The Matching Adjustment
Theory and practice

8 February 2013

Introduction

- This document is intended to provide both an economic and technical explanation of the matching adjustment

- One possible way to implement the underlying methodology is illustrated in the Helper Tab provided in conjunction with this document

- We recommend that readers also refer to a higher level paper describing the complete package of measures which has been identified to address the issues of artificial volatility and pro-cyclicality

- All the documents are available on the Insurance Europe website
  - You may also contact your local insurance association as many are providing support focused on national markets

- Insurance Europe welcomes feedback (LTGA@insuranceeurope.eu)
  - While we may not be able to respond to each message individually, we will seek to address any significant issues or questions raised

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2. General approach for calculating the matching adjustment

3. The matching adjustment under the Long-term Guarantee Assessment (LTGA)

4. Q&A

Matching adjustment – overview

Ensuring Solvency II measures the right risks

- The insurance industry has for many years highlighted the need for Solvency II to take into account the long-term nature of insurance business

- Solvency II needs to fully recognise the very significant difference between the credit risk faced by a company which trades bond-like assets and one which, because of its long-term liabilities and long-term investment strategy, holds those assets to maturity
  - A company trading the assets is exposed to the full market value movements, while one holding to maturity is only exposed to the defaults

- This matters because the risk of losses due to defaults varies significantly less than the movement of credit risk reflected in market values (spread movements), as we have seen very clearly in the recent crisis

- Failure to address this risks driving the industry away from offering long-term guarantees and long-term investment strategies, with major unintended consequences for policyholders, markets and the industry

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Matching adjustment – overview

Ensuring Solvency II measures the right risks

- The measurement of credit risk will affect both the SCR calibration and the Own Funds calculation. If no adjustments are made, the combined effect on the solvency ratio will be very significant

$$Solvency\ Ratio = \frac{Own\ Funds}{Solvency\ Capital\ Requirement\ (SCR)}$$

- The SCR should be calibrated appropriately to reflect the underlying risks
  - Where companies are holding assets to maturity, the SCR should be based on the difference between expected default losses vs the 1-in-200 level default losses
  - Where companies are fully exposed to market risk, the SCR should be based on the difference between the current spreads vs the 1-in-200 spreads

- The Own Funds should also reflect the risks appropriately based on the real exposure and the underlying economics
  - Where companies are holding assets to maturity, there needs to be an adjustment to reflect the economic benefits of holding to maturity and the non-exposure to spread movements

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Matching adjustment – overview

What is the matching adjustment?

- **The matching adjustment** (MA) is a mechanism that prevents changes in the value of assets, caused by spread movements, from flowing through to companies' balance sheets for portfolios where companies have fully or partially mitigated the impact of these movements

  - This prevents non-economic (artificial) volatility and pro-cyclicality in Own Funds

- The MA adjusts the best estimate liabilities to ensure that where insurers may need to sell such assets to meet their unpredictable liabilities, they are exposed to these short-term asset value fluctuations; but not where they hold the assets to maturity

  - In order to assess this exposure, the MA considers the extent to which the company is exposed to "losses on forced sales"

Matching adjustment – overview

What is the matching adjustment?

- **Losses on forced sales** describes the situation where a company may be forced to sell assets that it had intended to hold to maturity in order to cover unexpected liability payments (such as lapses), and hence realises any losses in the value of those assets since they were purchased

  - Without the MA, where the company is not exposed to losses on forced sales, asset movements cause unrealised losses or gains to impact the balance sheet. This would create artificial volatility

- Insurers are not exposed at all to losses on forced sales in the following situations:

  - When insurers are not exposed at all to forced sales because liabilities are predictable and the timing of asset cash flows enables the timely payment of liability cash flows, eg for annuities

  - When insurers are exposed to forced sales but can pass on the potential losses to policyholders, eg via market value adjustment (MVA) clauses

- Additionally, there are situations where insurers are only partially exposed to losses on forced sales

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Matching adjustment – overview

Why is the matching adjustment needed?

Frequent fluctuations in credit spreads create significant volatility in asset values and, therefore, Own Funds and solvency.

Typical spread on AA bonds[1]	57.0	38.1	33.6	30.2	34.2	102.9	342.3	111.2	138.2	143.7	87.9
Example solvency ratio[2]	185%	207%	212%	216%	212%	134%	-97%	125%	96%	90%	150%

Even under "normal" spread movements and with a high quality (AA) asset portfolio, the MA is required where liabilities are illiquid in order to avoid very significant volatility in Own Funds and solvency.

This example shows that a Solvency II framework without any adjustments would have caused many life insurers to take unnecessary pro-cyclical actions during 2008.

[1]Typical spreads are indicative values based on observation of relative movements of EUR AA credit spreads.
[2]Solvency ratio estimated assuming assets are invested in 10 year AA corporate bonds and using the relative movements in credit spreads – graphics not shown to scale.
[3]For the purposes of this illustration, the SCR is assumed to remain constant at 10% of liabilities throughout the periods of spread movement. While, in practice, the level of the SCR would also be expected to fluctuate in response to movements in credit spread, these fluctuations would not be sufficient to offset the decrease in asset values.

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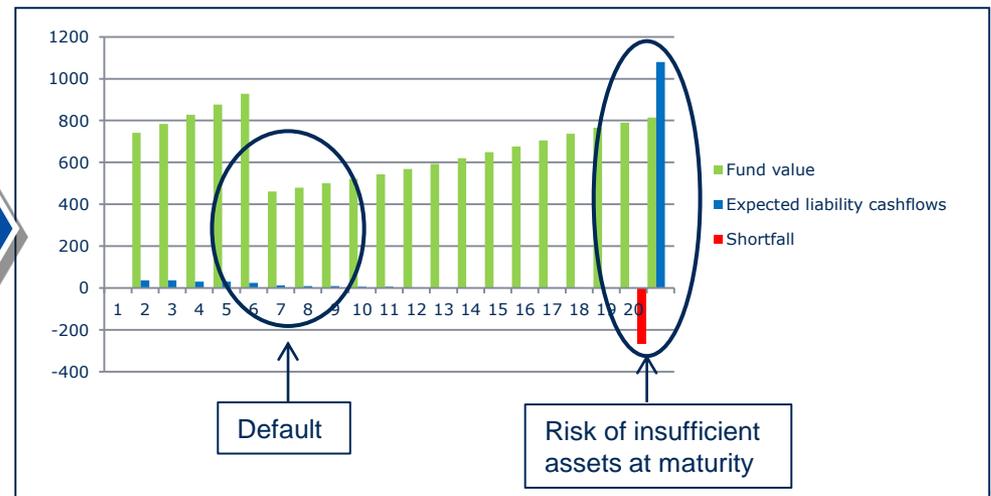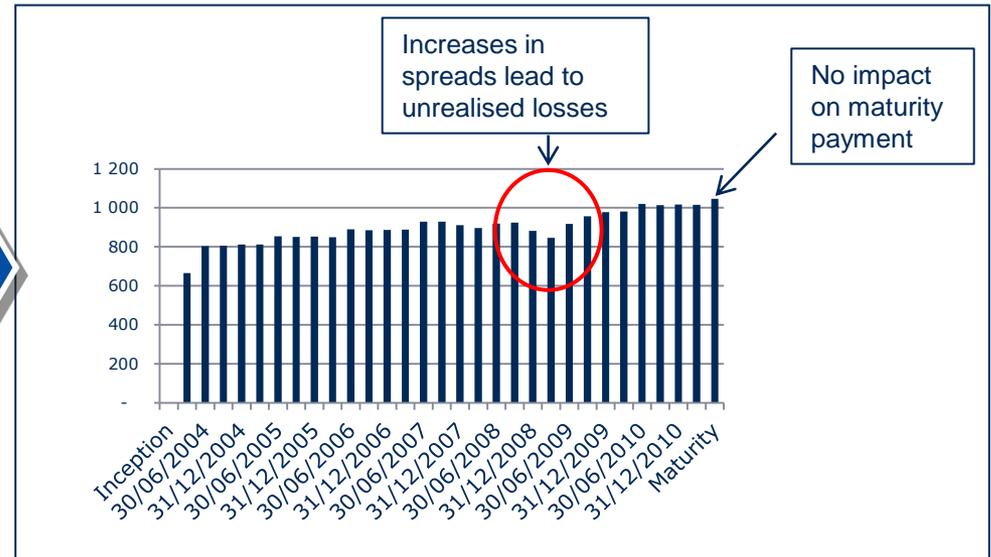
Matching adjustment – overview

Insurance liabilities with no policyholder options

- For some products, such as annuities, the exposure to spread movements can be completely eliminated where there are no options for policyholders to lapse and where deaths do not trigger a liability cash flow

- Where the company uses an investment strategy under which it has the intention and ability to hold the assets to maturity, there is no risk that the company will need to sell assets early and potentially incur a loss from the forced sale

- In this situation, the company is only exposed to losses on assets due to defaults in respect of these products

- For products such as this, the full MA in respect of the backing assets can be applied

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Matching adjustment – overview

For well-matched portfolios, the real risk to companies is default risk not spread risk

- Falls in asset market values caused by market volatility do not impact on the final asset maturity payment, which is guaranteed unless asset counterparties default

Increases in spreads lead to unrealised losses

No impact on maturity payment

- However, companies are still exposed to the risk of assets defaulting which may result in insufficient assets at maturity to cover guaranteed liability payments

Fund value

Expected liability cashflows

Shortfall

Default

Risk of insufficient assets at maturity

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Matching adjustment – overview

But spreads and expected defaults are linked?

- There is strong evidence that credit spreads exceed the actual average losses from default and that increases in these spreads in stress conditions are driven by increased illiquidity, rather than default, expectations

- Many studies of historical data and market-consistent modelling support this. None that we are aware of provide evidence against it, eg

"Over the long term, credit spreads are roughly twice as large as default losses, resulting in an average credit risk premium of about 80 basis points. We also find that credit spreads do not adjust in response to realized default rates."

K. Giesecke, F. Longstaff, S. Schaefer, I. Strebulaev, 2011. Corporate Bond Default Risk: A 150-Year Perspective. Journal of Financial Economics, 102(2), 233-250

"Contrary to theory, recent empirical work suggests that changing default expectations can explain only a fraction of the variability in credit spreads."

M. Manning, 2004. Exploring the Relationship Between Credit Spreads and Default Probabilities. Bank of England Working Paper No. 225

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Matching adjustment – overview

Insurance liabilities with policyholder options

- The MA recognises that for other products, while some assets may need to be sold early to cover unexpected liability cash flows (such as increases in lapses or mortality), not all policyholders will lapse or die at the same time and so some assets can still be held to maturity

- As such, the MA can still be applied in respect of the assets that can be held to maturity (ie the assets on which the company is not exposed to losses on forced sales)

  - These are determined by considering the proportion of the backing assets that would need to be sold to cover increased liability cash flows under 1 in 200 scenarios and applying the MA in respect of the remaining backing assets (using an application ratio)

- For these products, the exposure to losses on forced sales can be further reduced by product features, such as the use of a market value adjustment (MVA) to restrict lapse payments to the market value of the assets that need to be sold

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Matching adjustment – general approach

How does the matching adjustment work?

- A general approach for the calculation of the MA can be determined by considering which assets are not exposed to losses on forced sales

- This approach has been determined by an industry working group, based on high-level principles agreed by Insurance Europe, the CFO Forum and the CRO Forum

- For the purposes of the LTGA a number of different choices relating to the application and calculation of the MA have been made, either as simplifications, due to constraints in the legal text requirements or due to alternative views from EIOPA

- The approach set out in the following slides relates to the general approach and differs from the approaches tested under the LTGA as described in section 3

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Matching adjustment – general approach

Calculate the maximum matching adjustment	Calculate the application ratio	Determine the matching adjustment to apply
• The maximum MA (in nominal terms), in respect of eligible assets, is calculated as:	• The application ratio is calculated based on the proportion of eligible assets that are exposed to losses on forced sales:	• The MA to apply is determined (in nominal terms) as:

$$PV(de-risked\ eligible\ asset\ CF)$$
$$-$$
$$MV\ of\ eligible\ assets$$

$$Application\ ratio =$$
$$1 -$$
$$\frac{PV(eligible\ assets\ at\ risk\ of\ loss\ on\ forced\ sale)}{MV\ of\ eligible\ assets}$$

$$Maximum\ matching\ adjustment$$
$$x$$
$$application\ ratio$$

• PV of de-risked asset cash flows is calculated by projecting the risk-adjusted cash flows of the eligible assets and discounting these cash flows at the basic risk-free interest rate

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Matching adjustment – general approach

Calculation steps to apply the methodology in practice

Step 1	Determine eligible liabilities and assets and project cash flows
Step 2	Determine the maximum amount of assets required to be sold at outset to cover expected future shortfalls
Step 3	Determine the matching adjustment as a value
Step 4	Presentational options (including discount rate conversion)

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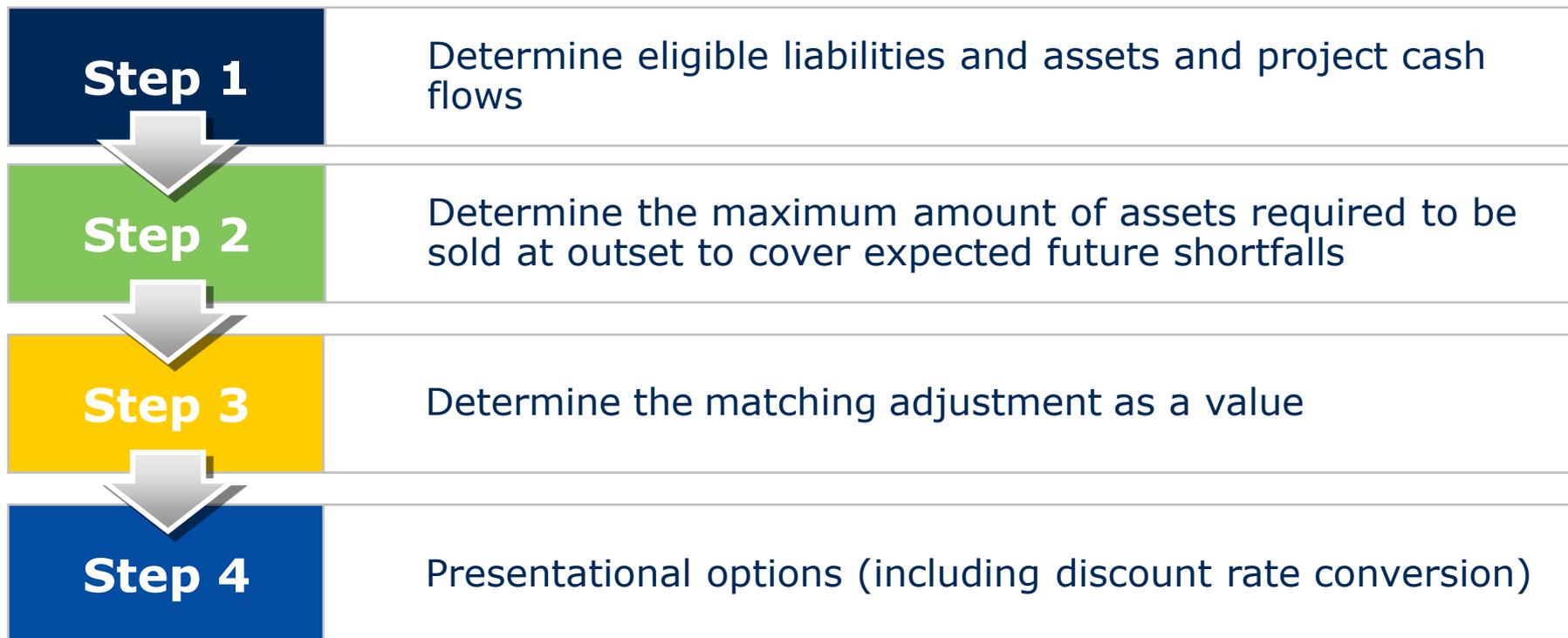
Matching adjustment – general approach

Step 1a. Identify a portfolio of liabilities to which a matching adjustment is to apply

Shareholder funds

MA Liabilities

The MA can be applied to all portfolios of liabilities where the company has the ability and intention to hold backing assets with a long-term perspective

MA Liabilities

Technical provisions
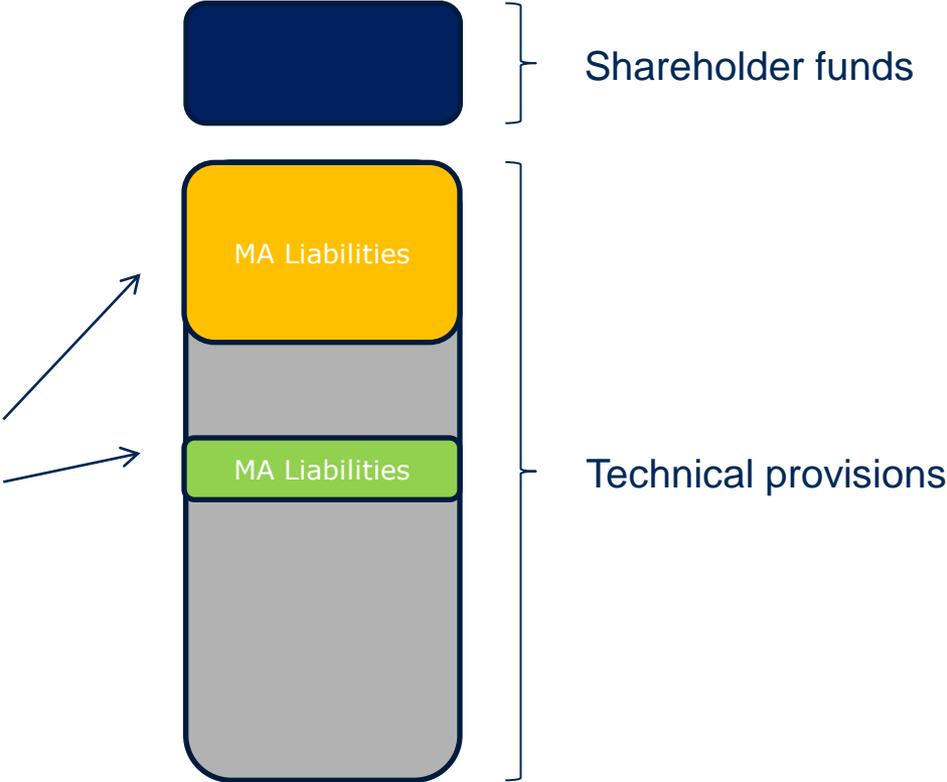
Matching adjustment – general approach

Step 1b. Identify the corresponding assets

- Identify the eligible assets backing the liabilities (ie bonds and assets with similar cash flows)

- Other assets (eg equity and/or cash) can also back those liabilities but they are not included in the cash flow projections

Asset portfolio

Shareholder Funds	MA Liabilities	MA Liabilities	Technical Provisions

Issuer	ISIN	Market Value	Maturity	Coupon	Rating	(...)

Issuer	ISIN	Market Value	Maturity	Coupon	Rating	(...)
Bond 1	(...)					
Bond 2						
Bond 3						
Bond 4						
Bond 5						
Bond 6						
Bond 7						
Bond 8						
Bond 9						
Bond 10						
Bond 11						
Bond 12						
Bond 13						
(...)						

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Matching adjustment – general approach

Step 1c. Project the risk-adjusted cash flows of the eligible assets

Issuer	ISIN	Market Value	Maturity	Coupon	Rating	(…)
Bond 2						
Bond 4						
Bond 5						
Bond 6						
Bond 7						
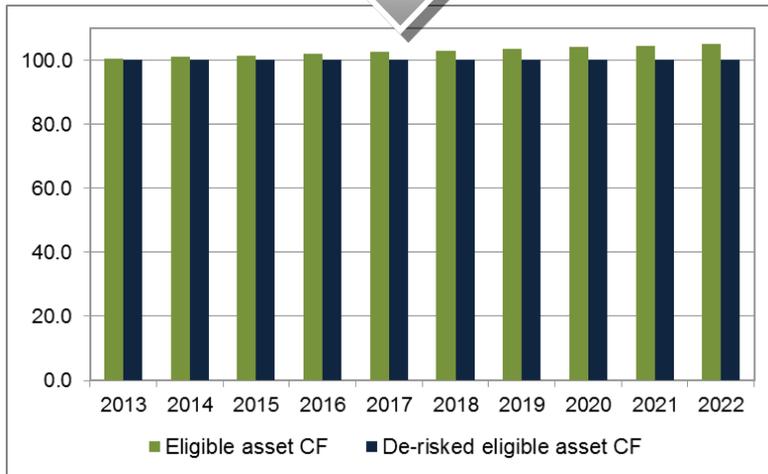
- The eligible asset cash flows are "de-risked" by:
  - Projecting the future contractual cash-flows (principal and coupon) of eligible assets
  - Reducing the contractual cash flows to allow for expected defaults ("fundamental spread")

- The fundamental spread used to de-risk the cash flows will be calibrated and published by EIOPA

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Matching adjustment – general approach

Step 2 - Determine the maximum amount of assets required to be sold at outset to cover future shortfalls

- The objective of Step 2 is to identify any assets that are exposed to losses on forced sales ("shortfall"). This will determine which assets can be taken into account in the MA calculation

- There are two underlying reasons why some of the bonds backing the liabilities may be exposed to losses on forced sales:

  1. The company is fully matched based on the expected liability cash flows but in reality the actual cash flows may deviate, resulting in the potential need to sell some of the bonds (eg mortality, lapse, etc)

  2. The company has absolutely fixed and certain liabilities but there is a mismatch between asset and liability cash flows, resulting in the potential need to sell some of the bonds

- In order to capture all of the risk of losses on forced sales, we first identify the shocked liability cash flows and then compare these to the de-risked asset cash flows

  - Identify the shock that leads to the highest shortfall
  - In most cases, the shock generating the highest shortfall will be the lapse or the mortality shock

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Matching adjustment – general approach

- In principle, for each shock, steps 2a and 2b are required
- The shock leading to the maximum amount of assets required to be sold is selected

## Step 2a. Apply 1-in-200 year shock to the liability cash-flows

Eligible liability CF (Best Estimate)   **Shocked eligible liability CF**
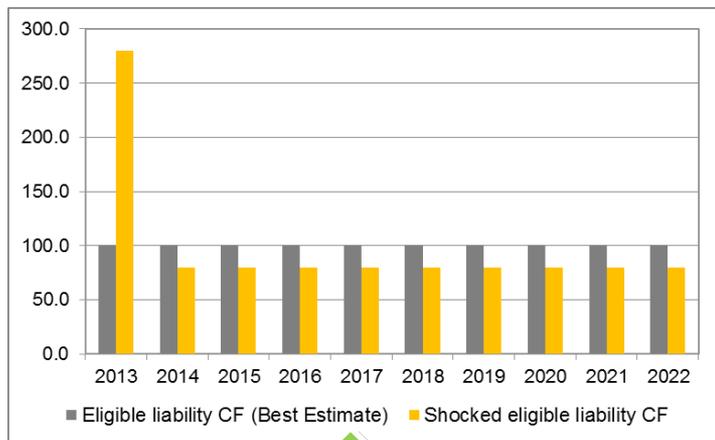
1-in-200 shocked liability CF are already calculated for SCR purposes

Amount of assets required to be sold
= PV(MAX accumulated shortfall)*
using the basic risk-free rate

Step 2b. Determine the asset shortfall by comparing shocked liability cash flows to de-risked asset cash flows

Example 1 – no negative shortfalls

De-risked eligible asset CF   Shocked eligible liability CF
Accumulated Shortfall
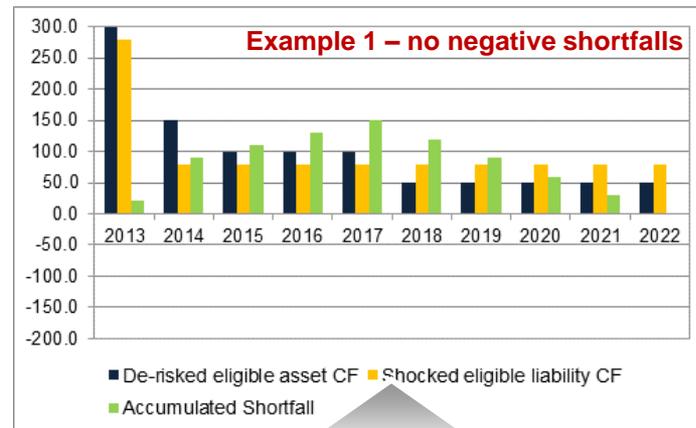
Shocked eligible liability cash flows compared against de-risked eligible asset cash flows to identify any asset shortfall

Example 2 – negative shortfalls

De-risked eligible asset CF   Shocked eligible liability CF
Accumulated Shortfall

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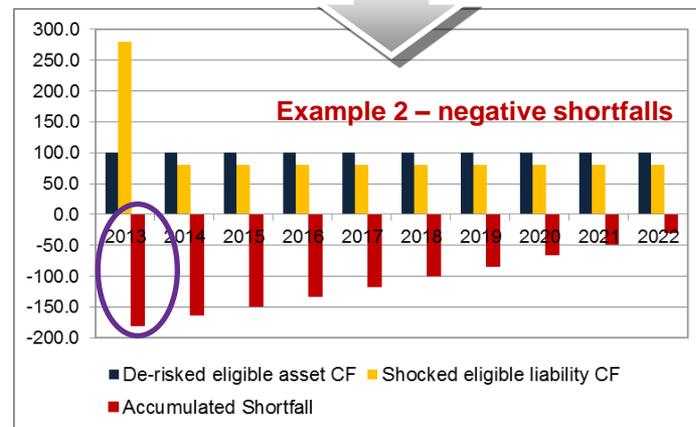
Matching adjustment – general approach

Step 2c. Determine how the shortfall can be funded

- Depending on the assets backing the liabilities, the shortfall can be funded by:
  - Bonds and assets with similar cash flow characteristics
  - But also other liquid assets such as equity or cash

- Where there are no investment constraints on the asset mix, it can be assumed that other liquid assets, such as equity or cash, can be used first when determining the assets that would be sold under the stress scenario
  - This will lower the amount of bonds that need to be sold. This is exactly what happens in reality: companies would not sell a bond at a loss if they did not need to

- Where there are investment constraints on the asset mix, this needs to be taken into account
  - This may lower the amount of other liquid assets that can be used before the bonds (and consequently lower the application ratio). This could happen if the company had a commitment to the policyholder to hold a certain portion of equity in their portfolio

Eligible assets at risk of loss on forced sale = PV(MAX accumulated shortfall) – other liquid assets

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Matching adjustment – general approach

Step 2d. Determine the application ratio

- The application ratio is determined as follows:

$$\textbf{Application ratio} = \textbf{max}\left(\textbf{0}, \textbf{1} - \frac{\text{Eligible assets at risk of loss on forced sale}}{\text{MV of eligible assets}}\right)$$

- Where there are no assets at risk of loss on forced sale, the application ratio will be 100%

Matching adjustment – general approach

Step 3a. Calculate the maximum matching adjustment as a value

- The maximum MA value, in respect of eligible assets, is calculated as:

  Maximum MA = PV(de-risked eligible asset CF) – MV(eligible assets)

- The PV of de-risked asset cash flows is calculated by discounting the de-risked cash flows (from Step 1c) at the basic risk-free interest rate
- The maximum MA would be the one that would be applied where there is perfect matching and no uncertainty over liability cash-flows

Step 3b. Calculate the actual matching adjustment to apply as a value

- The MA value to apply is determined as:

  MA = Maximum MA x application ratio

- Note that the application ratio is the output of Step 2d

Matching adjustment – general approach

Different presentational options for the matching adjustment

- The process so far has identified the MA in nominal terms (as a value)

- There are a number of ways the MA can be presented:

  - As a balance sheet adjustment value, ie as a separate entry on the liability side of the balance sheet

  - Solved as an equivalent flat discount rate adjustment. This gives the identical balance sheet impact but by integrating the MA value into the technical provisions

  - Solved as a term-dependent adjustment to the discount rate. This could be used to reflect the anticipated emergence of the MA value over time. This again gives the identical balance sheet impact but by integrating the MA value into the technical provisions

- The choice of presentation has no impact on the balance sheet or on any aspect of management incentives

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Matching adjustment – LTGA

What is being tested under the LTGA?

- Under the LTGA, a number of changes and simplifications have been made to the MA calculation relative to the general approach

- A number of different versions of the MA are being tested under the LTGA in order to assess the impact of various restrictions and calculation approaches

  - Companies are requested to provide results for all 5 of the versions (where applicable to their liabilities)

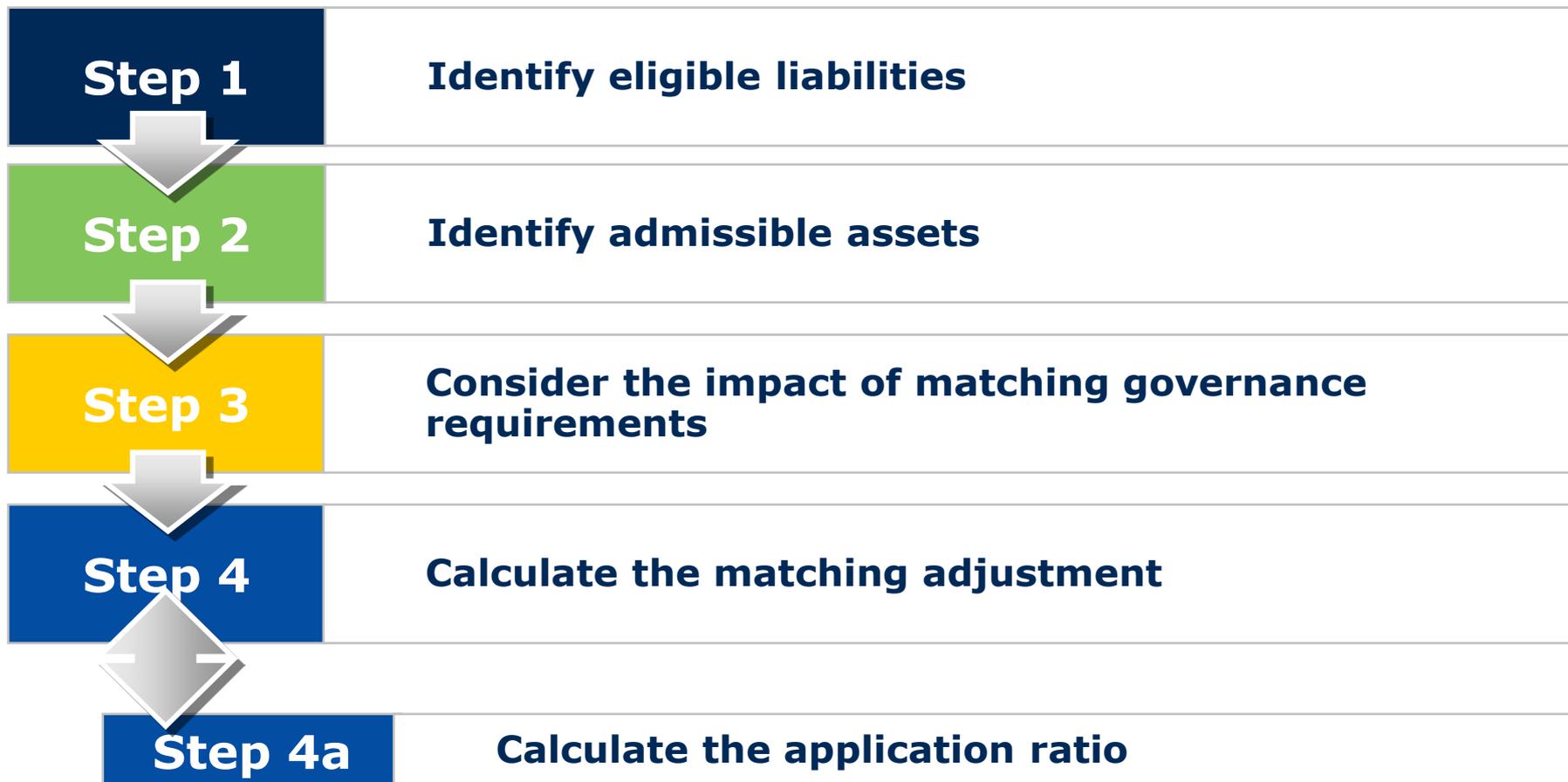### Classic matching adjustment

1. Standard application (Classic Standard)

2. Alternative application – without restrictions on investments in assets with credit step 3 (Classic Alternative)

Extended matching adjustment

1. Standard application 1 – application ratio calculated at 99.5% confidence interval (Extended Standard I)

2. Standard application 2 – application ratio calculated at 99.9% confidence interval (Extended Standard II)

3. Alternative application – the MA reflects the risk of losses on forced sales (rather than cash-flow matching requirements). As such there are no restrictions on asset credit quality or requirements for individual assets to provide fixed cash flows (Extended Alternative)

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Matching adjustment – LTGA

The steps for calculating the MA for the purposes of the LTGA are the same for all versions

Step 1 — **Identify eligible liabilities**

Step 2 — **Identify admissible assets**

Step 3 — **Consider the impact of matching governance requirements**

Step 4 — **Calculate the matching adjustment**

Step 4a — **Calculate the application ratio**

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Matching adjustment – LTGA

How do the LTGA approaches compare?

Step 1 — **Identify eligible liabilities**

General approach

The MA can be applied to all portfolios of liabilities where the company has the ability and intention to hold backing assets with a long-term perspective

LTGA

Classic Standard & Alternative
Only longevity exposures with no further premiums or policyholder options (except surrender option where surrender value cannot exceed the value of assets)

Cannot split obligations of a contract

Extended Standard & Alternative
All life insurance obligations and non-life annuities; policyholder options are permitted

May split obligations of a contract

Unit-linked policies are not eligible for the MA

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Matching adjustment – LTGA

How do the LTGA approaches compare?

Step 2	Identify admissible assets

General approach

Bonds and similar assets

No restrictions on asset credit quality

The portfolio can contain other assets (such as cash or equity). These can be used to reduce the assets that need to be sold before maturity, but do not contribute to the MA.

Eligible asset cash flows are de-risked to allow for expected defaults

LTGA

Bonds and similar assets with no issuer options. Liquid overnight assets (such as cash) may be included for year 1 but do not contribute to the MA. No de-risking to eligible asset cash flows

Classic Standard, Extended Standard I & II
Assets must have fixed cash flows and be investment grade
(33% max in credit quality step 3 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)

Classic Alternative
As above but no maximum in credit quality step 3

Extended Alternative
No restrictions on asset credit quality
No requirement for fixed asset cash flows

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Matching adjustment – LTGA

How do the LTGA approaches compare?

Step 3	Consider the impact of matching governance requirements

General approach

Cash-flow matching is not required – although the MA applied is proportional to the level of matching

LTGA

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 with no possibility of transfer

Classic Standard & Alternative, Extended Standard I & II
Cash-flow matching is required, ie the discounted value of cash-flow shortfalls must be less than 15% of the BEL

Extended Alternative
Cash-flow matching is not required

A sub-portfolio of liabilities is created if assets do not cover liabilities. This can be done by scaling liability cash flows by:

PV(asset cash flows) / PV(liability cash flows of the whole portfolio of obligations)

Matching adjustment – LTGA

How do the LTGA approaches compare?

Step 4	Calculate the matching adjustment

General approach

Maximum MA applied to portfolio:

> *Maximum MA =*
> *PV(de-risked eligible asset CF)*
> *– MV(eligible assets)*

MA that can be applied to the portfolio:

> *MA applied = Maximum MA x application ratio*

LTGA

Classic Standard & Alternative

MA applied to portfolio:

> *MA = Maximum MA =*
> *Spread over basic risk-free rate of assigned assets – Fundamental spread*

Where:

> *Spread over basic risk-free rate =*
> *IRR(Market value of assets, Liability CF)*
> *– IRR(BEL, Liability CF)*

Extended Standard I & II, & Alternative

> *MA applied = Maximum MA x application ratio*

> *Spread over basic risk-free rate =*
> *IRR(Market value of assets, Asset CF)*
> *– IRR(BEL, Liability CF)*

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Matching adjustment – LTGA

How do the LTGA approaches compare?

Step 4a	Calculate the application ratio

General approach

The application ratio is based on the proportion of eligible assets that would need to be sold early to cover shortfalls based on the underwriting risk stress which results in the maximum shortfall (and hence the lowest application ratio)

$$\text{Application ratio} = \max\left(0, 1 - \frac{\text{Eligible assets at risk of loss on forced sale}}{\text{MV of eligible assets}}\right)$$

Where:

Eligible assets at risk of loss on forced sale = PV(MAX accumulated shortfall) – Other liquid assets

LTGA

Classic Standard & Alternative
No application ratio

Extended Standard I & II, & Alternative

$$\text{Application ratio} = \max\left(0, 1 - \frac{\text{discounted cash-flow shortfall}}{\text{best estimate liabilties}}\right)$$

The discounted cash-flow shortfall is calculated as the PV of annual shortfalls (negative shortfalls set to zero) resulting from applying all the underwriting stresses of the standard formula SCR excluding longevity, expense, revision and disability recovery and allowing only for the cash flows stemming from the replicating portfolio of admissible assets. The stresses are aggregated via a correlation matrix. Where the MA is negative the application ratio is set to 1

Extended Standard I & Alternative
The stresses applied are based on a 99.5% confidence level

Extended Standard II
The stresses applied are based on 99.9% confidence level

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Matching adjustment – Q&A

List of questions

- What are the benefits of the MA for companies?

- What are the benefits of the MA for customers?

- How should the MA be reflected in the SCR?

- Does the MA distort the value of the liabilities?

- What additional information is required for the MA calculation?

- Is the MA appropriately prudent?

- Should 100% matching be required?

- What about asset portfolios that are shorter than the liability cash flows?

- What about reinvestment risk?

- How can the MA be applied to products where the liability cash flows are exposed to mortality or lapse risk?

- Should rebalancing of the asset portfolio be allowed?

- Should there be ring-fencing requirements on the liabilities and backing assets?

- Should assets be restricted to high quality bonds such that no investments below a BBB rating should be allowed?

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Matching adjustment – Q&A

What are the benefits of the MA for <u>companies</u>?

- At the outset, the MA allows companies to recognise the value that can be locked in when assets can be held to maturity. This is similar to the illiquidity premium concept

- Going forward, the MA eliminates volatility in Own Funds caused by the change in the value of assets held to maturity due to spread movements

  - This is volatility that the company is not exposed to and that would otherwise appear on the balance sheet as unrealised losses or gains

- However, in order to ensure the full economic impact is recognised, the SCR should be based on the impact of 1-in-200 level default losses and not the impact of 1-in-200 changes in spreads

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Matching adjustment – Q&A

What are the benefits of the MA for <u>customers</u>?

- Customers of insurance companies benefit from those companies investing in long-term illiquid assets either directly, via investment guarantee rates, or indirectly in pricing

- Some of the specific advantages include:

  - Improved returns via access to liquidity premia and other premia

  - Reduced transaction costs due to lower overall turnover of individual positions

  - Avoidance of short-term market volatility

  - Access to a broader range of investment opportunities and expertise

- The MA helps them to continue to make such long-term investments without exposing companies' balance sheets to unmanageable volatility

- Without the MA, insurers' investment returns and solvency ratios will potentially be negatively impacted by Solvency II. This may result in reduced profitability and funding gaps on the balance sheet, the associated costs of which will ultimately need to be passed through to customers to some extent

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Matching adjustment – Q&A

How should the matching adjustment be reflected in the SCR?

- The SCR should be calibrated appropriately to reflect the underlying risks

  - Where the MA is applied in full (application ratio of 100%), the SCR should be based on the difference between expected default losses vs the 1-in-200 level default losses

  - Where the MA is not applied at all (application ratio of 0%), the SCR should be based on the difference between the current spreads vs the 1-in-200 spreads

  - Where the MA is partially applied (application ratio between 0% and 100%), the SCR should be calculated as follows:

  (Application ratio) x (SCR based on defaults) + (1- application ratio) x (SCR based on spreads)

- However, a different approach has been chosen for the purpose of the LTGA

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Matching adjustment – Q&A

How should the matching adjustment be reflected in the SCR?

- The approach chosen for the purpose of the LTGA is as follows:

  - The full spread-risk shock is applied to assets

  - The matching adjustment applied to eligible liabilities is adjusted to reflect the increase in spreads that is not attributable to cost of defaults and downgrades
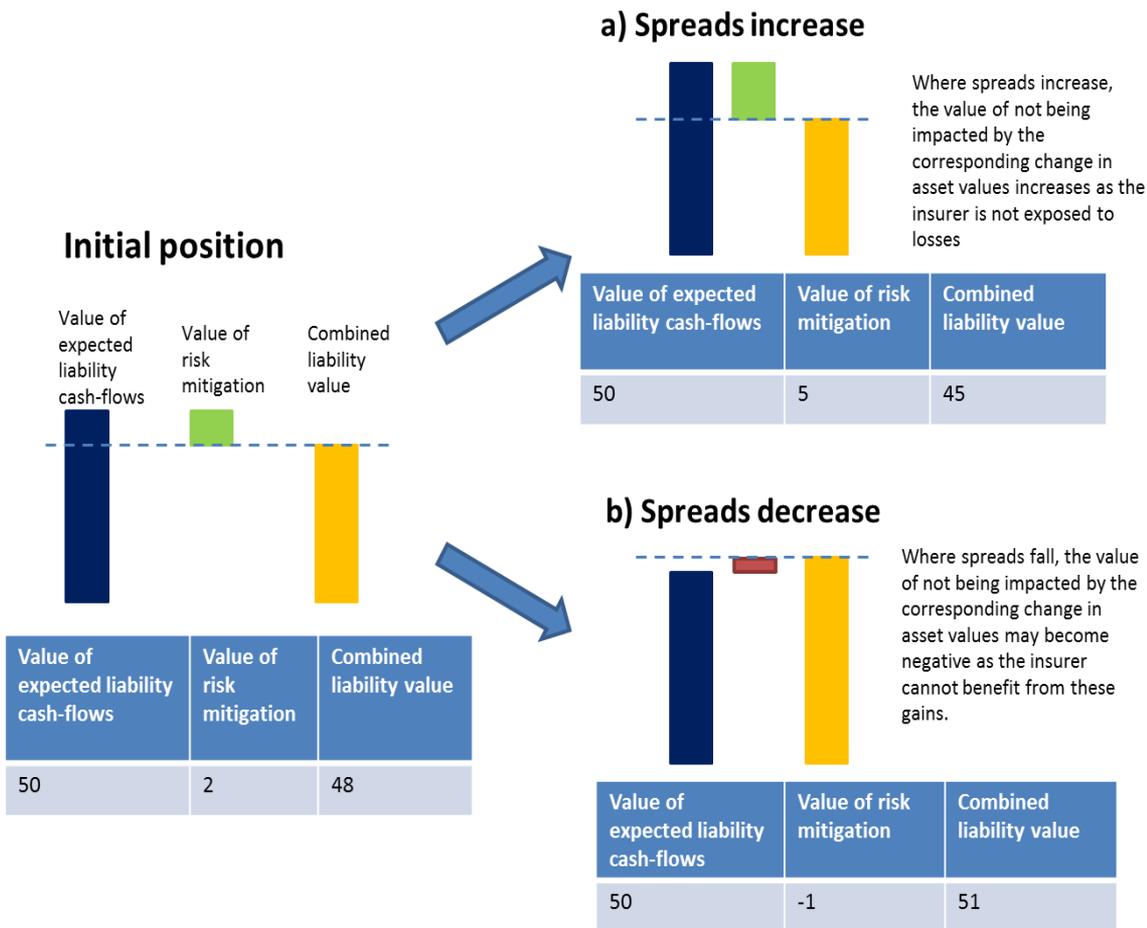
    *MA' = (spread + Sup) – (FS + Sup * red_factor)*

  - Full details of the calculation are provided in section 4.11 of Part II of the LTGA Technical Specifications

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Matching adjustment – Q&A

Does the MA distort the value of the liabilities?

- The value of liabilities can be broken into two components:
    - The discounted value of liability cash flows (at the basic risk-free rate)
    - The impact of any risk-mitigation features incorporated within the liabilities, which are measured via the MA

- While the liability cash flows are unrelated to the backing assets (unless there are profit-sharing arrangements), the value of the risk mitigation is significantly impacted by the assets backing the liability

a) Spreads increase

Where spreads increase, the value of not being impacted by the corresponding change in asset values increases as the insurer is not exposed to losses

Value of expected liability cash-flows	Value of risk mitigation	Combined liability value
50	5	45

Initial position

Value of expected liability cash-flows

Value of risk mitigation

Combined liability value

Value of expected liability cash-flows	Value of risk mitigation	Combined liability value
50	2	48

b) Spreads decrease

Where spreads fall, the value of not being impacted by the corresponding change in asset values may become negative as the insurer cannot benefit from these gains.

Value of expected liability cash-flows	Value of risk mitigation	Combined liability value
50	-1	51

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Matching adjustment – Q&A

What additional information is required for the MA calculation?

- The general approach for calculating the MA is largely mechanical, with simple calculation steps, and could be automated to a large extent, as in the Helper Tab provided

- Most of the information required to calculate the MA is already available to companies:

  - Asset market values and cash-flows

  - Information on the fundamental spreads will be published by EIOPA

  - Companies should already be able to produce best estimate and stressed liability cash flows based on 1-in-200 underwriting events

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Matching adjustment – Q&A

Is the matching adjustment appropriately prudent?

- The general approach for calculating the MA is more conservative than it would have to be in an economic framework

- Own Funds are not recognised as a liquidity source to cope with timing issues in the cash flows

  - In practice, Own Funds would be used preferably to fund cash-flow shortfalls

- No premium inflow arising from new business is considered

  - In practice, companies use this liquidity to cope with timing issues in the cash flows

  - Instead we suppose that backing assets are sold to cover a shortfall

- The liabilities are valued on a 1-in-200 basis

  - In all other parts of this framework 1-in-200 events are dealt with in the SCR

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Matching adjustment – Q&A

Should 100% matching be required?

- No, the MA is based on the extent to which the assets are immunised against losses on forced sales

  - For example, where assets can be held to maturity, the company is not exposed to the unrealised gains/losses arising from the impact of spread movements

  - Even where matching is not 100%, the MA should recognise that some of the assets can be held to maturity

In this example cash flows are not 100% matched but only 10% of assets need to be sold so should be able to take credit for 90% of MA
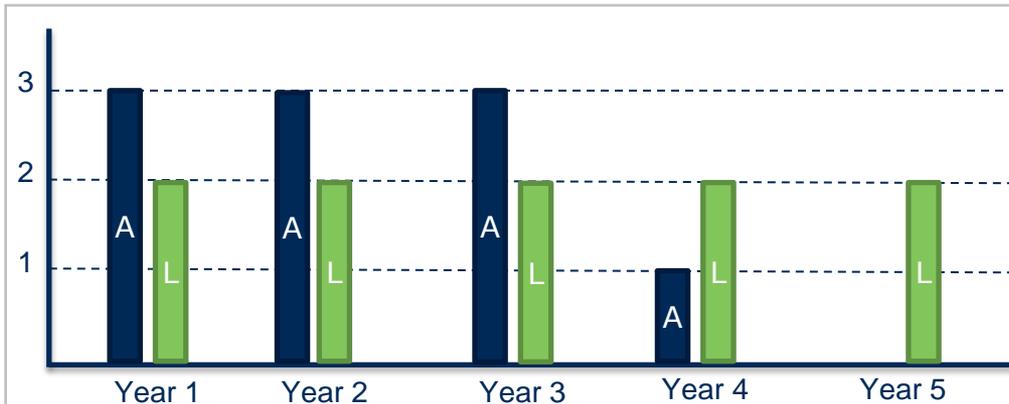
Excess assets in year 5 can be sold to cover the shortfall in year 4

All assets in years 1-4 can be held to maturity. Two thirds of the assets in year 5 can be held to maturity (with one third sold early to cover the shortfall in year 4)

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Matching adjustment – Q&A

What about asset portfolios that are shorter than the liability cash-flows?

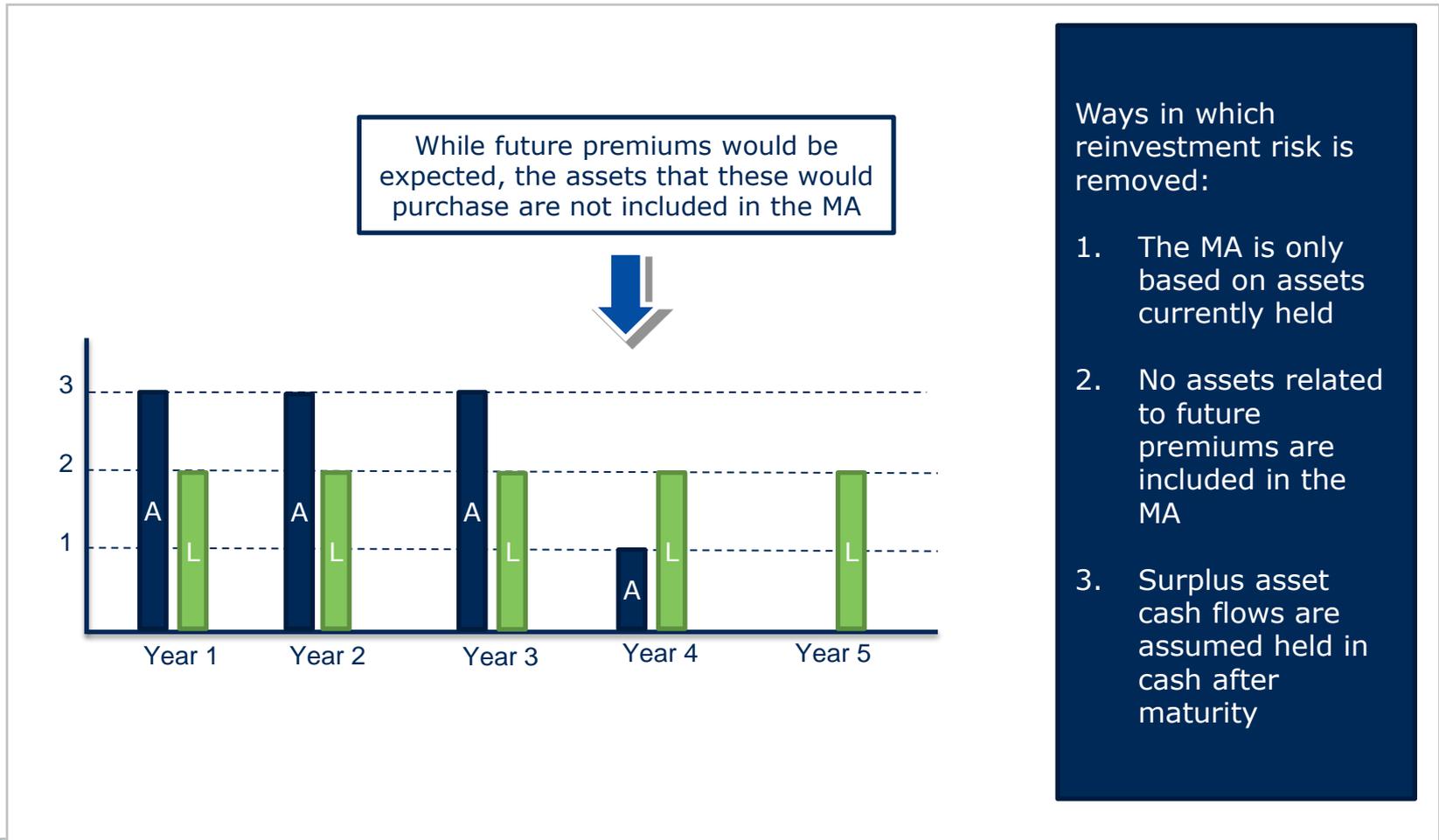Surplus assets from earlier maturities help cover later liability cash flows
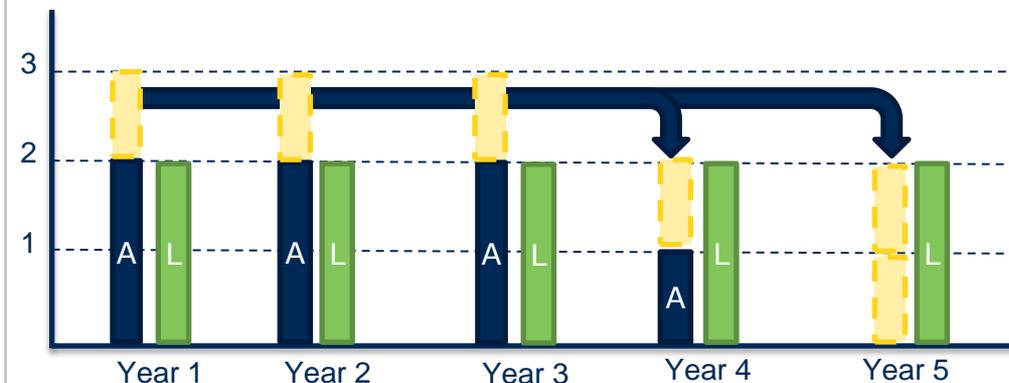
In this example all of the assets can still be held to maturity and so the full MA can be recognised

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However, as assets are shorter in duration, the maximum MA is lower than in a situation where cash flows are fully matched

Matching adjustment – Q&A

What about reinvestment risk?

While future premiums would be expected, the assets that these would purchase are not included in the MA

Year 1   Year 2   Year 3   Year 4   Year 5

Ways in which reinvestment risk is removed:

1. The MA is only based on assets currently held

2. No assets related to future premiums are included in the MA

3. Surplus asset cash flows are assumed held in cash after maturity

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Matching adjustment – Q&A

How can the MA be applied to products where the liability cash flows are exposed to mortality or lapse risk?

- To ensure protection from losses on forced sales, liability cash flows should be sufficiently predictable

- Where best estimate cash flows are less predictable due to risks, such as mortality or lapse, this can be taken into account by basing the MA on the liability cash flows following 1-in-200 underwriting shocks

- This provides significant certainty that the MA only recognises the assets in respect of the worst case cash flows at a 99.5% confidence level

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Matching adjustment – Q&A

Should rebalancing of the asset portfolio be allowed?

- It is important that Solvency II encourages good risk management

- This is not achieved through a strict requirement to hold assets to maturity no matter what. Rather, undertakings should have the intent and ability to hold the assets to maturity

- It is good risk management to provide some scope for changing and/or selling the identified assets to the extent that the rights of the policyholder are not affected, eg:

  - To maintain or improve asset-liability matching

  - To appropriately manage risk concentrations, eg due to mergers

  - To manage the impact of the downgrade of individual bonds

- While sales of the assets underlying the MA should not be permitted for speculative purposes, some changes are required in the asset portfolio over time for risk management purposes (in line with the prudent person principle)

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Matching adjustment – Q&A

Should there be ring-fencing requirements on the liabilities and backing assets?

- No. Strict ring-fencing of assets and liabilities, as defined in the current text, does not reflect the way undertakings currently perform asset-liability management

- Where companies have appropriate risk management controls, the same supervisory objectives can be achieved more practically by clearly identifying all the liabilities and backing assets, without subjecting undertakings to the excessive constraints required for ring-fencing

- Such an approach would support the risk management principles set out in the previous slide

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Matching adjustment − Q&A

Should assets be restricted to high quality bonds, hence excluding investments below a BBB rating?

- No, there should be no explicit restrictions on the quality of the assets held as there are no restriction elsewhere in the Solvency II framework

  - Asset quality is captured through higher capital charges in the SCR

- However, the calibration of the MA should incentivise appropriate investment decisions without restricting investments to specific rating classes

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