



**eiopa**  
EUROPEAN INSURANCE  
AND OCCUPATIONAL PENSIONS AUTHORITY

# Long-Term Guarantees Assessment - Launch information for participants

January 2013

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# Disclaimer



None of the elements of the LTGA Technical Specifications are pre-empting the final outcome of the Omnibus 2 process or the final Technical Standards and Guidelines

Purpose of this presentation is to support a successful LTGA exercise by providing insight in:

- a. Context**
- b. Timing & process**
- c. Documents in the Launch package**
- d. Submission to the National Supervisory Authority**
- e. Coverage & scope**
- f. Scenarios**
- g. Matching adjustment**
- h. Some further points**
- i. Approximations**
- j. Output documents**

Focus is on the elements in the Technical Specifications part II, i.e. the LTG specific elements, discussing:

- o Main concepts LTG elements
- o Main spreadsheet
- o Example calculation Matching Adjustment

The aim of this presentation is to provide an overview and some practical suggestions for carrying out the impact assessment.

## a. Context (1/2)

- The Solvency II directive was adopted in 2009
- Draft Omnibus II directive
  - Omnibus II directive includes changes to the Solvency II directive
- LTGA supports finalising the Omnibus II directive
- Lower regulation is based on the (final) directive text

- The trilogue negotiations between EP, the Council and EC have agreed that Solvency II should include regulatory measures to deal with the issues associated with insurance products with long-term guarantees that may be affected by artificial volatility
- The trilogue parties agreed in July 2012 that the impact of the package of the proposed long-term guarantees (LTG) should be evaluated
- The trilogue parties agreed on 14 December 2012 on the final Terms of Reference (ToR) of the impact assessment
- EIOPA has developed Technical Specifications for the LTGA based on the final ToR as provided by the European Commission to EIOPA on 19 December 2012

## b. Timing & process (1/3)

- **28 January 2013:** launch of exercise
  - EIOPA will initiate a Q&A process
- **31 March 2013:** information to be submitted by participants to national supervisory authorities (NSAs)
- **14 June 2013:** report including the findings of LTGA provided by EIOPA to trilogue parties
- **12 July 2013:** report provided to co-legislators by the EC

## b. Timing & process (2/3)



- Launch
  - o NSAs will provide the launch package to participants in the course of 28 January 2013
  - o EIOPA will publish the launch package on its website on 28 January 2013 in the afternoon
  
- Q&A
  - o Q&A process starting on 28 January 2013 (national contact points published on EIOPA's website)
  - o Participants should use the Q&A template provided on the EIOPA website when sending in questions



- Q&A process
  - o Participating insurers may forward their questions to the national supervisory authority (NSA) – contact details are for all countries are provided on EIOPA's website
  - o The NSA will respond directly to questions of a practical nature. If necessary, the NSA will forward questions to EIOPA
  - o EIOPA will provide an answer within 5 working days. EIOPA will where necessary consult with the trilogue parties. In that case, an answer should be provided within 7 working days.
- Please consult the Q&A document on the EIOPA-website on a regular basis!

## c. Documents in launch package



- Technical Specifications (TS) Part I & II
- Related data (discount curves, fundamental spreads)
- Example calculations for Matching Adjustment
- Reporting templates / User guide
- Helper Tabs
- Qualitative questionnaire
- Internal model questionnaire (where relevant)
- Approximations descriptions
- Q&A template
- Possibly national specific supporting documents

## d. Submission to the NSA

- The National Supervisory Authority (NSA) will provide further detail on the national submission procedure to be followed
- Overview of documents to be submitted:
  - o Main reporting template
  - o Matching Adjustment reporting template
  - o Qualitative LTG Questionnaire
  - o Internal model questionnaire (if applicable)
  - o List of approximations applied

- Main objectives: to assess the LTG package with respect to
  - o the impact on policy holder protection
  - o efficient and effective supervision by the supervisory authorities
  - o efficient and effective implementation by the undertakings
  - o the right incentives for good risk management and the contribution to the correct risk reflection of the undertakings
  - o in cooperation with ESRB, the impact on financial stability
  - o the impact on the single market, including cross-border business
  - o the impact on insurance undertakings' solvency position and possible competition distortions in national markets
  - o the impact on long-term investment by insurance undertakings

### **Contribution of parties involved:**

- Insurance companies
  - Calculations
  - Qualitative questionnaire
- National Supervisory authorities
  - Qualitative questionnaire
  - Country report (optional)
- EIOPA
  - Analysis (based on) submissions
  - Includes further desktop analysis
  - EIOPA report
- European Commission
  - Report

- The major reference date for the exercise will be YE 2011, i.e. the majority of scenarios focus on this date
- However, in order to assess the LTG options, they will need to be tested under different market scenarios including a scenario replicating the market conditions at a point close to the reference date to test volatility impact (YE 2009) and “pre-crisis” scenarios (YE 2004)
- Results on the Solvency position (and related metrics) will need to be provided
  - By solo undertakings
  - By country (at least for major markets)
  - By type of obligation and country where required and useful
- The exercise is run on a “best effort” basis

- The default basis for determining the capital requirements and the risk margin in the context of the LTGA is the Standard Formula
- Undertakings have the option to provide aggregated Internal Model (IM) results alongside the SF results if this has been agreed with the respective NSA. In essence, such insurers need to be involved in a pre-application process
- Participants that submit IM results are also asked to provide some detail in a separate questionnaire on how the IM has been used in the context of the LTGA

- Regarding the sample of participants, the sample should be:
  - Representative of the national market, in particular in relation to the type and size of undertakings, i.e. also including an adequate number of smaller solo undertakings and mutuals
  - Representative in relation to the insurers that are affected by long-term guarantee measures
- Coverage for each Member state:
  - Life: at least 50% of the non-unit-linked life Technical Provisions for YE11 should be covered by the sample.
  - Non-Life: at least 20% of relevant non-life gross written premium for YE11 should be covered in the sample. It is seen as appropriate to focus on the non-life business most affected by the LTG package (according to NSAs own judgement)



Scenario calculations by industry relate to (a combination of) the following elements:

- o Basic risk-free interest rate term structure
- o Adjusted risk-free interest rate term structure (CCP)
- o Matching adjustment for certain insurance obligations
  - classic Matching adjustment
  - extended Matching adjustment
- o Transitional measures
- o Historical scenarios

# f. Scenarios

## Discount curves (1/5)



### **Basic risk-free interest rate term structure**

- The basic risk-free interest rate term structure is for the most relevant currencies determined by EIOPA and mostly based on swap-rates.
- For a given currency elements that can vary:
  - o Credit risk adjustment
  - o Last liquid point
  - o Convergence of forward rates to the UFR

### **Determination of basic risk-free interest rate term structure**

- The determination of the risk-free interest rate is as follows:
  - o (Mostly) swap rates until the LLP are used as basis
  - o Apply credit risk adjustment (until the LLP)
  - o Extrapolate curve, with forward rates converging to the UFR within specified convergence period
- Choice of reference instruments
  - o Swap data has been used for all currencies apart from PLN

### **Determination of basic risk-free interest rate term structure**

- Determination of LLP
  - Using ADLT criteria
  - LLPs unchanged from QIS5, apart from EUR (20 yrs) and PLN (10 yrs)
- Credit risk adjustment (CRA)
  - Fixed reductions across all maturities and all currencies for each distinct reference date, but CRA varies across reference dates
  - CRA for government bonds based on swap data
  - Pegged currencies: the exact approach to calculation of the adjustment is not fully decided and the adjustment was set to zero in the context of this assessment for practical reasons. For the purpose of this assessment, DKK is assumed to meet the pegging criteria

# f. Scenarios

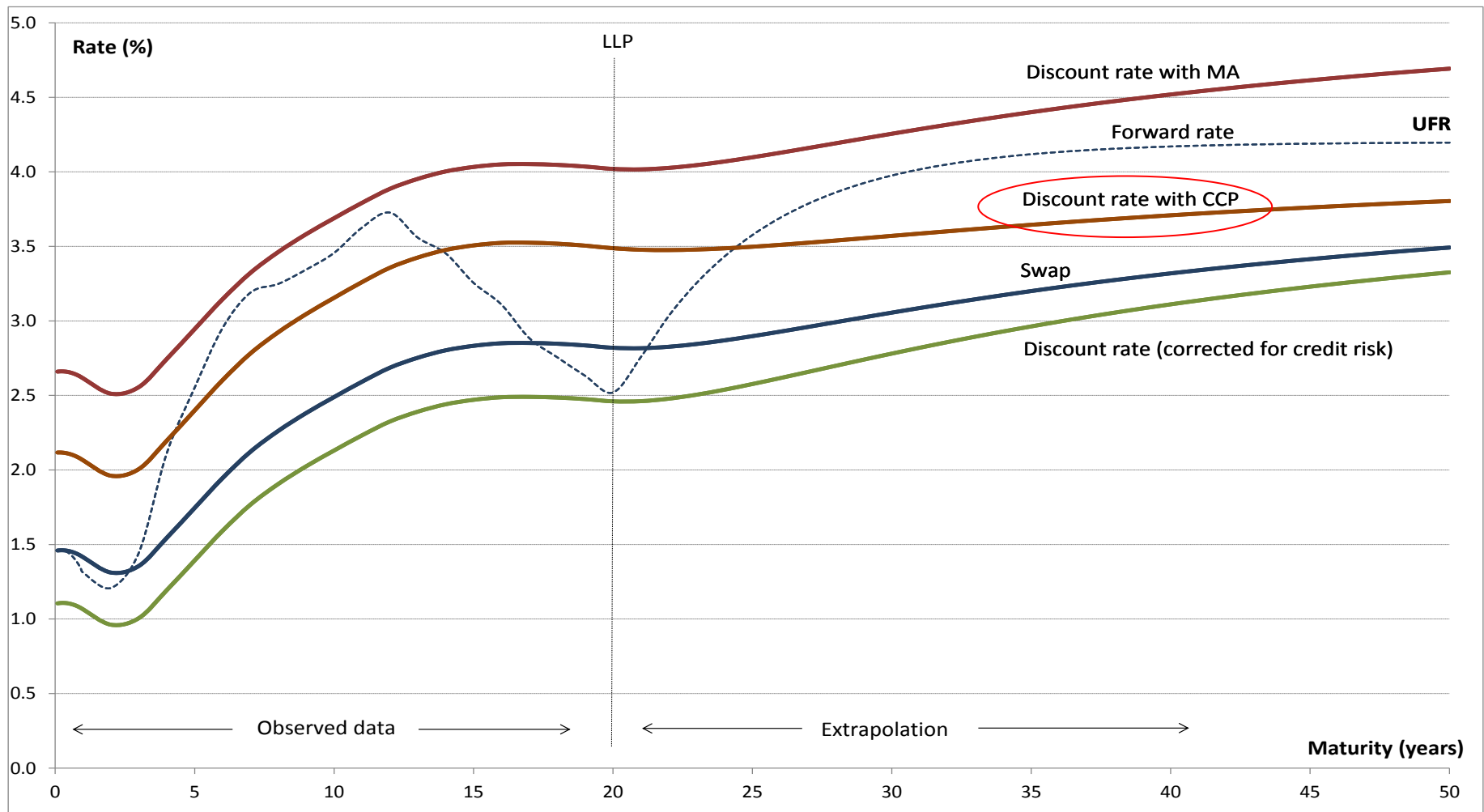
## Discount curves (4/5)

### **Determination of relevant risk-free interest rate**

- Model
  - Smith Wilson model is used
- UFR
  - For practicality reasons, the UFR is set to 4.2% for all currencies
- Convergence
  - Different convergence assumptions are tested: 10 and 40 yrs

# f. Scenarios

## Discount curves (5/5)



### **Adjusted risk-free interest rate term structure**

- Adjustment to basis risk-free interest rate term structure (CCP)
- Application depends on market conditions
  - e.g. does not apply in scenarios at historic reference date 2004
- For the LTGA three default levels are tested:
  - 50 bp
  - 100 bp (base)
  - 250 bp
- This approach provides insight into the sensitivity of the financial position of an insurer to the adaptations

### **Determination of adjusted risk-free interest rate term structure**

- EIOPA has provided the CCP-adjusted curves for major currencies
- The determination of the adjusted risk-free interest rate term structure is as follows:
  - Again (mostly) swap rates until the LLP are used as basis
  - Again apply credit risk adjustment (until the LLP)
  - CCP is applied as a parallel shift to the swap data (adjusted for credit risk) before being input into the Smith Wilson model, i.e. CCP applied to the liquid part of the curve only)
  - Resulting zero curves do therefore not show an exact parallel shift until the LLP



## **Determination of adjusted risk-free interest rate term structure**

- The extrapolation of the adjusted risk-free interest rate term structure is as follows:
  - o Extrapolate adjusted curve (thus including CCP), with forward rates converging to the UFR within specified convergence period
  - o There is also no parallel shift after the LLP since all adjusted risk-free curves ultimately converge to the same UFR, irrespective of the CCP.

### Matching Adjustment

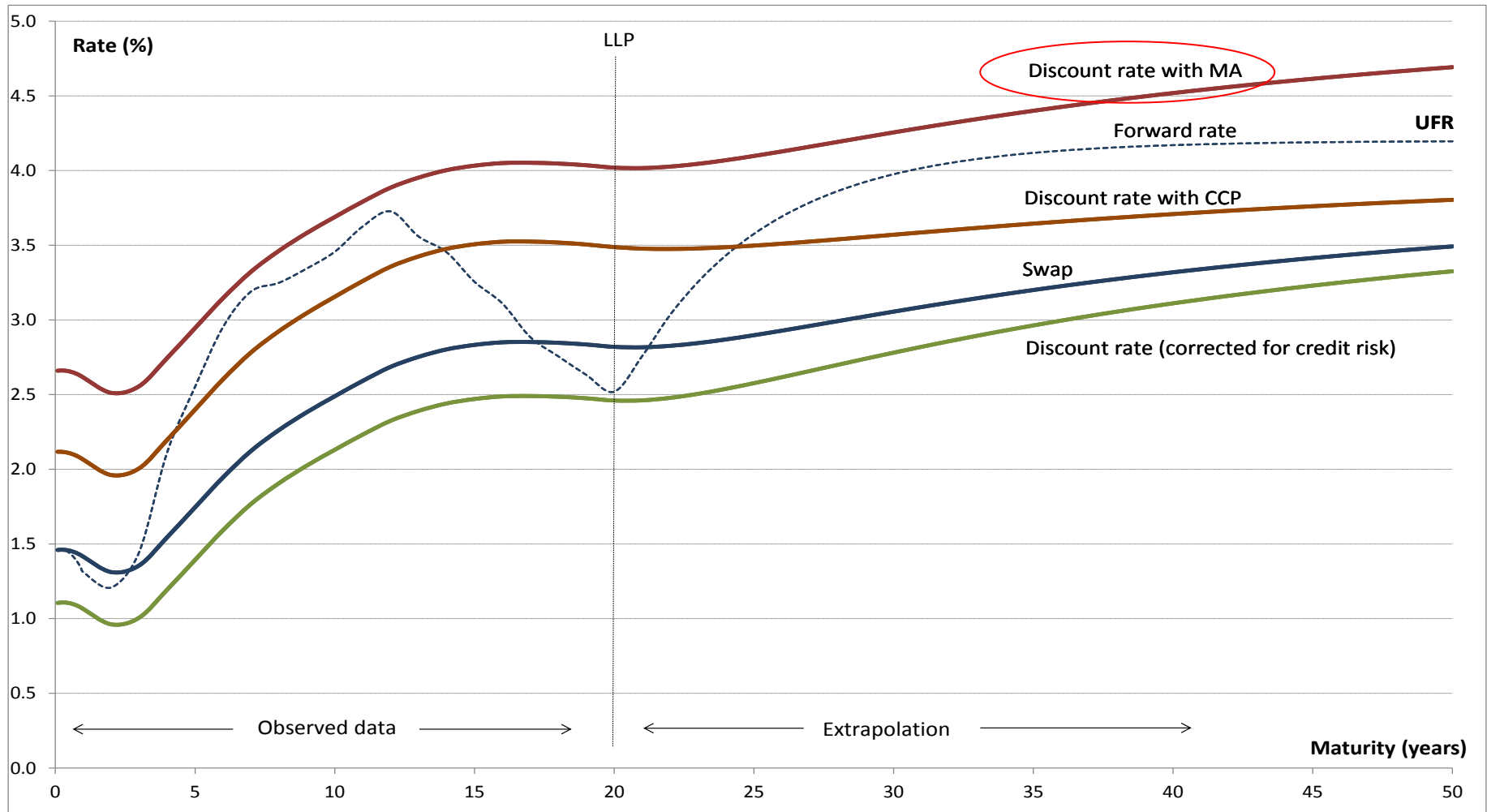
- The Matching Adjustment (MA) applies to certain insurance obligations.
- The MA is to be applied as a parallel shift to the entire basic risk-free interest rate term structure as provided by EIOPA
- The MA criteria are prescribed
- The MA value to be applied, however, is company specific and depends on:
  1. Type of obligations
  2. Assets held against these obligations
  3. Degree of matching

### Matching Adjustment

- Five forms of MA apply:
  - o Classical MA
    - Classic standard
    - Classic alternative
  - o Extended MA
    - Extended standard I
    - Extended standard II
    - Extended alternative
- Discussed in more detail later

# f. Scenarios

## Matching Adjustment (3/3)



# f. Scenarios

## Transitional measure (1/2)



### Transitional measures

- Aim is to introduce the full effect of Solvency II only gradually
- Accomplished by using a weighted average of the Solvency I and Solvency II interest rates
- For industry the calculation of the transitional measure element only involves a calculation based on the Solvency I rates.
- Apply to existing life obligations only

### **Transitional measures**

Construction of transitional curve:

- 100% weighting of the Solvency I curve for the purpose of the LTGA
- CCP applies to the Solvency II part of the curve only, i.e. for the LTGA no CCP impact on the transitional curve
- Simplification possible by using an average SI rate for a portfolio of obligations if appropriate

### **Historical scenarios**

- Aim is to investigate the impact of the LTG elements under different market conditions
- Firstly: calculation of historical balance sheet
  - Based on balance sheet position at year end 2011
  - Balance sheet items are then revalued using approximations

# f. Scenarios

## Order of application of LTG elements (1/3)



### **Order of application of long term guarantee elements**

- Within each scenario, different LTG elements may apply to different parts of the insurance obligations
- When considering the application of the different long-term guarantee measures to different parts of the portfolio of obligations, this should always be done in the order prescribed in the technical specifications.
- The described approach is to be followed for all scenarios, i.e. if certain obligations (and related assets) meet the criteria of several measures there is no choice of what measure to apply.



# f. Scenarios

## Order of application of LTG elements (2/3)



### **Order of application of long term guarantee elements**

1. Identify the obligations that meet the criteria to apply the “classic” matching adjustment (only applicable to life business)
2. Out of the remaining obligations, identify the obligations that meet the criteria to apply:
  - o the “extended” matching adjustment (applicable to life business and non-life annuities), respectively
  - o the transitional measure (only applicable to life business)
3. Depending on respective scenarios, the remaining obligations are then either discounted with:
  - o the adapted discount curve including the CCP (applicable to life and non-life obligations) if a CCP is applicable, or
  - o the non-adjusted discount curve.

# f. Scenarios

## Order of application of LTG elements (3/3)



### **Order of application of long term guarantee elements**

Before starting any calculations:

- Insurers should ensure that they have a good overview of the applicability of the several elements of the LTGA package for their portfolio.
- Insurers should identify any relevant sub-portfolios of obligations to which the different LTG elements apply, in each of the scenarios.

# f. Scenarios

## Overview of all 13 scenarios (1/3)



In total 13 scenarios:

- o LTGA includes a scenario 0, where none of the LTG elements apply. It is included for technical purposes only.
- o Scenario 1 may for practical purposes be seen as a base scenario.
- o In the other scenario's one or more of the LTG elements vary.
- o Scenario's 10 to 12 relate to different reference dates.

# f. Scenarios

## Overview of all 13 scenarios (2/3)



		Scenarios at the reference date YE11										Scenarios at historic reference dates		
		0	1	2	3	4	5	6	7	8	9	10	11	12
			BASE											
<b>I</b>	<b>Adapted relevant risk-free interest rate term structure (CCP)</b>													
A	No CCP	x											x	x
B	CCP of 100bps		x			x	x	x	x	x	x	x		
C	CCP of 50bps			x										
D	CCP of 250 bps				x									
<b>II</b>	<b>Extrapolation</b>													
A	LLP 30yrs for EUR, 40 yr convergence	x												
B	LLP 20yrs for EUR, 40 yr convergence						x							
C	LLP 20yrs for EUR, 10 yr convergence		x	x	x	x		x	x	x	x	x	x	x
<b>III</b>	<b>Classical Matching adjustment</b>													
A	No Matching Adjustment	x												
B	Classic Standard version		x	x	x		x	x	x	x	x	x	x	x
C	Classic Alternative version					x								
<b>IV</b>	<b>Extended Matching adjustment</b>													
A	No Matching Adjustment	x								x	x		x	
B	"Extended" Standard I version		x	x	x	x	x					x		x
C	"Extended" Standard II version								x					
D	"Extended" Alternative version							x						
<b>V</b>	<b>Transitional Measures</b>													
A	No transitional measure	x	x	x	x	x	x	x	x			x		x
B	Transitional measure applied to all existing business									x			x	
C	Transitional measure applied to paid in premiums only										x			
<b>VI</b>	<b>Reference date</b>													
A	31 December 2011 (YE11)	x	x	x	x	x	x	x	x	x	x			
B	31 December 2009 (YE09)											x		
C	31 December 2004 (YE04)												x	x

# f. Scenarios

## Overview of all 13 scenarios (3/3)



- Discussion of the various scenarios based on the overview table.

# g. Matching adjustment

## Introduction (1/6)



What do the matching adjustments intend to achieve?

- Historical data suggest that market values of bonds are more volatile than implied by their chances of defaulting alone.
- Where insurers may need to sell bonds to meet their unpredictable liabilities, they are exposed to these short-term bond value fluctuations; but not where they hold bonds to maturity.
- Insurers holding bonds for predictable portfolios can be more certain that they will be able to hold their bonds to maturity, and are therefore less exposed to short-term fluctuations in bond values. They are still exposed to default and to the cost associated with maintaining the credit quality of the portfolio should downgrades occur.

# g. Matching adjustment

## Introduction (2/6)



What do the matching adjustments intend to achieve?

- The matching adjustment is an adjustment to the discount rate used to value such predictable liabilities, whereby the market value of the liability mirrors the market changes evident in the asset values which are not related to default or downgrade costs. It is equal to the spread over the risk-free rate on admissible backing assets, less an estimate of the costs of default and downgrade (the fundamental spread).

# g. Matching adjustment

## Introduction (3/6)



What is the intention of the application ratio?

- The application ratio restricts the matching adjustment to allow for possible mismatch stemming from discontinuances or earlier than expected payments on eligible business.
- It is based on a measure of these costs under given stress scenarios.



# g. Matching adjustment

## Introduction (4/6)



### Two forms of the “classic” Matching Adjustment:

- **“classic standard”**: the matching adjustment for certain life insurance obligations with no policyholder options (or only a surrender option where the surrender value cannot exceed the value of assets) and where limits apply to both the proportion of assets held in credit quality step 3 and the level of matching adjustment applicable to these assets;
- **“classic alternative”**: the matching adjustment for certain life insurance obligations with no policyholder options (or only a surrender option where the surrender value cannot exceed the value of assets) and ignoring the two limits in term of both the proportion of assets held in credit quality step 3 and the level of matching adjustment applicable to these assets;

# g. Matching adjustment

## Introduction (5/6)



### Three forms of the “extended” Matching Adjustment:

- **“extended standard I”**: the extended matching adjustment for life insurance obligations or annuity obligations arising from non-life contracts including policyholder options;
- **“extended standard II”**: this version differs from “extended” standard I only in the calculation of the application ratio; which in this case applies a 99.9% confidence level rather than the 99.5% underlying the stresses used to determine the application ratio;
- **“extended alternative”**: the alternative adjustment for life insurance obligations or annuity obligations arising from non-life contracts differing from the standardised version in four ways: no cash-flow matching is required instead the adjustment reflects the material risk of mismatch and forced sale of assets; eligible assets do not need to provide fixed cash-flows; credit quality limits do not apply for asset admissibility or level of the matching adjustment; and the fundamental spread includes only the credit spread corresponding to the probability of default.

# g. Matching adjustment

## Introduction (6/6)

		Scenarios at the reference date YE11										Scenarios at historic reference dates			
		0	1	2	3	4	5	6	7	8	9	10	11	12	
			BASE												
<b>I</b>	<b>Adapted relevant risk-free interest rate term structure (CCP)</b>														
A	No CCP	x											x	x	
B	CCP of 100bps		x			x	x	x	x	x	x	x			
C	CCP of 50bps			x											
D	CCP of 250 bps				x										
<b>II</b>	<b>Extrapolation</b>														
A	LLP 30yrs for EUR, 40 yr convergence	x													
B	LLP 20yrs for EUR, 40 yr convergence						x								
C	LLP 20yrs for EUR, 10 yr convergence		x	x	x	x		x	x	x	x	x	x	x	
<b>III</b>	<b>Classical Matching adjustment</b>														
A	No Matching Adjustment	x													
B	Classic Standard version		x	x	x		x	x	x	x	x	x	x	x	
C	Classic Alternative version					x									
<b>IV</b>	<b>Extended Matching adjustment</b>														
A	No Matching Adjustment	x								x	x		x		
B	"Extended" Standard I version		x	x	x	x	x					x		x	
C	"Extended" Standard II version							x							
D	"Extended" Alternative version							x							
<b>V</b>	<b>Transitional Measures</b>														
A	No transitional measure	x	x	x	x	x	x	x	x			x	x	x	
B	Transitional measure applied to all existing business									x			x		
C	Transitional measure applied to paid in premiums only										x				
<b>VI</b>	<b>Reference date</b>														
A	31 December 2011 (YE11)	x	x	x	x	x	x	x	x	x	x				
B	31 December 2009 (YE09)											x			
C	31 December 2004 (YE04)												x	x	

# g. Matching adjustment

## Step 1 – Identify liabilities (1/2)

Identify the eligible liabilities

Classic Standard	Classic Alternative	Extended Standard I	Extended Standard II	Extended Alternative
<ul style="list-style-type: none"> <li>Life longevity exposures with no further premiums or policyholder options (except a surrender option where the surrender value cannot exceed the value of the assets))</li> <li>Insurance obligations of an insurance contract cannot be split</li> </ul>				<ul style="list-style-type: none"> <li>All life insurance obligations and non-life annuities; policyholder options are permitted</li> <li>Insurance obligations of insurance contracts may be split</li> </ul>

# g. Matching adjustment

## Step 1 – Identify liabilities (2/2)

- Liabilities for insurance contracts where market risk is borne by policyholder (i.e. unit-linked products) are not eligible for a matching adjustment.
- Policyholder participation in the distributable profits of a product shall not of itself render the liability connected to that product eligible or ineligible for a matching adjustment. All the eligibility criteria should be considered in the same manner as for the liabilities relating to guaranteed benefits.

# g. Matching adjustment

## Step 2 – Identify assets (1/2)

Identifying the assets admissible to the replicating portfolio

Classic Standard	Classic Alternative	Extended Standard I	Extended Standard II	Extended Alternative
<ul style="list-style-type: none"> <li>• Bonds and similar assets or cash</li> <li>• Fixed cash-flows</li> <li>• No issuer options</li> <li>• Investment grade apart from exposures to Member States' central governments and central banks denominated and funded in the domestic currency of that central government and central bank (33% maximum exposure in credit quality step 3)</li> </ul>	<ul style="list-style-type: none"> <li>• Bonds and similar assets or cash</li> <li>• Fixed cash-flows</li> <li>• No issuer options</li> <li>• Investment grade apart from exposures to Member States' central governments and central banks denominated and funded in the domestic currency of that central government and central bank (<b>no</b> 33% maximum exposure in credit quality step 3)</li> </ul>	<ul style="list-style-type: none"> <li>• Bonds and similar assets or cash</li> <li>• Fixed cash-flows</li> <li>• No issuer options</li> <li>• Investment grade apart from exposures to Member States' central governments and central banks denominated and funded in the domestic currency of that central government and central bank (33% maximum exposure in credit quality step 3)</li> </ul>		<ul style="list-style-type: none"> <li>• Bonds and similar or cash</li> <li>• No issuer options</li> <li>• No restriction on credit quality</li> </ul>

# g. Matching adjustment

## Step 2 – Identify assets (2/2)

### Restrictions:

**A:** Cash-flows can't be changed by third parties

**B:** Fixed in timing and amount (in real or nominal terms)

Asset class	A	B (not applicable for the "extended alternative")
Cash (overnight instruments)		
Standard or inflation-linked corporate bonds		
Standard or inflation-linked sovereign bonds		
Swaps, where the combination with other assets leads to fixed cash-flows		
Callable bonds	no	
Commercial mortgages with make-whole clauses		
Convertible bonds		no
Equity release mortgages	no	no
Floating rate notes		no
Asset backed securities with fixed cash-flows		
Subordinated debt	no	
Preference shares	no	no
Bank hybrid debt	no	no
Other derivatives	no	no
Property (long lease)	no	no

# g. Matching adjustment

## Step 3 – Consider governance (1/5)

Consider the impact of matching governance requirements

Classic Standard	Classic Alternative	Extended Standard I	Extended Standard II	Extended Alternative
<ul style="list-style-type: none"> <li>• Cash-flow matching required: the discounted value of cash-flow shortfalls must be below the 15% limit</li> <li>• It must be possible for the portfolio of eligible obligations and the assigned admissible asset portfolio to be ring-fenced or organised and managed separately from the rest of the business of the undertaking without any possibility of transfer; if this is not possible, then matching adjustment cannot be applied to the portfolio</li> </ul>				<ul style="list-style-type: none"> <li>• Cash-flow matching is not required</li> <li>• It must be possible for the portfolio of eligible obligations and the assigned admissible asset portfolio to be ring-fenced or organised and managed separately from the rest of the business of the undertaking, without any possibility of transfer</li> </ul>



# g. Matching adjustment

## Step 3 – Consider governance (2/5)



### **Specific to “Extended” alternative only**

- If undertakings do not have sufficient admissible assets to cover the best estimate of a whole portfolio of obligations, a sub-portfolio of obligations should be identified which can be covered by admissible assets.
- The identification of obligations shall be performed such that the whole portfolio of insurance obligations is scaled according to the proportion of the present value of the asset cash-flows on the present value of the liability cash-flows of the whole portfolio of obligations, where in both cases the discount rate applied is the basic risk-free rate only.
- In this case, undertakings may apply a matching adjustment to the whole portfolio of obligations, provided this is reflected in the matching adjustment calculation as well as in calculating the application ratio.

# g. Matching adjustment

## Step 3 – Consider governance (3/5)



### **Specific to “Classic” standard, “Classic” alternative and “Extended” standard**

- The future cash-flows of the assigned portfolio of assets replicate each of the future cash-flows of the portfolio of insurance obligations in the same currency and any mismatch does not give rise to risks which are material in relation to the risks inherent in the insurance business to which the matching adjustment is applied.
- Undertakings should carry out the following steps to assess the adequacy of cash-flow matching by duration:
  - o Step A: partition the cash-flows into intervals to determine the materiality of any timing mismatch. For the purpose of this impact assessment, a 1 year interval should be chosen.
  - o Step B: For the purpose of the Impact Assessment a relaxation of the immateriality requirement shall be made such that the sum of the discounted cash-flow shortfalls for each future year is no greater than 15% of the best estimate of the obligations using the basic risk free rate.
  - o Step C: Undertakings should report the degree of mismatch calculated as the sum of the discounted cash-flow shortfalls divided by the best Estimate.

# g. Matching adjustment

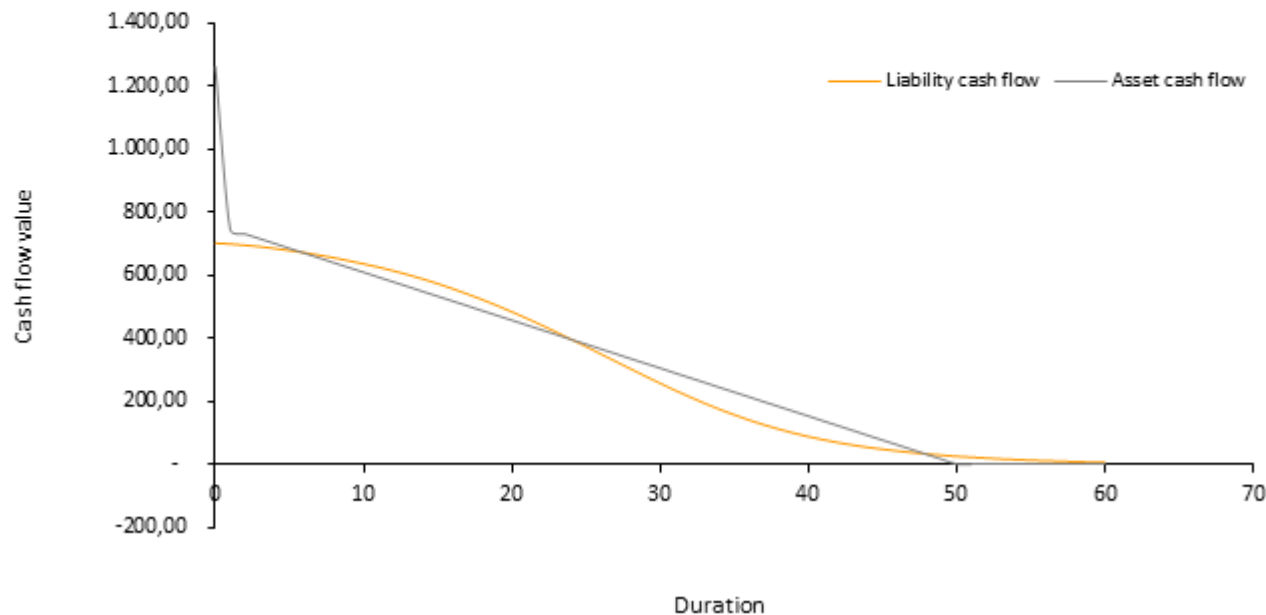
## Step 3 – Consider governance (4/5)

### Classic standard

#### Step 1 and 2 - identify the eligible liabilities and admissible assets

Identify the matched asset and liability cash flows

Cash is admissible and included as an immediate in-flow



# g. Matching adjustment

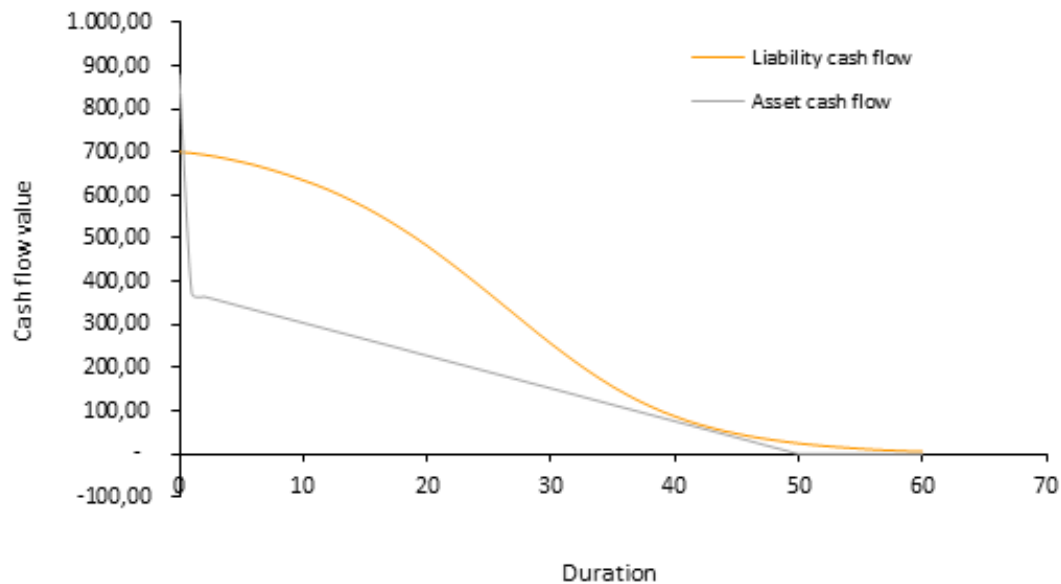
## Step 3 – Consider governance (5/5)

### Extended alternative

#### Step 1 and 2 - identify the eligible liabilities and admissible assets

Identify the asset and liability cash flows

Cash is admissible and included as an immediate in-flow



# g. Matching adjustment

## Step 4 – Calculate MA (1/3)

### Matching adjustment calculation

Classic Standard	Classic Alternative	Extended Standard I	Extended Standard II	Extended Alternative
<p>The matching adjustment is equal to the spread over the risk-free rate, understood as the difference between the flat actuarial rate that equals the present values of liabilities with the market value of assets and the flat actuarial rate equivalent to RFR, less the fundamental spread provided. In respect of assets of credit quality step 3 the matching adjustment is capped at the higher of that applicable to credit step 1 and 2.</p> <p>The fundamental spread includes:</p> <ul style="list-style-type: none"> <li>• Probability of default</li> <li>• the cost of downgrades</li> <li>• a floor of 75% of the long-term average spread</li> </ul>	<p>Same as for “Classic” standard, but excluding the cap applicable to credit quality step 3</p>	<ul style="list-style-type: none"> <li>• Same as “Classic” standard (including the cap), but with a floor of 80% of the long-term average, reduced by applying the application ratio</li> </ul>		<p>The matching adjustment is equal to the spread over the risk-free rate, understood as the difference between the flat actuarial rate that equals the present values of liabilities with the market value of assets and the flat actuarial rate equivalent to RFR, less the probability of default provided. No floor and no cost of downgrades applies. The result is reduced by applying the application ratio</p>

# g. Matching adjustment

## Step 4 – Calculate MA (2/3)

### **Extended alternative:**

- Where a sub-portfolio of obligations is identified for the purpose of the calculation of the MA but the MA is applied to the whole portfolio of insurance obligations, the effect of introducing the MA on the liability side does not exceed the difference between the present value of the asset cash-flows, discounted with the risk-free interest rate curve, and the present value of the asset cash-flows, discounted with the risk-free interest rate curve including the MA.

# g. Matching adjustment

## Step 4 – Calculate MA (3/3)

### Simplified example calculation of the extended alternative MA

	Input factor	Output
<b>Step 3: matching requirement</b>		
Best estimate		14.374,34
Discounted asset cash-flows / best estimate		54%
<b>Step 4: calculating the MA</b>		
Maximum MA		2,85%
MA for sub-portfolio after application ratio		1,91%
Final MA		0,57%
Alternative simplification: MA for whole portfolio derived through scaling		1,04%
<b>Step 4a: apply stresses for the application ratio</b>		
Mass lapse	40%	2.325
Ongoing lapse	8% 50%	650
Lapse stress		2.325
Mortality stress	30% 15%	961
Life catastrophe		200
Discounted cash-flow shortfall (combined example stresses)		2.588
Best estimate		7.832
Application ratio		67%

# g. Matching adjustment

## Step 4a – Calculate application ratio (1/3)



### Calculating the application ratio

Classic Standard	Classic Alternative	Extended Standard I	Extended Standard II	Extended Alternative
		<p>Application ratio = <math>\max(0, 1 - \text{discounted-cash-flow-shortfall} / \text{BE})</math></p> <p>Where <i>discounted-cash-flow-shortfall</i> reflects the mismatch caused by the incidence of lapse risk, mortality risk, disability-morbidity risk and/or life catastrophe risk according to a confidence level of 99.5%.</p>	<p>Same as for “Extended” standard I, but assuming a 99.9% confidence level (rather than the 99.5% confidence level)</p>	<p>Same as for “Extended” standard I</p>



# g. Matching adjustment

## Step 4a – Calculate application ratio (2/3)

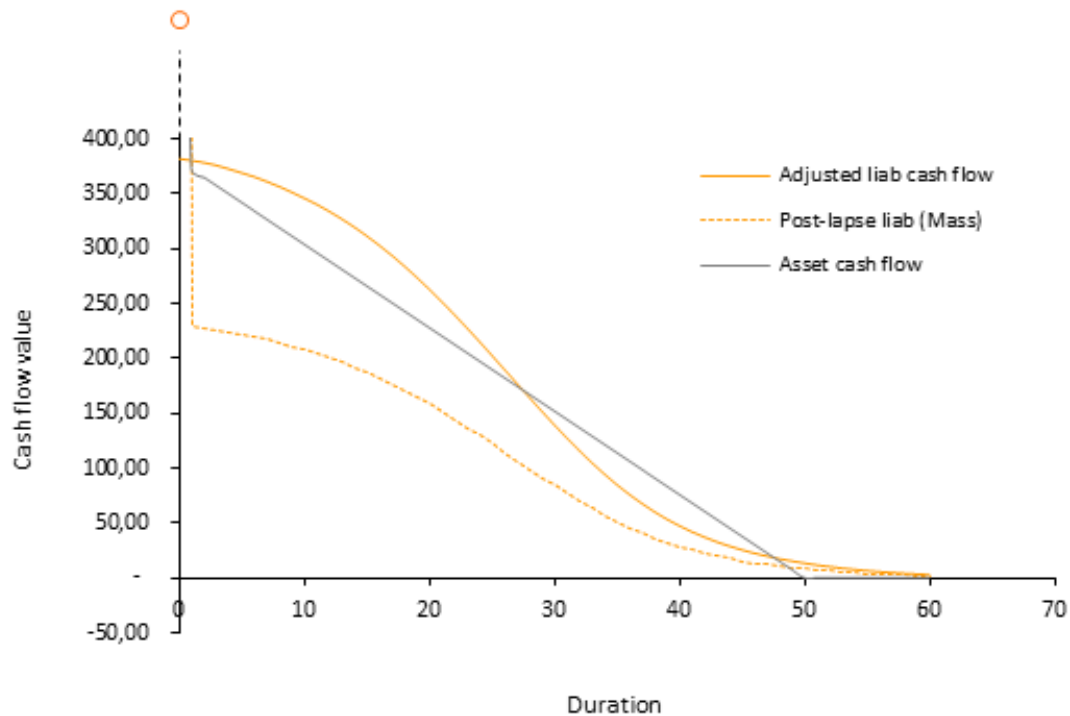


*Example of applying the mass lapse stress*

Apply the mass lapse stress of 40%

This leads to a lapse cost in the first year of 3205.26

Asset inflows less in force liability outflows over the first year produces a net outflow of 2325.26



# g. Matching adjustment

## Step 4a – Calculate application ratio (3/3)



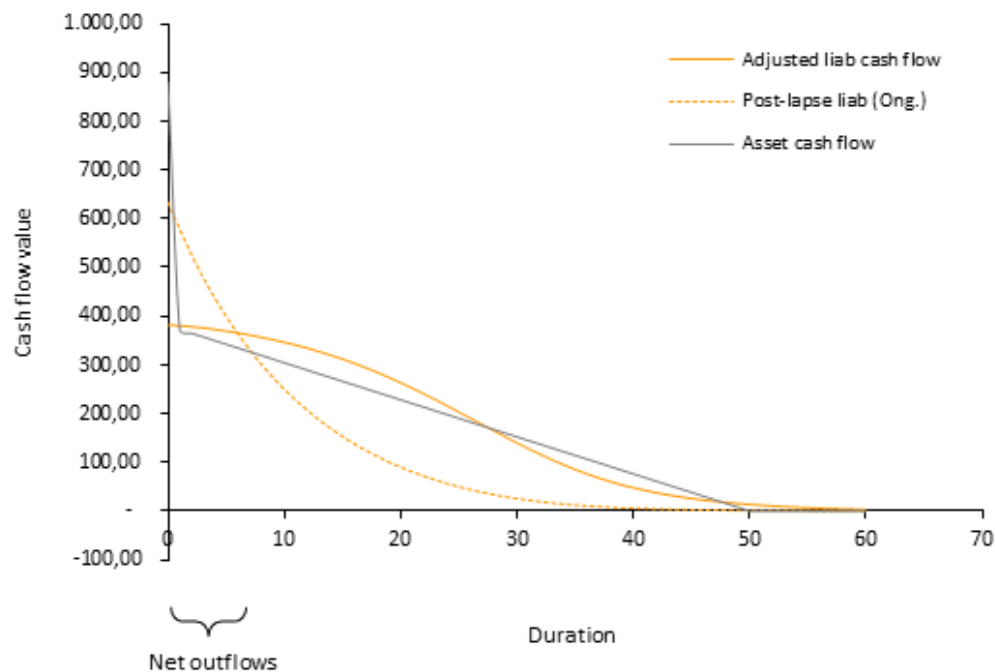
*Example of the ongoing lapse stress*

Apply the ongoing lapse stress of 9%

Increase the lapse costs by the weighted average spread risk charge

Calculate the discounted value of the net cash outflows

There are net outflows in early years, with a total discounted value of 650.24



- Risk margin:
  - o The default option to calculate the SCR is the standard formula.
  - o Insurers using the standard formula for calculating the SCR should calculate the risk margin based on the SCR standard formula
  - o Insurers that also provide internal model outcomes for the SCR can additionally report the risk margin calculated on the basis of the internal model results for the SCR

- SCR: equity risk
  - o It should be noted that for the context of this assessment, the equity transitional measure to determine the SCR is applied assuming to be zero years into the transition. The equity risk charge equals 22% zero years into the transition. This also means that no equity dampener is applied throughout the assessment.
  - o Please also see the technical specifications part I for the equity shock to be applied

## h. Some further points (3/3)

- SCR: spread risk
  - o There is an impact of the matching adjustment on the spread risk charge calculation
  - o The spread risk charge not only depends on the assets, but also on the liabilities by means of a revised matching adjustment which makes partial allowance for the spread stress

## **Determination of historic balance sheet**

- o A separate document has been made available on the EIOPA website on the calculation of historical balance sheet dates for the LTGA
- o This document includes a number of approximations specifically for the purpose of the LTGA

## **Approximations for the calculations**

- o A separate document has been made available on the EIOPA website to support the calculation of the SCR and future discretionary benefits (FDB)
- o This document includes a number of approximations specifically for the purpose of the LTGA

### **Main spreadsheet**

- Discussion of the main spreadsheet
- Please also see manual on the structure of the spreadsheet



### **MA spreadsheet**

- Discussion of the MA spreadsheet
- Please also see user manual on the structure of the spreadsheet

## Helpertabs

- Discounting tool
- TP simplification
- Risk Margin
- Spread risk
- Concentration risk
- Counterparty default risk
- Catastrophe risk

### **Qualitative questionnaires**

- Qualitative LTG Questionnaire
- Internal model questionnaire, for participants that submit IM results

### **Approximations**

- List of approximations applied