

External Study by Deloitte  
for the Impact Assessment  
of Solvency II (Level 2)  
Consultation Paper

Deloitte, as part of the external study for the Impact Assessment, invites comments on this Consultation Paper.

Please send your comments by email to [ECSolvenyII@deloitte.co.uk](mailto:ECSolvenyII@deloitte.co.uk) by 19<sup>th</sup> February 2010.

Comments should be returned using the template provided.

Deloitte will take into consideration comments received in its Final Report to the European Commission. Deloitte will not publish any of the individual submissions it receives.

This consultation paper is prepared solely for the purposes(s) set out in our contract with the European Commission and as stated herein. This consultation paper is not intended to constitute advice or form the basis of any decisions and no other party is entitled to rely on its content for any other purpose whatsoever and we accept no duty of care or liability to any other party who is shown or gains access to this paper. This consultation paper should be considered in its entirety as the use of individual elements out of context could be misleading.

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# 1. Overview

## Introduction

### 1.1

As part of the overarching Solvency II project, The European Commission has appointed Deloitte to conduct a study to assess the potential impact of technical (level 2) implementing measures, and of the various options being considered for a number of key policy issues. The focus of the work is on the impacts on the following insurance product areas:

- Mass risks, including motor and household insurance;
- Health insurance;
- Long term savings and retirement products; and
- Business to business insurance, including commercial insurance, reinsurance, and other risk mitigation tools and captive insurance

### 1.2

The study will look at three categories of impact of the proposed move to Solvency II from Solvency I (as currently implemented in each EEA country), these are:

- The impact on insurers balance sheets and business behaviour;
- The impact on insurance products and markets; and
- Social and economic impacts.

### 1.3

The analysis is to be based on an assessment of the real impact of the change in requirements at EU level - i.e. the move from Solvency I to Solvency II - and will analyse and compare the potential impact of different policy options for technical (level 2) implementing measures in the frame of the Solvency II project.

Version 3.0 of the List of Policy Issues and Options is the reference document for the different policy issues and options (summarised in appendix 1). Issues 1 -11 are within the scope of the study.

A summary of the key methodological points are provided in appendices 2-5.

### 1.4

Deloitte's work and this consultation paper are additional to and independent of the consultation work being carried out by CEIOPS in relation to the implementation of Solvency II. The European Commission will produce and publish the Main Impact Assessment Report for the Solvency II level 2 measures based on contributions from Deloitte and other parties (including CEIOPS).

### 1.5

This consultation paper sets out preliminary conclusions of the likely impact of the move to Solvency II and the impact of the various policy options which are under consideration.

The consultation is asking for respondents to comment on the preliminary conclusions, in particular:

- to provide specific examples from their businesses (in the case of insurers) or markets (in the case of other industry participants) where they feel that the conclusions hold;
- to highlight exceptions to the general conclusions, including identification of policy options which are thought likely to have significant impacts different from those stated in this paper;
- in instances where an alternative view is held, to provide an explanation for the position taken.

As this consultation paper represents work in progress no conclusions on social and economic impacts are represented and only a partial set of policy issues are reviewed. However, as you will notice, we invite respondents' views on the full set of policy issues (appendix 1) and on social and economic impacts (page 19).

## 1.6

The objectives of this consultation are to:

- Seek the views of industry on the emerging conclusions of the Impact Assessment across the EEA;
- To inform the analysis of the policy options relevant to each policy issue;
- To ensure that the maximum range of input is available to identify specific cases which are exceptions to the more general impacts identified and where the most significant impacts are expected as a result of the move to Solvency II; and
- To obtain reliable, evidence based and relevant information.

## 1.7

Comments will be summarised and included as an annex to Deloitte's final report to the European Commission.

## Timeline

### 1.8

This consultation will close on 19<sup>th</sup> February 2010.

# 2. The impact on insurers' balance sheet and business behaviour

## Introduction

### 2.1

We have been asked by the European Commission to consider the following questions regarding the impact on balance sheet and business behaviour:

- *What impact will the introduction of Solvency II have on the value of technical provisions?*
- *To what extent will methods and practices for calculating technical provisions be harmonised following the introduction of Solvency II?*
- *What impact will the introduction of Solvency II have on capital requirements (both the SCR and MCR)?*
- *What contribution will each of the main risks included in the SCR standard formula make?*
- *What will be the likely impact of using an internal model rather than the standard formula?*
- *What impact will risk mitigation techniques, risk equalisation mechanisms or pooling arrangements have on the SCR?*
- *What impact will the risk absorbing capacity of technical provisions and deferred tax liabilities have on the SCR?*
- *What impact will the introduction of Solvency II have on available own funds?*
- *Will the introduction of Solvency II overall increase financial requirements or conversely allow capital to be released? If so, how?*

## Preliminary conclusions for the impact on balance sheet and business behaviour

### 2.2

The consultation is asking for respondents to comment on the questions and preliminary conclusions (paragraphs 2.3 to 2.48), in particular:

- to provide specific examples from their businesses (in the case of insurers) or markets (in the case of other industry participants) where they feel that the conclusions hold;
- to highlight exceptions to the general conclusions, including identification of policy options which are thought likely to have significant impacts different from those stated in this paper;
- in instances where an alternative view is held, to provide an explanation for the position taken.

## 2.3

***What impact will the introduction of Solvency II have on the value of technical provisions?***

## 2.4

The introduction of Solvency II will lead to a reduction in the value of technical provisions across all EEA countries for Mass Risk and B2B. The markets with the greatest level of current prudence in reserves are likely to see a greater degree of reduction in the value of their technical provisions compared to others.

## 2.5

For Health, we believe that technical provisions will generally reduce slightly under Solvency II, but this will not be true across all products in all member states, and the extent of the reduction will vary from state-to-state and product-to-product. For example, in Germany the extent of any reduction depends upon the level of risk free yields relative to the prescribed valuation rate at the time Solvency II comes into force.

## 2.6

For Long Term Savings and Retirement Products, the impact on technical provisions will vary by product and jurisdiction. Term insurance and unit linked technical provisions will generally decrease, the results for with profits and annuities show an increase for most countries.

## 2.7

***To what extent will methods and practices for calculating technical provisions be harmonised following the introduction of Solvency II?***

## 2.8

The introduction of Solvency II should lead to harmonisation of methods and practices for calculating technical provisions across EEA countries and markets. The limited availability of technical resources in some markets is likely to mean there will be a greater step change to harmonisation for them. It could be expected that the full objective of harmonisation across EEA will take a few years to achieve.

## 2.9

The difference in the nature, scale and complexity of insurance businesses across the European Union could lead to some different approaches being used. For instance, for Long Term Savings and Retirement products there are some firms which are currently using Monte Carlo simulations for valuation purposes whilst others - taking into account the nature, scale and complexity of their business - would rather use closed form solutions or deterministic projections.

## 2.10

***What impact will the introduction of Solvency II have on capital requirements (both the SCR and MCR)?***

## 2.11

In general, the introduction of Solvency II will lead to an increase in capital required based on the SCR for most insurance markets. The main reason for this is that the calculation of capital requirements under Solvency I regime does not capture the risks embedded in the different products or the risks associated with how undertakings run their businesses. Furthermore, the recalibration of the different stresses and correlations proposed by CEIOPS in recent consultation papers will further increase capital requirements.

## 2.12

The impact is likely to be smaller for countries whose current capital requirements exceed those prescribed under Solvency I. The relative impact for smaller, undiversified insurers is likely to be more than others, while for larger more diverse insurance companies the impact is likely to be less as they are likely to obtain bigger diversification benefits. Reinsurers are also likely to experience high increases in capital requirements mostly due to their exposure to catastrophes.

## 2.13

For Mass Risk and B2B the impact on the MCR is not clear as this increases or decreases for different countries. For Long Term Savings and Retirement products the impact on the overall level of MCR varies by size of firm with larger firms likely to have a higher MCR under Solvency II.

## 2.14

***What contribution will each of the main risks included in the SCR standard formula make?***

## 2.15

For Mass Risk / B2B, underwriting and market risks are the main contributors to the SCR. Mass Risk / B2B insurers generally are less exposed to market risk compared to life insurers as they hold less volatile assets since their liabilities are shorter tailed than life insurers. However, some exceptions can be noted with some B2B lines.

## 2.16

In Health, for non SLT<sup>1</sup> health the key risk is health underwriting risk, with premium and reserve risk likely to dominate for France and the UK, and catastrophe risk more significant for the Netherlands. For SLT health as written in Germany, market risk becomes more of an issue, with interest rate risk being the key issue. For health underwriting risk, the size of the risk varies according to assumptions about how quickly firms can react to changes in risk through changing future premiums or bonuses.

## 2.17

For Long Term Savings and Retirement products, the contribution of each risk to the SCR will depend significantly on:

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<sup>1</sup> For the purpose of underwriting risk assessment, healthcare risks are split into two sub modules firstly, SLT health – health insurance obligations pursued on a similar technical basis to that of life insurance and secondly, non-SLT health – health insurance obligations not pursued on a similar technical basis to that of life insurance

- Product type: Whilst underwriting risks will be dominant for term products, market risks are more significant for with-profits contracts. For annuities, both longevity and market risks could be significant. In addition, products with a rapid accumulation of funds – except for contracts where policyholders bear the investment risk – lead to a higher exposure to market risks.
- Investment strategy: the degree of investment in different asset classes will determine the contribution of the sub-market risks to the total SCR. The investment strategy is generally product specific but we also see differences by countries. There are some countries which typically invest in government and/or corporate bonds whilst others tend to have an important equity allocation.
- Use of risk mitigation techniques: these techniques such as reinsurance and hedging could be used to manage the natural exposure of products to risks and therefore alter the contribution of each risk to the total SCR.

## 2.18

***What will be the likely impact of using an internal model rather than the standard model?***

## 2.19

Internal models are likely to result in reduced capital requirements for many insurance firms that decide to use this approach, but it depends on the stance of the regulators in Member States, and on the final decision on the calibration to be used (where supervisors require the internal model approach there may be instances in which firms will require to hold more capital). The amount of change in capital requirements under Solvency II depends on how accurately the internal model captures the insurer's key risk features and the appropriate calibration of the parameters. It is more likely that the larger, more sophisticated insurance markets will adopt internal models, because they will have a larger pool of technical and financial resources to develop internal models which are expected to be offset by lower capital requirements. Other countries with smaller insurance markets are likely to use the standard formula. Foreign subsidiaries may adopt internal models provided by their large international parent companies, so that a consistent approach is used across a group level.

## 2.20

***What impact will risk mitigation techniques, risk equalisation mechanisms or pooling arrangements have on the SCR?***

## 2.21

Many companies will increase their use of risk mitigation techniques. This is likely to result in a decrease in the SCR, which will more than offset the increase in the SCR due to the exposure to counter-party default risk. The impact will depend on the availability and cost of risk mitigation techniques as well as the appropriateness of risk mitigation techniques to reduce the exposure to some risks.

## 2.22

In Health, risk mitigation techniques are most likely to have a material impact in Member States where a system of risk equalisation has been imposed by the government, as in the Netherlands.

## 2.23

***What impact will the risk absorbing capacity of technical provisions and deferred tax liabilities have on the SCR?***

## 2.24

The risk absorbing impact of Solvency II is only significant where discretion to reduce payouts to policyholders exists. This is not the case for Mass Risk and B2B, and only true in Health within Germany and other Member States with a similar Health product to Germany. In contrast, Life companies' management actions could have a significant impact for with-profits business, as part of the shock will be passed to the policyholder through a reduction in future discretionary bonuses. Their impact will depend on the characteristics of the business in each territory and the economic conditions at the valuation date.

## 2.25

Deferred tax liabilities could also absorb part of the shocks related to reduction in market values of the assets, which would reduce the value of these liabilities. Ultimately, the impact will depend on the characteristics of the financial reporting and tax regimes across the EU.

## 2.26

***What impact will the introduction of Solvency II have on available own funds?***

## 2.27

Solvency II will move the assessment of the value of assets from book to market value and therefore market conditions at the implementation date will determine the impact that changes in the value of assets could have on the level of own funds. This is clearly a significant change for some countries and its impact will depend on the extent of unrealised gains/losses present at the valuation date. It is also important to consider the extent to which this impact is offset by changes in the value of the liabilities.

## 2.28

Overall we expect that there will be a positive impact on Own Funds for all countries for Mass Risk, B2B and Health. The impact for Long Term Savings and Retirement products will vary more due to the relative impact the different changes have on the different components of the balance sheet which affect the value of the Own Funds.

## 2.29

***Will the introduction of Solvency II overall increase financial requirements or conversely allow capital to be released? If so, how?***

See table 1: The impact on total financial requirements of moving from SI to the SII benchmark.

## 2.30

For Mass Risk and B2B, Solvency II is likely to result in an increase in financial requirements, with only a few countries benefiting from a reduction. Although the technical provisions are a large portion of the financial requirements, the increase in capital requirements for most countries is so

large compared to the reduction in technical provisions that the overall impact on financial requirements is an increase. Consequently, the capital requirement is the key driver for the impact on financial requirements due to Solvency II.

### 2.31

For Health, the impact on financial requirements differs by Member State. Furthermore, the recent consultation paper, CP72, if accepted unchanged, has the potential to further increase financial requirements for some Member States writing short-term Healthcare business (e.g. the Netherlands).

### 2.32

For Long Term Savings and Retirement products, the opportunity to release capital, or the need to increase the capital base, will vary by product and jurisdiction. The key factors which will impact firms' capital base are those affecting the value of assets, liabilities and capital requirements. We therefore believe that the following four factors will determine firms' needs:

- Rules on the valuation of technical provisions (e.g. the inclusion or exclusion of illiquidity premiums);
- Market conditions at implementation date (e.g. amounts of unrealised gains or losses);
- The calibration of the Solvency Capital Requirement; and
- Whether there are currently additional solvency requirements on top of Solvency I (e.g. ICA regime in the UK).

Table 1 has been developed from the underlying balance sheet analysis to provide a means of easy comparison and to identify the approximate directional impact of the move from Solvency I to Solvency II across the EEA states and product areas. This serves to provide a frame of reference or 'benchmark' which to compare the impact of the different policy options.

**Table 1.** Impact on total financial requirements of moving from SI/current regime to SII benchmark

	Mass Risk / B2B	Health	Long-term saving and retirement products			
	Mass Risk / B2B	Healthcare	Annuity	Unit-linked	With-profits	Term
Austria	Small increase					
Belgium	Decrease			Decrease	Decrease	
Bulgaria	Large increase			Decrease		Decrease
Cyprus	Large increase		Large increase	Small increase	Small increase	Decrease
Czech Republic	Small increase			Decrease	Decrease	Decrease
Denmark	Large increase			Decrease		
Estonia	Small increase			Decrease	Decrease	
Finland	Large increase			Small increase		Decrease
France	Small increase (a)	Small increase		Small increase	Small increase	
Germany	Decrease	Decrease				
Greece	Large increase					
Hungary	Small increase			Decrease	Decrease	
Iceland	Decrease					
Ireland	Small increase		Large increase	Small increase	Small increase	Decrease
Italy	Large increase			Decrease	Decrease	Decrease
Latvia	Small increase			Decrease	Decrease	
Liechtenstein	Small increase					
Lithuania	Small increase			Decrease	Decrease	
Luxembourg	Decrease			Decrease		
Malta	Small increase			Small increase	Small increase	
Netherlands	Decrease (a)	Large increase	Decrease	Decrease	Decrease	
Norway	Large increase		Large increase		Large increase	Decrease
Poland	Small increase			Decrease	Decrease	Decrease
Portugal	Large increase			Decrease		
Romania	Large increase			Decrease		Decrease
Slovakia	Small increase			Decrease	Decrease	Decrease
Slovenia	Small increase			Decrease	Decrease	
Spain	Large increase		Decrease	Decrease	Large increase	Decrease
Sweden	Large increase		Large increase	Decrease	Large increase	Decrease
UK	Small increase (a)	Small increase	Large increase	Small increase	Small increase	Decrease

**Key:**

- Limited data / not a significant market in country (see Limitations)
- Release of capital at a market level
- Unlikely to result in change in behaviour at a market level
- Likely to have a significant impact on behaviour at a market level

**Mass Risk / B2B classification:**

- Decrease = -20% - 0%
- Small increase = 0% - 15%
- Large increase = 15% +

**Long-term savings and retirement classification:**

- Decrease = ≤ 0%
- Small increase = 0% - 5%
- Large increase = 5% +

**"Limitations":**

- Healthcare:**
- Impact on total financial requirements modelled only for four jurisdictions (case studies)
  - Other countries are not yet covered by quantitative analysis
- Long-term saving and retirement:**
- Jurisdictions that have insufficient data for analysis or do not have significant markets in certain products (annuity, unit-linked, with-profits and / or term) were excluded from the quantitative analysis and hence no results on the impact of total capital requirements are available
  - Austria and Germany results are outstanding

**Notes:**

- (a) For B2B Large Commercial Lines market the impact is 'Large increase'. Further split for Small Commercial Lines markets is given in Chapter 7.

## 2.33

Combined results for Mass Risk and B2B (across all lines of business) suggest the majority of countries are likely to see a small increase in total financial requirements on the move to Solvency II, although a significant number are likely to see a large increase. In contrast, term products are likely to see a decrease in the total financial requirements across all assessed countries. The same applies for the majority of countries with a unit-linked and with-profits market. The potential impact on the Annuity market is different than that for the other Long Term Savings and Retirement markets, with the majority of the countries assessed likely to see a large increase in total financial requirements. The results for the Health markets differ due to the differences in the products on offer in the assessed markets.

### Impact of Policy Options

We now consider which of the policy issues<sup>2</sup> change the benchmark position for at least one policy option. This relationship is set out in table 2 below and serves to further “hone-in” on the hot-spot intersections of country / product area / issue.

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<sup>2</sup> We have quantified the impact for issues 1,2,4,8 and 10 only. Quantitative analysis for issues 5 and 6 regarding reporting are part of a separate analysis. Qualitative analysis for the remaining issues in scope of the study will be provided in the final report. However, we invite comments on any of the policy issues under consideration.  
Refer to Appendix 1 for the list of policy issues and options



### 2.36

In general, all of the countries that have a significant market in any of the four products in the Long term savings and retirement products market (Annuity, Term, Unit-linked and With-profits) are significantly impacted by Policy Issue 10A. In addition, Annuity markets seem to be particularly impacted by Policy Issue 4 (impacts all countries that were included in the analysis of the Annuity products) and Policy Issue 1 (changes the benchmark of 5 out of 7 countries included in the analysis of Annuity products). Term markets do not appear to be significantly impacted by any of the Policy Issues.

### 2.37

Both Unit-linked and With-profits markets are significantly impacted by Policy Issues 4 and 8. Policy Issue 4 impacts all of the markets that were included in the analysis of both Unit-linked and With-profits markets, while Policy Issue 8 impacts more countries with Unit-linked markets than countries with With-profits markets.

### 2.38

On the whole, the Policy Options associated with Policy Issue 1 have a bigger impact on Annuity markets than Mass Risk / B2B markets. Due to their shorter term nature, shifting the yield curve by +1% reduces the total financial requirements for a number of Mass Risk / B2B markets, while shifting it by -1% has a negative impact on total financial requirements (i.e. results in an increase). For both Mass Risk / B2B and Annuity markets, shifting the swap curve by  $\pm 1\%$  results in the same impact as shifting the yield curve.

### 2.39

Policy Options associated with Policy Issue 2A have an impact on the SII benchmark position on the Mass Risk / B2B markets and Annuity markets of some countries. 4% CoC rate decreases the total financial requirements of both Mass Risk / B2B and Annuity markets, whilst, applying the 8% CoC rate has a significant negative impact on the SII benchmark.

### 2.40

Policy Options associated with Policy Issue 2B only have a significant impact on the SII benchmark position of Annuity market in the Netherlands, which is primarily due to the risk margins forming a significant portion of the initial strain for the Annuity products in the country.

### 2.41

Policy Options associated with Policy Issue 4 have a significant impact on the SII benchmark position of Unit-linked, With-profits and Annuity markets for a number of countries. The shorter the Pillar II dampener the more capital insurers are likely to hold in order to avoid breaching SCR during a financial crisis, as restoring capital in times of financial distress could be difficult and costly.

### 2.42

Policy Options associated with Policy Issue 8 have a significant impact on the SII benchmark position of Unit-linked and With-profits markets for a number of countries. A longer adjustment period will lower the capital charge.

### 2.43

Policy Options associated with Policy Issue 10A have a significant impact on

the SII benchmark position for of Mass Risk / B2B and Long-term savings and retirement products markets for a number of countries. Lower (than QIS4) correlation parameters will result in a lower SCR with increased diversification benefit. Higher (than QIS4) correlation parameters will result in a higher SCR with reduced diversification benefit.

#### **2.44**

Policy Options associated with Policy Issue 10B have a significant impact on the SII benchmark position of Mass Risk / B2B markets of a small number of assessed countries. The larger the scope of diversification the more significant the (positive) impact on the SII benchmark position.

In addition to comments regarding the above policy issues and options we invite respondents to comment on:

#### **2.45**

Which, if any, of the policy options for issue 3, (own funds) would change the result shown in table 2 and why.

#### **2.46**

Which, if any, of the policy options for issue 7, (treatment of holdings) would change the result shown in table 2 and why.

#### **2.47**

Which, if any, of the policy options for issue 9, (SCR standard formula) would change the result shown in table 2 and why.

#### **2.48**

Which, if any, of the policy options for issue 11, (SCR internal model) would change the result shown in table 2 and why.

# 3. Impact on insurance markets and products

## Introduction

### 3.1

We have been asked by the European Commission to consider the following questions regarding the impact on insurance markets and products:

- *Will the introduction of economic valuation and risk based capital requirements for solvency purposes result in an increase or decrease in insurance prices?*
- *If yes, for which types of product or groups of policyholders and will the change result from an increase/decrease in the value of technical provisions or capital requirements?*
- *Will the introduction of economic valuation and risk based capital requirements for solvency purposes result in a reduction of cross-subsidisation between different lines of business or groups of policyholders? If yes, which lines of business or groups of policyholders will be most affected?*
- *Will the new regime stimulate product innovation? If yes, how and for which lines of business?*
- *Will the new regime result in a withdrawal of certain products from the market? If so, what products?*
- *Will the introduction of economic valuation and risk based capital requirements for solvency purposes encourage particular types of insurance business model (e.g. specialisation vs. diversification, joint-stock companies vs. mutual associations, branches vs. subsidiaries, groups vs. isolated legal entities)?*
- *Will Solvency II affect competition across (re)insurers in the EU and/or the functioning of the internal market?*
- *What impact will the introduction of Solvency II have on the captive market?*
- *What impact will the introduction of Solvency II have on third country insurers and reinsurers?*

## Preliminary conclusions for the impact on insurance markets and products

### 3.2

The consultation is asking for respondents to comment on the questions and preliminary conclusions (paragraphs 3.3 to 3.24), in particular:

- to provide specific examples from their businesses (in the case of insurers) or markets (in the case of other industry participants) where they feel that the conclusions hold;
- to highlight exceptions to the general conclusions, including identification of policy options which are thought likely to have significant impacts different from those stated in this paper;
- in instances where an alternative view is held, to provide an explanation for the position taken.

At a market level the severity of impact will depend on the collective response of the participants in the market. In Appendix 5 we set out, for each question, the characteristics of the market segments which we believe will be most severely impacted. Respondents are invited to refer to this when considering their responses to the impact on insurance markets and products.

### 3.3

***Will the introduction of economic valuation and risk based capital requirements for solvency purposes result in an increase or decrease in insurance prices? If yes, for which types of product or groups of policyholders and will the change result from an increase/decrease in the value of technical provisions or capital requirements?***

### 3.4

The direction of the change in price will be dependent on the change in financial requirements (price increase in case of financial requirement increase and vice versa). The extent of the price increase will be less than that equivalent to the full increase and will be driven by the structure of the market. In markets where players have limited or no market power, a smaller proportion of the increase in financial requirements will be passed on to consumers as a price increase. The same applies to the extent of the price decrease. Prices are likely to change to reflect the real risk and cost to serve, and the impact is likely to be limited to products or policyholder groups where increased risk transparency (driven by the increased risk based focus of the regulatory environment) highlights the higher cost to serve than insurers were previously aware of. Players with limited scope for cross-subsidisation, such as monoline insurers, have limited options in absorbing increases in financial requirements. Hence, they are more likely to pass on a higher proportion of the increase in financial requirements to customers. However, a natural limit to price increases will be their acceptability by consumers, even in a monopolistic market. Excessive price increases could lead to the inability of stakeholders to purchase insurance, which could be the case in niche markets such as Medical liability where price pressure already exists.

### 3.5

As reflected above, price increases will be greatest for products/countries experiencing the biggest increase in financial requirements, and vice versa.

### 3.6

***Will the introduction of economic valuation and risk based capital***

***requirements for solvency purposes result in a reduction of cross-subsidisation between different lines of businesses or groups of policyholders? If yes, which lines of business or groups of policyholders will be most affected?***

### **3.7**

The impacts on implicit market level cross-subsidisation of the move to Solvency II will likely be in markets where significant implicit cross-subsidisation occurs and the regulatory regime does not strongly encourage a granular risk-based capital approach, i.e. those countries with regulations furthest from Solvency II today. Policyholder groups who currently provide cross-subsidisation will see a positive benefit (e.g. price decrease) while those that are currently cross-subsidised will see a reduction in benefit (e.g. price increase). Typically where price discrimination is low, high risk groups, e.g. younger motorists, or people with unhealthy lifestyles, get subsidised by others.

### **3.8**

In most cases there will be no change in the levels of explicit cross-subsidisation, this being a commercial decision made by individual insurers as a result of their commercial strategy. Where the implementation of Solvency II significantly changes the relative profitability of the policyholder groups/ products/ geographies, management are likely to reassess their explicit cross-subsidisation strategy and as a result cross-subsidisation may increase or decrease depending on such a decision. Highly granular public disclosure requirements (e.g. at a product or geography level) may lead to reduced explicit cross-subsidisation.

### **3.9**

***Will the new regime stimulate product innovation? If yes, how and for which lines of business?***

### **3.10**

The impacts on product innovation of the move to Solvency II will likely be to stimulate product innovation more as the financial requirements increases. Product innovation is likely to take the form of new product features and risk transfer towards customers or between groups of customers with different risk profiles.

### **3.11**

Clearly many factors effect product innovation, including demographic, tax regimes, financial markets etc. The greatest stimulation of product innovation due to the move to Solvency II should happen in the area of pricing systems. It will occur within those markets where the demand for products is highly responsive to price variations, there is increased cost transparency and there is a high degree of pre-existing cross-subsidisation. This would tend to imply innovation around more risk-based commodity lines (such as motor or term assurance), where certain risks, e.g. females drivers, maybe overcharged for their risk level. Also, the impact will be greater on those countries currently furthest from Solvency II and with highly regulated product price tariffs, where underlying risk factors are not discriminated for in pricing. At the same time, product substitution might occur, with for example non-insured products gaining in importance as investment vehicles if the prices of insured investment vehicles become uneconomic due to higher financial requirements.

### **3.12**

***Will the new regime result in a withdrawal of certain products from the market? If so, what products?***

### **3.13**

The greatest potential for reduced availability / withdrawal of certain insurance products on the move to Solvency II will occur within markets where increases in insurance product prices are likely due to higher overall financial requirements, and insurers are unable to pass on the price increase to consumers. The resulting return on capital might be lower than that required and some insurers might decide to withdraw the product. In most cases, we would expect price increases or risks to be passed onto consumers, and thus the impact might be via a lower level of consumer demand than product withdrawal. Clearly if price tariffs are inflexible (either due to regulation or highly elastic demand) and risks cannot be transferred, the insurer may withdraw the product.

### **3.14**

Another form of product withdrawal can be driven by regulatory arbitrage in lines where alternatives to the insurance model exist. This is likely to be a consideration for annuity products, compared with retirement products offered by pension funds.

### **3.15**

***Will the introduction of economic valuation and risk based capital requirements for solvency purposes encourage particular types of business model?***

### **3.16**

Insurance business models that could in particular benefit / be encouraged on the move to Solvency II will be joint-stock, international multi-line business models. More diversified (geographically either / or across products) insurers are better positioned to be the long-term winners due to their ability to be able to pass on / absorb price increases and cross-subsidise. Joint-stock insurers are in a better position in terms of their ability to access capital in the wholesale markets.

### **3.17**

In the short to medium-term, there may be an increasing tendency to write business via branches, as opposed to country based subsidiaries. Diversification is easier to obtain between branches than between subsidiaries due to greater ease of demonstrating fungibility following the loss of the group capital regime. However, this is likely to be a consideration mostly for B2B insurers, where products are more comparable across EEA than Long Term Savings and Retirement products, Health or Mass Risk products. For non-EU insurers the branch vs. subsidiary consideration will continue to be an issue for as long as their home regulatory regimes are dissimilar to that envisaged under Solvency II.

### **3.18**

***Will Solvency II affect competition across (re)insurers in the EU and/or the functioning of the internal market?***

### **3.19**

The greatest potential for changes in competition on the move to Solvency II will occur within those markets likely to experience the greatest change in financial requirements (up or down) and markets that are likely to see a

significant change in transparency and availability of consumer information.

### 3.20

Barriers to entry are likely to be removed as all (re)insurers within the EU will be competing on a level playing field. This could increase competition. However, markets / product lines where more capital is required will see a reduced level of competition, if players are unable to raise capital or pass on the increases in the form of higher prices. This could adversely affect selective groups of policyholders who currently benefit from products priced at levels below the true risk cost. Conversely, a higher level of competition is expected where capital is released as this will increase the return on capital deployed and attract more players. Increase in transparency will increase competition, regardless of whether the number of players increases or decreases.

### 3.21

***What impact will the introduction of Solvency II have on the captive market?***

### 3.22

Captive Insurers are typically monoline insurers and can be thinly capitalised. Solvency II is likely to increase their capital requirements, which will likely see a reduction in captives' risk retention and potentially, in extreme cases, a winding up of captives. This could clearly affect the financing strategy of corporate customers.

### 3.23

***What impact will the introduction of Solvency II have on third country insurers and reinsurers?***

### 3.24

The impact on third party insurers/reinsurers will depend on the extent to which their host regime is granted Solvency II equivalence, the extent to which they write business in the EU and the extent to which they redeploy capital. If they are located in a Solvency II equivalent regime we would expect limited impacts as the scope for regulatory arbitrage would be reduced. For business written in the EU, Solvency II would apply, so any advantage would only come if the insurer manages to develop structures to cover EU risk that somehow was in a lower capital requirement regime than the EU (balanced against the policyholders/investors view around the solvency and stability of the writing insurer). Some 3<sup>rd</sup> party insurers might redeploy capital to non-Solvency II regimes if they felt they could get a higher risk adjusted return for their capital.

## Social and economic impacts

In the instances you have provided examples for paragraphs 3.3, 3.6, 3.9 or 3.12 we would welcome your additional comments with regard to paragraphs 3.25 to 3.28 which concern social and economic impacts.

### 3.25

***To what extent do respondents think that any social, environmental or economic knock-on effects could occur? Please provide specific examples to illustrate.***

### 3.26

***To what extent will the introduction of economic valuation and risk based capital requirements for solvency purposes make it easier or more difficult to obtain insurance for certain risks or groups of policyholders, and as a result will there be a transfer of risk from insurers to consumers? If yes, for which risks or groups of policyholders? Please provide specific examples to illustrate.***

### 3.27

***To what extent will the new regime have significant consequences for the financial situation of individuals / households, both immediately and in the long run? Does it affect the economic protection of the family? Please provide specific examples to illustrate.***

### 3.28

***To what extent is the impact on the social inclusion and protection of particular groups? Does it affect access to services of general economic interest? Are specific groups of individuals affected more than others (e.g. firms, localities, the most vulnerable, the most at risk of poverty)? Are the elderly significantly affected? Please provide specific examples to illustrate.***

# Appendix 1

## List of policy issues and options (Version 3).

Policy Issue	Policy Options
1. Technical provisions – best estimate – risk-free interest rate curve	Use the swap curve
	Use the government bonds curve
	Use the swap curve with an adjustment
	Use the government bonds curve with an adjustment
	A combination of the previous options
2A. Technical provisions – risk margin Calibration of the Cost-of-Capital rate	The level of the Cost of Capital rate should be equal to 6%, as specified in QIS4
	The level of the Cost of Capital rate should be lower than 6%
	The level of the cost of capital rate should be higher than 6%
2B. Technical provisions – risk margin Recognition of diversification benefits	Assume reference undertaking is well-diversified
	Assume reference undertaking after transfer is a mirror image of insurer transferring the risk
	Assume reference undertaking is empty before transfer
3. Own funds – quantitative limits for SCR and MCR	SCR: min 1/3 T1 (=> max 2/3 T2) and max 1/3 T3 MCR: min 50% T1
	SCR: min 50% T1 (=> max 50% T2) and max 25% T3 MCR: min 50% T1
	SCR: min 50% T1 (=>max 50% T2) and max 20% T3 MCR: min 80% T1
	SCR: min 50% T1 (=>max 50% T2) and max 15% T3 MCR: min 100% T1
	A combination of the previous options
4. Procyclicality – pillar II dampener	15 months – i.e. 6+3 (in normal circumstances) + another 6 (in the event of exceptional market flaws)
	Between 15 and 24 months – i.e. 6+3 (in normal circumstances) + another 6 to 15 months (in the event of exceptional market falls)
	Between 24 and 36 months – i.e. 6+3 (in normal circumstances) + another 15 to 27 months (in the event of exceptional market falls)
	Between 36 and 60 months – i.e. 6+3 (in normal circumstances) + another 27 to 51 months (in the event of exceptional market falls)
5A. Supervisory reporting – content, form and modalities Content of the quantitative reporting templates in the Report to Supervisors (RTS)	Collect QIS4 template for supervisory reporting purposes going forwards
	Collect the template data listed in Annex D of the July 2009 Consultation Paper
	Collect the template data listed in Annex D enriched with the data listed in Annex E of the July 2009 CP
5A*. Supervisory reporting – content, form and modalities Content of the qualitative aspects of the Report to Supervisors (RTS)	The RTS on every occasion contains complete information on the subjects specified in section 3.4.3 of the July 2009 CP
	Undertakings will provide a full report for the first year and thereafter on a frequency to be established by the supervisory authority, depending on the risk profile of the undertaking. In the intervening years, undertakings will provide information only on those topics (specified in section 3.4.3 of the July 2009 CP) where material changes have occurred, or state that no material changes have occurred

5B. Supervisory reporting – content, form and modalities Frequency	All data is provided quarterly
	Core quantitative data is provided quarterly, while all quantitative reporting templates and all qualitative data are provided annually
	All data is provided annually unless more frequent submission is required in the Directive
5C. Supervisory reporting – content, form and modalities Level of Assurance	All quantitative data are externally audited annually
	Specific quantitative data are externally audited annually, with the remainder unaudited
5D. Supervisory reporting – content, form and modalities Reporting format	Standardised reporting formats for all information
	Free format reporting for all information
	Quantitative data in a standardised reporting format and qualitative data following a predefined order but free format
6A. Public Disclosure – content, form and modalities Content of public disclosure (Solvency and Financial Condition Report – SFCR)	Level of detail of SFCR specified in a generic way (brief description of the information to be disclosed in each article 50(1) of the Directive)
	Level of detail of SFCR identical to the one requested under the RTS (save an non-disclosure allowed for in Article 52)
	Level of detail of SFCR specified in a concrete way (definition of the minimum content of the information to be disclosed in each item of Article 50(1) of the Directive)
6B. Public Disclosure – content, form and modalities How public disclosure is achieved	Specify where the SFCR will be disclosed and its structure
	Specify where the SFCR will be disclosed but not its structure
	The location of the disclosure of the SFCR is left to the undertaking, but its structure is specified
7. Treatment of holdings in participations and subsidiaries	Apply a differentiated equity stress (compared to the standard equity stress test) to all holdings in participations and subsidiaries, including (re)insurance holdings and holdings in financial and credit institutions
	Apply a differentiated equity stress to all non-financial and (re)insurance holdings in participations and subsidiaries. Apply a different approach to holdings in financial and credit institutions (e.g. deduction/ aggregation)
	Apply a differentiated equity stress to all non-financial holdings in participations and subsidiaries. Apply an alternative approach to (re)insurance holdings, which make use of the additional information available in these cases to determine the holding's contribution to the overall risk profile of the undertaking. Deduct holdings in financial and credit institutions
	Apply a differentiated equity stress to all non-financial subsidiaries. Apply a standard equity stress to non-financial participations, which are not subsidiaries. Apply an alternative approach to (re)insurance holdings in subsidiaries and participations, which makes use of the additional information available in these cases to determine the holding's contribution to the overall risk profile of the undertaking. Deduct holdings in financial and credit institutions
	A combination of the previous options
8. SCR standard formula – equity risk pillar I dampener	Less than 3 months
	Between 3 and 6 months
	Between 6 and 12 months
	Exactly 12 months*
	Between 12 and 36 months
	More than 36 months
9. SCR standard formula – risk absorbing capacity of technical provisions	A :“one-off adjustment” (based on a “k-factor”) is applied to the technical provisions *as tested in QIS2)
	An approach (“kc-factor” approach) where individual reductions of the SCR capital charge are calculated for each possible risk module and sub-modules of the standard formula, are then deducted from each risk module or sub-module SCR charges, and aggregated using the linear correlation matrices (as the one tested in

	QIS3 and the more refined one tested in QIS4)
	An adjustment based on the simulation of a single equivalent scenario (as the alternative method tested in QIS4 – see TS.VIII.C*)
10A. SCR standard formula – diversification effects Calibration of correlation parameters across lines of business	Use QIS4 correlation parameters across lines of business
	Use lower than QIS4 correlation parameters across lines of business
	Use higher than QIS4 correlation parameters across lines of business
10B. SCR standard formula – diversification effects Design and calibration of the approach to geographical diversification in the non-life underwriting risk module	No recognition of geographical diversification
	Recognition of geographical diversification as per QIS4 approach (TS.XIII.B; TS.XVI.B default method – accounting consolidation)
	Recognition of geographical diversification using a more granular approach
11. SCR Internal Model – integration of partial internal models	Integration of partial internal models using only coefficients prescribed by supervisory authorities*
	Integration of partial internal models using techniques provided by supervisory authorities or – if these are not possible or there is strong evidence that these are inappropriate – dependency structures and parameters provided by the undertaking*
	Integration of partial internal models using dependency structures and parameters provided by the undertaking or – if these are not approved by the supervisory authority – techniques provided by supervisory authorities*

\* changes from Version 2

# Appendix 2

## Methodological note

### The impact on insurers' balance sheet and business behaviour

#### A1.1

The first step of the quantitative analysis was to construct a Solvency II reference position or “benchmark” from which the impact of the different policy options can be measured. In constructing the benchmark we have made assumptions regarding many of the policy issues, for example for Mass Risks the benchmark is using the government bond. The policy option assumptions used in the benchmark are detailed in Appendix 3.

#### A1.2

It should be noted that the objective of the European Commission for this project is to assess impacts in terms of trends, and not in terms of exact quantitative results. We have conducted the quantitative analysis to allow a discriminative assessment of the various policy options under consideration. It should only be considered as an approximation of the likely impact of Solvency II compared to Solvency I.

This has a bearing on the level of quality expected from the data sources.

Data is one of the key challenges to overcome during this project. As instructed by the European Commission, the analysis should leverage as much as possible the QIS 4 data, as this is the source that best meets key requirements:

- Homogeneous across the EU;
- Subject to a certain level of scrutiny and control by CEIOPS members (although CEIOPS points out that this is not the case for all the data collected in the QIS 4 exercise); and
- Representative of major trends in the evolution of capital requirements expected under Solvency II.

No other source at the date of the impact analysis matches these requirements.

However, QIS 4 data has three limitations, which cannot be ignored:

- First, QIS 4 has been run on 2007 year end figures. They do not account for the impact of the 2008 financial crisis.
- Second, they are based on methods and calibration, some of which are no longer consistent with CEIOPS advice on Level 2 implementation measures.

- Third, for some products, for example Health, data was only available for 6 Member States<sup>3</sup>, and in some cases where it was available, the data was not relevant to our product analysis since it represented average results across many different products.

Our approach recognises these limitations in the way we use the QIS 4 data and complement them with additional information gathered by our network of experts. Appendix 4 sets out our use of QIS 4 in our approach.

## The impact on insurance markets and products

### A1.3

In designing a methodological approach to produce a robust assessment of the likely impact of the move to Solvency II on insurance markets and products, there are six key issues which must be considered:

1. It is theoretically possible to answer each question above, for each of the 30 EEA countries, for each of the four main product areas (and sub-products if required) and for each policy option in turn. However, this is not practical and therefore a way to simplify the analysis the analysis must be found.
2. A further complication with answering these questions arises from the need to have the analysis based on an assessment of the real impact of the change in requirements at EU level – i.e. the move from Solvency I to Solvency II. Because Solvency I regulatory regimes are different in each country, it is necessary to establish a relative measure of how similar the current regimes are to a theoretical future Solvency II regime which itself is not yet fully defined.
3. These questions relate to decisions firms will take as part of their normal trading activities and will therefore do so with consideration of their own unique internal circumstances (for example level of capitalisation) and in response to the external environment they face (not least the nature of competition). The degree to which it is possible to isolate and quantify cause and effect against each policy option is therefore challenging.
4. The analysis must be representative of the insurance markets across all member states, along with Iceland, Norway and Lichtenstein.
5. The chosen methodology must have the capacity to demonstrate specific impacts on the markets across the EU.
6. The approach and structure must be such that it is relevant to all participants within the EEA insurance market and delivers the required product level granularity in its output.

### A1.4

Our analysis suggests the markets and products impact will be influenced largely by four factors:

- The change in financial requirements caused by Solvency II compared to the current solvency regime

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<sup>3</sup> Belgium, Denmark, Finland, Portugal, France and Norway

- The degree to which the current solvency regime differs from Solvency II
- The market structure within a country
- The business model operated by the insurance entity

Each of these factors are discussed below

## Change in Financial Requirements

### A1.5

Based on the balance sheet analysis, we would expect the change resulting from an increase in financial requirements to be most likely for the annuity line, Healthcare in the Netherlands, Mass Risk/B2B policyholders in countries with small levels of prudent reserves today e.g. Spain, Italy and for selective markets with profits/participating policies e.g. France, Sweden. In contrast, decreases in financial requirements might occur on unit linked products and term insurance, some with profits markets e.g. Netherlands and Mass Risk/B2B products where currently a high level of prudent reserves are being held e.g. Belgium, Germany. Countries or products experiencing the largest financial requirements increases are likely to see the greatest impact in terms of a combination of price increases, risk transfer, product innovation or withdrawal and potentially fall in consumer demand.

### A1.6

In assessing the market impact, we have used change in financial requirements as a proxy. In some cases, it will be possible that overall financial requirements rise only modestly, but SCR rises substantially. In that case, changes in pricing and other actions to restore profitability will be most influenced by the rise in SCR than the rise in total financial requirements.

## Change in Solvency Regime

### A1.7

Countries whose regime is furthest from Solvency II will likely see significant market impacts as insurers adopt risk-based pricing and other efforts to manage capital more in line with the underlying risk. The impact will especially be around reduced cross-subsidisation and greater product innovation. Many EEA countries have only a limited risk-based approach today. This includes many CEE countries and (amongst the largest economies) Poland and Spain.

## Market Structure

### A1.8

Large competitive markets, with many multinationals, might experience more limited impacts of Solvency II as, even if not mandated by current regulation today, the practices adopted are likely to be risk based supported by economic capital models. In contrast, markets dominated by primarily a few domestic players may not have developed approaches similar to Solvency II. It should be noted that in some markets, insurers as a matter of course might have reached an agreement with regulators to hold capital levels in excess of stated regulatory requirements.

## Business Model

### A1.9

The business model can have a significant impact as it affects access to capital (e.g. stock companies), the degree of cross-subsidisation across lines (e.g. between mass risks and life), and across markets (e.g. international insurers). Mutual insurers are likely to have less access to capital sources than stock companies. However, their relative position in the new regime will be strongly influenced by the level of profits retained over time. Monoline insurers are likely to be disadvantaged compared to large, multi-line international insurers who can gain diversification benefits. However monolines might be able to neutralise this threat through a more segmented approach and focused underwriting on specific risks.

### A1.10

It should be noted that many other factors impact companies' views on products and markets. For example, if rating agency requirements already cause higher capitalisation rates than implied by Solvency II then clearly the adoption of Solvency II may have a limited impact. This is most likely for non-life companies writing large corporate risks. In addition, companies' strategic ambitions will affect their market positioning. A company may be seeking to develop market leadership and as a result may be prepared to cross subsidise certain products or policyholders. Lastly, risk mitigation strategies can change the extent to which insurers change their market and product behaviour, depending on their appetite for risk retention.

### A1.11

As illustrated next, these four factors have differing effects on the products and markets questions raised by the EU Commission. In addition, we expect the products and markets impact to be the result of the overall impact of the move to Solvency II rather than a reaction to a specific aspect of Solvency II or policy option. Furthermore, in some cases Solvency II may only reinforce a trend already underway due to other structural market changes, such as rising health care cost and ageing for Health insurance.

# Appendix 3

The first step of the policy analysis is to determine a suitable Solvency II reference position or “benchmark” from which the different options will be compared. In constructing the benchmark we have made assumptions regarding many of the policy issues, for example for Mass Risks the benchmark is using the government bond curve. The policy option assumptions used in the benchmark are detailed below.

Note the policy options assumed is for the purposes of setting a benchmark for the analysis. It does not imply this is the best or preferred option.

## Policy options assumed in the benchmark model

Policy Issue	Policy Options	Benchmark Model		
		Health	Life	Mass & B2B
1. Technical provisions – best estimate – risk-free interest rate curve	Use the swap curve	✓	✓	
	Use the government bonds curve			✓
	Use the swap curve with an adjustment			
	Use the government bonds curve with an adjustment			
	A combination of the previous options			
2A. Technical provisions – risk margin Calibration of the Cost-of-Capital rate	The level of the Cost of Capital rate should be equal to 6%, as specified in QIS4	✓	✓	✓
	The level of the Cost of Capital rate should be lower than 6%			
	The level of the cost of capital rate should be higher than 6%			
2B. Technical provisions – risk margin Recognition of diversification benefits	Assume reference undertaking is well-diversified	Option not applicable		
	Assume reference undertaking after transfer is a mirror image of insurer transferring the risk	Option not applicable		
	Assume reference undertaking is empty before transfer	Option not applicable	✓	✓
	A combination of the previous options	Option not applicable		
9. SCR standard formula – risk absorbing capacity of technical provisions	A “one-off adjustment” (based on a “k-factor”) is applied to the technical provisions *as tested in QIS2)			Option not applicable
	An approach (“kc-factor” approach) where individual reductions of the SCR capital charge are calculated for each possible risk module and sub-modules of the standard formula, are then deducted from each risk module or sub-module SCR charges, and aggregated using the linear correlation matrices (as the one tested in QIS3 and the more refined one tested in QIS4)	✓	✓	Option not applicable
	An adjustment based on the simulation of a single equivalent scenario (as the alternative method tested in QIS4 – see TS.VIII.C*)			Option not applicable
10A. SCR standard formula – diversification effects Calibration of correlation parameters across lines of business	Use QIS4 correlation parameters across lines of business	✓	✓	✓
	Use lower than QIS4 correlation parameters across lines of business			
	Use higher than QIS4 correlation parameters across lines of business			
10B. SCR standard formula – diversification effects Design and calibration of the approach to geographical diversification in the non-life underwriting risk module	No recognition of geographical diversification	✓	✓	✓
	Recognition of geographical diversification as per QIS4 approach (TS.XIII.B; TS.XVI.B default method – accounting consolidation)	Option not applicable	Option not applicable	Option not applicable

# Appendix 4

## QIS 4 use in our approach

QIS 4 information has been primarily used in our balance sheet analysis stream (with the exception of Health). This stream is comprised of two sets of modelling: modelling of the technical provisions (best estimate and risk margin), and modelling of the SCR / MCR.

*Model structure: identical to QIS 4 standard formula*

The risk margin and SCR/MCR models are based on the QIS4 standard formula structure and calibration, except, where QIS 4 was fundamentally revised, for example, for Germany Healthcare business. Health results also show the impact of some of the recent modifications set out in CPs.

*Data sources: largely independent from QIS 4*

The information fed into the best estimate model has been to a large extent independent of QIS 4; and was primarily based on input from our network of experts in Europe. Most of this information relates to 2007, as 2008 figures were not publicly available in all member states at the time of data collection (i.e. June and July 2009).

The information to calculate the risk margin and SCR/MCR is also independent of QIS 4. One input is the technical provisions calculated in the model (for the reserve component of the balance sheet) and the other input is information gathered by our network of experts in Europe for the asset and other liability components of the balance sheet. Again, this information relates to 2007.

However, QIS 4 data has been used to validate our expert input for consistency prior to their input in the models, as well as to validate the results of our balance sheet analysis.

## Recognition of QIS 4 limitations

The project includes two sets of analysis, where the QIS 4 relevance may be variable:

- A product and market impact assessment, based on findings from our balance sheet analysis. In this case, the question is: to what extent do QIS 4 models and 2007 data accurately represent the impact of Solvency II on insurance balance sheets?
- A policy option impact assessment, based on sensitivities of insurance balance sheets to different options. In this case, the question is: to what extent does the QIS 4 formula need to be adjusted to account for the policy options?

These questions are relevant for all risks in the scope of the impact assessment: Mass risks, Long-term savings and requirement, Health and B2B risks. We will make a qualitative assessment of the impact of using 2008 data and wave 3 CEIOPS advice.

The following charts highlight areas of relevance of QIS 4 data and models for each risk and each component of the analysis.

*Limitation regarding impact analysis on risks*

Risk	2007 data	QIS 4 Formula structure	QIS 4 Calibration
Mass risk	<p><b>Relevance: Medium</b></p> <ul style="list-style-type: none"> <li>- Although the market crisis has hit mass-risk insurance providers, market risk is much less important than premium and reserve risk in the SCR. Overall, trends in premium and reserve risks have not markedly changed between 2007 and 2008.</li> <li>- For this reason, we consider 2007 data to be still relevant for the purpose of the project.</li> </ul>	<p><b>Relevance: Medium</b></p> <ul style="list-style-type: none"> <li>- Although CEIOPS have proposed changes in the structure of the Non-Life module (e.g. for catastrophe), we consider that these do not change the SCR trends evidenced in QIS 4, both at the market level and by line of business.</li> <li>- For this reason, we consider QIS 4 modules to be still relevant for the purpose of the project.</li> </ul>	<p><b>Relevance: Medium</b></p> <ul style="list-style-type: none"> <li>- Although new calibrations proposed by CEIOPS are stricter than QIS 4, they confirm the trend of a higher SCR in Solvency II than in the Solvency I regime.</li> <li>- For this reason, we consider QIS 4 calibration to be still relevant for the purpose of the project.</li> </ul>
Long-term savings	<p><b>Relevance: High</b></p> <ul style="list-style-type: none"> <li>- Market risk is one of the largest risks borne by long-term savings and retirement providers. The 2008-2009 financial crisis has had a major impact for life insurers. However, the impact of the crisis is relatively straightforward to assess, having led to an overall increase in financial requirements.</li> <li>- For this reason, we believe that the benefit of a pan-European 2007 data pool outweighs the drawback of missing the financial crisis.</li> </ul>	<p><b>Relevance: Low</b></p> <ul style="list-style-type: none"> <li>- The final directive includes two elements which can influence the impact analysis: art. 106 regarding the equity dampener, and art. 305b for providers of retirement products.</li> <li>- However, these features are hard to include in the quantitative assessment for long-term savings and retirement products as their parameters are still under consultation.</li> <li>- Thus, we suggest keeping using the QIS 4 standard formula for the balance sheet analysis and address the possible impact of art. 106 and 305b in a qualitative way.</li> </ul>	<p><b>Relevance: High</b></p> <ul style="list-style-type: none"> <li>- New Life calibrations are being proposed by CEIOPS for several risk modules as part of the 2nd and 3rd wave of consultation papers.</li> <li>- As some of these re-calibrations are still being consulted and others are still to be approved, we propose to consider these in a qualitative rather than quantitative way.</li> <li>- Furthermore, the timing of some of these calibrations was such that could not be incorporated in our assessment.</li> </ul>
Health	<p><b>Relevance: Low/Medium</b></p> <ul style="list-style-type: none"> <li>- The situation may be different for Health based on Non-Life techniques and Health based on Life techniques.</li> <li>- For Health based on Non-Life techniques, comments made for mass risks would apply. For Health using Life techniques, comments made for Long-Term Savings would apply.</li> <li>- Overall, this makes 2007 data still relevant for the purpose of the project.</li> </ul>	<p><b>Relevance: Low/Medium</b></p> <ul style="list-style-type: none"> <li>- CEIOPS has fundamentally redesigned the Health module in their latest advice in Level 2 measures.</li> <li>- However, for Health based Non-Life techniques, the differences in design with QIS 4 are not likely to change the trend and magnitude of financial requirements under SII compared with Solvency I.</li> <li>- For this reason, we consider the QIS 4 module structure to be partially relevant for the purpose of the project.</li> </ul>	<p><b>Relevance: Medium</b></p> <ul style="list-style-type: none"> <li>- The new Health risk calibrations proposed by CEIOPS are stricter than QIS 4, they are expected to change the key messages, compared to the Solvency I regime</li> <li>- For this reason, we consider have repeated results on the different calibrations.</li> </ul>

B2B	<p><b>Relevance: Medium</b></p> <ul style="list-style-type: none"> <li>- Comment made for Mass Risks would generally apply to B2B.</li> <li>- It should be noted, though, that the impact of the financial crisis may have been stronger on B2B undertakings: they have a longer average duration of their liabilities. This may be reflected in their Asset / Liability policies, leading to a greater exposure to market risk.</li> <li>- Overall, we consider 2007 data to be still relevant for the purpose of the project.</li> </ul>	<p><b>Relevance: Medium</b></p> <ul style="list-style-type: none"> <li>- Comment made for Mass Risks would generally apply to B2B.</li> <li>- For this reason, we consider QIS 4 modules to be still relevant for the purpose of the project.</li> </ul>	<p><b>Relevance: Medium</b></p> <ul style="list-style-type: none"> <li>- Comment made for Mass Risks would generally apply to B2B.</li> <li>- For this reason, we consider QIS 4 modules to be still relevant for the purpose of the project.</li> </ul>
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*Limitation regarding impact analysis on policy options*

Policy option	2007 data	QIS 4 Formula structure	QIS 4 Calibration
TP – best estimate – risk-free interest rate curve	<p><b>Relevance: High</b></p> <ul style="list-style-type: none"> <li>- This policy option is independent of the year of collected data: data fed to the Best Estimate models were undiscounted.</li> </ul>	<p><b>Relevance: High</b></p> <ul style="list-style-type: none"> <li>- This policy option is independent of the standard formula structure except for Health business written on a Life basis</li> </ul>	<p><b>Relevance: High</b></p> <ul style="list-style-type: none"> <li>- This policy option is independent of the standard formula</li> </ul>
TB – risk margin (cost of capital and reference undertaking)	<p><b>Relevance: High</b></p> <ul style="list-style-type: none"> <li>- This policy option is independent of the year of collected data.</li> </ul>	<p><b>Relevance: High</b></p> <ul style="list-style-type: none"> <li>- The policy option analyses the variation of parameters present in the QIS 4 specifications for technical provisions</li> </ul>	<p><b>Relevance: High</b></p> <ul style="list-style-type: none"> <li>- This policy option is independent of the calibration of the standard formula.</li> </ul>
Own funds – quantitative limits for SCR and MCR	<p><b>Relevance: High</b></p> <ul style="list-style-type: none"> <li>- This policy option is independent of the year of collected data.</li> </ul>	<p><b>Relevance: High</b></p> <ul style="list-style-type: none"> <li>- The policy option analyses the variation of parameters present in the QIS 4 specifications.</li> </ul>	<p><b>Relevance: High</b></p> <ul style="list-style-type: none"> <li>- This policy option is independent of the calibration of the standard formula.</li> </ul>
Treatment of holdings in participations and subsidiaries	<p><b>Relevance: High</b></p> <ul style="list-style-type: none"> <li>- This policy option is independent of the year of collected data.</li> </ul>	<p><b>Relevance: High</b></p> <ul style="list-style-type: none"> <li>- The policy option considers different equity stresses for participation and subsidiaries. This is broadly consistent with the QIS 4 module structure</li> </ul>	<p><b>Relevance: High</b></p> <ul style="list-style-type: none"> <li>- This policy option considers different equity stresses. This is a variation of the QIS 4 calibration, to be treated as a sensitivity analysis.</li> </ul>
SCR Standard Formula – equity risk – pillar I dampener	<p><b>Relevance: High</b></p> <ul style="list-style-type: none"> <li>- This policy option is independent of the year of collected data. It should be analysed on a long term data series rather than at a point in time.</li> </ul>	<p><b>Relevance: Low</b></p> <ul style="list-style-type: none"> <li>- This policy option is compatible with the QIS 4 structure . It may however trigger a significant variation in SCR, depending on the selected dampener period</li> </ul>	<p><b>Relevance: Low</b></p> <ul style="list-style-type: none"> <li>- This policy option is independent of the calibration of the equity stress in the standard formula as its purpose is to consider a corridor rather than change the 99.5th percentile.</li> </ul>
SCR Standard Formula – risk absorbing capacity of technical provisions	<p><b>Relevance: High</b></p> <ul style="list-style-type: none"> <li>- This policy option is independent of the year of collected data.</li> </ul>	<p><b>Relevance: High</b></p> <ul style="list-style-type: none"> <li>- This policy option considers the options tested in QIS 4 and QIS2</li> </ul>	<p><b>Relevance: High</b></p> <ul style="list-style-type: none"> <li>- This policy option considers the options tested in QIS 4</li> </ul>
SCR Standard Formula – diversification effects	<p><b>Relevance: High</b></p> <ul style="list-style-type: none"> <li>- This policy option is independent of the year of collected data.</li> </ul>	<p><b>Relevance: High</b></p> <ul style="list-style-type: none"> <li>- This policy option considers variations on the methods tested in QIS 4</li> </ul>	<p><b>Relevance: High</b></p> <ul style="list-style-type: none"> <li>- This policy option considers variations on the correlations tested in QIS 4</li> </ul>

# Appendix 5

At a market level the severity of impact will depend on the collective responses of the participants. Set out in this appendix are the characteristics of the market segments we believe are likely to be most impacted

*Will the introduction of economic valuation and risk based capital requirements for solvency purposes result in an increase or decrease in insurance prices? If yes, for which types of product or groups of policyholders and will the change result from an increase/decrease in the value of technical provisions or capital requirements?*

## Market characteristic drivers and the severity of impact on pricing

### **Change in capital requirement**

The change in capital requirement is likely to have a significant impact on the insurance product prices within the market, as insurers will seek to increase the prices in case of a capital charge increase and maintain/decrease the prices in case of a capital charge release. The more significant the change in capital requirement (regardless of whether it is capital increase or capital release) the bigger impact it is likely have on the prices of insurance products.

### **Similarity of regulatory regime**

The pricing of insurance products is impacted by transparency of costs, therefore those regulatory environments which are currently the least sophisticated / least granular in terms of economic capital requirement are likely to see the greatest impact on insurance product prices on the move to a Solvency II regulatory environment. Markets whose current regulatory regimes are significantly different to the risk-based capital approach proposed under Solvency II are therefore likely to see the biggest impact on the prices of insurance products.

### **Market structure**

The extent of the increase in capital that is passed on to consumers as a price increase is driven by market structure, as it depends on how much relative market power the players have. The more market power players enjoy the more likely they are to pass on a greater extent of capital increase to consumers by increasing prices (i.e. players in such markets are 'price setters' rather than 'price takers'). Monopolies would be expected to pass on the full extent of the cost increase to customers. The more inefficient market structure is, (i.e. the more power individual firms have, e.g. monopoly, duopoly, oligopoly) the bigger impact it is likely to have on the prices of insurance products.

### **Operating model**

Business model impact on prices is driven by the players' market power and cross-subsidisation options. Insurers that are less diversified (in terms of products and / or geography) and / or those that are mutual insurers have less scope for cross-subsidisation and have less overall market power. Insurers with these operating models have limited options in absorbing capital increases and are more likely to pass a higher proportion of the capital increase on to customers by increasing prices. In case of capital release, mutual insurers are the most likely to pass on the decrease in capital to consumers by decreasing prices. Markets where the predominant operating model is mutual, domestic and / or with narrow product focus are more likely to see a bigger impact (increase) on the prices of insurance products.

*Will the introduction of economic valuation and risk based capital requirements for solvency purposes result in a reduction of cross-subsidisation between different lines of businesses or groups of policyholders? If yes, which lines of business or groups of policyholders will be most affected?*

## **Drivers of severity of impact on cross-subsidisation**

### **Change in capital requirement**

The change in capital requirement is likely to have a significant impact on the level of cross-subsidisation occurring within the market. This is likely in markets where cross-subsidisation does occur and the relative changes in capital required between the different markets (or products) are significantly different, such that the economic attractiveness of cross-subsidisation changes significantly. For example, in case of a significant capital increase for one of the specific products involved in cross-subsidisation the extent to which a product can be cross-subsidised will be reduced. Therefore, the more significant the increase in capital requirement the more likely that it is going to result in reduced cross-subsidisation.

### **Similarity of regulatory regime**

As cross-subsidisation is heavily impacted by transparency of costs, those regulatory environments which are currently the least sophisticated / least granular in terms of economic capital requirement will see the greatest impact on cross-subsidisation on the move to a Solvency II regulatory environment. Implicit cross-subsidisation in particular is likely to be reduced as a result of the implementation and embedding of risk-based capital elements of Pillar II and Pillar III of Solvency II, as it is likely to lead to an increase of management awareness of the true cost to provide a product or serve a policyholder segment. Therefore, markets whose current regulatory regimes are significantly different to the risk-based capital approach proposed under Solvency II are therefore likely to see the biggest reduction in cross-subsidisation.

### **Market structure**

Cross-subsidisation implies market power and the more market power the more cross-subsidisation options firms have. Although cross-subsidisation is likely to be reduced across the board, the impact is likely to be greater where the cross-subsidisation was the highest i.e. in less competitive markets such as monopolies or duopolies. At the other end, cross-subsidisation is unlikely to be affected in perfectly competitive markets as firms are not expected to be able to cross-subsidise.

### **Operating model**

The greater the diversity of an insurers operations, the greater its opportunity to cross-subsidise across product and geographies. Cross-subsidisation is more likely to be impacted within global multi-line insurers as they have more scope for cross-subsidisation in general. Similarly, joint stock insurers have more scope for cross-subsidisation, and are therefore more likely to modify their existing level of cross-subsidisation, than mutual insurers.

*Will the new regime stimulate product innovation? If yes, how and for which lines of business?*

## **Drivers of severity of impact on product innovation**

### **Change in capital requirement**

The change in capital requirement is likely to have a significant impact on the stimulation of product innovation within the market. Product innovation is likely to be stimulated more in case of capital charge increases as insurers are likely to seek to design / modify products in a way that will reflect the greater capital cost associated with a particular product. The more significant the increase in capital requirement the bigger impact it is likely have on the product innovation.

### **Similarity of regulatory regime**

Product innovation is impacted by transparency of costs, therefore those regulatory environments which are currently the least risk focused / transparent will see the greatest impact on product innovation on the move to a Solvency II regulatory environment. Risk-based regulatory environment is likely to better highlight the true cost of different products, which could lead to insurers designing new products / modifying existing products to better reflect the product costs. Markets whose current regulatory regimes are significantly different to the risk-based capital approach proposed under Solvency II are therefore likely to see the biggest impact on product innovation

### **Market structure**

Firms have an incentive to product innovate / differentiate when they cannot product / customer cross-subsidise. The less market power firms have the less cross-subsidisation options they have, therefore their incentive to product differentiate is likely to be stronger. The more efficient market structure is (e.g. monopolistic competition, perfect competition) the bigger impact it is likely to have on product innovation.

### **Operating model**

The impact of business model on product innovation / differentiation is essentially driven by the insurers' cross-subsidisation possibilities. Insurers that are less diversified (in terms of products and / geography) and / or those that are mutual insurers have less scope for cross-subsidisation. Insurers with these operating models are more likely to innovate / modify their products as a result of Solvency II, as they have limited alternatives to cross-subsidisation. Markets where the predominant operating model is mutual, domestic and / or with narrow product focus are more likely to see a bigger impact on product innovation / differentiation.

*Will the new regime result in a withdrawal of certain products from the market? If so, what products*

## **Drivers of severity of impact on product availability / withdrawal**

### **Change in capital requirement**

The change in capital requirement is likely to have a significant impact on the availability / withdrawal of products within the market. Reduced product availability / withdrawal is more likely in cases where significantly more capital will be required to be held by insurers. Although insurers are unlikely to pass on the full increase in capital charge to consumers, price increases are generally expected. As a consequence the availability of some products will be affected as insurers can be expected to withdraw or price some customers out of the market. The more significant the increase in capital requirement the bigger impact it is likely have on the product availability.

### **Similarity of regulatory regime**

As product availability / withdrawal is impacted by transparency of costs, those regulatory environments which are currently the least risk focused / transparent will see the greatest impact on product availability / withdrawal on the move to a Solvency II regulatory environment, as the new environment is likely to better highlight the cost to serve. This will only lead to product withdrawal where the cost to serve (i.e. capital required) is significantly higher than previously held and where product innovation cannot effectively move risk to the consumer or where cross-subsidisation is no longer feasible. However, the greater granularity and understanding of the cost of specific risk may lead to certain, very high risk policyholder groups or products seeing significant price rises which price consumers out of the market. Markets whose current regulatory regimes are significantly different to the risk-based capital approach proposed under Solvency II are therefore likely to see the biggest impact on product availability

### **Market structure**

Firms with market power (i.e. monopoly, duopoly, oligopoly) have more cross-subsidisation options. As such, they are more able to maintain the availability of a product (by cross-subsidising it) than firms with less (monopolistic competition) or no market power (perfect competition). The more efficient market structure is (e.g. monopolistic competition, perfect competition) the bigger impact it is likely to have on product availability.

### **Operating model**

Product availability is affected by the price for customers and the economics for the insurers. Availability can be maintained through cross-subsidisation. Although overall level of cross-subsidisation is likely to decrease under the effect of increased cost transparency, the players with the largest scope for cross-subsidisation i.e. the international multi-line insurers are more likely to maintain product availability than domestic players with narrow product focus and mutual insurers that have less headroom for cross-subsidisation. Markets where the predominant operating model is mutual, domestic and / or with narrow product focus are more likely to see a bigger impact on product availability.

*Will the introduction of economic valuation and risk based capital requirements for solvency purposes encourage particular types of business model?*

## **Drivers of severity of impact on insurance business models**

### **Change in capital requirement**

The change in capital requirement is likely to have a significant impact on the encouragement of particular insurance business models. In case of significantly increased level of capital required some insurers, such as mutual insurers, are more likely to have to pass on the increase to consumers and raise prices of insurance products. In addition, in case of capital increase joint-stock insurers have better access to additional capital. Markets where predominant business models are those that have less scope to absorb capital increases (mutual insurers, domestic insurers, insurers with narrow / product focus) are more likely to be impacted and see a shift away from those business models.

### **Regulatory environment**

The change to the risk-based regulatory environment under Solvency II is likely to have an impact on insurance business models. Firstly, insurers could potentially be more likely to consider a branch structure than a subsidiary, as the new regime would allow them to potentially benefit from diversification and capital allocation advantages. Secondly, the new regulatory regime is likely to increase transparency of costs, and better highlight the cost to serve, and diversified (geographically and across products) insurers are likely to be better positioned to benefit and act on the greater granularity and understanding of the cost of specific risk. Therefore, markets whose current regulatory regimes are significantly different to that proposed under Solvency II are therefore likely to see the biggest impact on insurance business models.

### **Market structure**

In market structures where firms have little or no market power (e.g. markets which tend toward monopolistic competition and perfect competition) insurers are more likely to act in a certain way due to the behaviour of other firms in the market. In efficient markets, insurers' business models are more likely to have to change, partly due to competitive pressures in the market. The more efficient market structure is (e.g. monopolistic competition, perfect competition) the bigger impact it is likely to have on insurance business models.

### **Operating model**

Players with better scope for cross-subsidisation i.e. diversified insurers are more likely to better respond to changes brought on by the introduction of economic valuation and risk based capital requirements. Markets where predominant business models are those that have less scope to cross-subsidise (mutual insurers, domestic insurers, insurers with narrow / single product focus) are more likely to be impacted and potentially see a shift away from those business models.

*Will Solvency II affect competition across (re)insurers in the EU and/or the functioning of the internal market?*

## **Drivers of severity of impact on competition**

### **Change in capital requirement**

The change in capital requirement (significant capital increase or release) is likely to have a significant impact on the competition in insurance markets. In case of significant increase in capital required some insurers might be unable to raise additional capital or unable to pass on the increase to consumers (e.g. mutual insurers). This might lead to exit of some insurers from the market or consolidation. Conversely, in case of significant capital release, the profitability of the market is likely to increase and thus potentially affect competition in the market.

### **Regulatory environment**

The change to the risk-based regulatory environment under Solvency II is likely to have an impact on competition. The new regulatory regime is likely to increase transparency of costs and improve level of information available to consumers. As a consequence, consumers will be better equipped when dealing with various insurers, which has the potential to intensify competition in the market. In addition, insurers are also more likely to be more knowledgeable about the true cost of serving customers, and some might decide to exit the market where the risk is too high and too costly.

### **Market structure**

In market structures where firms have little or no market power (e.g. markets which tend toward monopolistic competition and perfect competition) insurers are more likely to be impacted by changes in capital requirements or regulatory environment. In particular, insurers that operate in such markets are more likely to seek to address the changes brought on by Solvency II. The competition in such markets is already intense and not responding to changes in the same way or speed as the rest of the market could have a negative impact on insurers' performance. The more efficient market structure is (e.g. monopolistic competition etc.) the bigger impact it is likely to have on competition.

### **Operating model**

More diversified (either geographically or across products) players are more likely to respond to changes in capital requirements and / or regulatory environment brought on by Solvency II in a way that will encourage more competition (e.g. by increasing prices, innovating, cross-subsidising). Markets where predominant business models are joint-stock, international and / or diversified are more likely to be impacted and potentially see increased competition.

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