative approach and perfect correlation) are pro-cyclical.** At least the equity volatility shock should not be included without reconsideration of double-counting of risks within the equity stress. If a volatility stress been introduced, then we believe that following conditions should be met: ■**The stress should apply only over a one year period of time.** Otherwise the assumed level of volatility stress is inconsistent with historical data because any volatility spike is usually observed over a very short period of time. ■ **Any double counting with the level stress should be avoided to keep consistency with the 99.5% VAR level**. The combination of the two stresses with no analysis to ensure that the combined capital requirements do not exceed the 99.5th% level is inappropriate. Furthermore CEIOPS assumes that the stresses are perfectly correlated and allows for no diversification between the	Disagree. The level of equity is calibrated separately to it's volatility. See response to comment 215

			risks which does not appear appropriate. Therefore we suggest to include volatility risks by means of a separate sub-module into the market risk module thereby allowing for adequate correlation assumptions. ▪**The application of the volatility stress should not be pro-cyclical**. The stress should be additive and not multiplicative and the stressed volatility (once the stress is applied) should be capped and floored, otherwise the capital requirements will be higher in stresses market conditions. We discuss this further below. **The dampener and duration approaches need to be complemented with Pillar II and III measures** In this consultation document CEIOPS presents more detailed guidance on the equity dampener and duration approaches. We support the aim of these approaches which is to mitigate pro-cyclicality. However, we should be careful to ensure that they do not deviate from the original 1 in 200 year shock and so inappropriately mask a breach of the SCR. In particular the Pillar I dampener needs to be carefully considered as its effects may exaggerate the stress faced by insurers at inappropriate points. We should ensure this mechanism delivers the right outcome which is to dampen stress conditions and not to make them worse. Finally, the presented approaches should always be supplemented by appropriate internal measures in Pillars II and III in line with the provisions set out in the Framework Directive, which do not appear to have been covered in this CP.	Noted. Please see response to comment 8. Agreed, Pillar V should supplement Pillar 1 at all times.

Summary of Comments on Consultation Paper 69 - CEIOPS-CP-69/09 CEIOPS-SEC-171-09 CP No. 69 - L2 Advice on Design of the equity risk sub-module				
19.	Groupe Consultatif	General Comment	We have a concern that, in this and other CPs, there is a tendency to "round up"/ be extra prudent. This results in the over VAR no longer running at the 99.5% level. The calibration of equity shocks doesn't take into account all the mean reverting property of equity market during cycles. Such a calibration will have a clear pro-cyclical effect, destabilizing markets and deteriorating the situation in a crisis. We believe that insofar as the major part of liabilities is illiquid in some degree, it is inconsistent with the concepts of the directive. A model that derives the future equity returns distribution from the current position in the equity cycle should be used in order both to calibrate the standard equity shock and to optimise the appropriate period of time for the symmetric adjustment mechanism. Such a study should also be done for volatility. We support the proposed increase in equity stresses and introduction of a volatility stress but have concerns over some of the details. Taking the equity volatility risk into account in the standard formula would need more work to define the right way and identify the proxy method adapted to the variability of situations. Without a rather good proxy, this risk should be estimated through a partial internal model. Beside this comment, we think that the stress on volatility proposed by the CEIOPS doesn't take into account all the mean reverting property of volatility market during cycles. Such a calibration will have a clear pro-cyclical effect, destabilizing markets and deteriorating the situation in a crisis. Such a study should also be done for volatility.	Noted. Please see revised paper with many lower calibrations. It is CEIOPS intention to get a stress which satisfies an overall 1:200 prudence. Noted, such a "point in time" model would be considered to produce results which are too variable. In addition, it is at odds with most of current industry practice. See response to comment 89. Noted, Ceiops considers a fixed multiplier to market volatility to be such a proxy. Noted, however see comment 215 regarding additive methods, or caps for volative.

Summary of Comments on Consultation Paper 69 - CEIOPS-CP-69/09 CEIOPS-SEC-171-09 CP No. 69 - L2 Advice on Design of the equity risk sub-module				
20.	Institut des actuaires	General Comment	The calibration of equity shocks doesn't take into account all the mean reverting property of equity market during cycles. Such a calibration will have a clear pro-cyclical effect, destabilizing markets and deteriorating the situation in a crisis. A model that derives the future equity returns distribution from the current position in the equity cycle should be used in order both to calibrate the standard equity shock and to optimise the appropriate period of time for the symmetric adjustment mechanism. <u>Comments on Equity stresses</u> In CP 69 CEIOPS propose e 45% stress on Equity, with a symmetric adjustment limited to 10% and based on one year moving average. We think that this stress is too high on an historical basis and doesn't take into account all the mean reverting property of equity market during cycles. Such a calibration will have a clear pro-cyclical effect, destabilizing markets and deteriorating the situation in a crisis. In order to show this practically, we got long term values of a very liquid market index: the S/P 500, with data from 1946.. On historical data, the 0.5% centile is -39.09%, and not -45%. We build scatter plots comparing the position in the cycle (resumed to the distance to a moving average) and next year performance of the index	Please see response to comment 89 regarding point in time models. Please see response to comment 9.

			We tried 1 year moving average, 3 years and 5 years: Graphs show a clear mean reverting process on the left side, when the initial situation is stressed. The effect is clearer with the length chosen for the moving average : visually one can take evidence that one year period is unsuitable to capture this effect. We propose a calibration based on 5 or ,eventually 3, years, using a stress depending on the distance to this moving average. When the present level is under the moving average, the upward shock is fixed to α%. When the present level is on top of moving average, the upward shock is fixed to: α %-β*(level –moving average)/moving average, with a floor at zéro <u>1- Calibration based on 5 years moving average</u> Visual analysis of the 5 years scatter plot suggest a β near of 1. If we fix it to this value, the problem is simply to chose the α to capture on top of the line a number of points as exactly 0.5% of the total number. We found α = -39.6%	



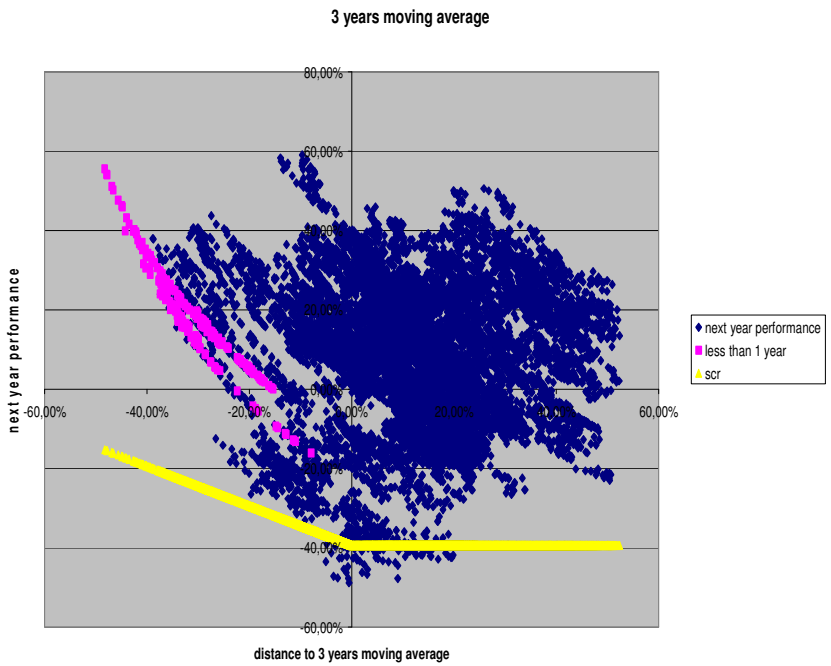
It should be possible to add an absolute floor (-20%?) even if nothing in this graph suggests it

2-Calibration on 3 years moving average

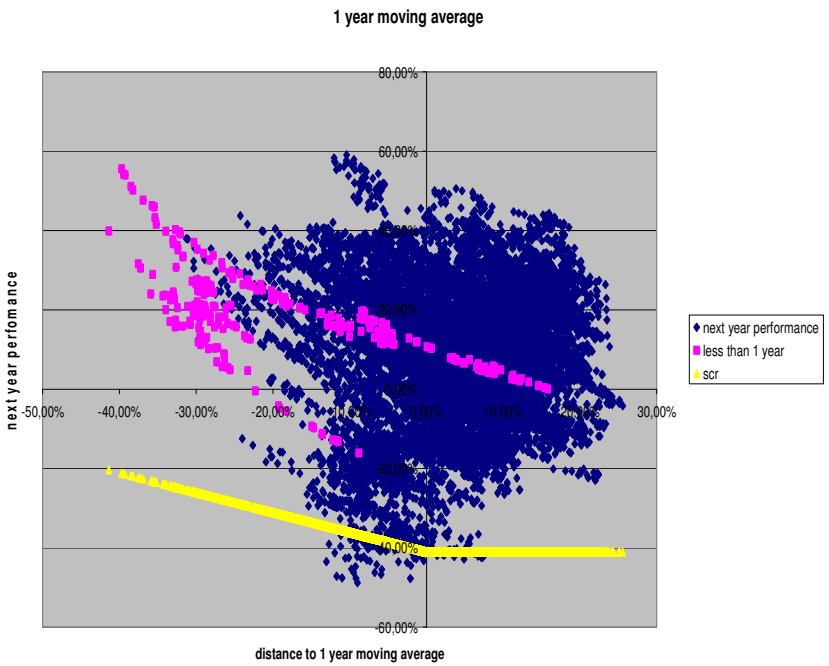
Visual analysis of the 3 years scatter plot suggest a β near of 0.5.

The measure of under evaluation is less precise with 3 years

			moving average . If we fix it to this value, the problem is simply to chose the α to capture on top of the line a number of points as exactly 0.5% of the total number. We found α = -41.2%	



3- calibration with one year moving average



Visual analysis is less clear. We used β =0.5.

If we fix it to this value, the problem is simply to chose the α to capture on top of the line a number of points as exactly 0.5% of the total number.

We found α = -41.2%

4- comparison of the different methodologies during the recent crisis

Result of different methodology during the recent crisis

		Proposed methodology				
	CEIOPS	5 years Moving Average	3 years Moving Average	1 year Moving Average	performance until 15/9/2009	minimum during the period
31/12/2008	-35%	-10,80%	-23,20%	-28,10%	16,55%	-25%
31/03/2009	-35%	-2,40%	-19,70%	-27,20%	33,68%	1,30%

(subject to an eventual floor)

Taking into account the severity of the recent crisis, the calibration we propose is sufficient to protect policyholders, as it should be normal for companies to fall slightly below the SCR during the paroxysm of the crisis. The double level SCR / MCR was set up for such a situation.

****

The probability of 99,5% loss in the future year depends on the losses and gains during the last 3 years.

****

Taking the equity volatity risk into account in the standard formula would need more work to define the right way and identify the proxy method adapted to the variability of situations.

Without a rather good proxy, this risk should be estimated through

			a partial internal model. Beside this comment, we think that the stress on volatility proposed by the CEIOPS doesn't take into account all the mean reverting property of volatility market during cycles. Such a calibration will have a clear pro-cyclical effect, destabilizing markets and deteriorating the situation in a crisis. Such a study should also be done for volatility. **** The calibration of volatility shocks proposed by CEIOPS doesn't take into account the clear mean reverting property of this variable. This can lead to a very pro-cyclical calibration, destabilizing markets and deteriorating the situation in a crisis. Popular models for volatility use mean reverting process (see Heston model, SABR, etc…). A reason for this is that data show when the volatility is going up, the probability of a supplemental increase is going down. In the same way, when the volatility is going down, the probability of a supplemental decrease is going down also. In a situation of stress on volatility, make the hypothesis that, in one year, the situation will be also tense is already very careful. This phenomenon can be easily put in evidence by looking to a scatter plot on historical data.	

			The initial level of stress on volatility can be measured by the distance from a one year moving average of volatility level to the current value. Then we measure the next year variation of volatility (in percentage). For rate volatility we chose the 10 years in 10 years swaption, as we agree with the proposition of CEIOPS to resume to this only point the complexity of the impact of volatility on the yield curve. In order to have enough historical data, we used US 1999-2009 market, as we consider this market as deep and liquid, and less specific than, for example, UK market. For equity volatility we disagree with CEIOPS using 1 year maturity prices, as the insurer risks are localised on longer maturities, witch are less volatiles. We understand what says CEIOPS, arguing there are not official data on these maturities. We think that all the major banks own such historical data and the argument of CEIOPS isn't sufficient to ignore a well known effect. We used 5 years maturity equity options given by a major bank. If CEIOPS doesn't fell comfortable with these data, we encourage it to ask to several banks the same ones. In order to take into account we can propose two methodologies: A- putting an absolute maximum to level of volatility:	

			For example, the 99.5 centile for 10y10 us swaptions for the period 1999-2009 is 13.6% (log-normal modelisation). The 99.5 centile for the variation of volatility levels during this period is +64%. Hence the upward choc applied to rate volatilities should be : Min(64%; 13.6/present level of 10y10 ATM swaptions). For equities, one should also take into account the differences in absolute levels, and volatilities, depending on the maturities of options. Stock volatility can not be measured by a unique reference: the volatility is indeed less volatile itself for longer maturities. Moreover the level of the volatility itself depends upon the maturity. In order to try to define an absolute level of volatility, depending on maturity, we got implied 1 month, 1 year and 5 years volatility data from a large and active bank on the derivatives business covering a period from 1995 until today. The figure 1 below shows the distribution of the equity volatility levels for each maturity.	

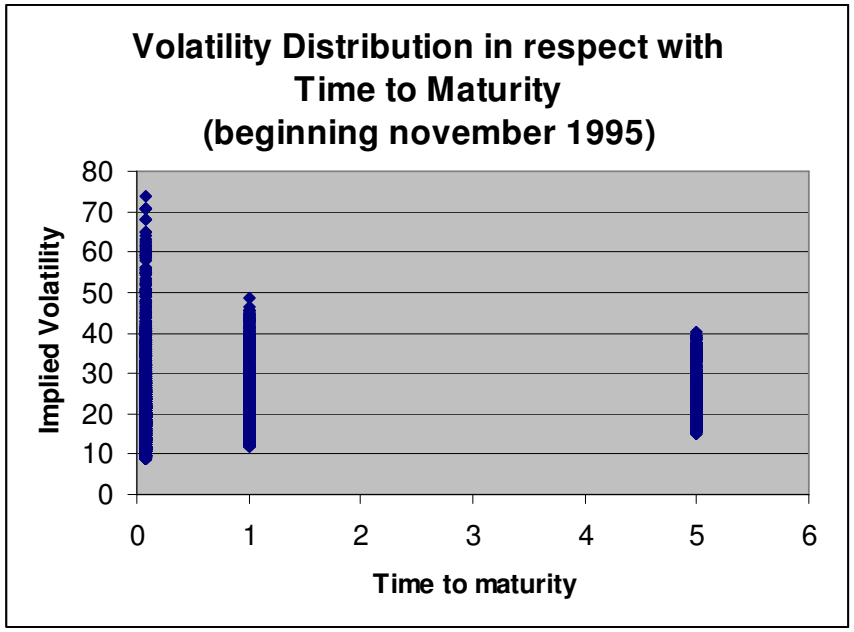


Figure 1

One could observe that :

☐ the maximum of the distribution decreases with time

☐ the minimum of the distribution increases with time

Figure 2 below gives the main characteristics of each set of data :

	1 month	1 year	5 years
Min	8.8	11.9	15.2
Max	74.0	48.8	40.0
Mean	19.8	20.9	22.9
std	8.1	5.8	5.0

Figure 2

We would suggest then that the stress down depend also on the maturity.

As empirical evidence, academic studies end market practices in a whole highlight that the behaviour of the volatility depends upon the maturity, we would think that the following scheme could be set up :

☐ Determine an empirical Minimum and Maximum for some terms

☐ Find a function that fits these points, for instance at the time being on our example, using power functions (t being in months) :

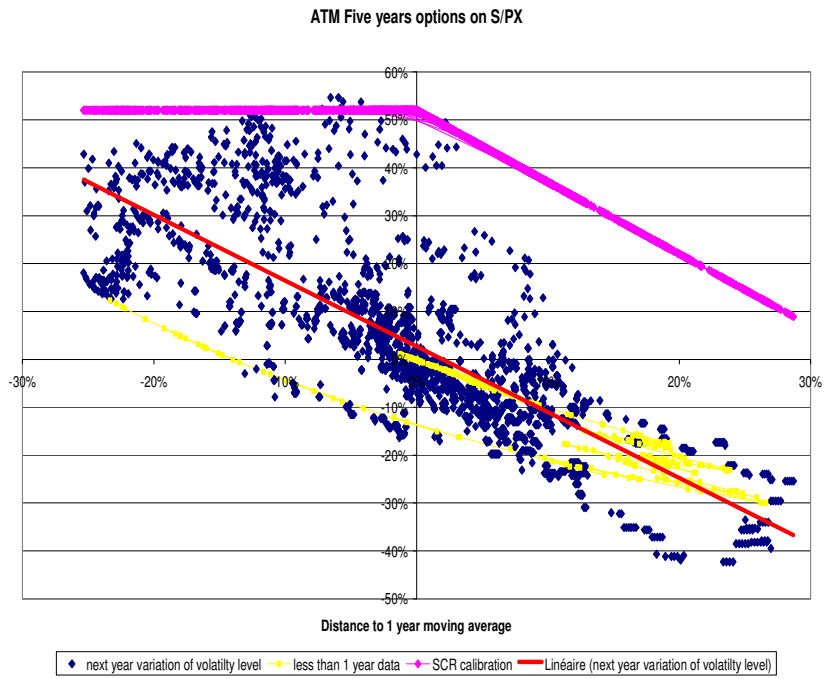
- For the maximum : $Vmax(t) = Vmax_{3mths} * t^{(-0.155)}$
- For the maximum : $Vmin(t) = Vmin_{3mths} * t^{(+0.13)}$

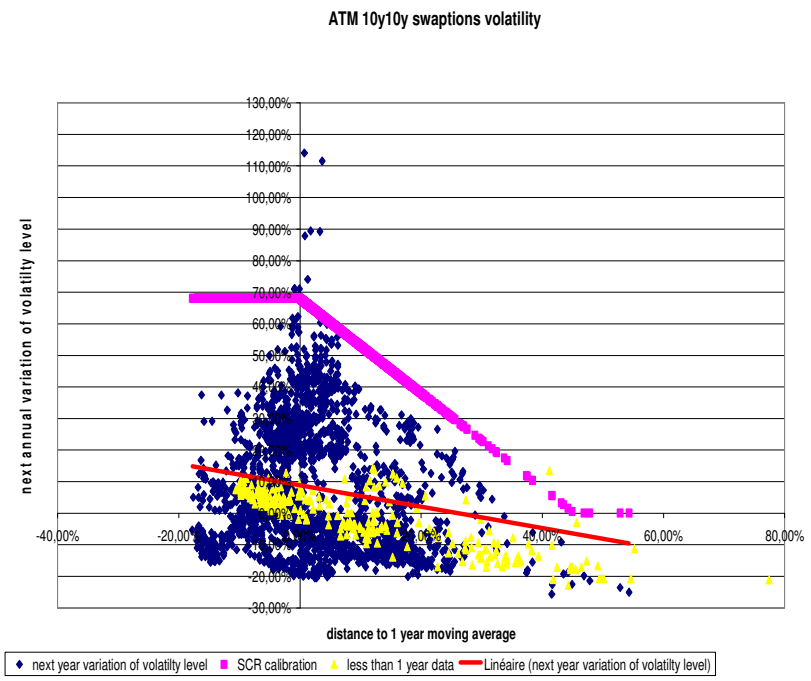
The 99.5th centile for the variation of 5 years volatility during this period is +51%.

Hence the upward choc on equity volatility for the maturity t should be :

Min (+51% ; Vmaxt/present level of Vt) .

			B- Introducing an upward shock depending of the present level of stress. In this methodology, the present level of volatility is compared to its one year moving average. When the present level is under the moving average, the upward shock is fixed to α%. When the present level is on top of moving average, the upward shock is fixed to: α %-β*(level –moving average)/moving average, with a floor at zéro Visual analysis of the scatter plot suggest a β near of 1.5. If we fix it to this value, the problem is simply to chose the α to capture on top of the line exactly a number of points exactly 0.5% of the total number. On rate we obtained α = 68% On equities (5 years maturity options), we obtained α = 52%	


ATM Five years options on S/PX
60%
50%
40%
30%
-30%
-20%
20%
30%
-40%
-50%
Distance to 1 year moving average
next year variation of volatilty level
less than 1 year data
SCR calibration
Linéaire (next year variation of volatilty level)

				
21.	Legal & General Group	General Comment	The sharp increase in the stresses in not supported by sufficient evidence to be within a 1:200 event as set out in the level 1 directive. A dampener on equity stresses is a good idea, and it should be extended to include the volatility stress.	Disagreed. Please note the evidence and analysis provided in the paper. Noted, CEIOPS considers such a measure would introduce extra undue complexity
22.	Munich Re	General Comment	We fully support all of the GDV statements and would like to add the following points:	

Summary of Comments on Consultation Paper 69 - CEIOPS-CP-69/09 CEIOPS-SEC-171-09 CP No. 69 - L2 Advice on Design of the equity risk sub-module				
			☐ We advocate to address procyclical effects of all risks in Pillar II.	Noted, however CEIOPS notes the dampener is only specified for equities in the directive.
			☐ The new calibration with it's even increased capital charge will lead to global downside effects: insurers are no longer likely to invest in equities and this will affect equity markets, corporate finance and diversification in the portfolios of insurance companies.	Noted, CEIOPS is carefully considering macro economic input effects, but notes that the advice has to provide acceptable levels of policyholder protection.
			☐ The calibration of the equity stress to the 99,5% level based on the assumption of an instantaneous shift, i.e. without considering management actions during that period seems to be an extreme event that overestimates the implications of a 1-in-200-year event.	Noted, although the structure of the module is such that a 1 year 1:200 shock must be considered, firms who expect to have mitigating managing actions may address this complexity through a partial internal model.
			☐ The equity dampener does not work the way it is intended to. It should only kick in at extreme scenarios only.	Noted.
			☐ The combination of equity and equity volatility stress is too conservative. Diversification should be considered.	Agreed. See revised paper.
23.	PWC	General Comment	We note that a considerable amount of analysis has been carried out to inform the proposals set out in this paper. However, we question whether the significant increases to the proposed stresses relative to QIS4 are fully justified by the data rather than being overly influenced by the recent financial market turbulence.	Partially agreed. Whilst the recent crisis has changed the data set, it has also given us new data on what sort of crisis is plausible, the data must be considered, and the analysis aims to consider all data from an objective point of

				view.
24.	ROAM	General Comment	ROAM is totally agree with AMICE and FFSA comments on this CP.	Noted
25.	RSA Insurance Group	General Comment	More evidence is given for the selection of stresses.	Noted
26.	SIGNAL	General Comment	The LPX 50 index is a listed private equity index and not representative for an institutional investor's private equity portfolio. Therefore the LPX 50 is not a representative index to calibrate a shock factor for the Solvency II guidelines. Data suggests that a stress of approximately 35% for unlisted private equity does more appropriately reflect the behaviour of the asset class.	Partially agreed, please see the revised stress to other equities, and comment 1. The stress has been reduced at least in part due to these concerns over the index.
27.			Confidential comments deleted.	
28.			Confidential comments deleted.	
29.	UNESPA	General Comment	1. UNESPA (Association of Spanish Insurers and Reinsurers) appreciates the opportunity to analyze and comment on Consultation Paper 69 on Design of the equity risk sub-module. UNESPA is the representative body of more than 250 private insurers and reinsurers that stand for approximately the 96% of Spanish insurance market. Spanish Insurers and reinsurers generate premium income of more than € 55 bn, directly employ 60.000 people and invest more than € 400 bn in the economy. The comments expresed in this response represent the UNESPA´s views at this stage of the project. As our develops, these views may evolve depending in particular, on other elements of the framework which are not yet fixed. Based on 99,5 % confidence level principle and the holding horizon	See response to comment 388.

			(unlimited under going concern approach) of assets backing surplus, namely assets backing own funds in excess of technical provisions and SCR, a drastically reduced calibration for them should be applied. 2. Assets backing surplus should have a drastically reduced shock in the SCR calculation in the market risk module (and therefore, in the equity risk sub-module), because: ☐ An entity with low risk and with a broad level of capital would have higher SCR, than an entity with exactly the same risk and less capital, which is an inconsistency, since the solvency ratio will be focused on assets backing surplus, and not in the assets that cover insurance liabilities, misaligning solvency ratio ultimate objective established under the Directive. ☐ One of the functions of assets backing surplus is to cover asset losses that back liabilities, due to market risk, in order to cover the losses, assets backing surplus are mark to market and in capacity to cover the solvency ratio. If the solvency ratio is not achieved, there will be an increased in capital requirements. In this since, what is really relevant is the market value of these assets backing surplus, and not the potential loss that they may have in a year horizon, and at a given confidence level. ☐ Depending on the level of assets backing surplus, they could induce a higher result than the 99.5 percentile solvency requirement established in the Directive. ☐ Depending on the insurance and reinsurance undertakings assets backing surplus characteristics (only those assets different from cash), the SCR could substantially be increased, being this a clear disincentive to having excesses on capital, since the more assets backing surplus held by an entity with the same assets backing liabilities than other, the greater market risk SCR the entity will have.	

			In order to have a better perspective of the real issues related to the calculation of SCR for assets backing surplus, we will illustrate some examples: ☐ An entity with no insurance liabilities, and paid up capital, could be more risky, than an entity with insurance liabilities, undercapitalized. ☐ Assume, a newly formed entity that has not sold any insurance policy (0 commitments, and no capital required to ensure risks at a 99.5th percentile). However, capital has been spent on: 70% in property, 10% in debt and equity financial instruments, and 20% in treasury. The propose SCR definition would impose a capital charge of e.g. 30%, and considering that the expected one year return on assets will be 10%, the entity could not distribute the 100% of its financial earnings, in the form of dividends to its shareholders, showing an unrealistic solvency position. 3. Concluding, if the same treatment is defined to assets backing surplus and assets that back liabilities in the SCR calculation, a false impression of the real entity risk profile will be induced. Therefore, and considering the fact that the Solvency II is focus on a total economic balance sheet approach, we think that the assets backing surplus should be included in the SCR calculation, but with a drastically reduced scenario shock. Regarding the averaging period for the symmetrical adjustment, in principle we recommend using a 3-year averaging period, although we understand it is necessary further investigation about this issue. See 3.100.	Noted
30.	WBCSD	General Comment	Research tells us that our societies are on an unsustainable track. We are unable to meet human needs within the ecological limits of the planet. We also know that we have the scientific knowledge,	Noted. CEIOPS appreciates the point made. Generally, infrastructure investment would

			proven and emerging technologies, financial assets and instant communications needed to bring about the changes required. However, success depends upon us starting to use all these assets efficiently and immediately. This can only be achieved through close cooperation between governments, business and civil society. Financing this rapid and radical transformation is essential, and an integrated part of the solution. This paper briefly describes the need for infrastructure investments in the years to come, and how the European life insurance and pension industry can play a crucial role, given the right framework conditions. <u>The need for infrastructure investments</u> There will be a massive demand for investments into global infrastructure assets in the next few years. Estimates vary, but most of them are above USD 10 trillion between 2008 and 2015.□ A great proportion of this remains unfunded, and there is currently a large gap between infrastructure needs and public expenditure capacity. OECD/Global Insight estimates required infrastructure investments of USD 10.3 trillion until 2015. USD 3.2 trillion of this is new capacity (e.g. China's high speed rail and India's power generation), while USD 7.1 trillion is reinvestment (e.g. in US interstate system and refurbishment of water plants in EU). This constitutes approximately 2.5 per cent of global GDP p.a. Two important drivers explain this large demand; i) the wave of assets created in the 1950s in the EU and other developed markets begin to reach maturity, and ii) emerging markets remain near the bottom of the table in relative physical stocks of infrastructure.	be considered on a 'look through' basis, where the true nature of the underlying investment is understood. In many cases we would anticipate such products would carry a credit rating, and if so could be treated as a 'structured product' and stressed under the spread risk. For large infrastructure investments, CEIOPS would consider that firms may wish to understand the risks through the use of a partial internal model.

			Assets under Management by European life insurance and pension providers With a 40 per cent share of the global insurance market, the European insurance industry is the largest in the world. As at 31 December 2008, the European life insurance industry had approximately EUR 5.8 trillion (USD 8.7 trillion) [or approximately EUR 7.0 trillion for the life and non-life sector] invested in company shares, bonds and other assets. ☐ Only a very small part of this portfolio is invested in infrastructure today. Given the right framework conditions, it is realistic to assume that over time, 2-5 per cent of assets under management by the European life insurance industry can be allocated to infrastructure investments. The required changes in framework conditions that must take place is briefly described below.	
31.	XL Capital Ltd	General Comment	We agree in principal with the symmetric adjustment mechanisms suggested in this paper although some of the assumptions of volatility seem excessive based on the index choices.	Partially agreed. Please see revised calibration.
32.	CRO Forum	2.	We note that the exception for long liabilities under Article 305b makes the treatment of equity risk inconsistent with the treatment of other market risks, specifically interest rate and credit risk. However we realise that this is in the Directive and therefore cannot be changed.	Noted
33.	DIMA	2.	The Level 1 Text advocates that supervisory authorities take into account the potential pro-cyclical effects of their actions and identify that this obligation is not limited to the establishment of the dampeners within the Standard Formula.	Noted
34.	SIGNAL	2.	The LPX 50 index is a listed private equity index and not representative for an institutional investor's private equity portfolio.	Partially agreed. Please note the revised stresses for other equity,

Summary of Comments on Consultation Paper 69 - CEIOPS-CP-69/09 CEIOPS-SEC-171-09 CP No. 69 - L2 Advice on Design of the equity risk sub-module				
			Therefore the LPX 50 is not a representative index to calibrate a shock factor for the Solvency II guidelines. Different content: The LPX 50 represents to a large extent investments in private equity managers (i.e. companies that generate their revenues from asset management business in the form of management fees – as opposed to investment performance from investing in traditional private equity). In addition, globally diversified (unlisted) private equity portfolios of institutional investors exhibit a significantly different regional split than the LPX 50 and typically also a much broader diversification across managers. Different key figures: Historically, private equity shows significantly lower maximum drawdowns than the LPX 50. Historical data provided by Thomson Reuters indicate a volatility of 20% and a maximum draw down of 25% for global private equity. Broadly diversified private equity portfolios (e.g. information published by large US investors) indicate maximum drawdowns in the range of 30-35%.	and the short discussion of indices in the final advice.
35.	ABI	3.1.	See comments under 3.58	See response to 3.58
36.	CEA	3.1.	A more granular treatment is requested Please see comments to Para 3.58.	See response to 3.58
37.	Groupe Consultatif	3.1.	Splitting the equity risk module into only two categories "global" and "other" seems to be a reasonable approach for now, although more granularity may be deemed appropriate in future because of the heterogeneous composition of the 'other' category. We would recommend bearing in mind that assets like commodities could become more important within the asset allocation of insurance companies, therefore it could be necessary to measure them separately.	Agreed.
38.	Institut des actuaires	3.1.	Splitting the equity risk module into only two categories "global" and "other" seems to be a reasonable approach.	See response to comment 37

			We would recommend bearing in mind that assets like commodities could become more important within the asset allocation of insurance companies, therefore it could be necessary to measure them separately.	
39.	Munich Re	3.1.	We would recommend bearing in mind that assets like commodities could become more important within the asset allocation of insurance companies, therefore it could be necessary to measure them separately.	See response to comment 37
40.	CRO Forum	3.2.	We reference the CRO Forum's opinion regarding the use of the duration dampener as expressed in its memo "Addressing the pro-cyclical nature of Solvency II", which was published in November 2008.	Noted
41.	CTIP	3.2.	1. Any fixed risk charge on equities generates a procyclical effet; for this reason the Directive set a symmetric adjustment mechanism. However this adjustment is limited to 10 percentage points; thus if the standard risk charge on equity were set to 45%, since the MSCI World Index fell down 42% from 31 December 2007 to 31 December 2008, the charge applicable at the beginning of 2009 would have been: 45% - 10% = 35%. Considering the market values at 31 December 2007, this coefficient corresponds to a 62% loss aggregated on two years (42% loss followed by 35% loss). We doubt that this scenario is consistent with the VaR 99,5% principle. In our opinion this recent experience suggests that the equity standard risk charge should be reduced, as an accommodation with the adjustment mechanism, this latter being already limited.	Noted, it is for this reason that the symmetric adjuster is considered. CEIOPS considers that a floor of 10% to the adjuster, is appropriate to maintain prudent policyholder protection. The maximum window size of 10% is also enshrined in the level 1 directive. Noted

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			2. The MSCI World Index may not be the best reference for all insurance equity portfolios; insurance undertakings should be allowed to use another index, more apropriate with the assets they hold.	Agreed. For the standard formula, it is necessary to base analysis on one index, and the MSCI world index, being a diversified index is appropriate. If firms have equities with a materially different profile, they are invited to consider using a (partial) internal model to accurately reflect their portfolio.
42.	DIMA	3.2.	The inclusion of the one day stress test analysis is welcomed, since it supports dialogue in respect of internal model approaches and/or other discussions regarding how a one year calibration is applied either instantaneously or throughout the 12 month period.	Noted.
43.	CRO Forum	3.3.	We reference the CRO Forum's opinion regarding the use of the symmetric adjustment mechanism as expressed in its memo "Addressing the pro-cyclical nature of Solvency II", which was published in November 2008.	Noted
44.	Groupe Consultatif	3.3.	Further examination is needed regarding the size of the interval. A possibility could be to link the percentage to the averaging period, see also comment on 3.38. Will companies using internal models be allowed to apply a symmetric adjustment mechanism? If not, then the companies that have approved internal models will be at an unfair disadvantage. To achieve internal model approval these companies will generally be managing their risks better than their peers without internal model approval, and they should not be penalised for doing so. Related to this, we note that CEIOPS has not attempted to justify the	Noted. See response to referenced comment. As for all risks, firms need to justify the appropriateness of the symmetric adjuster within their internal model if they want to use it. The nature of justification which would be appropriate would

			existence of the symmetric adjustment as being a feature of equity returns. It would likely be difficult to find statistical evidence to support the existence of the symmetric adjustment and so, without an exemption from the statistical quality and validation standards, this might be difficult to incorporate the symmetric adjustment in an internal model.	be a matter for internal model reviewers.
45.	ABI	3.4.	The standard equity stress including the dampener should be calibrated to the 99.5% VaR The standard equity stress has been calibrated to the 99.5% VaR level and then the symmetric adjustment mechanism is overlaid on top. This approach will lead to a combined stress (standard equity stress plus adjustment) that could exceed the 99.5% level if the dampener is believed to be a feature of the underlying data. We believe that the standard equity stress should be calibrated allowing for the existence of the adjustment mechanism (if it is a feature of the underlying data), so that the combined stress would be at the 99.5% level. The consultation paper and previous papers based their analysis on the MSCI world index (since 1973) for the Standard equity charge for Global equities. Based upon private research we have seen: ☐ Distribution of the 1-year price or total returns is not log-normal o If the distribution was log-normal, then the 99.5% confidence level for the equity stress should be -39% o The empirical 99.5% confidence level for the equity stress should be -44% ☐ The non log-normality is a reflection of the fat tail distribution ☐ The 10 worst 1-year equity falls are between -49% and -52%	Noted. CEIOPS notes that the corollary to such an argument is that the stress could fall below the 99.5% level following a market fall. There are theoretical problems in calibrating the symmetric adjuster to a 1:200 event, as it is considered as much a device against pro-cyclicality as a feature of the underlying data, for this reason the current structure is considered the most appropriate balance. The ABI's position in favour of the 45% stress is noted.

			☐ Consequently the stress of 45% for global equities is recommended (this compares with 32% in the QIS4 technical specifications published in December 2007) ☐ One alternative is proposed: use of the MSCI Europe Index, between 1998 and 2009 o 49% should be considered as the upper limit of the equity stress interval o together with the symmetric adjustment mechanism concept (with the 10% limits), this means that the standard equity stress should be 39%, and the minimum equity stress 29% ☐ However the empirical evidence of the pertinence of the symmetric adjustment mechanism being weak, the first proposal should be preferred	
46.	CEA	3.4.	The standard equity stress including the dampener should be calibrated to the 99.5% VaR The standard equity stress has been calibrated to the 99.5% VaR level and then the symmetric adjustment mechanism is overlaid on top. This approach will lead to a combined stress (standard equity stress plus adjustment) that could exceed the 99.5% level if the dampener is believed to be a feature of the underlying data. We believe that the standard equity stress should be calibrated allowing for the existence of the adjustment mechanism (if it is a feature of the underlying data), so that the combined stress would be at the 99.5% level.	See response to comment 45
47.	CEA	3.5.	We agree with the objectives of the adjustment mechanism. However, we would also include as a consideration that any dampener approach should not lead to incentives for insurers to	Agreed, this objective is discussed in section 5 of annex C.

			take more risk.	
48.	CRO Forum	3.5.	We note that a capital charge as a fixed percentage of the market value of equity also leads to a decreased (nominal) capital charge in stressed market circumstances, as the amount of capital to be held for equity risk decreases with the decrease in market value of the equities.	Noted
49.	CEA	3.6.	Please see comments to Para 3.67.	Please see response to referenced comments.
50.	ABI	3.7.	We believe the global equities category should include indirect EEA / OECD holdings (e.g. unit trust). We do not agree they should form part of the "other" equities category. We also strongly support a look-through approach to UCITS and collective investment vehicles.	Agreed. A look through approach would be considered for all asset classes, UTs and CIVs included. Please see clarification in final advice.
51.	CEA	3.7.	The definition of "global" equities is too narrow We believe that indirect EEA/OECD holdings (e.g. unit trust) should also be allowed under the standard "global" risk charge rather than under the risk charge for "other". Furthermore, it would seem appropriate to us to also consider equities listed in other equity markets as "global" equities as the OECD list does not reflect the increased presence of, in particular, some relevant Asian economies, e.g. Hong Kong or Singapore. We also point out that non-Euro equities are also stressed under the currency risk stress.	See response to comment 50, a look through approach would be considered for all asset classes. The OECD list is considered appropriate as an impartial and continuously updated list. Agreed. However we note that firms with Euro denominated liabilities holding foreign equities would be subject to both FX and equity risk, and so should hold capital accordingly.
52.	IUA	3.7.	We believe a look-through approach should apply to collective	Agreed. Please see clarification in

			investment vehicles (e.g. UCITS). Where such a fund invests in "global equities", they should be treated as "global equities" for the purposes of this sub-module, rather than "other equities".	revised text.
53.	CEA	3.8.		
54.	CRO Forum	3.8.	We prefer the approach taken in the first alternative in terms of calibration process. However, we prefer to base this approach on MSCI Europe data, because we think that companies which apply the standard formula are typically smaller companies with equity portfolios concentrated in one or several country's equity markets. In order to partially cover the diversification aspect we propose to base the calibration on less diversified indices, i.e. European data. One important element is that when using an MSCI World index (unhedged) this implies that FX movements are taken into account. We urge CEIOPS to look at the calibration in total, i.e. all risks categories and correlations. We agree that a stress size of 45% for is reasonable for a diversified portfolio of global equities. However, we strongly recommend that CEIOPS should consider the combined impact of CP69, 70 and 74. These CPs combined imply that a non-EUR equity is shocked due to the equity shock and the FX shock combined. Taking into account proposed shocks and correlations this implies a shock of more than 60%. This ignores that equities are increasingly global and shocks should be similar in EUR terms. We also refer to the CROF analysis "Calibration recommendation for the correlations in the Solvency II standard formula, which shows that over a longer time horizon the correlation between FX and equity are mostly negative and actually diversify.	Noted. We note that a similar analysis based on the MSCI Europe data would give a stress of approximately 53%, and could lead to charges of penalising internationally diversified firms. Partially agreed. CEIOPS is very aware of the total impact of it's recommendations. We note that firms with Euro denominated liabilities holding foreign equities would be subject to both FX and equity risk, and so should hold capital accordingly. Regarding correlations, please see the discussion in the correlations paper and feedback.
55.	DIA Danish Insurance	3.8.	In this section it is said: Two alternative calibrations are being proposed in the advice. CEIOPS welcomes stakeholder feedback on	

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	Association		the proposals." In the view of the DIA it is necessary to use as a reference point the index which has the greatest possible level of diversification. This is because there is a separate module to handle concentration risk. If the adjustment mechanism is calculated based on the chosen index, it is possible that the choice of index could influence investment behaviour.	Noted. CEIOPS agrees with the sentiment but notes the requirement of the adjuster that it is easily calculated, and calibrated. As such, a widely known index has to be chosen.
56.	GDV	3.8.		
57.	KPMG ELLP	3.8.	We do not have a strong view on which stress test to apply. We note that in choosing a 1 in 200 stress test over one year a very wide range of answers have plausible statistical argument and the central estimate calculated depends on the time window chosen and on the distributional assumptions made for the tail. Therefore this value should be chosen bearing in mind the consequent effective limits once the symmetric dampener is applied and the degree to which the European Commission believes directing long term saving into equity capital is a socially desirable outcome.	Noted.
58.			Confidential comments deleted.	
59.	ABI	3.9.	We believe it would be appropriate to base the calibration on a return index rather than a price index in order to include dividends as an equity investor will receive a return via both price increases and dividends. Therefore dividends will need to be taken into account in order to be in line with a one-year VaR calibration.	Noted, the analysis presented in section 3,17 indicates that a total return index produces a stress around 1,5% lower than a price index. Whilst there is a compelling argument for the use of a total return index, an easily used and understood index is also necessary, and the relatively small difference in price and total return stresses indicates that

				simplicity should triumph in this case.
60.	CEA	3.9.	A return index would be more suitable than a price index The calibration was performed using the MSCI World Developed Price Equity Index. However it would be appropriate to base the calibration on a return index rather than a price index and thus include dividends. An investor in equity is clearly expected to receive a return via both price increases and dividends. Dividends need to be taken into account in order to be in line with a one-year VaR calibration.	See response to comment 59.
61.	CRO Forum	3.9.	A Price Index has been used to calibrate the equity shock; however it would be better to use a total return measure.	See response to comment 59.
62.	Groupe Consultatif	3.9.	It might not be suitable in all cases to use the MSCI World Index. We suggest the MSCI Europe as being more useful, or Eurostoxx 50 as this is often used as benchmark. E.g. the majority of insurance companies are invested in local equities if any. Some of them could be invested in European equities, but only very few are invested in the US or Asia-Pacific. A worldwide index does not seem to be the most appropriate one to represent equity portfolios of European insurers. Typically the equity portfolio of firms will be weighted towards the territory of the group head office, and the head offices of overseas subsidiaries, with a lesser percentage in other EU and international territories. While it would be inconsistent with convergence to apply stresses and use indices which differ by territory of head office, and unduly complex to apply stresses and indices that vary by territory of assets, a European index would appear to be more appropriate than a world wide index to represent the average equity holding of	We note the comments in favour of a European index rather than a world index. CEIOPS considers that a world index has considerable cross over with a European index in terms of constituents, and notes that the equity charge based on the first approach in the CP, and MSCI Europe would be 53%. We further note that whilst many European firms hold only Euro Equities, other firms hold more diversified portfolios. Whilst there is an element of subjectivity in the choice of index,

			European insurers. This would apply both to assessment of the1 in 200 year stress and the symmetric adjustment factor.	CEIOPS is content that the MSCI world index is appropriate, it notes that firms with materially different equity holdings could consider a partial model for their equity charge module.
63.	Institut des actuaires	3.9.	It might not be suitable in all cases to use the MSCI World Index. We suggest the MSCI Europe as being more useful, or Eurostoxx 50 as this is often used as benchmark. E.g. the majority of insurance companies are invested in local equities if any. Some of them could be invested in European equities, but only very few are invested in the US or Asia-Pacific.	See response to comment 62
64.	Munich Re	3.9.	We would suggest to use the MSCI Europe (or Eurostoxx 50 as this is often used as benchmark), since this is the preferred equity market for European insurers, whereas the exposure invested in the US or Asia-Pacific market is limited.	See response to comment 62
65.	PWC	3.9.	The first proposal is based on the MSCI World Developed Price Equity Index. We question whether this index is at all representative of the assets held by the insurance market across Europe and suggest that it would be more appropriate to calibrate the equity stress based on an index which at least partly reflects the assets held by the insurance market. We note that this has the potential to lead to a higher calibration due to the lower degree of diversification in the index. This comment also applies to para 3.26.	See response to comment 62
66.	CRO Forum	3.12.	We agree that fat-tails are observed equity return distributions.	Noted
67.	ABI	3.13.	For European equity portfolio, the introduction of the single currency within the Euro zone and the higher correlation among markets due to globalisation may drive us to put more weight in the recent data.	Noted

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68.			Confidential comments deleted.	
69.	CEA	3.13.	Obviously the calibration is highly dependent on the observation period. However, the choice of the period seems to be arbitrary and there is no criterion specified as to why the timeframe is considered appropriate. There must be a set of criteria as to how to determine an appropriate time horizon otherwise one may ask whether stress factors would have to be updated every year In addition to this, the method chosen by Ceiops is subject to autocorrelation, as we understand that Ceiops is looking at annual holding period returns on a daily basis which means that overlapping periods are used in each observation. This could overstate extreme scenarios and so could artificially increase the capital charge for equity risk. Ceiops does not recognise the potential flaws in their methodology. This is not a robust statistical method.	1973 was the earliest date for which data was available. The earliest MSCI world index data available was 1972. In order to derive a year-on-year change you need one years data which would give an earliest possible date of 1973. Preliminary research indicates that the practical effect of autocorrelation in the analysis has low materiality.
70.	CRO Forum	3.13.	The paper states that data is taken from 1973 to 2009. It would be helpful have documentation of the exact dates of the starting and ending data points, along with information about whether overlapping time periods are used.	Daily overlapping time periods were used. The start date of the analysis was 02/01/1973, the end date was 28/04/2009.
71.	Groupe Consultatif	3.14.	Adding up annual returns of overlapping periods of long time horizons (e.g. 1973 - 2009) to identify the maximum stress scenarios is from our point of view not an unreasonable approach, although there will be some autocorrelation. However, it should be mentioned that for longer periods given the distribution will tend to be a normal distribution.	Noted.
72.	Institut des actuaires	3.14.	Adding up annual returns of overlapping periods of long time horizons (e.g. 1973 - 2009) to identify the maximum stress scenarios is from our point of view a proper approach. However, it should be mentioned that for longer periods given the distribution	Noted.

			will tend to be a normal distribution.	
73.	Munich Re	3.14.	The statistical evaluation of overlapping periods to derive the distribution of equity returns is not appropriate because of autocorrelation effects in the data, and in general this overestimates the tail risk.	Not agreed. Preliminary research indicates that the practical effect of autocorrelation in the analysis has low materiality. Furthermore, the benefits of gaining further data points outweight the costs of autocorrelation, and the subjectivity which would be associated with choosing the year start/end date.
74.	CRO Forum	3.15.	We note that in deriving these statistics overlapping annual time periods have been used. This means that there is a significant amount of dependence between the observations. Consequently care should be taken in interpreting some of the results because the techniques used for statistical analysis by CEIOPS make sense when the observations are independent. While it is certainly true that there is some additional information content from looking at annual returns from different points in the years, the analysis should not conclude that many using overlapping time periods is the same as using the same number of non-overlapping time periods. The paper doesn't make any acknowledgment of possible biases in measurement that arise from these results but should do.	Agreed. Care has been taken. See response to comment 73. See the acknowledgement in the final advice.
75.	CEA	3.16.	12. Ceiops' conclusion that the VaR figure of 39% understates the equity stress is too strong 13. Ceiops gives only limited evidence over the particular time horizon and over the specific equities included. However, there is uncertainty attached to the results and there is not enough evidence to give the definite conclusion given by Ceiops.	Not agreed. The full sentence starts from a premise that returns are non-normal (as outlined in 3.13), given this, and the index and method chosen, 39% is too low a value. Given the caveats at the start of the sentence, and in

			14.	the analysis, the conclusion holds.
76.	GDV	3.16.		
77.	CEA	3.17.	Repeating Ceiops' analysis over the same period using the MSCI Europe Gross index (i.e. a total return index with dividends reinvested), rather than the world index, produces a 99.5th percentile result of 39%.	Noted.
78.	CRO Forum	3.19.	It is not clear how this analysis is used to derive the result. Perhaps it is the intention to aggregate to a 1 year return using these figures, but this would give results that were far too extreme.	The figures are merely illustrative, to identify the extremeness of the tail, and as a prelude to the EVT discussion.
79.	CRO Forum	3.20.	The cut-off point of the extreme value theory is important to know as it influences the result. More details are required to make this analysis relevant.	Noted, the EVT discussion is included for interest, and as an indication that the heaviness of the tails should be considered. The final advice figure of 45% has most of its focus on the analysis done on the indices.
80.	CEA	3.21.	The results do not necessarily provide information for the 1 year time period While extreme value theory may suggest that daily returns could be more extreme than observed in the sample period, it does not follow that this would be the case over a one year period.	See response to comment 79
81.	CRO Forum	3.21.	It is not clear how this analysis is used to derive the result in 3.23.	See response to comment 79
82.	CEA	3.22.	The results do not provide information for the 99.5th% We note that the worst equity falls are not relevant since the	See response to comment 79

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			calibration is to the 99.5th percentile level.	
83.	CRO Forum	3.22.	It is not clear how this analysis is used to derive the result in 3.23.	See response to comment 79
84.	AMICE	3.23.	Proposed calibration for global equities is 45% and a minority of CEIOPS views believe that the calibration should be 39%. AMICE thinks that a standard shock of 45% seems overly conservative. As explained in the analysis, the stress is around 39% if the calibration is based on MSCI Europe Index instead of MSCI World Index for the stress at 45%. It seems more reasonable to use the MSCI Europe index as undertakings should have invested in European financial market or use stresses based on exposure by territories.	Noted.
85.	CEA	3.23.	15. See comments to Para 3.95. 16.	See response to referenced comment.
86.	CRO Forum	3.23.	We agree that a stress size of 45% is reasonable.	Noted
87.			Confidential comments deleted.	
88.	GDV	3.23.		
89.	Groupe Consultatif	3.23.	From the results in 3.17, a stress of 42% would appear to be more appropriate, however we would support the use of an even lower stress (of 39% as the "minority" supports, or even 32% to be consistent with the stress on "305b business"). See comments to 3.26 and 3.88 We think that the stress on equity (45 %) doesn't take into account all the mean reverting property of equity market during cycles. Such a calibration will have a clear pro-cyclical effect, destabilizing markets and deteriorating the situation in a crisis. We believe it also to be potentially inconsistent with market-consistent valuation of technical provisions in respect of illiquid liabilities A model that	Noted Partially agreed. Avoiding pro-cyclicality is a key objective, the symmetric adjustment mechanism goes some way to addressing this. However a point

			derives the future equity returns distribution from the current position in the equity cycle should be used in order both to calibrate the standard equity shock and to optimise the appropriate period of time for the symmetric adjustment mechanism. We agree that the analysis may be interpreted as supporting a stress of at least 45% for an equity fall over a one year period. However, the fall is applied as if instantaneous and in reality it would be spread over a period. Therefore the approach to applying the stress overstates the impact, particularly in respect of with profits business where management actions and dynamic hedging strategies can be more effectively applied during a gradual stress.	in time estimation of risk capital would seem too complex for the capital charge in the standard formula. Noted. Indeed the approach is to apply the fall as if instantaneous. Firms such as WP firms who believe they can hedge this or apply dynamic management actions may be able to use internal models to address these sorts of issues.
90.	Institut des actuaires	3.23.	We think that the stress on equity (45 %) doesn't take into account all the mean reverting property of equity market during cycles. Such a calibration will have a clear pro-cyclical effect, destabilizing markets and deteriorating the situation in a crisis. A model that derives the future equity returns distribution from the current position in the equity cycle should be used in order both to calibrate the standard equity shock and to optimise the appropriate period of time for the symmetric adjustment mechanism.	See response to comment 89
91.	Munich Re	3.23.	To ensure a level playing field all equity based stress factors (including equity dampener, duration dampener in Art. 305b) have to be adjusted with respect to the data and the method used to derive the standard equity stress (when the standard stress is increased from 32% to 45%, the 22% stress should be increased to a stress factor of round about 35%).	Noted. See response to comment 396.
92.	PWC	3.23.	We believe that the stress of 45% for global equities, with the potential for the stress to be higher due to the symmetric	Noted. We note that data from MSCI Europe supports a stress of

			adjustment mechanism, is excessive and not fully justified by historic data. We question whether data from other liquid market indices would support such an onerous stress.	53%, MSCI Americas a stress pf 42% and MSCI Pacific a stress of 39%. Analysis similar to that performed in para 3.15 gives an empirical var of at least 45% for Nickei 225, CAC 40, DJ Stoxx 50, DAX, and various others.
93.	RBS Insurance	3.23.	The equity stress was set at 32% for QIS4 and the proposed increase to 45% for global equities seems high. We would support the 39% stress proposed by a minority of CEIOPS' members.	Noted
94.			Confidential comments deleted.	
95.	CRO Forum	3.25.	We note that the calibration of the equity charge should account for the expected return on equity over a one year time horizon (being the risk free rate). The difference between zero and the discount rate can be material, and the discount rate can easily be added to the downward stress. Why is the exclusion of the discount rate a matter of practicability?	Noted. The practicability issues centre on definition of discount rate, the need for continuous updating.
96.	PWC	3.25.	Replace "the on year time horizon" with "the one year time horizon"	Agreed. Paper changed
97.	ABI	3.26.	A calibration based on a European index might not be appropriate for insurers who have globally diversified equity portfolios where we would expect greater diversification of the equity risk and hence a lower capital charge. Global equity risk should be calibrated on a global index, to capture diversification. However, we do recognise that such insurers might chose to use an internal model, at least for the equity risk, in order to avoid this problem and we would expect an internal model may give a lower calibration.	Noted. The choice of index is indeed subjective, and relies on expert judgement. The rationale for choosing the euro index is that this best represents many firms' holdings.
98.	CEA	3.26.	A calibration based on a European index does not appear appropriate for those insurers with globally diversified equity	Noted. The choice of index is indeed subjective, and relies on

			portfolios The discussed calibration would be appropriate for insurers who are investing only in the EEA rather than in a mix of global equities. Those insurers investing in a mix of OECD and EEA equities would expect greater diversification of equity risk and hence a lower capital charge. Therefore, dependent on the investment policies of each insurer, a calibration based only on a European index would not seem appropriate.	expert judgement. The rationale for choosing the euro index is that this best represents many firms' holdings.
99.	CRO Forum	3.26.	The process to derive a shock on the basis of MSCI Europe data should be similar to the process to derive a shock on the basis of MSCI World data, otherwise the shocks are not comparable.	Noted. A Euro index shock has been calculated in section 3.15 using the assumption and time period of the first analysis.
100.	Groupe Consultatif	3.26.	We believe that this is a more suitable index to use than the MSCI World Index.	Noted.
101.	IUA	3.26.	In our view an alternative calibration based on the European index might not be appropriate. Global equity risk should be calibrated on a global index to capture possible diversification.	Noted. See comment 97.
102.	PWC	3.26.	See comments at para 3.8.	See responses to comments above.
103.	DIA Danish Insurance Association	3.27.	3.27: The calibration of the equity risk module should be based on the most diversified index. This is important because companies are to some extent incentivized to synchronize their equity investments with the index used to calculate the symmetric adjustment mechanism. Hence, a positive side effect of the adjustment mechanism is that companies may diversify their equity investments according to the chosen index.	Noted.

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104.	CRO Forum	3.28.	We agree that this would be expected, however the results from CEIOPS' analysis show the opposite.	The discrepancy here lies in the different time periods being used.
105.	CRO Forum	3.29.	We suggest using the same time period as used to derive the shock based on MSCI World data. If the MSCI Europe index is unavailable before 1998 we suggest a synthetic index calculated in a similar manner is used.	The index is available, but it was considered that data before 1998 is unreliable as it falls before the introduction of the single currency.
106.	PWC	3.29.	We note that 10 years is a relatively short period of time on which to base stresses and question whether it would be more appropriate to use the longer period of data analysed in the first proposal.	See response to comment 105.
107.	CEA	3.30.	The data period used appears too short Whilst we sympathise with the aims of the alternative calibration, we would note that the data period used in the calibration is very short and the comments provided do not explain the selection of such a short period.	See response to comment 105.
108.	CRO Forum	3.30.	A time window of little over 10 years is not a good basis for a 1 in 200 shock as it excludes many significant events.	See response to comment 105.
109.	IUA	3.30.	We believe the data period used is very short, especially given that this module is intended to be calibrated to a 1-in-200 year shock.	See response to comment 105.
110.	ABI	3.32.	Whilst we do not support the alternative proposal from the minority view in CEIOPS, we believe their analysis rightly highlights that the calibration proposed by the majority of CEIOPS goes beyond a 1 in 200 confidence level. In this respect, the QIS 4 calibrations were more in line with the Framework Directive's level of confidence. See also comments on para 3.95	Noted.

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111.	CEA	3.32.	We believe the analysis of the Ceiops minority rightly highlights that the calibration proposed by the majority of Ceiops goes beyond a 1 in 200 confidence level. In this respect, the QIS4 calibrations were more in line with the Framework Directive's level of confidence. See also comments on Para 3.95.	Noted.
112.	CRO Forum	3.32.	Please provide some more background to why the current crisis is exactly a 1-200 year event and support to the choice of 49% as the upper bound for the maximum inter-annual fall.	CEIOPS considers that Solvency II should be sufficiently resilient to face a crisis like the actually existing. See also proposed resolution to comment 113
113.	Groupe Consultatif	3.32.	General remark to the alternative proposal: Always considering a new (current) crisis to be at the extreme of the tail is a naive approach. Additionally reducing this extreme event by a globally defined symmetric 10% dampener (which is not quantitatively validated) to receive the mean stress level looks quite arbitrary. Both alternative proposals on calibration of the standard equity charge reference to the extreme scenarios of the current crisis, therefore they should come up with same stress scenarios depending on the choice of the index. Just deducting 10% from the worst scenario do not lead to a 1-200 year confidence level.	This comment seems to misunderstand the methodology used to derive the dampener band calibrated as 29-39-49. The serial data used in this calibration provides evidence that in the highest moment of the market (then, the moment identifiable with the upper extreme of a dampener-band) equity markets dropped by 49%. This means that any dampener calibration should provide in its upper limit at least a 49% stress. Another point may be the derivation of the middle and

				lower points of the band (whether to use 10% or a lower percentage) In any case, it seems objective that the last crisis seems appropriate to identify the upper extreme of the interval, since markets have fallen from their highest records, which is in the essence of the design the 'dampener approach' pretends to prevent.
114.	Institut des actuaires	3.32.	Some points seem to be contradictory (e.g. how could the maximum inter-annual fall be 49% when regarding your table under 3.15 maximum loss is given as 57.95%? [We would expect the 57.95% occurring from 2009.] We would expect that the upper bound is 58%, the standard stress 48% and the lower bound 38%, which would be more prudent than the approach using the MSCI World Index. See also our comment on 3.28. General remark to the alternative proposal: Always considering a new (current) crisis to be at the extreme of the tail is a naive approach. Additionally reducing this extreme event by a globally defined symmetric 10% dampener (which is not quantitatively validated) to receive the mean stress level looks quite arbitrary. Both alternative proposals on calibration of the standard equity charge reference to the extreme scenarios of the current crisis, therefore they should come up with same stress scenarios depending on the choice of the index. Just deducting 10% from the worst scenario do not lead to a 1-200 year confidence level.	Firstly, there is no contradiction between the stress derived in 3.15 (57.95%) and the alternative approach proposing a 29-39-49 dampener-band. Stress derived in 3.15 has been calibrated using a very long period of observations (1973-2009 see 3.13), while the 29-39-49 approach only uses data from the last ten years. As already explained in the CP (see 3.30), this is justified because since the introduction of euro and the new roles and powers given to ECB, one should consider that crisis of financial markets will be better and more efficiently prevented, monitored and managed, than in the last century

				Secondly, see the proposed resolution in respect comment 113.
115.	ABI	3.33.	The effects of the symmetrical equity Pillar I dampener should be further taken into consideration in the calibration of the standard equity stress in order to ensure that the applied equity stress is in line with a 99.5 confidence level.	See proposed resolution to comment 113
116.	CEA	3.33.	The symmetrical equity dampener should be considered when setting the the standard equity stress calibration This is essential to ensure that the combined equity stress that is applied to insurers is in line with the 99.5th%. Calibrating the standard stress to a 99.5th % level and then applying the dampener would not be expected to result in a 99.5th % stress. The combination of the standard stress and the dampener should be calibration so as to ensure the resulting stress is at the 99.5th % level.	See proposed resolution to comment 113
117.	Groupe Consultatif	3.33.	The paper states in 3.5 that the purpose of the equity dampener is to discourage procyclical effects and unnecessary raising of extra capital. It also recognises that this adjustment is inconsistent with the approach of calibrating to a 1 in 200 year risk of default. However, the implication of reducing the 49% 1 in 200 year fall by 10% appears to be that the stress after adding the symmetric adjustment mechanism is a 1 in 200 year event, rather than the stress before the adjustment.	See proposed resolution to comment 113
118.	PWC	3.33.	We have some sympathy with the view that the standard equity stress should be set with reference to the ±10% band within which the dampener must operate. While it may not be appropriate to set the upper limit of the band equal to the 99.5% confidence level stress, it is excessive to allow the stress to be as much as 10	See proposed resolution to comment 113

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			percentage points higher than the level corresponding to 99.5% confidence.	
119.	CEA	3.35.	See comments to Para 3.5.	See response above.
120.	CRO Forum	3.35.	We agree with these objectives but believe that a shadow SCR covering all risk and as set out in our Autumn 2008 paper on Pro-Cyclicality is preferable.	Noted.
121.			Confidential comments deleted.	
122.	ABI	3.36.	4. We agree with the symmetric adjustment mechanism being derived from the MSCI World index, as long as this adjustment pertains to "global" equities. However, there is no rationale for using this index to calibrate the symmetric adjustment for "other" equities. (see comment on 3.62)	Noted. Due to the difficulty in choosing an homogenous index for the 'other' category, the same index was chosen as a pragmatic decision.
123.	CEA	3.36.	A different calibration analysis is likely to be appropriate for insurers investing in a high proportion of domestic equities We would note that as the symmetric adjustment mechanism is derived using the MSCI Developed World Index, the equity holdings of individual firms may perform quite differently, say if they have a higher domestic bias. For example if the domestic equity index were to fall sharply as a result of domestic economic conditions not exhibited in the wider world economy, then this dampener might not activate. It is unclear why a beta rather than alternative, more relevant, indices is used.	Noted. Individual firms will have holdings which are more or less represented by this index. However in the context of the standard formula, it is considered that one representative index must be held, rather than a selection of different indices. If firms have radically different exposures they may wish to consider partial internal models.
124.	CRO Forum	3.36.	Is there a theoretical justification for the use of the beta, or this simply a practical method of striking a balance between market sensitivity and avoidance of pro-cyclical impacts?	The beta parameter is intended to reflect the drift inherent in a stock market time series.
125.	DIMA	3.36.	The adjustment references a standard reference index and not an	Noted. The beta is set to 1 in the

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			undertaking's own performance, so as such there are potentially unintended or unanticipated idiosyncratic capital charges that may arise which will disrupt individual undertakings' risk management. Arguably the Beta could be adjusted to reference an individual undertaking's performance relative to the broad index. However, such a proposal would likely be redirected into an Internal Model framework by CEIOPS.	final advice, but indeed in their own internal models, firms may have different values.
126.	CEA	3.37.	We agree that the equity adjustment mechanism should use equal weightings on the basis of simplicity.	Noted.
127 .	CRO Forum	3.37.	In our view the proposed equity dampener does not achieve the stated objectives. The proposed dampener impacts the shock at all moments in time, while we believe that it should only start to impact the shock after a significant event in either direction (e.g. a 1 in 10yr event). We are also concerned that the current implementation of the dampener would consider recovering markets (from a severe down turn) as "good conditions" and result in a shock closer to 55%, as the dampener kicks in. In our view the dampener should kick in gradually based on the significance of the observed market event that has taken place. This observed market event should at least consider a 1yr horizon and perhaps even longer. CRO forum is open to discuss ideas with CEIOPS on how a better dampener can be constructed.	In order for the dampener to be sufficiently risk sensitive, a three year time horizon is dangerous. It would mean that if equities rose an annual 10% for three years, then had a 30% overnight drop, the dampener would provide no capital relief. In the last 12 months equities have risen by over 40% on most indices, the dampener aims at combating fire sales and pro-cyclicality, and a 12 month period is considered appropriate for this. Whilst there are plausible arguments for only kicking the adjuster in at extreme scenarios, this would be very difficult to objectively calibrate especially as indices rise (would we require an 'extreme' rise).
128.	Munich Re	3.37.	The equity dampener does not the way it is intended to. It should	See response to comment 127

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			only kick in at extreme scenarios.	
129.			Confidential comments deleted.	
130.	CRO Forum	3.38.	The last graph appears to show the performance of the actual dampener being recommended. The stress tests seem to rise very sharply within a year of the global crisis. We would suggest that this shows the dampener not working as intended. We would recommend an approach as set out in our note on Pro-cyclicality from Autumn 2008.	See response to comment 127
131.	Groupe Consultatif	3.38.	We would have appreciated to see the same analysis and results for the MSCI Europe and/or the Eurostoxx 50 index.	It is considered that the analysis for the dampener should be based on a large diversified index such as MSCI world
132.	Munich Re	3.38.	We would have appreciated to see the same analysis and results for the MSCI Europe and/or the Eurostoxx 50 index.	It is considered that the analysis for the dampener should be based on a large diversified index such as MSCI world
133.	RSA Insurance Group	3.38.	Standard stress increased to 45% w/ a dampener +/- 10%. Justification for increase is the recent experience of the global financial crisis. The dampener is intended to give capital relief in the wake of an equity crash. The charts demonstrate this in use, but it then ramps up to the maximum of 55% very quickly even if the recovery in minimal.	See response to comment 127
134.	PWC	3.40.	We request greater clarity on how beta should be calculated.	Beta is calculated by regression between index level and weighted average index level.As the paper notes it is generally similar to one, so is set to one.
135.			Confidential comments deleted.	
136.			Confidential comments deleted.	

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137.	CRO Forum	3.45.	We would suggest that a dampener that moves from -35% to -55% is such a short space of time does not give insurers sufficient time to rebalance their portfolios.	Not agreed. Most insurers can and do rebalance in a matter of hours or days. The question is whether a fire sale can be avoided, and the time period would allow for this.
138.	AFS	3.47.	In the proposed form the "smoothing" formula of the equity stress is sensitive to increases in the Equity Index level. If the idea is to avoid forced sales of equities, why is the test so strong so quickly after some modest recovery from the recent low points? This could create sales of equities and act to suppress any potential recovery in the markets. Perhaps a suitable alternative would be to calibrate this symmetric adjustment based on movements in price/earnings ratios, such that the higher the price/earnings ratio, the stronger the test and vice-versa	Noted. However the time period should allow for more measured portfolio rebalancing (see comment 137). A price/earnings ratio would be very difficult to calibrate as it would depend on firms published dividend date. There is a danger it would be 'lumpy' around dividend seasons.
139.			Confidential comments deleted.	
140.	Groupe Consultatif	3.47.	The "smoothing" algorithm of the equity stress is too sensitive to increases in the Equity Index level. In particular, upon reasonably modest bounces from the local minimum, the equity stress increases rapidly and can tend to the standard stress + (up to) 10% even when it is still reasonably near a recent low point in the Equity Index trend. Taking the 260 day chart, at an Index level of about 1100 (at the last point on chart and also about Oct 08), both points are significantly off the high of 1600 (or so), but the October 2008 stress (while the market was on its way down) is 35% and the last point stress is 55%. If the idea is to try to avoid forced sales of equities, it is not clear why the test should be so strong so quickly after some modest recovery from the recent low points. This could have the potential to create sales of equities and act to suppress any potential recovery in the markets.	See response to comment 127

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			In addition, we would note that, while the chart is bouncing around the 1600 level in 2007 (at its high points), the stress is actually starting to trend downwards. It would seem that when the Index is around its recent maximum level is when there are signs that the stock markets are possibly overheating. This would seem to be a time when you might want the strongest stress test to apply. Therefore, although we are comfortable with the concept of the symmetric adjustment, we don't think it completely works in its current form. Perhaps a better approach might be to calibrate this symmetric adjustment based on movements in price/earnings ratios, so that the higher the p/e ratio, then the stronger the test and vice-versa.	See response to comment 139
141.			Confidential comments deleted.	
142.	CRO Forum	3.50.	The issue of the highest charge being applied shortly after a global crash is acknowledged but no explanation is given as to why this issue is considered acceptable.	See response to comment 127. and more generally the objectives of the mechanism, to avoid fire sales, and pro cyclicality whilst maintaining appropriate policyholder protection.
143.	DIMA	3.51.	DIMA would respectfully disagree with the framing of 3.51 insofar as it suggests that moral hazard may arise where undertakings take on inappropriately large equity investments. It is not within CEIOPS' policy objectives to guide industry in its selection of investment policy.	Noted. Although CEIOPS does have a mandate to encourage firms are sufficiently risk averse to maintain solvent.
144.	ABI	3.52.	This supports the view that the symmetric adjustment should be extended to other asset classes.	Noted. However this is not included in the level 1 directive in the way the equity charge is.

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145.			Confidential comments deleted.	
146.	AMICE	3.54.	CEIOPS states that an averaging period of one year is proposed. A minority CEIOPS' Members has expressed its preference foran averaging period of three years or more. AMICE members support the minority view. See comments to paragraph 3.100	Noted.
147.			Confidential comments deleted.	
148.	CEA	3.54.	Please see comments to Para 3.100.	Please see response below.
149.	CRO Forum	3.54.	Firstly, we do not agree with the existing dampener (see 3.37). We do think that a correct dampener should consider at least the movement in equity prices of a 1 year horizon and perhaps even longer. This should be tested based on an improved equity dampener set up.	Noted
150.			Confidential comments deleted.	
151.	Groupe Consultatif	3.54.	An averaging period of one year seems to be reasonable also because it's comparable to the referencing period of the solvency capital requirement. Long and short term averaging periods both have their strengths and weaknesses, as highlighted in the paper. We believe that a period of one year is a reasonable compromise.	Noted
152.	IUA	3.54.	A longer period may help achieve less pro-cyclicality. The one-year advocated by CEIOPS should be viewed as a minimum.	Noted

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153.	CEA	3.57.	The adjustment to the equity stress should be set annually and at EU level Ceiops does not clearly define the frequency with which the adjusted equity stress is calculated. As insurers are required to monitor their SCR compliance on a continuous basis then in principle the adjusted equity stress would need to be re-calculated and made available following each material change in the market. However, it is important that the equity risk charge does not so frequently change as to cause volatility and uncertainty for the insurer in setting its investment policies. Of course the equity charge must be monitored and adapted if market conditions suggest that the equity risk charge no longer reflects the real risk, but we believe that the adjustment should be assessed on an annual basis. To ensure a level playing field, this should be done at a European level. Certainty is requested over the calibration of the beta Paragraph 3.40 describes the beta as being a calculation which depends on the weighted average index (and the unadjusted index) at the time of the calculation. However this paragraph implies that the beta would be chosen rather than calibrated. We require clarification about the process for choosing the beta. We believe that the beta should either be fixed or calibrated (as a regression) since this would allow member firms more certainty when performing their own scenario tests or alternative indices be permitted.	Agreed. In fact CEIOPS would go further and advise for a more frequent calculation of the adjustment at a Europe wide level (perhaps in line with yield curves being produced), however this is an issue more for level 3 than this paper. See clarification of beta above, beta is calibrated as a regression. However CEIOPS research indicates beta is so close to 1, that at this stage, and for the standard formula, a calibration of 1 is recommended.
154.	CRO Forum	3.57.	The combination of optimising the beta factor and the reference period is explained and the improvements it makes are illustrated,	Noted. This is because CEIOPS considers that the calibration is so

			however the arguments in favour appear to be ignored in setting the final proposal.	close to 1, that at this stage, and for the standard formula, a calibration of 1 is appropriate.
155.	ABI	3.58.	We do not agree with the composition of "other equities". We believe there should be a more granular approach to "other equities". We do not consider this as being too complex and would highlight that other risks such as credit spread risks have been quite detailed. In particular, we are concerned by the inclusion of hedge funds. Hedge funds are designed to sustain more falls in equities than equities themselves but CEIOPS' assumption here seems to be that hedge funds will be more volatile. This could result in pro-cyclical effects with undertakings being forced to fire sell hedge funds. This would not be a positive outcome for policyholders. This is further illustrated by para 3.60 which shows considerable variations between the different equity types within the "other equities" category (as acknowledged by CEIOPS in para 3.61). The results demonstrate that a stress of 23.11% would be adequate for hedge funds as opposed to a minimum 60% for all other equity types. 5. Therefore, we believe there should be a distinction between different types of "other" equities although this need not be too granular. Some of these investments are genuine risk mitigation tools and it would be inappropriate to disincentivise from proper risk management. In addition, for management fund type, firms should be allowed to divide them up using a look through approach. We also believe indirect EEA / OECD holdings (e.g. unit trust) should be allowed under the standard risk charge and would also wish to clarify that real estate funds would not fall under the category of 'other equities. Unless specific stresses are specified for	Noted. As discussed in the response to comment 1, CEIOPS considers the following key problems in introducing extra granularity to the other category: 1) Practical problems in defining what falls into which category (for various European markets). 2) Calibration issues for each category, particularly as they relate to categories which have stocks which vary wildly in risk characteristics (e.g. hedge funds, as mentioned, some have low volatility, and others are extremely high risk). Also worth noting that many of these markets are relatively undeveloped, so reliable indices, and data series to perform calibration are rare. Given these difficulties, at this stage, CEIOPS considers there is

			forest holdings and infrastructure investments, the property risk module is a more relevant risk module for those investments. Finally, we believe the definition of OECD should also account for the growing economies of the world and at least include Singapore and Hong Kong.	insufficient ground to produce results at an increased granularity, and that it would be naïve to accept the VaR's indicated by the table in the CP. However, given the strength of industry comments, and particularly the discussion on the private equity index, CEIOPS has reduced it's calibration by 5% for other equities. In addition CEIOPS maintains that private equity and hedge funds do have risks (not least operational) which are generally materially higher than the risks covered by "global" stocks, and so there should be a differentiation in the risk charge. CEIOPS notes that the indices used for private equity may be inappropriate, and that the hedge fund index may contain sufficient selection bias, again implying that the results derived need to be considered with expert judgement. The paper has had a clarification added to it to the effect that the look through test would generally be applied. Regarding the definition of developed economies. The OECD

				continually updates its members, it has recently invited Chile to be a member, and is in discussions with the BRIC states amongst others. It is considered that membership of the OECD offers a relatively impartial guide to economically developed markets. In addition, we note that the Hong Kong and other equity indices have experienced far higher volatility than European and US indices in the past (for example see response to comment 10).
156.	Adveq	3.58.	Private equity is economically a similar risk to public equity (no economic difference driven by the legal structure of a corporation). Therefore, we question if private equity should be treated differently to public equity at all. This argument in our view holds especially for private equity in EEA and OECD countries. Private equity is not comparable with Hedge Funds , Commodities and Emerging Market. We propose to treat private equity as part of "global equity".	Disagreed. However note the change to the paper, and the response to comment 155.
157.	CEA	3.58.	A more granular treatment is requested In general terms, we support simplicity in the standard formula approach, however this should always be balanced against the need to ensure that the SCR standard formula is sufficiently risk-sensitive and does not involve excessive levels of prudence, particularly for material risks which insurers face, such as equity	Partially agreed. Please see response to comment 155 and the changed paper.

			risk. On this note, we would suggest that the category "other" is split into a more granular division.	
			The analysis in Para 3.60 suggests a stress of 23.11% for hedge funds which contrasts significantly with the stress for "other" equities of 60%. Hedge funds are designed to sustain more falls in equities than equities themselves but Ceiops' assumption here seems to be that hedge funds will react worse. This could result in pro-cyclical effects with undertakings being forced to fire sell hedge funds which would not be a positive outcome for policyholders. The risk/return profile for hedge funds can be materially different to that of a commodity fund. Hedge funds can under the right circumstances provide a natural and efficient way of mitigating risk for an insurance undertaking, and such investments should not suffer a disproportionate treatment with reference to their inherent risk. Moreover, an "equity long-short" hedgefund is comparable with active equity management. The CP does not make a distinction between active and index equity management. A stress test on hedge funds would probably result in hedge funds being substituted by active management in the investment portfolio, with similar unstressed investment results.	Noted. Please see response to comment 155.
			In addition, indirect EEA/OECD holdings (e.g. unit trust) should be allowed under the standard "global" risk charge rather than under the risk charge for "other".	Agreed. Please see clarification of look through test in revised paper.
			We also request that Ceiops considers separately non-listed equities in EEA and non-EEA markets.	Disagreed. CEIOPS considers existing level of granularity is complex enough.

			We would therefore suggest that the "other" category should be further sub-divided, first into EEA and non-EEA others and then for example into: ☐ Unit trusts/collective investment vehicles ☐ Equity in emerging markets ☐ Non listed equity ☐ Hedge funds ☐ Alternative instruments ☐ Equity held in start-up vs established entities. Furthermore, no analysis is presented for those holdings which have a similar nature to property and are very long-term holdings such as infrastructure or forest holdings. We would also wish to clarify that real estate funds would not fall under the category of 'other equities and unless specific stresses are specified for forest holdings and infrastructure investments, the property risk module is a more relevant risk module for those investments as discussed below. Subject to the principle of proportionality, a stress with no allowance for granularity between equity holdings could be retained, but only as a simplification. Infra-structure assets should be treated under the "property" risk sub-module In our view, direct and indirect exposure to infrastructure should be treated as direct and indirect exposure to regular property, and	For all such cases a look through test would be applied, and an effort to understand the true nature of the risk. For example some property companies may have additional overlays of e.g. op risk, or may be leveraged entailing more risk, others may be pure property holders. Again, the look through test may be applied. More generally large holdings in such assets may be

			their risks considered accordingly in the property risk sub-module. We discuss this issue below: (i) Main characteristics of infra-structure assets There is no precise legal definition of the term "infra-structure". In our experience, the term normally covers investments in physical installations serving a public need which have certain functional characteristics, including low risks and returns that are long term, stable and predictable. Examples of infra-structure investments include direct and indirect exposure to power production, power distribution (e.g. electricity grids), gas pipes, toll-roads, telecom networks and water- and sewage systems. Infra-structure can either be held directly or indirectly. Direct exposure to infra-structure includes e.g. direct ownership in the physical pipelines for transportation of natural gas. Such investments are currently allowed under directive 2002/83/EC article 23(1) C (l) ("tangible fixed assets"), provided the asset can be "valued on the basis of prudent amortisation". Indirect exposure to infrastructure can be obtained through a number of financial instruments, for example through shares in an investment company invested in infra structure, or bonds issued by an infra-structure owner/operator. (ii) Economic rationale for investing in infra-structure in certain jurisdictions The need to invest in infra-structure is based on specific market conditions in some EEA-countries: ☐ In some EEA-countries, insurance undertakings carries defined benefit pension liabilities on its balance sheets. Mark-to-market accounting of assets and liabilities poses particular	subject to a 'significant deviation from the risk profile of the standard formula' clause. For such investments, which can vary so widely in structure, firms must make an analysis of the risks to which they are exposed because of them, and hold capital accordingly. See also response to comment 157. Noted

			challenges for such undertakings, especially in respect of the composition of their assets. ☐ The market for long-term assets denominated in the same currency as the liabilities (e.g. government bonds), is limited in some EEA-countries. The need for investments in assets holding the same basic economic characteristics as government bonds are especially important in these cases. One can probably expect an increased interest on the "demand side" for infra-structure investments. The state of public finances in a number of EEA-countries may require national governments to find partners in funding public infra-structure, and investments of insurance undertakings might provide an important contribution in that respect. (iii) Classification of infra-structure investments In our view, direct investments in infra-structure would normally qualify as investments in "land, buildings and immovable-property rights" as defined in Ceiops' Advice on Article 109 – Structure and Design of Market Risk Module (former CP47) Para 4.102. A common characteristic of infra-structure investments as mentioned above, is that they relate to immovable assets, such as e.g. factory/power plants, water-fall rights in respect of production of hydroelectric power, masts for distribution of electric power, pipes for water and sewage distribution, and related ownership rights/rights to use the land to which these installations are attached. More importantly, all these investments are bearers of the same underlying economic characteristics as regular property (low risks, long-term and predictable returns). In that respect, it is worth noting that a number of large institutional investors are invested in	Noted. See above comments, regarding look through, as well as understanding all risks attached to nature of the holding. See also response to comment 157 remarking that many infrastructure investments may take the form of structured securities, and so be charged as such.

			infrastructure as a supplement to investments in regular property. For example, the Norwegian Government Pension Fund, one of the world's largest pension funds, recently decided to start investing in infrastructure in addition to investing in real estate. Based on available empiric studies in the area, the decision was explained as follows in a report to the Norwegian Parliament: Investments in infrastructure, such as electricity and water supplies, toll roads, airports and telecommunications, have traditionally constituted a very limited market. However, increasing private participation and the growing need for private funding have made these kinds of investments interesting for long-term financial investors. The market for this type of investments is expected to grow in the years to come. The return on and the risk associated with infrastructure investments will vary widely among the different projects, but it is normal to assume that the return and risk of developed projects will resemble the return and risk associated with investments in real estate. As is the case for real estate, investments in infrastructure will also contribute to diversifying the risk in the Government Pension Fund and to reaping gains over time by investing in less liquid assets. In making the assessment of whether a particular investment should be deemed property or not, we will therefore argue that focus should be on underlying economic characteristics, rather than merely focusing on the classification of the relevant investment under national property law. The suggested approach would better reflect the economic realities of the investment, and it would avoid problems that would arise under a more formalistic approach due to of the many different interpretations of the terms "property" and "real estate" in different member states/EEA-states.	

			As for indirect investments, the capital charge would depend on the legal form of the financial instrument in question. We assume that holding of shares in infra-structure companies and interests in collective infra-structure investment vehicles will be treated as holding of shares/interests in ordinary real estate companies/collective investment vehicles, see further in Ceiops' Advice on Article 109 – Structure and Design of Market Risk Module (former CP47) Para. 4.102-103. This would imply that investments in leveraged infra-structure companies would be treated as equity, and not real estate. We would underline that leverage is an important element of both infra-structure investments and other property investments, and that we generally find Ceiops' advice as too restrictive in this respect. Our point in this context however, is that the issue of leverage should be dealt with in the same way whether or not the underlying investment is "traditional" real estate or if it also includes infra-structure. Bonds and other loans related to infra structure issuers/lenders would be classified according to the regular classification rules applicable to those investments, and therefore be subject to the regular rules on interest rate risk and spread risk.	
158.	CRO Forum	3.58.	We note that the analysis in section 5.4 shows a clear case for a more granular split between the various categories within category "Other". It should also be investigated to what extent such other categories are correlated with global equities.	Partially agreed. Please note revised paper, and comment 155.
159.			Confidential comments deleted.	
160.	HDF Finance	3.58.	1. We recommend that another sub-module is created in addition to the "equities" sub-module, in order to assign a stress to hedge funds that is more relevant and more in line with their past and likely future behaviour. To add another sub-module is permitted by the Level 1 text, since the Directive, in its Article 105-	Please see response to comment 155 for justification of our approach, as well as the updated paper.

			5, states: "[The market risk module] shall be calculated (…) as a combination of the capital requirements for AT LEAST the following sub-modules:(...)".	Agreed. Please see amended paper.
			2. Private Equities and Emerging Market Equities are equities, and Commodities have exhibited a past behaviour more or less in line with them, at least as far as the Proposed Stress in paragraph 3.60 is concerned.	Noted
			3. However, hedge funds are neither equities nor an asset class. They are rather an investment approach. Hedge fund managers use a wide series of asset management tools on conventional asset classes in order to reach certain investor objectives such as, for example, absolute returns, namely returns with as little a correlation with market indices over the medium term as possible. Hedge funds are also designed to provide investors with some sort of protection (hedge) when equity and bond markets fall. The efficiency of that sort of protection is demonstrated in paragraph 3.60 of CP 69 where the 'Proposed Stress' for Hedge Funds is around one third the one for "other equity" assets.	
			4. Also, voluntary codes of conducts and Guides of Sound Practices have been published for both hedge funds and funds of hedge funds by the AIMA. These codes recommend prudent rules of conduct with the expressed goal of limiting the risks for investors. That is another reason to recommend hedge funds being assigned a stress different from the stress assigned to "other" equities. Article 16a of the Level 1 text Directive offers regulators that possibility: "Supervisory authorities may take account of the effects on risk and asset management of voluntary codes of conduct and transparency adhered to by the relevant institutions dealing in unregulated or alternative investment instruments."	Noted
			5. Finally, onshore regulations do exist today within the European Union, for example in France for both hedge funds and	

			fund of hedge funds (the 'ARIA' regulation). Given the work currently being done by the European Commission and by the European Parliament on hedge fund regulation (the draft AIFM directive), it is likely that more hedge fund regulation will be created within the near future in the EU and elsewhere. The CEIOPS should take all this into account when designing a stress level for hedge fund investments and do so outside the "other" equities 'miscellaneous bucket'.	Noted
161.	IUA	3.58.	We believe that there should be a higher level of granularity for the "other equity" group. For example, investments in non-listed equities might be focussed on the longer-term, and is less likely to be subject to "fire sales" and therefore have less volatility. Similarly equities in real-estate holding companies (or funds) might be better reflected in the property sub-module.	Please see response to comment 155 and modified paper.
162.	RBS Insurance	3.58.	Given the wide diversity of hedge funds it seems unduly harsh to group all hedge funds in the "other equities" category. We would favour an approach where this was the default classification but there was an opportunity to reclassify it where this could be demonstrated and justified according to the underlying investments.	Agreed. If a firm feels that the standard formula does not accurately reflect the risks of their assets, they are welcome to justify a different charge through a partial internal model to their regulator. CEIOPS considers a standard formula which attempts to categorise hedge funds into "risky", and "safe" infeasible.
163.	SIGNAL	3.58.	Private equity is economically a similar risk to public equity (no economic difference driven by the legal structure of a corporation). Therefore, we question if private equity should be treated differently to public equity at all. This argument in our view holds especially for private equity in EEA and OECD countries.	Not agreed. Please see response to comment 155, and revised paper.

			Private equity is not comparable with Hedge Funds , Commodities and Emerging Market. We propose to treat private equity as part of "global equity".	
164.			Confidential comments deleted.	
165.			Confidential comments deleted.	
166.	WBCSD	3.58.	The framework for capital requirement is changing as part of the Solvency II process. The current status of Solvency II shows a considerable capital charge for infrastructure as this asset class is part of the less specific category 'alternative investments'. Alternative investments is regarded a risky asset class. Infrastructure, however, can be structured into an investable form which is far less risky than other 'alternative investments'. The change needed is therefore twofold: First, the granulation of the asset class 'alternative investments' must be finer, enabling a separate capital charge, in particular for infrastructure investments A clear definition of what can be regarded as an infrastructure investment must be established, including the level of government guarantees needed to qualify as a low risk asset class. Second, the asset class can be purchased in a form giving either secure nominal or real cash flows, meaning that the value of the infrastructure investments can be sensitive to either interest rate or inflation changes. This is a wanted property in the Solvency II framework, as the liabilities will have interest rate or inflation sensitivity as part of the mark to market valuation required in Solvency II. A proper regulation and risk assessment of this asset class will enable life companies to use this asset class as part of the asset liability management process (ALM). The current status of Solvency	Noted Agreed. If a firm feels that the standard formula does not accurately reflect the risks of their assets, they are welcome to justify a different charge through a partial internal model to their regulator. In these cases a look through test may be applied, and the firm should consider the nature of the risks such an infrastructure investment would bring. Please see also response to comment 30 above.

			II will lead to a capital charge for these investments far exceeding the return expectations. As a consequence, a rational investor regulated under the Solvency II regime as currently proposed will not invest in infrastructure, and changes are therefore needed.	
167.	CAPDYN	3.59.	Paragraph 3.59 and 3.60 suggest using the one year 99.5% VaR of the LPX50 Total Return Index for the calibration of the asset class private equity. Based on our long experience with private equity, we do not consider this index to be representative for the asset class private equity. The following reasons support the statement that the LPX 50 does not reflect the risk & return characteristics of a private equity portfolio of a typical institutional investor: (i) Institutional investors usually do not invest in publicly traded vehicles in order to build a private equity portfolio, but use the private limited partnership structure. Institutional investors, like insurance companies and pension funds use typically this partnership structure for private equity funds with a lifetime of 10 to 12 years because of their long-term horizon. Investors commit the capital to a private equity fund, the capital can be drawn over the first 5 years and will be distributed typically between year 2 and 10. During the investment period the companies are held private and their value is reported through the Net Asset Value (NAV) of the managers. While data series from the independent private equity data provider Thomson Venture Economics show a volatility of around 20% for quarterly changes of NAV's, the LPX50 index suggests a risk measure of 60%. Hence, a risk measure based on the price movements of listed public vehicles is not reasonable. (ii) The LPX50 index does not reflect the long-term nature of private equity. As institutional investors usually keep their fund investments over the entire period and do not sell them on the	Regarding the choice of private equity index. CEIOPS notes the concerns here, and has modified the paper and calibration accordingly. Given the wide variety of private equity vehicles/investment methods and risks, and slection bias etc within indices, CEIOPS does not consider that a charge less than the charge for global equities is appropriate. CEIOPS notes that the charge should be appropriate to withstand a 1 year 99.5th percentile loss, for this reason the risk must be assessed over this timescale. CEIOPS also notes the concerns regarding the composition of the index, and how it may differ from the direct investment made by insurers in the private industry sector, however without a study

			secondary market, this long-term horizon has to be reflected in the risk measure. According to Article 105a of the Level 1 text, the symmetric adjustment mechanism states that the risk of an asset class "shall be calculated over an appropriate period of time". Additionally, private equity is self-financing, while listed private equity is driven by buy and sell decisions. The risk of daily market prices of the LPX 50 does not reflect the right risk of a long-term asset class with a time-horizon of 10 years and quarterly valuations. Hence, it is not reasonable to calculate the risk of a long-term asset class based on short-term risk measure. (iii) Trading volume of the LPX50 index is very low. The trading volume of the underlying vehicles was very low over the last year. This supports the argument that these vehicles are mostly traded by retail clients that do not accept the long-term horizon of private equity. At the same time, the low trading volume indicates that the prices of the LPX50 vehicles is very inefficient, which also explains why most of the underlying vehicles of the LPX50 have been traded at an excessive discount of 80% to 90% over the observation period. In addition, share price developments are not necessarily driven by the performance of the underlying investments, but are rather a function of market sentiment. Hence, a risk measure based on inefficient traded vehicles is also questionable. (iv) Composition of LPX50 index: The LPX50 index consist of private equity managers (whose business model is based on generating management fees and carry through the management of private equity funds), private equity funds and fund of funds or even a mix out of various strategies in one vehicle, e.g. KKR. Institutional investors usually build a diversified portfolio of private equity funds. The LPX 50 does not reflect the typically portfolio characteristics of institutional investors. Summarizing, the LPX50 does not reflect the characteristics of the asset class private equity due to the above mentioned	to support the make up of the investment of European insurance firms to the private equity sector, has to consider this discussion carefully. Regarding the suggestion of a 'rating' approach rather than a market value approach, CEIOPS considers this is not in line with the spirit of the directive, and the underlying nature of private equity vehicles as equities.

			shortcomings. Consequently, a reasonable risk management system for private equity investors should reflect (i) Partnership model as described above (ii) Long-term horizon: Private equity is an asset class with a long-term horizon of 10 to 12 years. According to Article 105a of the Level 1 text, the symmetric adjustment mechanism states that the risk of an asset class "shall be calculated over an appropriate period of time". Therefore, a risk measure which reflects the long-term horizon of this asset class has to be taken into account. The invested Capital at Risk (iCaR) is one approach that account for the particularities of the asset class private equity and the long-term horizon of the partnership model of institutional investors. See Diller / Herger (2009); see attached. (iii) Diversification effect of institutional investors' portfolios: The diversification effect of private equity portfolios is very important in order to reduce the risk of institutional investors. Studies of academics as well as practioners show that the risk of an investment in one single private equity deal (i.e. a direct investment in one company) is about 30%, while the risk of losing any money is very limited in the case of investors that allocate their capital to more than 25 funds. See the independent study of Weidig / Mathonet (2004) and Diller / Herger (2009) as well as Kubr / Rouvinez (2003); see attached. Hence, private equity funds require a risk analysis which is closer to the assessment of default risk rather than a market risk paradigm. Due to the specific characteristics of private equity, most market participants suggest to use "rating" approaches where private equity funds are grouped into categories associated according to their risk. Capital Dynamics developed models that allow deriving the default	

			risk of private equity portfolios and received ratings from Standard & Poor's and Moody's on bonds that are backed by diversified private equity portfolios. (See articles about rating methods attached) Both rating agencies rated the senior bonds of the diversified portfolios of private equity funds with 'AAA" ratings at the closing of transactions in 2002 and 2006 and confirmed the rating in January 2009. This also shows evidence that the risk of diversified private equity portfolios over the long-term is very limited. Capital Dynamics is happy to provide further information on this topic or participate in discussions about risk management in private equity.	
168.	Partners Group AG	3.59.	The proposed stress for private equity following a separate analysis based on the LPX50 is calculated to be 68.67% and then set to 60% within the "other" equities category. In our opinion, these figures substantially overstate the actual risk of private equity. The separate analysis for private equity is based on a listed private equity index, the LPX50. This index, however, is not considered to be representative for an institutional investor's private equity portfolio: i) Different content: The LPX50 represents to a large extent investments in private equity managers (i.e. companies that generate their revenues from asset management business in the form of management fees – as opposed to investment performance from investing in traditional private equity). In addition, globally diversified (unlisted) private equity portfolios of institutional investors exhibit a significantly different regional split than the LPX50 and typically also a much broader diversification across managers. ii) Different key figures: Historically, private equity shows significantly lower maximum drawdowns than the LPX50. Historical	Noted. Discussion and analysis gratefully received. Please note the comments to response 167, and the updated paper.

			data provided by Thomson Reuters indicate a volatility of 20% and a maximum draw down of 25% for global private equity. Broadly diversified private equity portfolios (e.g. information published by large US investors) indicate maximum drawdowns in the range of 30-35%. We therefore consider the LPX50 not to be a representative index to calibrate a shock factor for the Solvency II guidelines. Data suggests that a stress of approximately 35% for unlisted private equity does more appropriately reflect the behaviour of the asset class. LPX50: + Public data, daily available + Marked-to-market - High volatility, highly correlated to public markets (especially financials), high maximum drawdown - Not representative for a non listed private equity portfolio (see following pages) - Asset managers/BDCs* represent a significant part of the ten largest positions within the LPX50 * BDC: „Business Development Company" is a designation specific to public firms in the U.S. that invest in small, upcoming businesses. Key figures over a 10 year horizon (LPX50): Return : -5.5% Volatility: 41.2% Autocorr. (Lag 1Q): 0.16	

Volatility (unsmoothed): 48.4%

Max. drawdown: 81.5%

Corr to MSCI World: 0.87

Source: Bloomberg, Quarterly returns for the 10 year horizon ending June 2009.

Compared to a globally diversified private equity portfolio, the LPX50 overweighs Europe/UK and is significantly less exposed to North America and Asia. Furthermore, asset managers and BDCs attribute to 35%, but have a completely different character than traditional private equity.

	LPX50			LPX50	
Buyout	76.9%		Developed	97.6%	
Private debt	16.5%		Emerging	2.4%	
Venture	6.7%	versus ~ 25%*			
Special Situations	0.0%				

	LPX50			LPX50	
Holding company	7.2%		Europe	43.2%	versus ~ 30%*
Public Partnership	55.8%		UK	21.3%	
Asset Manager	18.9%	versus 0%*	North America	30.0%	versus ~ 60%*
BDC	17.1%		Japan	2.8%	
Fund of Funds	1.1%		Rest of world	2.8%	
			Emerging countries	0.0%	*

Estimate compared to a globally diversified private equity portfolio. Source: Partners Group estimate.

The LPX50 is highly concentrated: The ten largest positions amount to two thirds of the volume of LPX50. However, there are approximately 4'000 private equity firms globally.

Asset management companies: Unlike traditional private equity

investments, approximately half of the ten largest positions of the LPX50 generate fee income from asset management (for one third this income is significant).

Name	MCap in m EUR	Region	Stage	%
Eurazeo	2'588.7	Europe	Buyout	9.7%
3i Group	2'872.5	UK	Buyout	8.4%
Partners Group Holding AG	2'196.0	Europe	Asset Manager	8.3%
Ratos	2'775.3	Europe	Buyout	7.5%
Wendel	1'919.1	Europe	Buyout	7.2%
Onex	1'776.5	North America	Buyout	6.7%
The Blackstone Group L.P.	10'302.7	North America	Asset Manager	5.6%
KKR & Co. (Guernsey) L.P.	4'086.2	North America	Asset Manager	4.6%
Apollo Investment	1'060.8	North America	Private Debt	3.5%
GIMV	828.8	Europe	Buyout	3.2%

Top 10 positions	64.7%
Asset managers	18.5%
With sign. fee income component	33.6%
With fee income component	46.5%

Private Debt	3.5%
Buyout	42.7%
Asset Manager	18.5%

The majority of private equity managers is not listed. The market capitalizations of the companies in the LPX50 amount to EUR 40bn, which is only a fraction of the private equity industry worldwide (> EUR 1'000bn).

We suggest to use other available private equity data, e.g. provided by Thomson Reuters, which we consider to be more appropriate.

Thomson Reuters private equity data:

+ Global coverage by a reputable data provider: over 2'100 U.S. funds and over 1'300 European funds

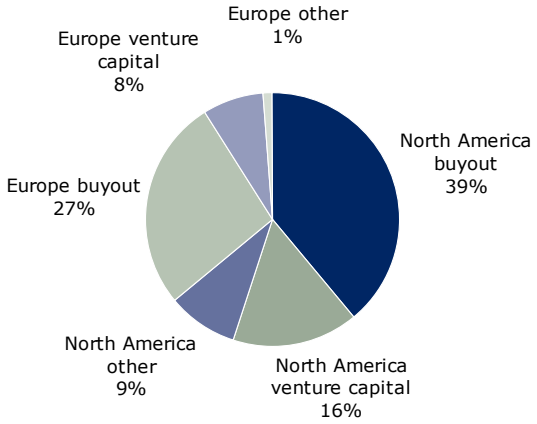
+ Long history: significant coverage since the early 1980s for U.S. and since mid/end 1980s for Europe

+ Development representative for a globally diversified private equity portfolio

+ Data for main segments: data is available for the main segments (chart below)

+ Publicly available (for a fee)

- Quarterly data of a non-tradable index (no "marked-to-market")



Source: Partners Group estimate based on Thomson Reuters figures per 31.12.2008.

Key figures over a 10 year horizon (Thomson Reuters; 50% US All PE, 50% Western Europe All PE):

Return : 6.9%

Volatility: 10.9%

Autocorr. (Lag 1Q): 0.52

Volatility (unsmoothed): 19.4%

Max. drawdown: 22.7%

Corr. to MSCI World: 0.66

Source: Bloomberg, Thomson Reuters, quarterly returns for the 10 year horizon ending on 30 June 2009

			Conclusion: The broad private equity market, according to data provided by Thomson Reuters, shows an unsmoothed volatility of 20%. The maximum drawdown currently reported amounts to 25%. Broadly diversified private equity portfolios (e.g. data from large U.S. investors) show maximum drawdowns on private equity portfolios in the range of 30-35%. While the stress for "global equities" compares well to the actual stress of the public market over the last 12-18 months, a stress of 70% as suggested for private equity cannot be observed in a globally diversified private equity portfolio. The data available for unlisted private equity and an initial analogue use indicate a significantly lower stress in the range of 35% for unlisted private equity. Our comment also applies to paragraphs 3.60. and 3.61.	
169.	ABI	3.60.	See comments under para 3.58	See responses to this comment.
170.	Adveq	3.60.	The LPX index is an index of publicly listed private equity vehicles, but does not properly represent the private equity market. Additionally standard deviation and VaR measures of LPX are not a suitable estimator for the standard deviation of private equity in general as it is highly distorted due to low market capitalization and low trading volumes. The best data sources to represent the private equity industry performance are Thomson Reuters (VentureXpert) and Private Equity Intelligence Ltd. (Preqin) which disclose quarterly performance data for the private equity fund industry. The private	See response to comment 168

			equity market has become increasingly transparent with regards to its performance on a quarterly basis and the accounting standards applied today by the vast majority of fund managers represent a proper mark-to-market valuation of the investments (as audited annually). The reported performance of the funds is therefore a proper reflection of the quarterly / annual volatility of private equity. Volatility and stress data derived from VentureXpert or Prequin are clearly lower than those derived from LPX.	
171.	AMICE	3.60.	Based on the results at the empirical 99.5% VaR level we suggest to apply a single stress for the Hedge funds and to apply a common shock to Private Equity, Commodities and Emerging Markets. Private Equity LPX50 Total Return: - 68.67% Commodities S&P GSCI Total Return Index : 59.45% Emerging Markets MSCI Emerging Market BRIC:63.83% Average Shock to PE, Com and EM : 63,98% AMICE members support CEA proposal for applying a more granular approach to the "other" category type of equity as follows: ☐ Collective investment vehicles ☐ Equity in emerging markets ☐ Non listed equity	Partially agreed. See discussion of bias in indices above, and in the paper. As well as the revised paper. Not agreed, please see comment 155, and revised paper. CEIOPS notes the addition of the look through test criteria in the revised paper.

			☐ Hedge funds ☐ Alternative instruments AMICE members propose to apply a shock of 23% to hedge funds and stress of 45% to Private Equity LPX50, Commodities S&P GSCI, and Emerging Markets MSCI S&P.	Disagreed.
172.	Braunschreiber	3.60.	The Consultation Paper No. 69 is providing suggestions for the design and calibration of the equity risk sub-module. Among others, this sub-module is dealing with the treatment of Private Equity investments with respect to the standard equity capital charge. I.e. a stress for Private Equity – in line with "other equities" – of 60% is proposed. This stress level has been derived by using a listed Private Equity index (LPX50 Total Return index). We support the standard approach to derive stress levels based on volatilities of historic return data resulting from relevant benchmarks. However, we deem the suggested use of the LPX50 Total Return index as not representative of and thus not appropriate for the Private Equity asset class. This index significantly overstates the actual volatility of the asset class and also overstates the correlation of Private Equity with public equity for a variety of reasons (see below for details). As an alternative, we strongly propose to model Private Equity on the basis of an appraised value-based index that is computed on the basis of cumulative cash flows and the (appraised) net asset values of actual closed-end Private Equity funds (see below for reasoning). This index should be based on data provided by the	Noted. See response to comment 167 above. As well as the other discussion above, and the modified paper.

			independent and widely available ThomsonReuters VentureXpert database, which is tracking such data for roughly 50% of all closed-end Private Equity funds worldwide (Source: our estimate based on ThomsonReuters data). This appraised value-based index on the basis of ThomsonReuters VentureXpert is overcoming a number of shortcomings that are inherent in the LPX50 Total Return index: o The LPX50 Total Return index is not representative for the typical Private Equity investment that is undertaken in a closed-end fund. Quite to the contrary, it is attempting to track the performance of non-listed equity investments (Private Equity) by tracking listed stocks (public equity), thereby disconnecting from the very nature of the Private Equity investments it is attempting to track. The appraised value-based index, by contrast, is relying on a broad and highly representative set of actual Private Equity funds' cash flows from and to the investors and on regularly updated valuations of the underlying Private Equity investments according to Private Equity-specific and broadly accepted valuation principles (e.g.: SFAS 157, EVCA valuation guidelines, BVCA valuation guidelines, etc.). The appraised value-based index therefore reflects the true cash flows and valuations that a Private Equity investor "sees" and which he will actually have to incorporate and reflect in his financial statements. Therefore, the use of an appraised value-based index will guarantee that more compatible "methods" are applied to financial accounting as well as risk measurement. o Although the LPX50 Total Return index is based on the 50 largest liquid listed stocks which can broadly be associated with Private Equity, it not only comprises listed "portfolios" (i.e. funds)	

			of privately held deals (which is the relevant part of a typical institutional Private Equity investment spectrum), but also a number of listed stocks of the management companies of Private Equity managers, or, in some cases a mixed bag of both. As such, when compared to the actual investment universe a Private Equity investor typically selects from, the LPX50 Total Return index grossly over-represents the performance impact of the management companies of Private Equity funds and under-represents the performance impact of the relevant investments into the Private Equity funds themselves. o Within the world of listed securities, the LPX50 Total Return index is based on a largely illiquid market segment with a total market capitalization of significantly below EUR 80bn (Source: Center for Entrepreneurial and Financial Studies, TU Munich), while the appraised value-based index using ThomsonReuters VentureXpert data can be computed on the back of over 3,000 Private Equity funds with a total fund capitalization in excess of EUR 850bn (Source: ThomsonReuters VentureXpert). o When compared to the total Private Equity closed-end fund universe, the LPX50 Total Return index is largely overweighed towards Europe (esp. the UK) and towards Balanced Funds (Source: our analysis based on www.lpx.ch, ThomsonReuters VentureXpert), and thus also from this angle not adequately representative of the relevant investment universe mix a typical institutional investor in Private Equity would look at. Computing the appraised value-based index on the basis of ThomsonReuters VentureXpert data for a widely diversified global Private Equity portfolio leads to an appropriate stress-range of 15-20%. Computing similar figures for various sub-segments (e.g. Buyout vs. Venture Capital, Europe vs. North America) produces stress-ranges of 10-30%. Based on these computations, we believe the stress for Private Equity should not be set at a level exceeding	

			30-35%. The same comment also applies to 3.59., 3.61. and 3.104.: We suggest deriving the stress for Private Equity investments from an appraised value-based index based on ThomsonReuters VentureXpert performance data. Please also refer to the attached Research Paper ("Private Equity Indices – Listed PE vs. Appraised Value PE Approach", von Braun & Schreiber Private Equity Partners, Munich / November 2008) that is reflecting our research on the topic in more depth. If helpful, von Braun & Schreiber Private Equity Partners would be happy to provide you with more detailed information, such as the underlying data and the quantitative analysis that led to the conclusions and figures mentioned in our research and comments to sections 3.59., 3.60., 3.61., 3.63., 3.104. and 3.107.	
173.	CAPDYN	3.60.	See also 3.59; especially the statements about the long-term characteristics of the asset class private equity	Please see response to referenced comment.
174.	CEA	3.60.	We request that Ceiops specifies the time frame for the data series. With regards to the use of the LPX50 Total Return index for Private Equity, we question whether this index adequately captures the risk associated with such investments. If one takes a closer look at this index, it includes, amongst other things, listed management companies for Private Equity funds, and does not reflect the risks associated with investing in the funds themselves. Furthermore, a number of large companies in the index are engaged in a wide range of activities in addition to Private Equity investments (such as real estate, hedge funds and private debt).	All from inception to 2009. Inception dates: LPX 50: 1986, HFRX: 1998, MSCI BRIC 1994 Note the discussion above particularly the response to comment 167. Also note revised paper.

Summary of Comments on Consultation Paper 69 - CEIOPS-CP-69/09 CEIOPS-SEC-171-09 CP No. 69 - L2 Advice on Design of the equity risk sub-module				
			See also comments to Para 3.58.	
175.	CRO Forum	3.60.	Theoretically, it is not possible to develop one standard charge for all "other" equities and a single stress of 60% therefore does not seem to be appropriate. A 23% shock for a well diversified hedge fund appears reasonable, while a 70% shock to private equities seems extreme for private equities. Some asset classes should have much higher factors, and some should have much lower factors. For the standard model, we may consider splitting funds into high and low volatility funds and developing two charges. It would be undesirable to create perverse incentives that discourage undertakings from investing in low-risk "other" equities. The results of the analysis show that the worst losses for hedge funds are significantly lower than the worst losses for private equity, commodities and emerging markets. Research (Horst/Verbeek, Review of Finance 11(4), 2007) has shown that biases in the hedge fund indices, such as survivorship bias or self selection bias, could lead to an overestimation of as much as 8% per year. However, even when taken into account this impact, we believe that the shock for a well diversified hedge fund portfolio should remain proportionate to the underlying risk and therefore be lower than the 60% which is currently applied for 'other equity'.	Noted. CEIOPS considers splitting e.g. hedge funds into high and low volatility funds would be subjective, impractical, and somewhat political, and so will not be pursuing this. Agreed. See revised paper.
176.			Confidential comments deleted.	
177.	EVCA	3.60.	CEIOPS' advice on equity risk follows the scenario-based approach as in QIS4. It uses historical data and performs calculations on volatility, maximum draw-downs and correlations. The standard model proposed in the consultation is calibrated to the one-year 99.5% VaR level for both "global" and "other" equity. Private equity is assigned to the "other" equity category and the analysis put forward is based on a listed private equity index, the LPX 50.	Noted. Note the discussion above particularly the response to comment 167. Also note revised paper.

			EVCA considers this approach to modelling private equity risks as fundamentally flawed. Institutional investing in private equity is predominantly through funds that have a contractual lifetime of 10 years and follow a very distinct lifecycle. In such cases it is meaningless to view risk as the volatility of a time series over short horizons. Whereas institutional investors in private equity are typically long-term oriented and have the intention and ability to hold onto their positions over the full lifetime of the funds, publicly quoted private equity vehicles are specifically set up to attract the wider public to this asset class and they therefore basically display the same characteristics as public stocks. Share price developments are not necessarily driven by the performance of the underlying investments, but are rather a function of market sentiment. For publicly quoted private equity as typically second-line stocks, the lack of liquidity is priced into the market, the thin market results in high bid-ask spreads, often extreme discounts and price movements. As a consequence, the LPX 50 cannot be a suitable yardstick for the risks institutional private equity investors incur. Instead, for example, the standard deviation around the private equity funds' average returns could be taken as a suitable measure. Taking this perspective, an independent study undertaken by Weidig and Mathonet□ specifically looked at the risk profile of diversified portfolios of private equity funds and found that a direct investment has a 30% probability of total loss, a fund or a portfolio of direct investments has a very small probability of total loss, and a portfolio of funds has a small probability of any loss. According to their results, the maximum diversification benefit is sufficiently	

			reached with a portfolio of between twenty and thirty funds. These results have been confirmed in practice over the past years and even through difficult market cycles. Private equity funds with their low liquidity, require, in the eyes of most industry practitioners, risk analysis closer to that which accompanies the assessment of default risk rather than a market risk. Indeed, "rating" approaches where private equity funds are grouped into categories associated with growth expectations are widely used in the industry. EVCA would be happy to provide further information and analysis on this subject and urges CEIOPS to engage in a modelling discussion with the private equity industry to avoid giving a distorted view on risks inherent in this asset class with far reaching implications for an important part of Europe's innovation and economic system.	
178.	Groupe Consultatif	3.60.	The main reason for distinguishing between 'global ' and 'other' equities appears to be the different volatilities of these groups of equity. Diversification is another possible reason, although arguably there are greater diversification benefits within the global equity category (e.g between territories). The analysis in 3.60 shows that hedge funds are less volatile than global equities and much less volatile than other assets in the 'other equity category'. This conclusion is not intuitively obvious, and ideally further investigation work should be carried out to validate it. It is likely that the volatility will depend on the aims of the hedge fund. Otherwise, if CEIOPS have faith in the analysis that they have carried out, the most sensible reaction would be to recategorise hedge funds as global equity.	Noted. Please see the response to comment 167 above, and the revised paper.

Summary of Comments on Consultation Paper 69 - CEIOPS-CP-69/09 CEIOPS-SEC-171-09 CP No. 69 - L2 Advice on Design of the equity risk sub-module				
179.	Partners Group AG	3.60.		-
180.	SIGNAL	3.60.	The LPX 50 index is a listed private equity index and not representative for an institutional investor's private equity portfolio. Therefore the LPX 50 is not a representative index to calibrate a shock factor for the Solvency II guidelines. Different content: The LPX 50 represents to a large extent investments in private equity managers (i.e. companies that generate their revenues from asset management business in the form of management fees – as opposed to investment performance from investing in traditional private equity). In addition, globally diversified (unlisted) private equity portfolios of institutional investors exhibit a significantly different regional split than the LPX 50 and typically also a much broader diversification across managers. Different key figures: Historically, private equity shows significantly lower maximum drawdowns than the LPX 50. Historical data provided by Thomson Reuters indicate a volatility of 20% and a maximum draw down of 25% for global private equity. Broadly diversified private equity portfolios (e.g. information published by large US investors) indicate maximum drawdowns in the range of 30-35%.	Noted. Please see response to comment 167 above, and the revised paper.
181.			Confidential comments deleted.	
182.	ABI	3.61.	See comments under 3.58 and 3.105 CEIOPS suggests that the volatility for non-listed equities is higher and therefore a higher shock is justified. We do not agree with this proposal. 6. The different shock scenarios for "global" (listed equities in EEA and OECD countries) and "other" is in our opinion not reflective of the actual risks which are accompanying the categories. CEIOPS seems only to take into account listed funds which invest in unlisted	Please see response to these comments. The counter to this argument is that "real" shares are often untraded, and so unlikely to be held be large firms, whereas they may gain their exposure through

			shares etc. When looking at "real" unlisted shares, it can be argued that they are not characterized by a higher volatility than listed shares. Furthermore, the big difference in applied shocks (45% and 60%) could disrupt the market as a company willing to invest either in a listed company or a non-listed company will automatically be inclined to invest in the former. In our opinion, the Solvency II framework should not discriminate one over the other unless the risks are real. In our opinion this conclusion seems strange as CEIOPS is willing to propose a much higher equity shock for non-listed than for listed while the structure of those non-listed equities implies a less liquid investment. An investor is much more likely to sell listed equities than non-listed. Thus the possibility for a value recovery within the non-listed while these investments are still part of the portfolio is more likely than with listed equities.	listed funds. Noted, but CEIOPS thinks a distinction is important, to recognise the different risk categories. Disagreed. However in a forced sale, if a firm needs to liquidise its unlisted equities, it may have extreme difficulty realising the price.
183.	Adveq	3.61.	Private equity is not comparable with Hedge Funds , Commodities and Emerging Market. We propose to treat private equity as part of "global equity". Applying Thomson Reuters (VentureXpert) or Private Equity Intelligence Ltd. (Preqin) data for deriving the private equity proposed stress factor leads to different results and make the whole argumentation chain of 3.61 obsolete.	Noted Please see response to comment 167 above, as well as revised paper.
184.	CEA	3.61.	The 60% stress, moving to 70% under certain circumstances, appears excessive We do not see the rationale behind the substantial increase of the standard stress for other equities from 45% under QIS4 to 60% as proposed by Ceiops here. The proposed stress of 60% for global	Noted.

			equities is high. When combined with the adjustment mechanism, a stress of 70% could be applied in some circumstances. Undertakings will lose diversification benefits between equity portfolios and will be deterred from holding "other" equities. In our view this is disproportionately onerous and will deter investments in these types of assets. In particular the stress seems very high compared to the volatility of hedge funds as summarised in the paper.	Noted. Please see discussion above, particularly comment 176.
			A more granular treatment is requested It does not follow straight from the results shown in Para 3.60 that 60% would be an appropriate stress scenario. It would seem particularly inappropriate for hedge funds. Furthermore many non-listed companies could not be categorised under the four categories presented by Ceiops.	Disagreed. Please see comment 155, and lower calibration in revised paper.
			We would support a more granular stress and we have discussed this in detail in our comments to Para 3.58.	See response to these comments.
			Ceiops suggests that the volatility for non-listed equities is higher and therefore a higher shock is justified. We do not agree with this proposal. 17. The different shock scenarios for "global" (listed equities in EEA and OECD countries) and "other" is in our opinion not reflective of the actual risks which are accompanying the categories. Ceiops seems to only take into account listed funds which invest in unlisted shares etc. When looking at "real" unlisted shares etc. it can be argued that they are not characterized by a higher volatility than listed shares. Furthermore, the big difference in applied shocks (45% and 60%) could disrupt the market as a company willing to invest either in a	See response to comment 182 above.

			listed company or a non-listed company will automatically be inclined to invest in the former. In our opinion, the Solvency II framework should not discriminate one over the other unless the risks are really apparent. In our opinion this conclusion seems strange as Ceiops is willing to propose a much higher equity shock for non-listed than for listed while the structure of those non-listed equities implies a less liquid investment. An investor is much more likely to sell listed equities than non-listed. Thus the possibility for a value recovery within the non-listed while these investments are still part of the portfolio is more likely than with listed equities. 18.	
185.			Confidential comments deleted.	
186.	Deloitte	3.61.	The 60% stress, while justified by the numbers, in effect excludes this "other" asset class from many insurance investments due to the cost involved in terms of SCR.	Noted. Please see revised paper with lower calibration
187.	Groupe Consultatif	3.61.	Single stress for "other" equities of 60% should be looked into in more detail (avoid pro-cyclical effect).	Noted. Please see revised paper with lower calibration
188.	HDF Finance	3.61.	As evidenced in paragraph 3.60, hedge funds deserve a stress of around one third the proposed stress for "other" equities. Assigning a specific stress to hedge funds would be more relevant, more transparent, and more in line with the actual level of risk, but would not introduce any "disproportionate" complexity at all, especially if one has in mind the much greater complexity of the "spread risk" and "market risk concentration" sub modules, for example. The reason why the hedge fund index fell by a smaller magnitude than "other" equities is that hedge fund managers use a wide series of asset management tools on conventional asset classes in order to reach certain investor objectives such as, for example, absolute	Disagreed. Please see comments above (particularly 155) and revised paper.

			returns, namely returns with as little a correlation with market indices over the medium term as possible. Hedge funds are also designed to provide investors with some sort of protection (hedge) when equity and bond markets fall.	
189.	Institut des actuaires	3.61.	To be studied	-
190.	IUA	3.61.	We believe that the difference in capital charges for global vs. other equities is too large and unjustified. We note that the stress for "other" equities could potentially reach 70% with the dampener under certain circumstances. Whilst we understand that the 32% stress under QIS 4 was generally considered too low, we feel that the 70% stress for such equities is excessive. We would question whether it is consistent with a 99.5% VaR. If the capital charge deters the holding of these types of assets through excessive capital charges, then the Solvency II regime will discourage the diversification of equity portfolios. We believe that CEIOPS should be encouraging the diversification of equity exposures.	Partially agreed. Please see response to comments above, and revised paper.
191.	KPMG ELLP	3.61.	Although CEIOPS suggests a single stress of 60% for Other equities, the table in 3.60 shows that hedge funds have a much lower stress level implied than this. Whilst we recognise that there are a range of different fund strategies undertaken by hedge funds, some of which are riskier than others, it appears overly prudent to apply the 60% stress to this category of investments when the empirical evidence suggests a stress test in the order of 25%. We therefore suggest that CEIOPS consider this category of investment further to determine whether a sub-categorisation could apply, with the riskier types of hedge fund subject to the 60% stress, but for those that do not incur a high degree of risk a lower stress can be applied. If this is the case, then we would suggest a stress test consistent with Global equities is applied, rather than	Noted. Please see revised paper, and discussion above (particularly comment 155)..

			the 25% suggested in 3.60, to prevent encouraging (re)insurers to possible arbitrage by placing investments into a hedge fund vehicle to reduce the SCR charge.	
192.	SIGNAL	3.61.	Private equity is not comparable with Hedge Funds , Commodities and Emerging Market. We propose to treat private equity as part of "global equity". Applying Thomson Reuters (VentureXpert) or Private Equity Intelligence Ltd. (Preqin) data for deriving the private equity proposed stress factor leads to different results and make the whole argumentation chain of 3.61 obsolete.	Not agreed. Please see response to comment 167 and revised paper.
193.			Confidential comments deleted.	
194.			Confidential comments deleted.	
195.	XL Capital Ltd	3.61.	The standard stress of 60% on other equities still seems high; our internal risk models have shown that hedge fund VaR is much lower (@15-20%) and we would be more in favour of applying the previously noted 45% stress if internally generated VaR results were not available.	Partially agreed. Please see revised paper.
196.	ABI	3.62.	We believe that calibrating the symmetric adjustment on MSCI World index is not relevant when it comes to adjusting the "other equity" charge. The treatment of the "other equity" group should be more granular and the symmetric adjustment should be calculated on the corresponding relevant indices (e.g. S&P GSCI for commodities, HFRX Global for hedge funds, etc…) See also our comments under 3.58	Noted. However, CEIOPS feels that the benefits due to pragmatism of this approach outweigh loss in accuracy.
197.			Confidential comments deleted.	
198.	CRO Forum	3.62.	In our view introducing a symmetric adjustment mechanism adds more (undue) complexity than using a simple fixed percentage	Not agreed. The directive indicates a symmetric adjuster

			shock. We would propose to not add the symmetric adjustment mechanism in the category "Other". Given the diversity of types of equities, the category would much more benefit from having a more detailed split than introducing a calculation-intensive symmetric adjustment mechanism.	should be applied in these cases.
199.	Deloitte	3.62.	We would welcome clarification by CEIOPS on the indices to be used for the symmetrical adjustment regarding "other equities". We do not believe the use of the MSCI World index is appropriate – the indices used in 3.60 ought to be used instead.	The MSCI World index is proposed. See response to comment 196 for justification.
200.	KPMG ELLP	3.62.	We agree that the symmetric adjustment mechanism should be applied in a consistent manner to that applying to Global equities.	Noted.
201.	Adveq	3.63.	The LPX index is an index of publicly listed private equity vehicles, but does not properly represent the private equity market. Additionally LPX suffers from low market capitalization and low trading volumes. The best data sources to represent the private equity industry performance are Thomson Reuters (VentureXpert) and Private Equity Intelligence Ltd. (Preqin) which disclose quarterly performance data for the private equity fund industry. The private equity market has become increasingly transparent with regards to its performance on a quarterly basis and the accounting standards applied today by the vast majority of fund managers represent a proper mark-to-market valuation of the investments (as audited annually). The reported performance of the funds is therefore a proper reflection of the value changes in private equity and can be used to calculate correlation to the MSCI World indices. Such correlation data derived from VentureXpert or Prequin are lower than those derived from LPX.	Noted. Please see response to comment 167

Summary of Comments on Consultation Paper 69 - CEIOPS-CP-69/09 CEIOPS-SEC-171-09 CP No. 69 - L2 Advice on Design of the equity risk sub-module				
202.	Braunschreiber	3.63.	Due to its composition of only publicly quoted stocks, the LPX50 Total Return index overstates the correlation between Private Equity and Global Equity (as defined in section 3.7.). Using an appraised value-based index based on ThomsonReuters VentureXpert data, we can demonstrate a significantly more moderate correlation between both asset classes near 40%. The same comment also applies to 3.107.: We suggest applying a lower correlation of 40% between Private Equity and Global Equity.	Noted. Please see response to comment 167
203.	CEA	3.63.	We request clarification of how the "tail correlation" has been calculated If the calculation has been performed using all the data points (i.e. a straight linear correlation calculation) this would seem at odds with the methodology used to determine the correlation parameters in CP74. We would highlight that Ceiops appears to have made efforts to use a more robust calibration methodology in this paper than those use to calibrate the correlations in CP74.	Noted. Please note the revised discussion of correlation calibration methodology in the final correlation advice.
204.	CRO Forum	3.63.	The term tail correlation is ambiguous and could cover various ways of measuring tail dependence. CEIOPS should explain how this has been calculated and how many data points it is based on. In particular we would like to point out that we are surprised to see a -52.82% correlation between MSCI World and MSCI Emerging Markets.	The correlation is the empirical correlation observed in the tail of the distributions. Noted.
205.			Confidential comments deleted.	
206.	EVCA	3.63.		-
207.	Groupe Consultatif	3.63.	The results in this table are surprising: we would expect the correlation with hedge funds to be much lower than 77.31%, and	Noted. Please see response to comment 204

			would certainly not expect the correlation with emerging markets to be negative. We would wish to understand how these calculations have been performed.	
208.	Partners Group AG	3.63.	CEIOPS proposes a correlation of 0.75 between "global" and "other" equities. While especially the US buyout segment strongly correlates with the MSCI World, other segments such as venture capital or European buyout funds are less correlated to public markets. Our comment also applies to paragraph 3.64.	Noted.
209.	SIGNAL	3.63.	The LPX 50 index is a listed private equity index and not representative for an institutional investor's private equity portfolio. Therefore the LPX 50 is not a representative index to calibrate a shock factor for the Solvency II guidelines. Therefore the mentioned correlation of 83.59% must not be used.	Noted. Please see response to comment 167.
210.	Institut des actuaires	3.64.	Correlation between "global" and "other" equities of 75% seems to be reasonable.	Noted
211.	KPMG ELLP	3.64.	We believe this is reasonable.	Noted
212.	PWC	3.64.	We question whether the data justify a correlation as high as 75% between "global" and "other" equities. For example, the correlation of the MSCI World indices with the MSCI Emerging Markets index is stated to be around -50%.	Noted, CEIOPS desires for a consistent approach to avoid further correlation matrices and undue complexity.
213.	XL Capital Ltd	3.64.	Our experience with hedge funds suggests that volatility is much lower and correlation is much less to global or other equities since funds have the ability to be long or short and asset class; we view the 75% correlation to be too high to be applied to hedge funds.	Noted.
214.	CEA	3.65.	We agree with the comments in this paragraph, namely that the equity volatility stress would only be expected to impact the valuation of certain derivative instruments on the asset side and	Noted, firms should only consider the stress where relevant.

			the value of certain options and guarantees on the liability side. Therefore, we would not expect it be applied for all insurers depending on the nature of their assets and liabilities and its impact would be expected to be on a small proportion of the balance sheet.	
215.	ABI	3.67.	We believe the assumption of perfect correlation between equity price risk and equity volatility risk to be excessively prudent. Whilst it is justified to include the risk of an increase in equity volatility in the standard formula since this is a genuine risk which firms may be exposed to, we believe that equity price risk and equity volatility risk should be separately tested and then combined via a correlation matrix. We believe there is a risk that the suggested volatility stresses will increase pro-cyclicality as in distressed situations there could potentially be a huge demand for instruments that hedge volatility risk, which could cause market volatility to increase. The multiplicative stress makes the situation even worse since a high volatility would lead to a higher stress. If a volatility stress been introduced, then we believe that following conditions should be met: ■ The stress should apply only over a one year period of time. Otherwise the assumed level volatility stress is inconsistent with historical data because any volatility spike is usually observed over a very short period of time. ■ Any double counting with the level stress should be avoided to keep consistency with the 99.5% VAR level. The combination of the two stresses with no analysis to ensure that the combined capital requirements do not exceed the 99.5th% level is inappropriate. Furthermore CEIOPS assumes that the stresses are perfectly correlated and allows for no diversification between the	Agreed. Please see revised paper with a correlation coefficient of 0.75. Noted Noted. See the revised paper with an inclusion of a correlation less than 1 between the two risks.

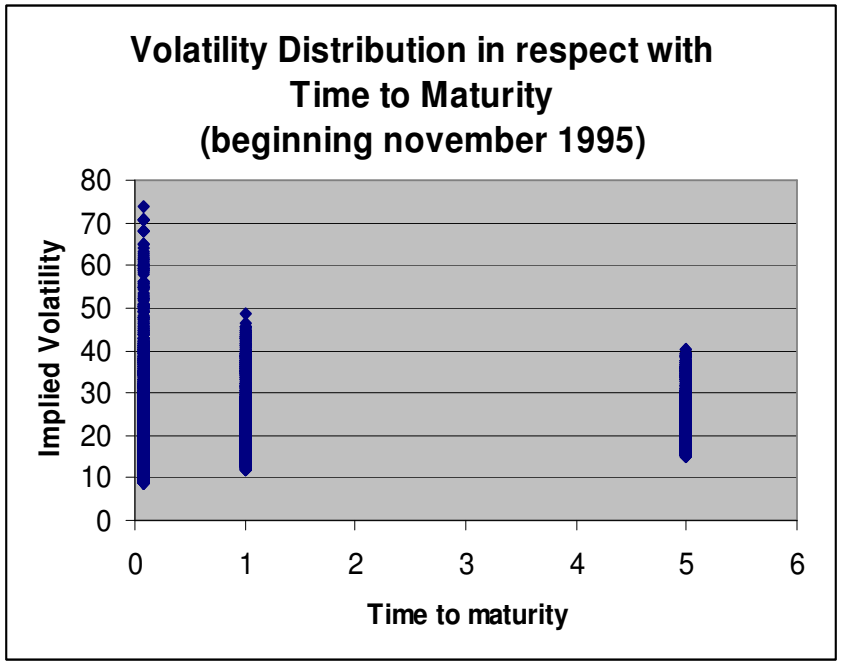
			risks which does not appear appropriate. We discuss this further below. ■ The application of the volatility stress should not be pro-cyclical. The stress should be additive and not multiplicative and the stressed volatility (once the stress is applied) should be capped and floored, otherwise the capital requirements will be higher in stresses market conditions. Please refer to the analysis provided by the CEA in its response to CP 69 for further details. For some undertakings, subject to the proportionality principle, a simplified approach (e.g. a fixed percentage of guaranteed investment-linked reserves) could be more appropriate.	CEIOPS believes an additive stress to be imprudent. In stressed conditions, it is more important to have a multiplicative stress to protect policyholders. Noted.
216.	ACA	3.67.	In the same manner of interest rate risk, we consider that equity risk must also contain a shock of implied volatility corresponding to a Var 99,5%. This value is fundamental to price optional hedging on a single stock position or an equity index position. Example: Portofolio of 100 investing in European equity market. Suppose this portofolio is hedged by an European PUT option on EUROSTOXX 50 of maturity 1 year and of strike 80% of spot index value SCR before hedging : 45 (a shock of -45% is assumed) Price of PUT option before shock : 2 (Mark to Market) Price of PUT option after shock : X (Mark to Model) SCR after hedging : 45+2-X To calculate X (price of the option after shock), the difficulty is to	Agreed. See final advice.

			calibrate the implied volatility after an instantaneous shock of -45% using Black and Sholes model. If the standard model gives this value (we suggest a value between 50% and 80%) we can easily calculate X (taking account of the one year interest free rate which is also given by the standard model). Additionally, we will appreciate that next QIS describes precisely how standard model takes account of optional hedging, and if this example respects or not standard model principles?	Noted
217.	AFS	3.67.	We believe that the inclusion of the equity volatility risk in the standard formula will increase the complexity of the calculations, and companies with simple business risks and operations may be affected as a result. The Solvency II principles should not be too burdensome for companies with simple business risks and the inclusion of the equity volatility risk in the standard formula may invalidate this theme.	Noted. As for all risks only firms which are exposed to this risk will have to calculate the capital requirement for it.
218.			Confidential comments deleted.	
219.	CEA	3.67.	We are not convinced that the inclusion of the equity volatility shock, as it is currently proposed, is appropriate The introduction of this additional stress could lead to an over-estimation of capital requirements for equity as it could include a double-counting of equity risk. This needs to be carefully considered and the current proposals are not justified. If an equity volatility shock is taken into account in the shock scenario, the calibration of the volatility shock and the level shock should be such so as to ensure that the total capital requirements reflect the 1 in 200 year event and should not result in capital requirements for equity which are far in excess of the 1 in 200 level.	Noted Agreed

			We should also note that the suggested volatility stresses will increase pro-cyclicality as the use of a multiplicative stress will lead to higher capital requirements in stressed markets when volatility is also expected to be high. Furthermore, in distressed situations there could potentially be a huge demand for instruments that hedge volatility risk, which could cause market volatility to increase.	See response to comment 215
			If a volatility stress is introduced, then the following conditions must be met: ☐ The stress should apply only over a one year period of time. Otherwise the assumed level volatility stress is inconsistent with historical data because any volatility spike is usually observed over a very short period of time. ☐ Any double counting with the level stress should be avoided to keep consistency with the 99.5% VAR level. The combination of the two stresses with no analysis to ensure that the combined capital requirements do not exceed the 99.5th% level is inappropriate. Furthermore Ceiops assumes that the stresses are perfectly correlated and allows for no diversification between the risks which does not appear appropriate. ☐ The application of the volatility stress should not be pro-cyclical. The stress should be additive and not multiplicative and the stressed volatility (once the stress is applied) should be capped and floored, otherwise the capital requirements will be higher in stresses market conditions. We should add that we would expect that the methodology used to	See response to comment 215

			calibrate the equity and interest rate volatility stresses (i.e. between this CP and CP70) is consistent.	Noted
			A simplified approach to allow for equity volatility shocks should be included	
			We would like to stress the need to apply the principle of proportionality. For some undertakings, a simplified approach (e.g. a fixed percentage of guaranteed investment-linked reserves) could be appropriate.	Noted
			The assumption of perfect correlation between equity price risk and equity volatility risk is excessively prudent	Agreed, see revised paper.
			It is justified to include the risk of an increase in equity volatility in the standard formula since this is a genuine risk which firms may be exposed to. However the proposal as it stands to combine the equity price stress with the equity volatility stress assumes that the two risks are perfectly correlated. We believe that equity price risk and equity volatility risk should be separately tested and then combined via a correlation matrix. After all, it is important to note that the consideration of volatility risks by means of a multiplicative approach and with the assumption of perfect correlation to the equity stress, tends to compromise the benefits of anti-cyclical elements such as the symmetric adjustment mechanism. That is, even though stress factors tend to decrease, if the index level is below the one-year-average, this effect will diminish, if the volatility stress is taken into account by means of the current Ceiops' approach.	Agreed, note the revised paper.
			Additional background :	Noted. Background analysis gratefully received.

			Conclusion 1 : volatility decreases with maturity : • We would like to highlight that for regulatory purpose all maturities corresponding to the economic exposure of the insurer should be taken into account to ensure consistency with the insurer's exposure. • Therefore, the volatility of an index or stock cannot be measured by a unique reference to 3 month or 1-year term data, as the volatility is less for longer maturities, which implies longer term maturities should have lower shocks. • Practical evidence is provided below, where figure 1 displays the distributions of 1 month, 1 year and 5 year volatility data from a large and active bank on the derivatives business, covering a period from 1995 until 2009.	



- Figure 1 shows that :
  - the maximum of the distribution decreases with the time to maturity
  - the minimum of the distribution increases with the time to maturity
- Figure 2 below provides the main characteristics of each set of data :

	1 month	1 year	5 years
Min	8.8	11.9	15.2
Max	74.0	48.8	40.0

Mean	19.8	20.9	22.9
std	8.1	5.8	5.0

Figure 1

Conclusion 2 : when the volatility is high, the probability of a rise in the volatility is low

- Popular models for volatility suggest that it follows **a mean reverting process** (see Heston model, SABR, etc…). This is supported by historical market data, for which the higher (resp. lower) the volatility, the lower the probability of volatility going further up (resp. down).
- Figure 3 displays statistics on the evolution of volatility during the following year after it has reached or exceeded its 90th percentile (approximated by average plus 1.28 standard deviations):

	1 month	1 year	5 years
Threshold Levels	30.15	28.29	29.26
Average Evolution	-55%	-21%	-11%
Number of cases	169	133	193
with Volatilty up	5.3%	0.0%	0.0%
with Volatility down	94.7%	100.0%	100.0%

Figure 2

Based on figure 3, we can conclude that every time the volatility has reached a high level corresponding to its 90th percentile, it has decreased during the following year for 1 year and 5 years periods. For 1 month periods, it is still the case for 95 times out of 100. **Therefore it seems rather unrealistic to apply a high upward volatility stress when volatility is high, as proposed by Ceiops and its multiplicative shocks.**

Furthermore, figure 3 shows that the average variation

<table>
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<td>during the following year strongly depends on the period: the longer the period, the lower the average evolution.

• Figure 4 displays statistics on the evolution of volatility during the following year after it has reached or went below its 90th percentile (approximated by average plus 1.28 standard deviations):

<table>
<tr><td></td><td>1 month</td><td>1 year</td><td>5 years</td></tr>
<tr><td>Threshold Levels</td><td>9.35</td><td>13.46</td><td>16.51</td></tr>
<tr><td>Average Evolution</td><td>84%</td><td>30%</td><td>12%</td></tr>
<tr><td>Number of cases</td><td>37</td><td>160</td><td>337</td></tr>
<tr><td>with Volatilty up</td><td>100.0%</td><td>100.0%</td><td>95.9%</td></tr>
<tr><td>with Volatility down</td><td>0.0%</td><td>0.0%</td><td>4.2%</td></tr>
</table>

Based on figure 3, we can conclude that every time the volatility has reached a low level corresponding to its 90th percentile, it has increased during the following year for 1 year and 1 month periods. For 5 years periods, it is still the case for 96 times out of 100. Therefore it seems rather unrealistic to apply a high downward volatility stress when volatility is low, as proposed by Ceiops and its multiplicative shocks.
Furthermore, figure 4 shows that the average variation during the following year strongly depends on the period: the longer the period, the lower the average evolution.</td>
<td></td>
</tr>
<tr>
<td>220.</td>
<td>CRO Forum</td>
<td>3.67.</td>
<td>Given the materiality of equity volatility risk for many insurers, we believe this risk should be included in the standard formula.

Concrete proposal for a practicable approach</td>
<td>Agreed.</td>
</tr>
</table>

			We see two types of option valuation methods: 1. Closed form, like Black&Scholes formula These will give the shocked net asset value by replacing the base-case equity volatility parameter with the shocked equity volatility parameter 2. Scenario based valuations This method will give the shocked net asset value by replacing the set of scenarios in the base valuation by a set of scenarios based on a shocked volatility assumption. One idea would be to have a dedicated equity risk sub-module with an equity stress, an equity volatility stress and then an aggregation into a combined equity stress for both Global and Other. First aggregating the equity level shocks for Global and Other, Secondly aggregation the volatility shocks for Global and Other and as a last step aggregate these all together. This would recognise the diversification between equity implied volatility and equity returns which are not perfectly correlated. It would be economically sensible to have a term structure of equity implied volatility stresses to reflect the lower stresses required for long term equity option implied volatilities. Alternatively the shock could be applied to a 5yr point while considering that the long-term best estimate forward volatility typically used for extrapolating volatilities can remain constant.	Noted, the final advice has a solution similar to this. Whilst this may be economically accurate, we consider it would produce undue complexity in the standard formula.
221.			Confidential comments deleted.	
222.	Deloitte	3.67.	We agree that it is appropriate to consider stresses to implied volatility.	Noted.
223.	DIMA	3.67.	It is appropriate that undertakings countenance changes in the level of volatility where the policy objective for technical provisions	Noted.

			is market consistency, noting that a significant component of the changes in other than short term volatility are changes to market liquidity. It is also worth identifying that as the standard formula becomes more encompassing, it does tend to obviate the need for an internal models assessment of the BSCR on the grounds of inadequate capture of risks. As a proposal, DIMA would suggest that CEIOPS look to investigate a volatility stress test which looks to raise the level of volatility to a long-term high watermark level such that the volatility stress test is equal to Maximum{(High Vol – Current Vol), 0}. This has advantages in terms of symmetric pro-cyclicality as well as looking to avoid the compounding of market illiquidity premiums and thus incorporate some element of mean reversion of market transaction costs as well as the statistical diffusion process.	Disagreed, the risk with such an approach is that the high watermark chosen is imprudent in future market conditions, or seen as restrictively high in current conditions.
224.	FFSA	3.67.	CEIOPS asks stakeholders' opinion about the treatment of equity volatility risk and welcomes concrete proposals for ensuring a practicable approach. FFSA considers that equity risk should be considered as a single stress. Hence, FFSA believes that no volatility stress should be added to the standard formula as it's not a major risk for insurance companies. Volatility stress seems more relevant when using internal model for specific portions of the undertakings activity subject to short-term volatility. : - - The assumed level volatility stress is inconsistent with historical data because any volatility spike is usually observed over a very short period of time - The assumed level of volatility stress is inconsistent with	Noted. Noted, although the analysis for this is contentious at best. See response to comment 215

			up, the probability of a supplemental increase is going down. On the contrary, the stress applied in the CP is multiplicative, which would lead to a high capital charge when the volatility is high which is unnecessarily pro cyclical. This is inconsistent with the Level 1 directive. - There hasn't been any established definition of the volatility (volatility surface, implied vs. historical,…).Hence a volatility shock would increase disparities in the results. - The calibration of the volatility stress along with the equity level stress is inconsistent because it leads to go beyond the 99.5% VAR level - It's a burdensome in terms of calibrating the ESG with many additional runs and calculations often do not converge.	Noted. Disagree, the correlation factor is designed to produce a stress which is overall 1:200 Noted, however if the risk is material, capital should be held to cover it.
			FFSA believes that had a volatility stress been introduced, the following conditions should be met: - The stress should apply only over a one year period of time - Any double counting with the level stress should be avoided to keep consistency with the 99.5% VAR level - The stress should be additive and not multiplicative and the stressed volatility (once the stress is applied) should be capped and floored	See response to comments above, particular 219 and 215
			Additional background : **Conclusion 1 : volatility decreases with maturity :** We would like to highlight that for regulatory purpose all maturities should be taken into account to ensure consistency with the insurer's exposure .	See response to comment 219

Therefore, the volatility of an index or a stock can not be measured by a unique reference to 3 month or 1-year term data: hence, the volatility is less volatile for longer maturities, which implies longer term maturities should have lower shocks. Moreover, the level of the volatility depends upon the maturity.

Practical evidence is provided below, where figure 1 displays the distributions of 1 month, 1 year and 5 years volatility data from a large and active bank on the derivatives business, covering a period from 1995 until 2009.

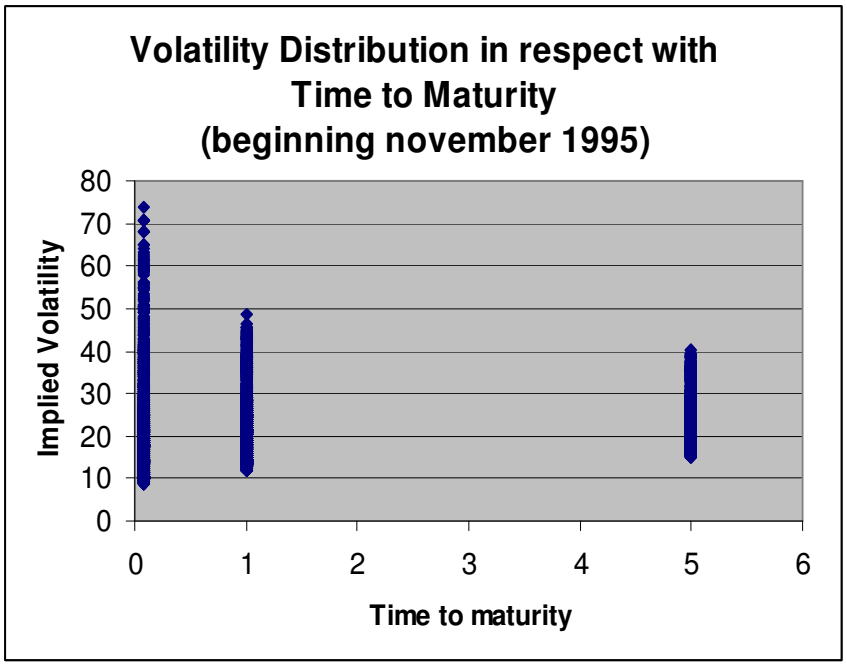


Figure 3

Figure 1 shows that :

- **the maximum of the distribution decreases with the time to maturity**
- **the minimum of the distribution increases with the time ot maturity**

Figure 2 below provides with the main characteristics of each set of data :

	1 month	1 year	5 years
Min	8.8	11.9	15.2
Max	74.0	48.8	40.0
Mean	19.8	20.9	22.9
std	8.1	5.8	5.0

Figure 4

Conclusion 2 : when volatility is high, the probability of a rise in the volatility is low

Popular models for volatility suggest that it follows **a mean reverting process** (see Heston model, SABR, etc…). This is supported by historical market data, for which the higher (resp. lower) the volatility, the lower the probability of volatility going further up (resp. down).

Figure 3 displays statistics on the evolution of volatility during the following year after it has reached or excdeeded its 90th percentile (approximated by average plus 1.28 timed by standard deviation):

	1 month	1 year	5 years
Threshold Levels	30.15	28.29	29.26
Average Evolution	-55%	-21%	-11%
Number of cases	169	133	193
with Volatilty up	5.3%	0.0%	0.0%
with Volatility down	94.7%	100.0%	100.0%

Figure 5

Based on figure 3, we can conclude that every time the volatility has reached a high level corresponding to its 90th percentile, it has decreased during the following year for 1 year and 5 years periods. For 1 month periods, it is still the case fo95 times out of 100. **Therefore it seems rather unrealistic to apply a high upward volatility stress when volatility is high, as proposed by CEIOPS and its multiplicative shocks.**

Furthermore, figure 3 shows that the average variation during the following year strongly depends on the period : the longer the period, the lower the average evolution.

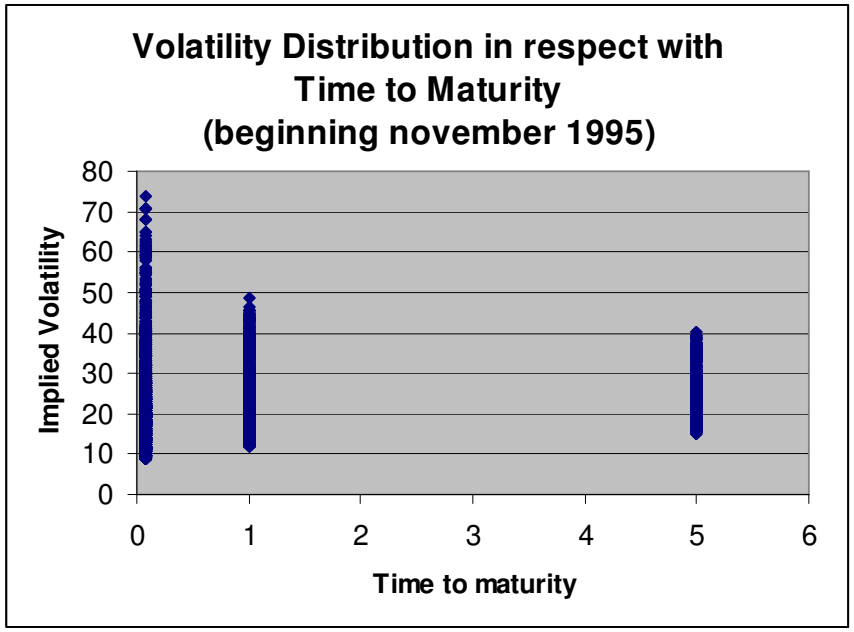
Figure 4 displays statistics on the evolution of volatility during the following year after it has reached or went below its 90th percentile (approximated by average plus 1.28 timed by standard deviation):.

	1 month	1 year	5 years
Threshold Levels	9.35	13.46	16.51
Average Evolution	84%	30%	12%
Number of cases	37	160	337
with Volatilty up	100.0%	100.0%	95.9%
with Volatility down	0.0%	0.0%	4.2%

			Based on figure 3, we can conclude that every time the volatility has reached a low level corresponding to its 90th percentile, it has increased during the following year for 1 year and 1 month periods. For 5 years periods, it is still the case fo96 times out of 100. **Therefore it seems rather unrealistic to apply a high downward volatility stress when volatility is low, as proposed by CEIOPS and its multiplicative shocks.** Furthermore, figure 4 shows that the average variation during the following year strongly depends on the period : the longer the period, the lower the average evolution.	
225.			Confidential comments deleted.	
226.	GDV	3.67.	We object against the introduction of an equity volatility shock as volatility shocks are already implicitly included within the equity shock itself. We would like to highlight that the consideration of volatility risks, as it is proposed in this CP (multiplicative approach and perfect correlation) are pro-cyclical. At least the equity volatility shock should not be included without reconsideration of double-counting of risks within the equity stress. If a volatility stress been introduced, then we believe that following conditions should be met: ■The stress should apply only over a one year period of time. Otherwise the assumed level volatility stress is inconsistent with historical data because any volatility spike is usually observed over a very short period of time. ■Any double counting with the level stress should be avoided to keep consistency with the 99.5% VAR level. The combination of the two stresses with no analysis to ensure that the combined capital	Disagree, the equity stress is not calibrated to include a volatility shock. Note the new correlation factor between the equity and volatility stresses. See response to comment 224 above.

			requirements do not exceed the 99.5th% level is inappropriate. Furthermore CEIOPS assumes that the stresses are perfectly correlated and allows for no diversification between the risks which does not appear appropriate. Therefore we suggest to include volatility risks by means of a separate sub-module into the market risk module thereby allowing for adequate correlation assumptions. ■The application of the volatility stress should not be pro-cyclical. The stress should be additive and not multiplicative and the stressed volatility (once the stress is applied) should be capped and floored, otherwise the capital requirements will be higher in stresses market conditions. We discuss this further below. The assumption of perfect correlation between equity price risk and equity volatility risk is excessively prudent It is justified to include the risk of an increase in equity volatility in the standard formula since this is a genuine risk which firms may be exposed to. However the proposal as it stands to combine the equity price stress with the equity volatility stress assumes that the two risks are perfectly correlated. We believe that equity price risk and equity volatility risk should be separately tested and then combined via a correlation matrix. After all, it is important to note that the consideration of volatility risks by means of a multiplicative approach and with the assumption of perfect correlation to the equity stress, tends to compromise the benefits of anti-cyclical elements such as the symmetric adjustment mechanism. That is, even though stress factors tend to decrease, if the index level is below the one-year-average, this effect will diminish, if the volatility stress is taken into account by means of the current CEIOPS' approach. Additional background :	

			Conclusion 1 : volatility decreases with maturity : 1. We would like to highlight that for regulatory purpose all maturities corresponding to the economic exposure of the insurer should be taken into account to ensure consistency with the insurer's exposure. 2. Therefore, the volatility of an index or stock cannot be measured by a unique reference to 3 month or 1-year term data, as the volatility is less for longer maturities, which implies longer term maturities should have lower shocks. 3. Practical evidence is provided below, where figure 1 displays the distributions of 1 month, 1 year and 5 year volatility data from a large and active bank on the derivatives business, covering a period from 1995 until 2009.	



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227.	GROUPAMA	3.67.	We question the inclusion of a new shock in the standard formula. The interest rate volatility should not be considered for the purpose of solvency: - equity volatility does not have an impact on the insurance business. It is only a consequence of the market consistent valuation of the solvency II balance sheet, but there is no link with	Disagree, many firms have options which should be

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			the real management of the undertaking. It is especially the case for non-lapsable contracts or portfolios with high duration, where short-term variations of the market value do not have any impact on the insurance business.	considered from an equity volatility point of view. Further as mentioned a market consistent framework is important.
			- it is highly procyclical, so in contradiction to the Level 1 text which recommends CEIOPS to suggest a contra-cyclical implementing measure	Noted.
			- the shock is calibrated based on implied volatilities. However, it is not stated that implied volatilities would be used in all cases for solvency 2 balance sheet calculations. Indeed, as requested by the industry and suggested by some CEIOPS members, we would be in favour of using volatility adjustment in the case of market inconsistency (due to illiquidity conditions for instance). These potential adjustments would drastically reduce volatility fluctuations.	Noted. The question of implied versus historical volatility is considered in other CEIOPS papers.
228.	Groupe Consultatif	3.67.	Impacts depend closely of the nature of the guarantees, which vary between portfolio and between countries.	Noted.
			Taking this risk into account in the standard formula would need more work to define the right way and identify the proxy method adapted to the variability of situations.	
			Without a rather good proxy, this risk should be estimated through a partial internal model.	
			Beside this comment, we think that the stress on volatility proposed by the CEIOPS doesn't take into account all the mean reverting property of volatility market during cycles. Such a calibration will have a clear pro-cyclical effect, destabilizing markets and deteriorating the situation in a crisis.	Noted, see response to comment 224 above.
			In general we support the introduction of an equity volatility stress. Life insurance companies selling Variable Annuity business for	Noted

			example are very sensitive to changes in the equity volatility due to the implied options and guarantees. If these companies like to build an internal model they have to include this risk in their model, otherwise they would ignore a significant risk.	
			Disregarding the equity volatility risk within the standard approach would lead to an inconsistency between internal models and the standard approach. Companies could be rewarded if they use the standard approach instead of an internal model, which is definitely not appreciated.	Noted
			Bearing in mind that the time horizon for the SCR Framework is one year the volatility situation at the end of the year could have changed significantly. Required rebalancing of dynamic hedges within this period have to be taken into account. As many providers of Variable Annuity business faced that situation in the current crisis equity volatility risk shouldn't be neglected.	Noted
			We think that the stress on volatility doesn't take into account all the mean reverting property of volatility market during cycles. Such a calibration will have a clear pro-cyclical effect, destabilizing markets and deteriorating the situation in a crisis.	Noted
			We think it appropriate to allow for stresses to market volatility in the standard formula. We expect internal models to do so (most models used in the UK to calculate ICA do), and we should not penalise companies using internal models by ignoring this risk in the standard formula. However we recognise that it is difficult to model equity and equity volatility risk together in a standard formula. By assuming 100% correlation, as CEIOPS do, the proposed formula overstates the combined impact, yet applying a correlation matrix to separate stresses could significantly understate the combined risk. A pragmatic approach is to recognise	Partially agreed. CEIOPS does recognise the danger of overstating total capital ,and so has introduced a correlation of 0.75. It is assumed that this correlation more accurately reflects the risks without being so low as to be imprudent.

			this prudence when selecting the equity and equity volatility stresses. Arguably the equity stress could have been higher, so as a package the combined equity and equity volatility stress is reasonable.	
229.	Institut des actuaires	3.67.	Impacts depend closely of the nature of the guarantees, which vary between portfolio and between countries. Taking this risk into account in the standard formula would need more work to define the right way and identify the proxy method adapted to the variability of situations. Without a rather good proxy, this risk should be estimated through a partial internal model. Beside this comment, we think that the stress on volatility proposed by the CEIOPS doesn't take into account all the mean reverting property of volatility market during cycles. Such a calibration will have a clear pro-cyclical effect, destabilizing markets and deteriorating the situation in a crisis.	See response to comment 229
230.	KPMG ELLP	3.67.	We agree with the inclusion of equity volatility within the SCR calibration, but draw your attention to our comments under 3.79 below. In addition, we believe that there is some diversification available between equity implied volatility and equity index levels. We acknowledge that this would be a reasonably high correlation but believe that the implicit assumption 100% is perhaps excessive. We would request that CEIOPS investigate this aspect further.	See response to comments below, and note new correlation factor in paper.
231.	Munich Re	3.67.	In general we support the introduction of an equity volatility stress. Disregarding the equity volatility risk within the standard approach would lead to an inconsistency between internal models and the standard approach. The use of the standard formula instead of an	Noted

			internal model would be rewarded, and this is definitely not appreciated. However the stress factors equity prices, implied volatility, and the correlation between both curves should be evaluated by multivariate statistical methods to properly define the 99,5% quantile. If several stress scenarios have to be defined with respect to the risk profile of the liabilities, we request clarifications as to how equity risk is to be considered with respect to insurance groups. We suggest that it would be appropriate to add the respective shocks of the insurance group members and decide upon the most onerous shock given the sum of the respective shocks (equity and volatility down-up, down-down), rather than adding up the most onerous shocks of individual insurance group members.	Noted. CEIOPS believes that the analysis it has performed and documented is sufficient in relation to these risks. Request noted. The treatment through groups is an area which will be further addressed in level 3.
232.	PWC	3.67.	We note that equity volatility is an important parameter in the valuation of financial options and guarantees and, as such, it should be included in the standard formula where an insurer has a material exposure to business offering financial options and guarantees. However, regard should be had to the principle of proportionality when considering whether or not individual firms should include this stress.	Noted.
233.			Confidential comments deleted.	
234.	CEA	3.68.	We request that Ceiops re-considers the data used Volatilities on the SPX from the CBOE tend to be in respect of quite short options whereas the liabilities for most insurance firms tend to be a lot longer. Short term implied volatilities tend to be far more variable than longer term implied volatilities. Furthermore, no justification is given as to the appropriateness of US implied volatilities to the derivation of stresses to EU implied volatilities.	There is more data for US implied volatility, which is why this was used. Indeed short term implied volatilities are more volatile, and for this reason the empirical stress derived in section 3.71 was not used.

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235.	CRO Forum	3.68.	The maturity of the options in the data set is much shorter (and more volatile) than typical insurance volatility exposure.	Noted. See response to comment 234
236.	PWC	3.68.	We note that a different index has been used for the equity volatility calibrations compared to that used for the standard stresses. We suggest that a consistent index should be used and that this index should be representative of the assets held by the insurance market participants.	Noted. The different index was a function of the volume of the data available.
237.	CEA	3.69.	We request that Ceiops re-considers the data used We do not agree that it is correct to generate stresses using empirical distributions and then apply them to current volatility levels, since this approach ignores any trends in the data, possible mean reversion and whether there are any natural floors or ceilings.	Noted. Evidence for mean reversion is mixed, especially in 'extreme events'. There are dangers in applying floors and ceilings which become obsolete in new market times (what would the ceiling have been set at before 2008? After 2008?
238.	CEA	3.70.	The analysis in this section takes no account of the relative level of volatility For example it is not clear if the large percentage changes in volatility (in either direction) tended to occur when volatility levels were either high or low.	See response to comment 237
239.	CRO Forum	3.70.	Insurance undertakings are exposed to longer-term (e.g. 3-10 year) options rather than 30-day options. Therefore, it would be much more reasonable to base the historical study on a term in the 10 year range. This would produce more reasonable results for the tail in 3.70.	To an extent we were restricted by the data, but note that longer term data was considered in coming up with the final calibration.
240.	AMICE	3.72.	CEIOPS asks stakeholders' opinion about the assessment of the downward stress relevant for equity risk in the standard formula approach.	Noted.

			We agree with the CEA that it is unrealistic to apply a high upward volatility stress when volatility is high and a downward volatility stress when the volatility is low. Additionally, AMICE does not believe that a decrease in volatility would lead to a decrease in the NAV of undertakings (due to options and guarantees). Consequently, the calculation of the capital charge due to a decrease in volatility does not seem relevant.	
241.			Confidential comments deleted.	
242.	CEA	3.72.	If an upward stress in equity volatility is applied then a downward stress may be relevant The downward stress may be relevant if an insurer holds equity options which have more vega (i.e. sensitivity to changes in equity volatility) than the liabilities. However, care should be taken not to add useless additional runs which would be a burdensome in terms of calibrating the ESG.	Noted.
243.	CRO Forum	3.72.	In our view it is sensible to apply both the upward and downward shock. The downward stress is relevant, for example, if a company is over-hedged or when embedded options/guarantees are far in-the-money. We note that a company should have the option to evidence that it is not exposed to either the upward or downward movement and in that case only calculate one of the shocks.	Noted. Agreed
244.			Confidential comments deleted.	
245.	DIMA	3.72.	DIMA does not see there being a significant advantage to the downward stress test, noting that its application will principally lie in reducing the value of call options on the asset side of the balance sheet which arguably will only be held in the context of structured	Noted

			product investments and thus will have an offset.	
246.	FFSA	3.72.	CEIOPS asks stakeholders' opinion about the assessment of the downward stress relevant for equity risk in the standard formula approach. FFSA would like to stress that no volatility stress should be included in the standard formula to begin with. In any case, FFSA does not believe that a decrease in the volatility would lead to a decrease in the NAV of the undertakings (due to options and guarantees). It should be noted that no upward equity stress test is required. Care should be taken not to add useless additional runs which would be a burdensome in terms of calibrating the ESG. Consequently, the calculation of the capital charge due to a decrease in volatility does not seem relevant.	Noted
247.	GDV	3.72.	If an upward stress in equity volatility is applied then a downward stress may be relevant The downward stress may be relevant if an insurer holds equity options which have more vega (i.e. sensitivity to changes in equity volatility) than the liabilities. However, care should be taken not to add useless additional runs which would be a burdensome in terms of calibrating the ESG.	Noted
248.	Groupe Consultatif	3.72.	The relevance of the downward stress test will depend on the specific asset profile of the insurer relative to its liabilities. In practice it will likely be relevant only to a small minority, who will likely mostly use internal models.	Noted
249.	KPMG ELLP	3.72.	We consider that the equity volatility down stress is not relevant to	Noted

			most (re)insurers, and consider it useful only in the event that there is a clear exposure to downside volatility. We would therefore prefer that the Supervisory Review Process and ORSA cover the equity down stress and, where this would materially increase the capital requirement, this is considered for inclusion in the SCR calibration. However, we believe that where the volatility down stress is applied a much lower correlation that 100% should be used. Strong equity falls are rarely, if ever, associated with an equity volatility down stress.	
250.	Munich Re	3.72.	Whether upward or downward stresses of volatility are relevant depends on the volatility position (long or short) of the respective balance sheet items. If the overall volatility position is long, a downward stress is relevant, and in the case of a volatility short position an upward stress has to be calculated.	Noted
251.	PWC	3.72.	We do not consider the downward stress relevant. We do not believe that any material block of business will be exposed to sufficient losses when equity volatility decreases to justify the complexity introduced by a two-sided test.	Noted
252.			Confidential comments deleted.	
253.	CEA	3.73.	As noted the data on long term equity options is sparse. Furthermore, it is an open question whether companies are primarily exposed to at-the-money volatilities. The shortage of implied volatility data of plain vanilla equity options brings into question the value of detailed calculations of the time value of embedded options on the liability side. The granularity of the requirements regarding the calculation of technical provisions should be proportionate to the amount of reliable and relevant information that can be extracted from these markets. Therefore, if the data needed for the calibration is sparse, as exemplified by the availability of data on long term equity options, the results of such models as can be questioned. So a much simpler approach could be	Noted

			appropriate, for example being based on simple mark-up factors or a limited number of probability weighted scenarios.	
254.	PWC	3.74.	We suggest that the assumed typical equity option term should reflect as closely as possible the average term of the financial options and guarantees offered across the insurance market. We believe that this is generally longer than 5 years and suggest that consideration is give to the effect of using longer option terms.	Noted. Different firms will have different terms of options, as such we are constrained by finding a common term which has viable data.
255.			Confidential comments deleted.	
256.	CRO Forum	3.76.	More detailed analysis similar to 3.70 on this would have been appropriate given that the figures from this analysis appear to have been used.	Noted. Although the relative lack of data, makes such a granular analysis more difficult to perform.
257.	ABI	3.79.	The appropriate calibration cannot be considered in isolation from the treatment of implied versus historic volatilities in technical provisions which it is intended to consider in Level 3 guidance (see former CP39 3.248-3.251, 3.257 and 3.269). Also both the calibration of the volatility stress and its correlation with the equity stress must take into account the fact that most insurance firms have long term options and guarantees, and so it is long dated options that need to be examined. For implied volatilities we believe the calibration of a 60% stress will be reasonable in many conditions, but we think it will be disproportionately strong when volatilities are high. For instance a stress from 18% to 29% is reasonable but a stress from 30% to 48% is too severe. The volatility increase needs to be subject to some symmetric adjustment, or it should be applied with some absolute cap e.g. with a 10% cap, new vol = min [old vol x 1.6, old vol +10%]. A similar argument may apply when volatilities are very low: in this case a 60% stress may be too weak.	Noted. Agreed, this is the reason for the calibration much lower than that suggested by the analysis in 3,70, and the introduction of a new correlation parameter. Disagreed. The issue of mean reversion is contentious. It could equally be argued that a if equity volatilities where historically high, say 80%, a maximum 1:200 year stress to 90% would be imprudent as it fails to recognise

			An additive stress is more appropriate than a multiplicative stress When equity volatilities are high a multiplicative stress may produce disproportionately high volatilities. Our view is that the equity volatility stress should not be multiplicative but instead it should be expressed as an additive stress. This is necessary in order to avoid pro-cyclical effects. The pro-cyclical effect will be further reinforced, if perfect correlation is assumed.	the economic reality. A multiplicative stress is considered more in line with the principle of policyholder protection
258.			Confidential comments deleted.	
259.	CEA	3.79.	The data period considered results in an excessively prudent volatility stress We agree that the sparseness of data makes it difficult to find an appropriate level for the volatility stress. However, the short period under observation (May 2006-March 2009) is to a large extent dominated by the effects of the current crisis. There will be significant day-to-day autocorrelation between the observed implied volatilities which, in our view, puts a disproportionate amount of emphasis on current conditions, effectively calculating a TailVaR. A lower stress level of less than 60% upward appears to be more reasonable. An additive stress is more appropriate than a multiplicative stress When equity volatilities are high a multiplicative stress may produce disproportionately high volatilities. Our view is that the equity volatility stress should not be multiplicative but instead it should be expressed as an additive stress. This is necessary in order to avoid pro-cyclical effects. The pro-cyclical effect will be further reinforced, if perfect correlation is assumed.	Noted. Please note the reduction in the 'up' volatility stress. See response to comment 257.

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260.	CRO Forum	3.79.	60% is a reasonable selection for the relative up shock, given the limited data available for this decision however we believe this should be subject to a cap to avoid pro-cyclical behaviour (see also CP70 on interest rate volatility). A better and simpler alternative would a fixed %-point shock that could be applied (e.g. 10-15% points). However, the relative downward shock appears quite low compared to the (limited) data we see on 10-year options.	Noted. See response to comment 257.
261.	GDV	3.79.	An additive stress is more appropriate than a multiplicative stress When equity volatilities are high a multiplicative stress may produce disproportionately high volatilities. Our view is that the equity volatility stress should not be multiplicative but instead it should be expressed as an additive stress. This is necessary in order to avoid pro-cyclical effects. The pro-cyclical effect will be further reinforced, if perfect correlation is assumed.	See response to comment 257
262.	Groupe Consultatif	3.79.	While these are not unreasonable assumptions in normal market conditions, it should be noted that use of a stress that increases (in terms of basis points added to stress) as volatility increases, may create undesirable procyclical effects. One possible change would be to express the stress test as an absolute rather than percentage change in implied volatility (subject to the implied volatility not falling below 0).	See response to comment 257
263.	KPMG ELLP	3.79.	We believe that the 60% relative up stress appears onerous, especially in stressed market conditions. We believe that a less onerous upward volatility stress should be applied in stressed market conditions to recognise the strong mean reversion that is evident in implied volatility figures. We believe it would be helpful if CEIOPS explained why implied	Partially agreed. See revised stress.

			volatility is the appropriate volatility measure for calibrating the 1 in 200 stress test. We note a comment in CP39 that CEIOPS was open to using historical or implied volatilities in the 'market consistent' valuation. In this paper we see an implicit use of implied volatilities, but this appears to be potentially inconsistent with the determination of valuation rules regarding assets and liabilities. If (re)insurers adopted the historical volatility option suggested possible in CP39 then there would be no reason to impose an implied volatility in the stress test. If an implied volatility stress test is used, we note that there is no duration / moneyness dependency in the equity implied volatility stress. We appreciate however the added complexity this would introduce.	Noted. Implied volatility is a useful tool for analysis. Note that CP39 does not rule out the use of implied volatilities.
264.	Legal & General Group	3.79.	There is no dampener on the volatility stress, the reasoning to include the dampner is the same as for equity stresses.	Noted. The equity dampener is contained in the directive text. It is considered that an extension to equity volatility would be both difficult to reliably calibrate, and excessively complex.
265.			Confidential comments deleted.	
266.	KPMG ELLP	3.80.	We note that there is no difference proposed in the equity volatility stress between Global and Other although we believe that in practice the latter would be expected to be higher than the former.	Noted. For reasons of simplicity, as well as credible data, the stresses are set to be the same.
267.			Confidential comments deleted.	
268.	CRO Forum	3.81.	The shocks as proposed leads to a double counting of the equity down shock, if equity down is the exposure for the company. Since the impact of an equity down shock is now included here as well as in the "normal" equity shock. A negative correlation of 1 is assumed, which is too conservative.	The equity volatility down is calibrated separately to the equity level down. Agreed. See revised paper

			If a company is exposed to equity up shock instead of equity down shock, this will lead to an underestimation of the equity volatility risk.	
269.	Deloitte	3.81.	The proposed approach applies a 1-in-200 equity stress simultaneously with a 1-in-200 implied volatility stress. This implicitly assumes these risks to be 100% correlated, which historical data shows not to be the case. As a result the proposed test is stricter than 1-in-200. It would be better to construct a separate volatility stress in which all implied volatilities (equity, interest, and property) are stressed. This volatility stress should then be incorporated via an additional row and column in the market risk correlation matrix.	Agreed. See revised paper. Disagree. This would seem to be overly complex within the standard formula. In addition, the directive indicates that we should treat volatility shocks in the sub module of the corresponding level shocks.
270.	Groupe Consultatif	3.81.	Taking the maximum of two VAR(99.5%)s does not necessarily give a VAR(99.5%) for the equity risk In our opinion the equity down shock and the volatility shock are two risk events which does not necessary occur simultaneously. Therefore a diversification should be applied to this two risk drivers.	Agreed. See revised paper
271.	Institut des actuaires	3.81.	In our opinion the equity down shock and the volatility shock are two risk events which does not necessary occur simultaneously. Therefore a diversification should be applied to this two risk drivers.	Agreed. See revised paper
272.	Munich Re	3.81.	The shock scenarios correspond to an extreme correlation of +/- 1 between equity prices and implied volatility, together with extreme scenarios for volatility and equity shocks. We feel that this shock scenario is an extreme tail event far beyond the 99,5% quantile.	Noted. See revised paper

			Hence we propose to give a verifiable quantitative derivation of the shocks to properly define the 99,5% quantile.	
273.	ACA	3.85.	The Brownian hypothesis is in contradiction with statistical analysis on MSCI index (see 3.15) which clearly shows that equity prices are not normally distributed.	Noted
274.			Confidential comments deleted.	
275.	AMICE	3.87.	AMICE Members support CEIOPS proposal for applying a factor of 22% for equities that fall under the scope of the duration approach.	Noted
276.	DIA Danish Insurance Association	3.87.	3.87 and 3.110: In our view, the duration approach according to Article 305b is, fundamentally, not in line with the economic approach which the directive aims to achieve. This is why the use of the duration approach must be authorised by member states – and this is why there are restrictions to the use of the approach (reference to Article 305b). If it were possible in practice to give policyholders the same protection under this approach as under the general, risk sensitive approach, these measures would be redundant. In our view, the duration approach with the proposed 22 per cent stress on equity holdings conflicts with the aim to establish a single European level playing field. If it becomes possible to apply a 22 per cent capital charge under the duration approach as compared to the 45/60 per cent equity risk calibration proposed under the risk based calculation, there will be an immense pressure in Europe for authorities to allow the use of the duration approach and competition will not be at an equal footing across Europe. If the 22 per cent stress proposed under the duration approach is maintained, however, the general median stress for "global"	Noted

			equities should not exceed 32 per cent (see comments below). Similarly, a substantial reduction of the stress of "other" equities can be warranted to ensure level playing field across the European Union.	
277.	GROUPAMA	3.87.	We agree with CEIOPS on the calibration of the duration approach at 22%.	Noted
278.	Groupe Consultatif	3.87.	We are concerned that by giving a significantly lower capital requirement here, there can be competition problems across EU markets (where some companies are allowed to use less capital than others with the same portfolio characteristics). At a minimum the calibrations should be based on the same model (see comments to 3.88)	Noted
279.	Institut des actuaires	3.87.	The setting of the equity charge of 22% should be explained in more detail.	Noted
280.	Groupe Consultatif	3.88.	This equity charge does not seem to be consistent with the equity charge given in 3.23. Our understanding of the graph is that this model indicates a stress of 32% should be used for a one year holding, which is the idea behind 3.23. Further advice is needed here, e.g. a quantitative analysis for the absolute floor equity charge of 22%.	Noted
281.	Institut des actuaires	3.88.	Further advice is needed here, e.g. a quantitative analysis for the absolute floor equity charge of 22%.	Noted
282.	ABI	3.89.	See comments under 3.58	See response to above comments
283.	ACA	3.89.	We support CEA's view: A more granular treatment is requested. We would suggest to split the "other" category : Equity in emerging markets, None listed equity, Hedge funds, Alternative instruments, Real estate fund should be separated.	Partially agreed. Note the more granular split contained within the final advice

Summary of Comments on Consultation Paper 69 - CEIOPS-CP-69/09 CEIOPS-SEC-171-09 CP No. 69 - L2 Advice on Design of the equity risk sub-module				
284.	CEA	3.89.	A more granular treatment is requested We would support a more granular stress based on the categories as presented in our comments to Para 3.58.	See response to comment 283
285.	Legal & General Group	3.89.	The crude approach to equities – split into global and other, is at odds with the sometimes very granular approach elsewhere in the papers. In particular hedge funds on CEIOPs own data are very different from the other "other equities". We understand that this could be caused by Hedge funds being a large catch all to many different risks and also that they are likely to be small part of the total assets fro most firms. In this context the approach may be OK fro a standard model for the current time but over time it may be that hedge funds become mainstream (in some form or other) and so we propose that the wording should read ".. divide equites into a limited number of categories reflecting the characteristics of the asset class. At present there will be two, global and other, although over time CEIOPS will review this and extend the range to three or more if there is evidence that an asset class is markedly different having a stress of 40% different from the "other equities category , and also represent more than 15% of a firms assets.	Partially agreed. Please note response to comment 155, and the revised paper.
286.	ABI	3.90.	We believe the duration approach will introduce an unlevel playing field between market players as the levels of stress proposed by CEIOPS in CP 69 diverge significantly between the standard approach and the duration approach. In any event, both the Pillar I dampener and the duration approach will need to be balanced by appropriate consideration in Pillar II and III.	Disagreed
287.	ACA	3.90.	We believe that the "duration dampener" approach introduces	Noted

			discrimination between countries which is contrary to principles of a standard model and the Text level 1. Moreover, the Brownian hypothesis at 3.85 is in contradiction with statistical analysis on MSCI index (see 3.15) which clearly shows that equity prices are not normally distributed.	
288.	CEA	3.90.	The dampener and duration approaches need to be complemented with Pillar II and III measures In this consultation document Ceiops presents more detailed guidance on the equity dampener and duration approaches. We support the aim of these approaches which is to mitigate pro-cyclicality. However, the presented approaches should always be supplemented by appropriate measures at Pillars II and III which do not appear to have been covered in this CP.	Noted
289.			Confidential comments deleted.	
290.	GDV	3.90.	The dampener and duration approaches need to be complemented with Pillar II and III measures In this consultation document CEIOPS presents more detailed guidance on the equity dampener and duration approaches. We support the aim of these approaches which is to mitigate pro-cyclicality. However, the presented approaches should always be supplemented by appropriate measures at Pillars II and III which do not appear to have been covered in this CP.	Noted
291.	Groupe Consultatif	3.90.	We find the justification given for the duration dampener to be lacking in detail. A simple model is provided and some assumptions	Noted

			made but this does not seem rigorous.	
292.	KPMG ELLP	3.90.	We find the justification given for the duration dampener in section 3.7 to be lacking in detail. A simple model is provided and some assumptions made but there does not appear to be the same level of research as underlies the rest of the paper.	Noted
293.	Legal & General Group	3.90.	The duration approach proposed is not in line with a level playing field and CEIOPS should carry out further research.	Disagreed
294.	ABI	3.91.	See comments under 3.4	See responses to these comments.
295.	ACA	3.91.	We support CEA's view: The standard equity stress including the dampener should be calibrated to the 99.5% VaR	Noted
296.	CEA	3.91.	The standard equity stress including the dampener should be calibrated to the 99.5% VaR As mentioned in our comments on section 3.4 the standard equity stress has been calibrated to the 99.5% VaR level and then the symmetric adjustment mechanism is overlaid on top. This approach will lead to a combined stress (standard equity stress plus adjustment) that could exceed the 99.5% level. The CEA believes that the standard equity stress should have been calibrated allowing for the existence of the adjustment mechanism, so that the combined stress would be at the 99.5% level.	Noted. Please see response to comment 142. It is assumed that the mean point of the symmetric adjuster is the point which corresponds with a 1:200 event, as per the level 1 directive.
297.	GDV	3.91.	The standard equity stress including the dampener should be calibrated to the 99.5% VaR The standard equity stress has been calibrated to the 99.5% VaR level and then the symmetric adjustment mechanism is overlaid on top. This approach will lead to a combined stress (standard equity stress plus adjustment) that could exceed the 99.5% level. The	See response to comment 296

			GDV believes that the standard equity stress should have been calibrated allowing for the existence of the adjustment mechanism, so that the combined stress would be at the 99.5% level.	
298.	Legal & General Group	3.91.	External reviews using MSCI 1 year returns demonstrate that the proposal is not supported	Noted.
299.	Groupe Consultatif	3.93.	We are sympathetic to the aims of the anti-cyclical adjustment although we note that applying this only to the equity index level seems arbitrary and will favour some insurers over others. Also it does not help foster agreement between member states because it will impact some countries (and some insurers) more than others. A more general market risk dampening mechanism would be preferable.	Noted. However it is should be considered that the equity module is the only module where the dampener is prescribed in the directive.
300.	KPMG ELLP	3.93.	We are sympathetic to the aims of the anti-cyclical adjustment although we note that applying this only to the equity index level will impact some countries (and some insurers) more than others. Notwithstanding that Article 105a (now Article 106) only refers to a symmetric adjustment in respect of the equity capital charge, we believe that a more general market risk dampening mechanism covering both the equity risk module and the market risk module may be helpful in preventing market bias towards certain types of investment such as equity when the stress is low.	Noted. Noted. The directive issue is key, but there are also issues of practicality (define a window around spread or concentration risk…), and simplicity.
301.	SIGNAL	3.93.	Data suggests that a stress of approximately 35% for unlisted private equity does more appropriately reflect the behaviour of the asset class. Therefore the mentioned threats are not realistic for private equity investors, especially for long term investors as insurance companies.	Partially agreed. See response to comments and revised paper.
302.	ABI	3.94.	See comments under 3.58	See response to these comments.

Summary of Comments on Consultation Paper 69 - CEIOPS-CP-69/09 CEIOPS-SEC-171-09 CP No. 69 - L2 Advice on Design of the equity risk sub-module				
303.	CEA	3.94.	The list of equities covered under the "global" category should be extended Ceiops states that "global" equities should cover listed equities in EEA and OECD countries. We also believe that indirect EEA/OECD holdings (e.g. unit trusts) should be allowed under the standard "global" risk charge rather than under the risk charge for "other". Furthermore, the advice in this paragraph states that "the category of global equities covers equities listed in EEA and OECD countries". We request that Ceiops adjusts the wording to read: "the category of global equities covers equities listed in EEA or OECD countries".	See response to comment 155 Agreed
304.	CRO Forum	3.94.	"The category of "global" equities covers equities listed in EEA and OECD countries." It is our interpretation that the advice is proposing that equities listed in EEA or OECD countries will be considered as "global" equities and not EEA and OECD countries – a point of clarification. Moreover, the advice considers "equities" listed in OECD markets as global equities. However, the last time the list was updated was in 2000 and does not include some of the recent developments, especially in the Asian markets. As stated an equity listed in Slovak Republic attracts a lower capital charge (therefore less riskier) than an equity listed in Hong Kong, Singapore, India or China which would attract a 60% capital requirement. We welcome the use of OECD as a good starting point to consider listing in which counties should be treated as "global" equities. However, the CROF believes that this list is outdated and does not	Agreed Please see response to comment 155, referencing recent updates to the OECD list (including potentially BRIC), and their ongoing process, as well as the need for an impartial measure.

			reflect the market developments of this century. We strongly recommend that CEIOPS update their list of countries that would qualify for "global" equities, giving appropriate considerations for the Asian Markets. We believe that countries like Hong-Kong and Singapore have shown that they have a strong market and investments in equities listed in these countries should be considered as "global" equities. Moreover, we think that sufficient considerations should be given to some of the growing economies like India, China and Brazil which could very well be the "power-house" economies by 2012.	
305.	GDV	3.94.	The list of equities covered under the "global" category should be extended CEIOPS states that "global" equities should cover listed equities in EEA and OECD countries. We also believe that indirect EEA/OECD holdings (e.g. unit trusts) should be allowed under the standard "global" risk charge rather than under the risk charge for "other". Furthermore, the advice in this paragraph states that "the category of global equities covers equities listed in EEA and OECD countries". We request that CEIOPS adjusts the wording to read: "the category of global equities covers equities listed in EEA or OECD countries".	See response to comment 303
306.	Legal & General Group	3.94.	Indirect EEA/OECD holdings such as unit trusts should be allowed and treated as "standard global".	Partially agreed. See clarification of look through test within the paper.
307.	ABI	3.95.	We believe the standard stress for global equities should be in line with a 1 in 200 year confidence level. See also comments under 3.4	Agreed.

			In this respect, we would highlight the following: ■ It would be appropriate to base the calibration on a return index rather than a price index and thus include dividends. Refer to our comments under 3.9 ■ The worst equity falls are not relevant since the calibration is to the 99.5th percentile level. 9. Furthermore, it will be important to assess the effect the proposed changes to the equity risk in conjunction with the effects of the changes proposed to the correlation parameters (CP 74) and the market risk module (CP 70), not least spread risk.	Noted. See response to these comments Noted. See response to comments regarding this above. Agreed, and QIS5 will perform such a test.
308.	ACA	3.95.	We believe the 45% calibration is the more appropriate among the 3 propositions made.	Noted
309.	AFS	3.95.	The Global Equity stress of 45% is a large increase on the QIS4 parameter (32%). In addition, with rising equity markets, the stress could be as high as 55% (if the symmetric adjustment term is +10%). This is a significant increase on the QIS4 parameter and is too prudent in our opinion.	Noted
310.	AMICE	3.95.	CEIOPS presents the underlying standard stress for global equities, which is calibrated at 45% and outlines that some lower stresses are supported by a minority group. As already states in paragraph 3.23, AMICE thinks that a standard shock of 45% seems overly conservative. As explained in the analysis, the stress is around 39% if the calibration is based on MSCI Europe Index instead of MSCI World Index for the stress at 45%. It seems more reasonable to use the MSCI Europe index as undertakings should have invested in European financial market or use stresses based on exposure by territories.	Noted
311.	CEA	3.95.	The 45% stress for global equities is overly conservative	Noted. See response to comment 307 on the two points.

			Ceiops presents the underlying standard stress for global equities, which is calibrated at 45% and outlines that a lower stress is supported by a minority of Ceiops members. We agree with the minority of Ceiops members that the standard shock of 45% (+13% from QIS4) is overly conservative for the following reasons: ☐ Ceiops bases its calibration on a price index (the MSCI World Developed Price Equity Index). However, as stated in our comments to Para 3.9, it would be appropriate to base the calibration on a return index rather than a price index and thus include dividends. An investor in equity is clearly expected to receive a return via both price increases and dividends. Dividends need to be taken into account in order to be in line with a one-year VaR calibration. As we note in our comment to Para 3.17, consideration of the MSCI Europe total return index produces a 99.5th percentile result of 39%. ☐ Ceiops considers data showing the worst equity falls. As noted in our comments to Para 3.22, the worst equity falls are not relevant since the calibration is to the 99.5th percentile level. Therefore, we believe that the alternative proposal for a 39% stress is most appropriate. We also highlight that the changes to the proposed equity stress must be seen in conjunction with the changes proposed to the correlation parameters and the market risk module as the combined impact would be significant and would have severe consequences for the European insurance industry.	

312.	FFSA	3.95.	CEIOPS presents the underlying standard stress for global equities, which is calibrated at 45% and outlines that some lower stresses are supported by a minority group. FFSA thinks that standard shocks of 45% for listed equities (13% higher than QIS4) and 60% for non listed equities seem overly conservative. We believe that a 32% stress should be used for listed equities and 45% for non listed equities.	Noted.
313.			Confidential comments deleted.	
314.	GDV	3.95.	The 45% stress for global equities is overly conservative CEIOPS presents the underlying standard stress for global equities, which is calibrated at 45% and outlines that a lower stress is supported by a minority of CEIOPS members. We agree with the minority of CEIOPS members that the standard shock of 45% (+13% from QIS4) is overly conservative for the following reasons: ■ CEIOPS bases its calibration on a price index (the MSCI World Developed Price Equity Index). However, as stated in our comments to Para 3.9, it would be appropriate to base the calibration on a return index rather than a price index and thus include dividends. An investor in equity is clearly expected to receive a return via both price increases and dividends. Dividends need to be taken into account in order to be in line with a one-year VaR calibration. As we note in our comment to Para 3.17, consideration of the MSCI Europe total return index produces a 99.5th percentile result of 39%. ■ CEIOPS considers data showing the worst equity falls. As noted in our comments to Para 3.22, the worst equity falls are not relevant since the calibration is to the 99.5th percentile level.	Noted. See response to comment 307 on the two points.

			Therefore, we believe that the alternative proposal for a 39% stress is most appropriate. We also highlight that the changes to the proposed equity stress must be seen in conjunction with the changes proposed to the correlation parameters and the market risk module as the combined impact would be significant and would have severe consequences for the European insurance industry.	
315.	GROUPAMA	3.95.	We believe that a 32% stress should be used for listed equities and 45% for non-listed equities.	Noted
316.	Groupe Consultatif	3.95.	We favour the 45% option	Noted
317.	Legal & General Group	3.95.	There is evidence that assuming a 10% symmetrical dampener that the range commensurate with a 1 in 200 event would be 39% - 49% implying a "par" stress of 39%.	Noted
318.	Munich Re	3.95.	The stress level of 45% depends on the assumption that the insurer does not manage its equity exposure for 1 year in the case of a market crisis. Hence, within the calibration procedure one could also have a shorter time period in mind, e.g. the time which is necessary to implement management decisions or other risk mitigation should be considered.	Noted. But note the requirement for a 1 year 99.5th percentile stress.
319.			Confidential comments deleted.	
320.	ABI	3.96.	See also comments under 3.36 and 3.100	See responses to these comments
321.	CEA	3.96.	A different calibration analysis is likely to be appropriate for insurers investing in a high proportion of domestic equities	

			As mentioned in our comments to section 3.36 as the adjustment is derived using the MSCI Developed World Index, the equity holdings of individual firms may perform quite differently, say if they have a higher domestic bias. For example if the domestic equity index were to fall sharply as a result of domestic economic conditions not exhibited in the wider world economy, then this dampener might not activate. We should ensure this mechanism delivers the right outcome which is to dampen stress conditions and not to make them worse The Pillar I dampener needs to be carefully considered as its effects may exaggerate the stress faced by insurers at inappropriate points.	
322.	Groupe Consultatif	3.96.	We agree with the anti-cyclical aims of this section but we are not of the view that the proposed mechanism meets the objectives set out in this paragraph. We note that this section does not include a requirement to ensure that the formula is very simple to apply. Indeed we are of the view that capturing the build up of excess capital through equity market growth and recognising when capital relief is justifiable necessitates a reasonably complex (although still possible to calculate) formula.	See response to comment 322
323.	KPMG ELLP	3.96.	We agree with the anti-cyclical aims of this section, but we are not convinced that the proposed mechanism meets the objectives set out in this paragraph. We note that 3.96 does not include a requirement to ensure that the formula is simple to apply, and we believe that a degree of complexity needs to be built in to capture the build up of excess capital through equity market growth and recognising when capital relief is justified in the advent of a rapid market crash.	Noted. However general principles for building the SCR is to include a 'simplicity' idea.

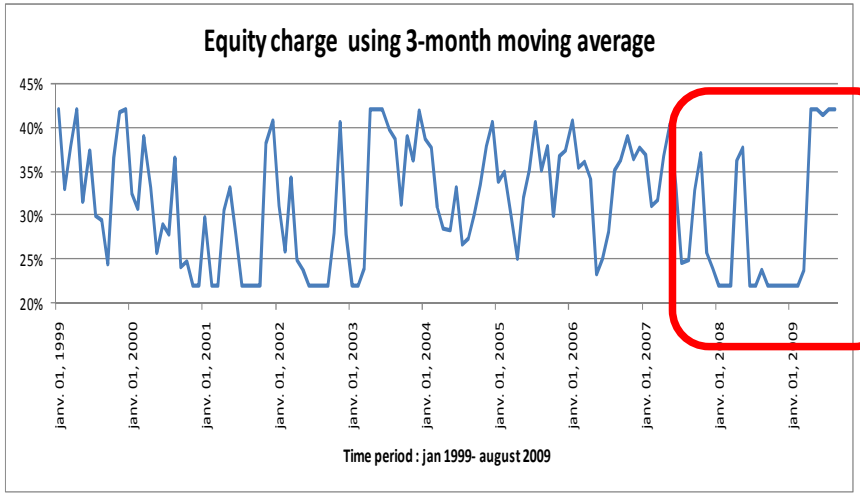
Summary of Comments on Consultation Paper 69 - CEIOPS-CP-69/09 CEIOPS-SEC-171-09 CP No. 69 - L2 Advice on Design of the equity risk sub-module				
324.	Legal & General Group	3.96.	There is no answer here but a risk for CEIOPS is that the dampener becomes pro cyclical and could lead to a systemic risk.	Noted
325.	ACA	3.97.	We support the simplification of a beta factor set to one. We believe the +/- 10% band could be extended.	Noted. This extension would not be in line with the level 1 text
326.	AFS	3.97.	The symmetric adjustment mechanism goes some way to addressing the points raised in 3.96. However, it is based on the MSCI Developed Index and will not adequately reflect domestic market conditions, which can be the main driver of individual equity holdings.	Noted. However there is a need for an index which well reflects all firms. For a standard formula, a set of different adjusters based on different indices would seem overly complex.
327.			Confidential comments deleted.	
328.			Confidential comments deleted.	
329.	Groupe Consultatif	3.97.	The mechanism proposed which uses a Beta=1 and one year averaging period appears to be a relatively poor choice when back-tested against recent market data. Of particular concern is the rapid strengthening of the equity stress from -35% to -55% between Q2 and Q3 in 2009, just 9 months after the crash of September 2008. Economically we do not believe that the risk of a severe fall was very strong in June 2009, as suggested by this formula. Furthermore we do not believe that insurers would have had sufficient time to rebuild their balance sheets. Indeed it might be expected that in the wake of events such as September 2008 a period of instability within a financial institution would follow, as senior management roles change. The speed with which the change in the stress occurs under the	Noted. Although the symmetric adjustment mechanism has a requirement to be 'symmetric'. This would mean that an asymmetric treatement of up and down shocks would be unacceptable. In addition, an attempt must be made to keep the equity charge appropriate for a 1:200 shock, and it may be questioned whether such a proposal would achieve this. CEIOPS considers that the near year difference between the onset

			proposed formula is of particular concern as it gives firms little warning and could effectively lead to a de facto -55% stress test on Global equity indices as firm hold capital to ensure they can always withstand the equity stress test. A similar de facto stress test of -70% on Other equity would also apply. This would be a very onerous stress test on equity and would make equity investment particularly unattractive. While this might have the effect of protecting policyholders from downside risk it could also cause companies to reduce the expected returns on participating policies which would have issues for legislation in certain EU states on treating customers fairly A more sensible approach would be to design a formula to capture a sharp downturn in the equity market and then for the stress test to decay back to its central level over a certain time period (say 2 years). The rise in equity stress tests should happen more gradually and be a result of a sustained period of strong equity market growth. This would mean that companies had sufficient capital and would achieve the desired effect of retaining some excess capital as a buffer and preventing over-distribution to shareholders. Back-testing of any approach should be based on long term data series. Data sets are available for up to 100 years and these should be used to generate more understanding of how the technique would be performed. If the current approach is maintained despite the suggestion above we consider than a lower Beta value would be appropriate.	of the fall and the top of the adjustment window should provide adequate time to adjust a portfolio. Regarding a lower beta, please see response to comment 328 above.
330.	KPMG ELLP	3.97.	The mechanism proposed, which uses a beta of 1 and one year averaging period, does not appear to fit well when back-tested is performed against recent market data.	Please note response to comment 329

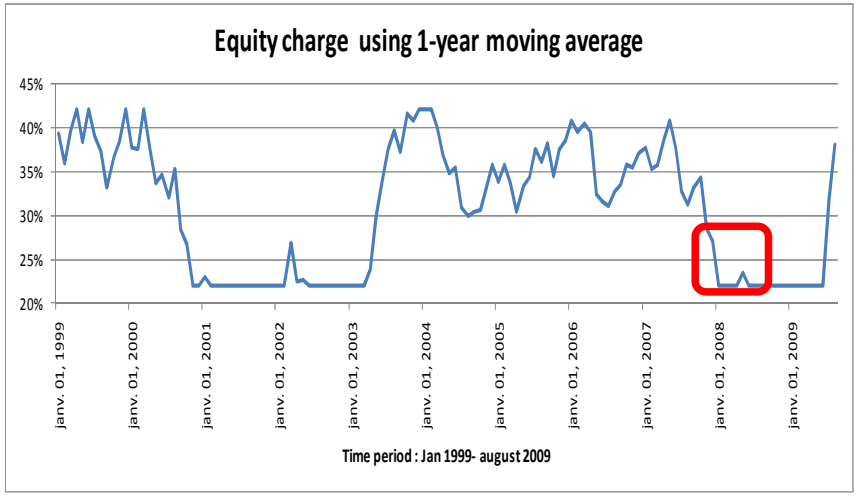
			We are particularly concerned at the significant strengthening of the equity stress (from -35% to -55%) shown between Q2 and Q3 in 2009, just nine months after the crash of September 2008. Economically we do not believe that the risk of a severe fall was very strong in June 2009, as suggested by this formula. Furthermore we do not believe that insurers would have had sufficient time to rebuild their balance sheets in the small time window that this paper envisages. This would make the increased stress test more onerous. The speed with which the change in the stress occurs under the proposed formula concerns us, as it gives (re)insurers little warning (and hence time to adjust) and could effectively lead to a de facto -55% stress test on Global equity indices (-70% on Other equity) as (re)insurers may wish to hold sufficient capital to ensure they can always withstand the equity stress test. We therefore believe that a mechanism needs to be found to smooth the transition from a -35% to -55% Global (-50% to -70% Other) stress being applied. We believe back-testing of any approach should be based on long term data series. Data sets are available for up to 100 years and these should be used to generate more understanding of how the technique would be performed. If the current approach is maintained, despite the suggestion above, we consider than a lower beta value would be appropriate.	
331.	Groupe Consultatif	3.98.	It is not clear that equal weights are advisable. While a simple approach it means that as large falls in the equity market drop out of the equation the stress test can move suddenly. Exponential weighting would gradually remove historic observations.	Noted. Although this is considered too complex for the approach as it stands. Further it would introduce unwanted uncertainty regarding the choice of the exponential factor, and may result in asymmetric stresses to 'up' and 'down' shocks.

Summary of Comments on Consultation Paper 69 - CEIOPS-CP-69/09 CEIOPS-SEC-171-09 CP No. 69 - L2 Advice on Design of the equity risk sub-module				
332.	KPMG ELLP	3.98.	It is not clear that equal weights are advisable. While a simple approach, it means that as large falls in the equity market drop out of the calculation, the stress test can move suddenly as demonstrated by the graphs. As explained in our response to 3.97 above, we believe this could result in (re)insurers effectively applying the upper level stress test and breaching the SCR as stock markets start to recover. We feel that exponential weightings would gradually remove historic observations, as improve the dampener.	See response to comment 331
333.	AMICE	3.99.	We question the calibration suggested based on one-year data for the following three main reasons : - It is inconsistent with the duration of an equity cycle, reputed at around 5 years. Estimating the position on the cycle based on a mobile average of one year has no economic reasoning. - If this strategy is back-tested, we can see huge over(under)estimation. For instance : * By the end of March 2008, the formula would have stated an equity capital charge of 35% (45% - 10%), and the variation of the MSCI would have dropped by 40% after one year. * By the beginning of 2004: the formula suggested would have stated a capital charge of -55%, but the MSCI would have increased by 60% during the following 3 years. - If the calibration is based on one-year data, the dampener approach could lead to an overestimation of the equity capital charge during up-turns, and will incentivize undertakings to reduce their equity position, with potentially negative effects on the upturn of the economy. For instance, in November 2009 the equity capital charge would be of 55%. To conclude, calibration based on one-year data will eliminate the	Evidence for the equity cycle is unclear at best. Estimates of its duration are therefore contentious. The calibration of the symmetric adjuster makes no attempt to define the cycle, or estimate its length. Noted. See response to comment 127 above.

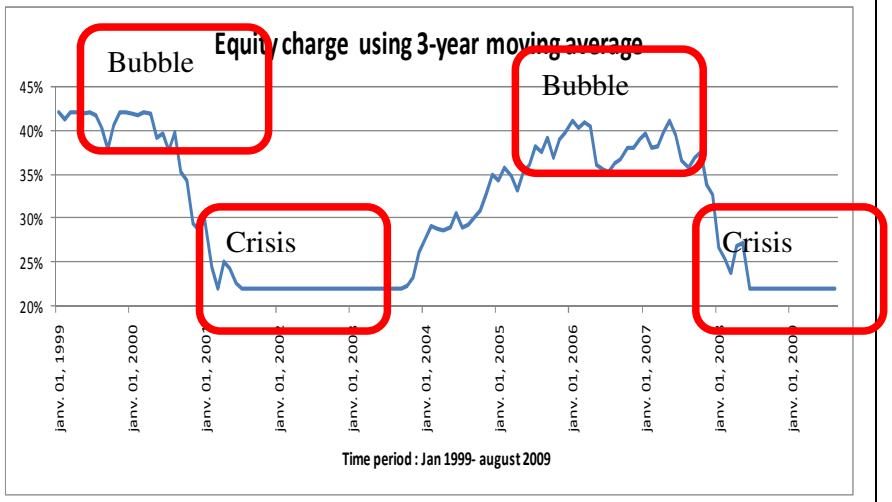
			contra-cyclical feature of the dampener option.	
334.	FFSA	3.99.	In §3.54, CEIOPS states that an averaging period of one year is proposed. FFSA advocates for the use of a 3-years averaging period. Indeed, using a short-term moving average leads to a highly volatile equity charge, making it unpredictable, and therefore making financial steering impossible. The next figure shows how often the equity charge would change if a short term dampener were used. For example, if a 3-month average were is used, the equity charge in September 2009 would have been maximum, while it was minimum in March 2009: The contra-cyclical effect is not at all achieved:	Noted. Please see response to comment 127 above, and the rationale within the appendices for the choice of time period.



Were the 1 year moving average to be used, there would still be volatility in the equity charge and the counter-cyclical effect would still not be achieved. For example, the equity charge in the beginning of 2008 would have been already minimum (just before the sharp equity fall occurred in financial markets)



In contrast, a 3-year moving average is able to anticipate market bubbles and release the capital requirement during crisis:



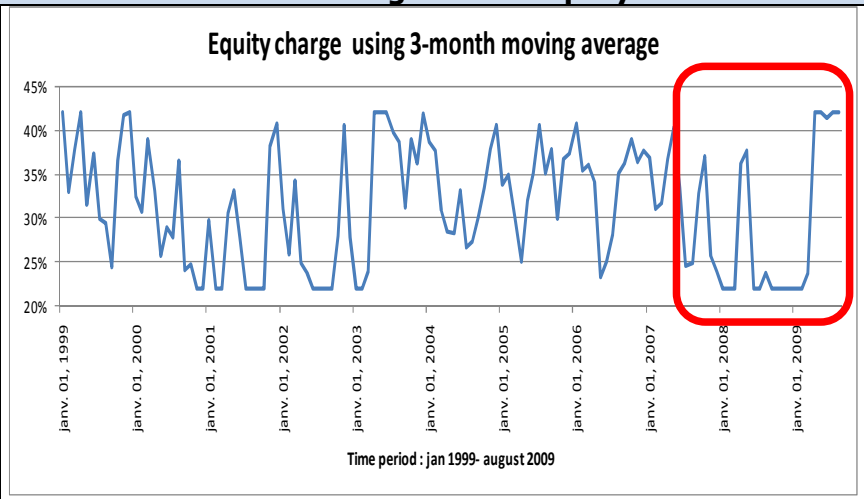
In addition, we advocate to calculate the adjustment based on the methodology set out in Annex B

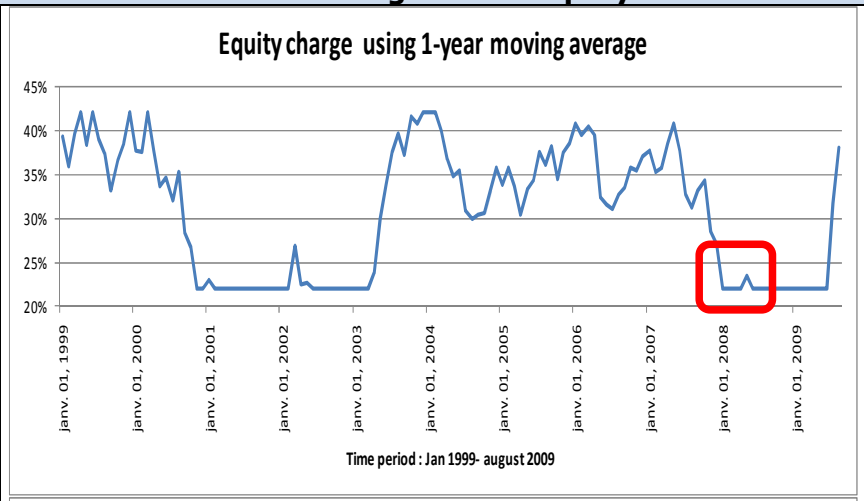
(indeed, the adjustment calculated in 3.36 is not normalized, and therefore adds volatility in the calibration: normalization means here that if the adjustment parameter is calculated based on x month, its value should be divided by x for comparison between different averaging periods. In other words, it can be done through comparing the index to the sum of its moving average and a trend factor)

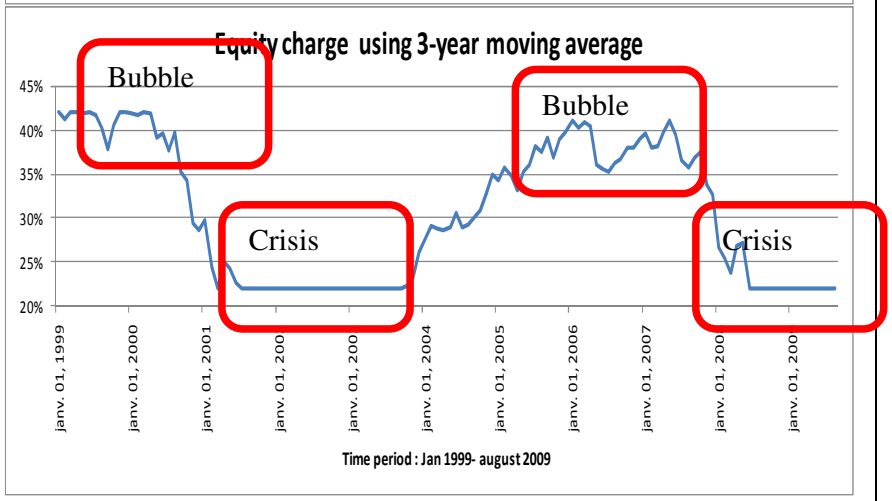
In conclusion, based on our internal studies, we recommend using

			a 3-year averaging period.	
335.	GROUPAMA	3.99.	We question the suggested calibration based on one year for three main reasons: - it is inconsistent with the duration of an equity cycle, deemed to be around 5 years. Estimating the position on the cycle based on a mobile average of one year makes no economic sense. - if this strategy is back-tested, we can see huge over(under)estimation. For instance: * end of march 2008: the formula would give an equity capital charge of 35% (45% - 10%), and the variation of the MSCI dropped by 40% one year later. * beginning of 2004: the suggested formula would give a capital charge of -55%, but the MSCI increased by 60% over the following 3 years. - based on one year, the Dampener approach could lead to an over-cost of equity during upturns, and encourage undertakings to reduce their equity position, with potentially negative effects on the upturn of the economy. For instance, in November 2009, the equity capital charge would be 55%. On a one-year calibration, the Dampener option is no longer a contra-cyclical measure.	Please see response to comment 333.
336.	Groupe Consultatif	3.99.	It is not clear why a symmetric adjustment mechanism implies an independent averaging period. These appear to be two independent choices.	Agreed. The averaging period and the stress are chosen separately.
337.	KPMG ELLP	3.99.	It is not clear to us why a symmetric adjustment mechanism implies an independent averaging period. These appear to be two independent choices.	See response to comment 336

Summary of Comments on Consultation Paper 69 - CEIOPS-CP-69/09 CEIOPS-SEC-171-09 CP No. 69 - L2 Advice on Design of the equity risk sub-module				
338.	ABI	3.100.	The Pillar I dampener will need to be carefully considered as its effects may exaggerate the stress faced by insurers at inappropriate points. We should ensure this mechanism delivers the right outcome which is to dampen stress conditions and not to make them worse.	Noted
339.	AMICE	3.100.	To be discussed together with the previous paragraph. We suggest therefore 3 years or more in line with CEIOPS minority view.	Noted
340.	CEA	3.100.	**Further investigation is necessary to ensure that the symmetric adjustment mechanism would work appropriately** If the symmetric adjustment mechanism is applied as intended, and so results in increased capital requirements only in buoyant markets and reduced requirements only in stressed markets, then it could be a useful tool to counter-balance pro-cyclicality. Tentatively the CEA believes that the 1 year averaging period appears to be appropriate as the minimum duration over which the dampener is calculated. However, further investigation, based on concrete simulations (also based, for example, on other periods such as 3 years), is required to ensure that the symmetric adjustment mechanism is applied as expected. Please find below 3 graphs which highlight the different averging periods on the functioning of the symmetric adjustment mechanism:	Noted. See response to comment 334 above. Particularly comment 127.

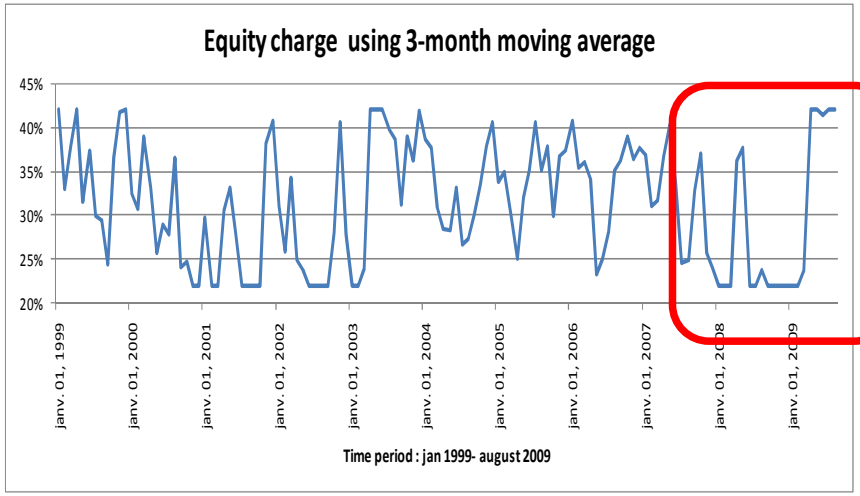

Equity charge using 3-month moving average
45%
40%
35%
30%
25%
20%
janv. 01, 1999
janv. 01, 2000
janv. 01, 2001
janv. 01, 2002
janv. 01, 2003
janv. 01, 2004
janv. 01, 2005
janv. 01, 2006
janv. 01, 2007
janv. 01, 2008
janv. 01, 2009
Time period : jan 1999- august 2009

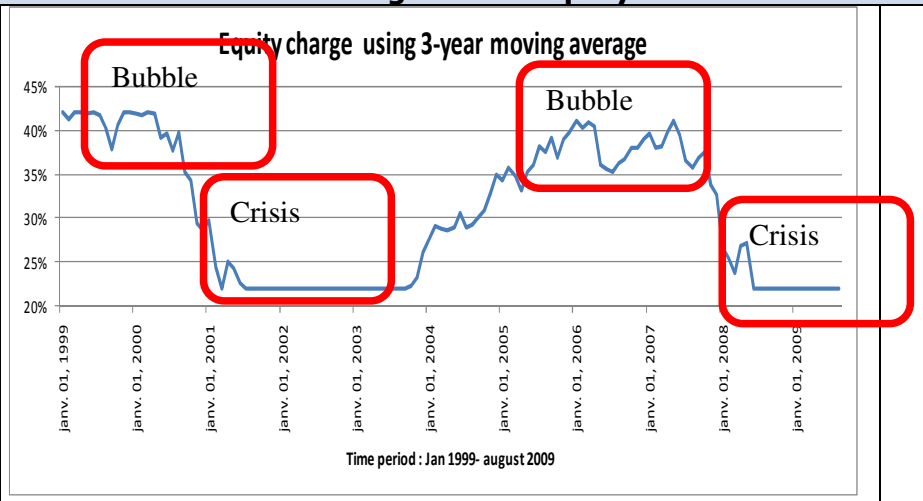




The CEA is ready to contribute to further work with Ceiops on this

			issue.	
341.	GDV	3.100.	Further investigation is necessary to ensure that the symmetric adjustment mechanism would work appropriately If the symmetric adjustment mechanism is applied as intended, and so results in increased capital requirements only in buoyant markets and reduced requirements only in stressed markets, then it could be a useful tool to counter-balance pro-cyclicality. Tentatively the GDV believes that the 1 year averaging period appears to be appropriate as the minimum duration over which the dampener is calculated. However, further investigation, based on concrete simulations (also based, for example, on other periods such as 3 years), is required to ensure that the symmetric adjustment mechanism is applied as expected.	See response to comment 340 above.
342.	Groupe Consultatif	3.100.	Please see our comments in 3.97 critiquing the current method.	See responses to these comments above
343.	KPMG ELLP	3.100.	Please see our comments in 3.97.	See responses to these comments above
344.	Legal & General Group	3.100.	The period of one year for the dampener does not relate back to the period of recovery for the equity stock market. A second fall of say 45% after one, two years before, is more extreme, than after a buoyant market. Market recoveries usually take longer than one year. Further the volatility stress is very dependent upon the time horizon and the 60% upward stress is conservative if a 3 tear period is chosen. In practice we believe that a 3 year rolling average would be a more appropriate period taking into account general experience and would mitigate systemic risk.	Noted. Noted

345.	UNESPA	3.100.	**We would support a longer averaging period than 1 year for the symmetric adjustment mechanism** In principle we advocate the use of a 3-years averaging period. Indeed, using a short-term moving average leads to the amount of equity charge changing very often, making it unpredictable, and making financial steering impossible. The next figure shows how fast the equity charge will move if a short term dampener is used. For example, if a 3-month average is used, the equity charge in September 2009 would have been maximum, while it was minimum in March 2009: The contra-cyclical effect is not at all achieved :  In contrast, a 3-year moving average is able to anticipate market bubbles and release the capital requirement during crisis:	See response to comment 334 above

			 In conclusion, based on our internal studies, in principle we recommend using a 3-year averaging period, although we understand it is necessary further investigation about this issue.	
346.	Groupe Consultatif	3.101.	We believe the reason for instability in using a longer time is due to the design of the formula and that with an improved mathematical design a longer time period could be used.	Noted
347.	KPMG ELLP	3.101.	We believe the reason for instability when using a longer time period is largely due to the design of the formula. We believe that with an improved mathematical formulation, a longer time period could be used.	Noted
348.	ABI	3.102.	See comments under 3.58	See response to these comments.
349.	ACA	3.102.	We support CEA's view: The adjustment to the equity stress should be set annually and at EU level.	Partially agreed. This will be decided at level 3, CEIOPS

				believes the calculation should be central and at least annual.
350.	AFS	3.102.	We would not expect the recommendations to lead to moral hazard. Those Friendly Societies that have with profit funds will have an investment strategy which is constrained by any principles and practices that are in place, and therefore are unlikely to be able to take undue advantage.	Noted
351.	CEA	3.102.	The adjustment to the equity stress should be set annually and at EU level Ceiops does not clearly define the frequency with which the adjusted equity stress is calculated. As insurers are required to monitor their SCR compliance on a continuous basis then in principle the adjusted equity stress would need to be re-calculated and made available following each material change in the market. However, it is important that the equity risk charge does not so frequently change as to cause volatility and uncertainty for the insurer in setting its investment policies. Of course the equity charge must be monitored and adapted if market conditions suggest that the equity risk charge no longer reflects the real risk, but we believe that the adjustment should be assessed on an annual basis. To ensure a level playing field, this should be done at a European level.	Partially agreed. See response to comment 349 above, and also note that the method of calculation will be transparent, allowing undertakings to calculate for their own reporting if they need to.
352.	GDV	3.102.	The adjustment to the equity stress should be set annually and at EU level CEIOPS does not clearly define the frequency with which the adjusted equity stress is calculated. As insurers are required to monitor their SCR compliance on a continuous basis then in principle the adjusted equity stress would need to be re-calculated	See response to comment 351 above.

			and made available following each material change in the market. However, it is important that the equity risk charge does not so frequently change as to cause volatility and uncertainty for the insurer in setting its investment policies. Of course the equity charge must be monitored and adapted if market conditions suggest that the equity risk charge no longer reflects the real risk, but we believe that the adjustment should be assessed on an annual basis. To ensure a level playing field, this should be done at a European level.	
353.	Groupe Consultatif	3.102.	We believe the moral hazard issue is due to the design of the formula and that with an improved mathematical design the moral hazard issue that CEIOPS is concerned about would be addressed.	Noted
354.	KPMG ELLP	3.102.	We believe the moral hazard issue is due to the design of the formula and that with an improved mathematical design the moral hazard issue that CEIOPS is concerned about would be addressed.	Noted
355.	Legal & General Group	3.102.	However a longer averaging period may enable a firm to continue to hold the equities it has until the market returns to a more normal level, rather than having to sell at the bottom of the market.	Noted. On the same token it may mean that after a substantial crash the adjuster does not kick in meaning the firm have a charge they consider too high.
356.	AFS	3.103.	We would expect it to be unlikely that the capital charge for bonds to be more onerous than the capital charge for equities. Therefore due to 'matching' constraints we feel it unlikely that Friendly Societies will be able to take undue advantage. In addition the capital charges for different asset classes would need to differ by a significant amount to make this scenario advantageous to most Friendly Societies.	Noted. Noted

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357.	Groupe Consultatif	3.103.	This suggests that investment in equity is necessarily bad, however as mentioned in 3.97 customers might reasonably expect to get equity exposure through their policies and could not have their requirements met if the insurer is forced to reduce equity exposure. The solution to this paragraph is that a wider market and credit centric counter-cyclical mechanism is required covering more asset classes, or even extending beyond market credit risk modules. We understand that the directive places some limitations on where an anti-cyclical charge can be placed. However we believe that the European Systemic Risk Board will be interested in ensuring a lack of pro-cyclical behaviour from insurers and this might require an amendment to the Level 1 text. The implementing measures should therefore be designed to allow for such a change in the Level 1 text or provide as much flexibility to include a wider anti-cyclical charge as allowable under the current Level 1 text.	General point noted, and indeed the restriction in the directive, as well as practicability constraints has meant that such an adjuster is only considered for equities. It is not within the remit of CEIOPS to recommend courses of actions which run against the directive for this issue.
358.	KPMG ELLP	3.103.	The manner in which this is written suggests that investment in equity is somehow an inferior investment strategy. However, customers of life insurers might reasonably expect to receive equity exposure through their policies and it may not meet customer expectations if the insurer were forced to reduce equity exposure. As mentioned in our response to 3.93, a wider market and credit centric counter-cyclical mechanism it should be considered covering more asset classes to address CEIOPS concerns here.	Noted. The paragraph is intended to communicate that there is a risk firms are holding assets which do not match their optimal risk profile, rather than to make value judgements on the worthiness of various asset classes. See response to comment 357
359.	CEA	3.104.	Please see comments to Para 3.61.	See response to this comment.
360.	HDF Finance	3.104.	The chapter 4.8.2 of Consultation Paper 47 (paragraphs 4.177 to	Internal modellers can assess the

			4.181 of the paper, paragraphs 4.183 to 4.186 of the final advice) recommends that funds are considered on a transparent manner and on a look-through basis. Hedge funds being funds rather than an asset class, they should be treated as investment funds on a look-through basis rather than as an equity-like asset class.	risk of their funds, in this way, or others. However CEIOPS disagrees that hedge funds share the same characteristics of investment funds. Particularly, note high leverage, and investment in illiquid or untraded securities. Further, note that e.g. equity hedge funds would be charged at equity+10% unless they were invested purely in EEA or OECD equities using this look through basis.
361.	Legal & General Group	3.104.	The definition of other equities is very wide ranging, and seems to cover a number of investments with very differing fundamentals. Assessing them all at the same stress level appears unjustified. Se also 3.89 above	Noted. Please see response to comment 155.
362.	SIGNAL	3.104.	Private equity is economically a similar risk to public equity (no economic difference driven by the legal structure of a corporation). Therefore, we question if private equity should be treated differently to public equity at all. This argument in our view holds especially for private equity in EEA and OECD countries. Private equity is not comparable with Hedge Funds , Commodities and Emerging Market. We propose to treat private equity as part of "global equity".	Not agreed. Please see comment 155, and new calibration in revised paper.
363.	ABI	3.105.	We do not see the rationale behind the substantial increase of the standard stress for other equities from 45% under QIS4 to 60% as proposed by CEIOPS here. We believe this calibration to be too harsh and inconsistent with a 1 in 200 year confidence level.	Noted. Please see revised paper for lower calibration, and comment 155

			Furthermore, as the same symmetric adjustment mechanism would apply both to global equities and other equities, this could result in a 70% stress for other equities in the event of a 10% upward adjustment. Undertakings will be disincentivised from holding other equities and will lose all diversification benefits between equity portfolios and will be deterred from holding "other" equities. We do not think this is a reasonable outcome. We would therefore a more granular approach of the "other" equities category. See also comments under 3.58	
364.	ACA	3.105.	We support CEA's view: A more granular treatment is requested. We believe that the stress test for other equities should be at least 60%, and certainly disagree with the 45% stress test supported by some CEIOPS' members. Nevertheless, we consider that real estate funds should not be treated as other equities. To keep it simple, we suggest considering them together with global equities. Moreover, we noted that the Var 99,5% of hedge funds is calibrated on an historical basis at -23% and not -60% ??	Noted. Please see revised paper for lower calibration, and comment 155 Noted. Please note look through test. Noted, please note revised paper, and discussion above.
365.	AFS	3.105.	The "Other" Equity stress of 60% is a large increase on the QIS4 parameter (45%). In addition, with rising equity markets, the stress could be as high as 70% (if the symmetric adjustment term is +10%). This is a significant increase on the QIS4 parameter and is too prudent in our opinion.	Noted.
366.	AMICE	3.105.	CEIOPS states that the standard stress for other equities is calibrated at 60%. AMICE notices that the other category includes various types of assets/indices and believes that a more granular approach should be taken. In this regard, AMICE members support CEA proposal for applying a more granular approach to the "other" category type of equity as follows:	Not agreed. Please see response to comment 171 above.

			☐ Collective investment vehicles ☐ Equity in emerging markets ☐ Non listed equity ☐ Hedge funds ☐ Alternative instruments As mentioned in our comments to paragraph 3.60, a shock of 23% should apply hedge funds and a stress of 45% to Private Equity LPX50, Commodities S&P GSCI, and Emerging Markets MSCI	
367.	CEA	3.105.	The 60% stress, moving to 70% under certain circumstances, appears excessive We do not see the rationale behind the substantial increase of the standard stress for other equities from 45% under QIS4 to 60% as proposed by Ceiops here. The proposed stress of 60% for global equities is high. When combined with the adjustment mechanism, a stress of 70% could be applied in some circumstances. Undertakings will lose diversification benefits between equity portfolios and will be deterred from holding "other" equities. In our view this is disproportionately onerous and will deter investments in these types of assets. In particular the stress seems very high compared to the volatility of hedge funds as summarised in the paper. A more granular treatment is requested It does not follow straight from the results shown in Para 3.60 that 60% would be an appropriate stress scenario. It would seem	Noted. The rationale is contained in the analysis within the paper. Not agreed. Please see revised paper, and response to comment 155

			particularly inappropriate for hedge funds. Furthermore many non-listed companies could not be categorised under the four categories presented by Ceiops. We would support a more granular stress and we have discussed this in detail in our comments to Para 3.58. Ceiops suggests that the volatility for non-listed equities is higher and therefore a higher shock is justified. We do not agree with this proposal. The different shock scenarios for "global" (listed equities in EEA and OECD countries) and "other" is in our opinion not reflective of the actual risks which are accompanying the categories. Ceiops seems to only take into account listed funds which invest in unlisted shares etc. When looking at "real" unlisted shares etc. it can be argued that they are not characterized by a higher volatility than listed shares. Furthermore, the big difference in applied shocks (45% and 60%) could disrupt the market as a company willing to invest either in a listed company or a non-listed company will automatically be inclined to invest in the former. In our opinion, the Solvency II framework should not discriminate one over the other unless the risks are really apparent. In our opinion this conclusion seems strange as Ceiops is willing to propose a much higher equity shock for non-listed than for listed while the structure of those non-listed equities implies a less liquid investment. An investor is much more likely to sell listed equities than non-listed. Thus the possibility for a value recovery within the non-listed while these investments are still part of the portfolio is more likely than with listed equities.	See response to comment 182 above

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368.	FFSA	3.105.	CEIOPS states that the standard stress for other equities is calibrated at 60% FFSA notices that the other category includes various types of assets/indices and believes that a more granular approach should be taken. The correlation between these separate stresses should be addressed.	Not agreed, please see response to comment 155, and new calibration in paper.
369.			Confidential comments deleted.	
370.	GDV	3.105.	The 60% stress, moving to 70% under certain circumstances, appears excessive We do not see the rationale behind the substantial increase of the standard stress for other equities from 45% under QIS4 to 60% as proposed by CEIOPS here. The proposed stress of 60% for global equities is high. When combined with the adjustment mechanism, a stress of 70% could be applied in some circumstances. Undertakings will lose diversification benefits between equity portfolios and will be deterred from holding "other" equities. In our view this is disproportionately onerous and will deter investments in these types of assets. In particular the stress seems very high compared to the volatility of hedge funds as summarised in the paper. A more granular treatment is requested It does not follow straight from the results shown in Para 3.60 that 60% would be an appropriate stress scenario. It would seem particularly inappropriate for hedge funds. Furthermore many non-listed companies could not be categorised under the four categories presented by CEIOPS. We would support a more granular stress	Noted. Please see response to comment 367

			CEIOPS suggests that the volatility for non-listed equities is higher and therefore a higher shock is justified. We do not agree with this proposal. The different shock scenarios for "global" (listed equities in EEA and OECD countries) and "other" is in our opinion not reflective of the actual risks which are accompanying the categories. CEIOPS seems to only take into account listed funds which invest in unlisted shares etc. When looking at "real" unlisted shares etc. it can be argued that they are not characterized by a higher volatility than listed shares. Furthermore, the big difference in applied shocks (45% and 60%) could disrupt the market as a company willing to invest either in a listed company or a non-listed company will automatically be inclined to invest in the former. In our opinion, the Solvency II framework should not discriminate one over the other unless the risks are really apparent. In our opinion this conclusion seems strange as CEIOPS is willing to propose a much higher equity shock for non-listed than for listed while the structure of those non-listed equities implies a less liquid investment. An investor is much more likely to sell listed equities than non-listed. Thus the possibility for a value recovery within the non-listed while these investments are still part of the portfolio is more likely than with listed equities.	
371.	GROUPAMA	3.105.	CEIOPS states that the standard stress for other equities is calibrated at 60%. We notice that the other category includes various types of assets/indices and we believe that a more granular approach should be taken.	Not agreed. Please see comment 155, and revised paper for lower

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			Furthermore, we strongly question the index used to calibrate the volatility of private equity investments. The LPX50 is an equity index covering the 50 largest listed private equity companies. For insurers, investments in private equity are usually a direct investment. The volatility of the LPX50 includes volatility on private equity and volatility on equities, so it is not consistent to calibrate the private equity shock based on this index.	calibration. Partially agreed. Please see discussion above, and revised paper.
372.	Groupe Consultatif	3.105.	We favour the 60% option but hedge funds should be moved to the 'global equity' category unless it can be shown that they are significantly more volatile than other 'global equity'.	Please see discussion after comment 155 regarding selection bias in indices etc, as well as the revised paper.
373.	KPMG ELLP	3.105.	Based on the analysis performed by CEIOPS the stress test on hedge funds appears quite onerous when compared with the table in 3.60.	Please see response to comment 372
374.	SIGNAL	3.105.	Applying Thomson Reuters (VentureXpert) or Private Equity Intelligence Ltd. (Preqin) data for deriving the private equity proposed stress factor leads to different results and make the whole argumentation chain of 3.105. obsolete. Broadly diversified private equity portfolios (e.g. information published by large US investors) indicate maximum drawdowns in the range of 30-35%.	Noted. Please see response to comment 371
375.			Confidential comments deleted.	
376.	Groupe Consultatif	3.106.	We agree with applying the same adjustment mechanism to Other but note that some hedge funds may have negative exposure to equity markets.	Noted
377.	KPMG ELLP	3.106.	We agree with applying the same adjustment mechanism to Other, but note that some hedge funds may have negative exposure to equity markets.	Noted
378.	Legal & General	3.107.	The correlation is very broad-brush and has little justification.	Noted. Please note discussion of justification in paper, as well as

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	Group			the need for simplicity within the standard formula.
379.	ABI	3.108.	10. The advice does not specify the volatility stress of +60% (and-15% if needed). Although there may be circumstances in which a reduction in volatilities leads to an increase in capital requirements we believe this is rare and can be ignored from the standard formula approach. 11. The combination approach assumes that equity risk and equity volatility stress is 100% correlated. As discussed above we believe this is excessive and has not been justified. We think a high but realistic assumption is needed e.g. 50%. This assumption can be backtested on 2008 assuming that risk factors are joint normally distributed with zero means. The UK equity market fell 33% in 2008, a 1-in-34 year event compared with the 1-in-200 fall of 45% (before adjustment). The implied volatility for 10 year equity options rose 36%, a 1-in-16 year event compared with the 1-in-200 rise of 60%. The combined event percentile depends on the relative exposure of the two risks as well as the correlation assumed; but with a 50% correlation the combined event is no more extreme than a 1-in-45 year event. This does not seem unreasonable and shows that the events of 2008 are not inconsistent with a 50% correlation.	Noted. Please note discussion of equity volatility above. Partially agreed. Note the new paper with a correlation of 0.75. In response to the analysis, an assumption of non guassian marginals would increase correlation. CEIOPS believes 75% is not unreasonable for this value.
380.	ACA	3.108.	We support CEA view: Proportionality should be considered for the application of the equity volatility stress.	Noted. See response to comment 382
381.			Confidential comments deleted.	
382.	CEA	3.108.	There is no mention in the blue text of the calibration of the equity volatility stress. Proportionality should be considered for the application of the	Please see final advice.

			equity volatility stress We understand that the interest rate volatility stress may be ignored in the case it is immaterial. Should this then also be the case for implied equity volatility (same principle no matter the type of risk)? We request that this is the case.	Agreed. Firms who do not have this risk will need only to prove they are not exposed (similarly to the way that monoliners who do not have life risk will not have to test for these risks). The standard materiality clause would apply.
383.	GDV	3.108.	We object against the introduction of an equity volatility shock as volatility shocks are already implicitly included within the equity shock itself. We would like to highlight that the consideration of volatility risks, as it is proposed in this CP (multiplicative approach and perfect correlation) are pro-cyclical. At least the equity volatility shock should not be included without reconsideration of double-counting of risks within the equity stress. If a volatility stress been introduced, then we believe that following conditions should be met: ■ The stress should apply only over a one year period of time. Otherwise the assumed level volatility stress is inconsistent with historical data because any volatility spike is usually observed over a very short period of time. ■ Any double counting with the level stress should be avoided to keep consistency with the 99.5% VAR level. The combination of the two stresses with no analysis to ensure that the combined capital requirements do not exceed the 99.5th% level is inappropriate. Furthermore CEIOPS assumes that the stresses are perfectly correlated and allows for no diversification between the risks which does not appear appropriate. Therefore we suggest to include volatility risks by means of a separate sub-module into the market risk module thereby allowing for adequate correlation assumptions.	Disagreed. The equity shock is calibrated to the level of the shock, not the volatility. Please see response to comment 215

			■ The application of the volatility stress should not be pro-cyclical. The stress should be additive and not multiplicative and the stressed volatility (once the stress is applied) should be capped and floored, otherwise the capital requirements will be higher in stresses market conditions. We discuss this further below.	
384.	Groupe Consultatif	3.108.	In our opinion the equity down shock and the volatility shock are two risk events which does not necessary occur simultaneously. Therefore a diversification should be applied to this two risk drivers. As noted earlier, the implied 100% correlation is prudent. We believe that there is some diversification available between equity implied volatility and equity index levels. We acknowledge that this would be a reasonably high correlation but we believe that 100% is perhaps excessive. If 100% is to0 be used some more quantitative justification should be used. We note that there the equity implied volatility stress is not cited in the blue text. We believe that the 60% relative up stress is quite onerous, especially in stressed market conditions. We believe that a less onerous up-stress should be applied in stressed market conditions to recognise the strong mean reversion that is evident in implied volatility figures. We also are confused as to CEIOPS view of implied volatility as the appropriate volatility for market consistent valuation. We note a comment in CP39 that CEIOPS was open to using historical or implied volatilities in the 'market consistent' valuation. In this paper we see an implicit use of implied volatilities. If firms took the historical volatility option in CP39 then there is no reason to impose	Agreed. Please see revised paper. Please see revised paper, and revised stresses. See response to comment 263

			an implied volatility in the stress test. Furthermore we believe that consideration should be given to whether an illiquid policy with an equity guarantee should be marked to market in the same way that an option trader in a bank would do so. While as option trader would need to maintain day to day liquidity to manage his volatility exposure, an insurer can take a more long term view because policyholder may be locked into contracts for several months or even several years. If an implied volatility stress test is used, we note that there is no duration / moneyness dependency in the equity implied volatility stress. We appreciate however the added complexity this would introduce. We note that there is no difference in the equity volatility stress between Global and Other although in practice the latter would be expected to be higher than the former. We note the equity volatility down stress and only consider it useful in the event that there is a clear exposure to downside volatility. We would recommend that the Supervisory Review Process and ORSA cover the equity down stress and where it would increase the capital requirement that it be included. Otherwise it feels like unnecessary work. Where the volatility down stress is applied a much lower correlation that 100% should be used. Strong equity falls are rarely if ever associated with an equity volatility down stress.	Noted. This argument could equally hold for any asset class, and has not been generally considered as a prudent approach. Particularly, under solvency II, the corollary of this is that a firm could be insolvent on a mark to market basis, but still trading as it waits for markets to recover before the policy unwinds. This would be unacceptable. Noted. This is not included for simplicity, and data credibility reasons. Noted.
385.	Institut des actuaires	3.108.	In our opinion the equity down shock and the volatility shock are two risk events which does not necessary occur simultaneously. Therefore a diversification should be applied to this two risk drivers.	Agreed. Please see revised paper.
386.	KPMG ELLP	3.108.	We note that the equity implied volatility stress is not cited in the blue text. See our comments against 3.67, 72, 79 and 80.	Please see revised paper, and response to these comments above.

Summary of Comments on Consultation Paper 69 - CEIOPS-CP-69/09 CEIOPS-SEC-171-09 CP No. 69 - L2 Advice on Design of the equity risk sub-module				
387.	Munich Re	3.108.	The shock scenarios correspond to an extreme correlation of +/- 1 between equity prices and implied volatility, together with extreme scenarios for volatility and equity shocks. We worry that this shock scenario is an extreme tail event far beyond the 99,5% quantile. Hence we propose to give a verifiable quantitative derivation of the shocks to properly define the 99,5% quantile. If several stress scenarios have to be defined with respect to the risk profile of the liabilities, we request clarifications as to how equity risk is to be considered with respect to insurance groups. We suggest that it would be appropriate to add the respective shocks of the insurance group members and decide upon the most onerous shock given the sum of the respective shocks (equity and volatility down-up, down-down), rather than adding up the most onerous shocks of individual insurance group members.	Noted. Please see revised paper with correlation coefficient. Please see response to comment 231
388.	UNESPA	3.108.	Based on 99,5 % confidence level principle and the holding horizon (unlimited under going concern approach) of assets backing surplus, namely assets backing own funds in excess of technical provisions and SCR, a drastically reduced calibration for them should be applied. 13. Assets backing surplus should have a drastically reduced shock in the SCR calculation in the market risk module (and therefore, in the equity risk sub-module), because: ☐ An entity with low risk and with a broad level of capital would have higher SCR, than an entity with exactly the same risk and less capital, which is an inconsistency, since the solvency ratio will be focused on assets backing surplus, and not in the assets that cover insurance liabilities, misaligning solvency ratio ultimate objective established under the Directive. ☐ One of the functions of assets backing surplus is to cover asset losses that back liabilities, due to market risk, in order to cover the losses, assets backing surplus are mark to market and in	Noted. CEIOPS understands the comment to recommend that a different charge be applied to 'free assets' i.e. assets over the SCR, than to other assets. CEIOPS recognises the point, but considers that it is not in line with the design of solvency II, and as such cannot be considered in this paper.

			capacity to cover the solvency ratio. If the solvency ratio is not achieved, there will be an increased in capital requirements. In this since, what is really relevant is the market value of these assets backing surplus, and not the potential loss that they may have in a year horizon, and at a given confidence level. ☐ Depending on the level of assets backing surplus, they could induce a higher result than the 99.5 percentile solvency requirement established in the Directive. ☐ Depending on the insurance and reinsurance undertakings assets backing surplus characteristics (only those assets different from cash), the SCR could substantially be increased, being this a clear disincentive to having excesses on capital, since the more assets backing surplus held by an entity with the same assets backing liabilities than other, the greater market risk SCR the entity will have. In order to have a better perspective of the real issues related to the calculation of SCR for assets backing surplus, we will illustrate some examples: ☐ An entity with no insurance liabilities, and paid up capital, could be more risky, than an entity with insurance liabilities, undercapitalized. ☐ Assume, a newly formed entity that has not sold any insurance policy (0 commitments, and no capital required to ensure risks at a 99.5th percentile). However, capital has been spent on: 70% in property, 10% in debt and equity financial instruments, and 20% in treasury. The propose SCR definition would impose a capital charge of e.g. 30%, and considering that the expected one year return on assets will be 10%, the entity could not distribute the 100% of its financial earnings, in the form of dividends to its shareholders, showing an unrealistic solvency position. 14. Concluding, if the same treatment is defined to assets	

			backing surplus and assets that back liabilities in the SCR calculation, a false impression of the real entity risk profile will be induced. Therefore, and considering the fact that the Solvency II is focus on a total economic balance sheet approach, we think that the assets backing surplus should be included in the SCR calculation, but with a drastically reduced scenario shock.	
389.	ABI	3.110.	See comments under 3.90	See responses to these comments.
390.	CEA	3.110.	The duration approach needs to be complemented with Pillar II and III measures We support the aim of the duration approach, which is to mitigate pro-cyclicality. However, we should be careful to ensure that it does not inappropriately mask a breach of the SCR. Therefore, the approach should always be supplemented by appropriate measures at Pillars II and III which do not appear to have been covered in this CP. The equity stress for insurers under the duration approach needs to be calculated consistently with the standard equity stresses It is important that the final calibration of the equity stress under the duration approach is based on the same methodology as the standard equity stresses. The 22% calibration of the duration approach will therefore will need to be re-visited once the standard "global" and "other" stresses are finalised. Ceiops	Noted
391.	DIA Danish	3.110.	3.87 and 3.110: In our view, the duration approach according to	Noted

	Insurance Association		Article 305b is, fundamentally, not in line with the economic approach which the directive aims to achieve. This is why the use of the duration approach must be authorised by member states – and this is why there are restrictions to the use of the approach (reference to Article 305b). If it were possible in practice to give policyholders the same protection under this approach as under the general, risk sensitive approach, these measures would be redundant. In our view, the duration approach with the proposed 22 per cent stress on equity holdings conflicts with the aim to establish a single European level playing field. If it becomes possible to apply a 22 per cent capital charge under the duration approach as compared to the 45/60 per cent equity risk calibration proposed under the risk based calculation, there will be an immense pressure in Europe for authorities to allow the use of the duration approach and competition will not be at an equal footing across Europe.	
392.	GDV	3.110.	The duration approach needs to be complemented with Pillar II and III measures We support the aim of the duration approach, which is to mitigate pro-cyclicality. However, we should be careful to ensure that it does not inappropriately mask a breach of the SCR. Therefore, the approach should always be supplemented by appropriate measures at Pillars II and III which do not appear to have been covered in this CP. The equity stress for insurers under the duration approach needs to be calculated consistently with the standard equity stresses It is important that the final calibration of the equity stress under the duration approach is based on the same methodology as the	Noted

			standard equity stresses. The 22% calibration of the duration approach will therefore will need to be re-visited once the standard "global" and "other" stresses are finalised.	
393.	Groupe Consultatif	3.110.	General comment to duration approach according Article 305b: In order to establish a level playing field - also between insurance companies and undertakings falling under the scope of Article 305b- we think that in general concerning risk based regulation a treatment of similar risks in the same way would be favourable to promote fair market competition. We would welcome more details on this paragraph and feel it is too light on detail to make comment.	Noted
394.	Institut des actuaires	3.110.	General comment to duration approach according Article 305b: In order to establish a level playing field - also between insurance companies and undertakings falling under the scope of Article 305b- we think that in general concerning risk based regulation a treatment of similar risks in the same way would be favourable to promote fair market competition.	Noted
395.	KPMG ELLP	3.110.	We would welcome more details on this paragraph and feel that section 3.7 is too light on detail to enable us to comment.	Noted
396.	Munich Re	3.110.	To ensure a level playing field all equity based stress factors (including equity dampener, duration dampener in Art. 305b) have to be adjusted with respect to the data and the method used to derive the standard equity stress (when the standard stress is increased from 32% to 45%, the 22% stress should be increased to a stress factor of round about 35%).	Noted
397.			Confidential comments deleted.	
398.	CEA	B.6.	We find it hard to reconcile the "1% of the time" requirement with a	Noted

			99.5% VaR approach. No justification is given for the 10% underestimation as well.	
399.	CRO Forum	B.6.	What is the basis for these requirements?	This is a prudent principle based on expert judgement.
400.	CEA	B.9.	We agree that the dampener should take into account that the spot value of the index on average exceeds the moving average of the chosen equity index due to the positive drift term. Hence, the stress test factor should be in equilibrium when the spot value equals the moving average plus the expected drift. This drift correction ensures that the equity stress test factor on average equals the chosen 99.5th percentile. The drift correction is obviously more important the longer the moving average window.	Noted
401.	DIA Danish Insurance Association	B.9.	B.9: We agree that the dampener should take into account that the spot value of the index on average exceeds the moving average of the chosen equity index due to the positive drift term. Hence, the stress test factor should be in equilibrium when the spot value equals the moving average plus the expected drift. This drift correction ensures that the equity stress test factor on average equals the chosen 99.5 percentile. The drift correction is obviously more important the longer the moving average window is.	Noted
402.			Confidential comments deleted.	