



# Report on the PRA Review of Solvency II – Quantitative Impact Study (QIS)

Association of British Insurers

December 2021

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The analysis of the risk margin (RM) and matching adjustment (MA) contained in this report is for illustrative purposes only. The decision as to which items should be included or excluded in their derivation is highly subjective and judgemental. Furthermore, the items identified are necessarily limited to those that we have identified in course of the work performed by us, which is subject to the restrictions in scope as set out in the engagement letter and has been subject to limitations on our access and in the nature and extent of the information which has been made available to us. Accordingly, there is no basis on which to state whether, in the analysis presented, the items that have been included are appropriate, or that all items that might be appropriate have been included. We have indicated in our report the basis on which items have been included, excluded or adjusted. You may choose to analyse the information presented differently.

The calculations are performed at an aggregate industry level and are thus not representative of any particular market participant.

In preparing this report we have considered the requirements of the Technical Actuarial Standards (TAS) issued by the Financial Reporting Council. The Technical Actuarial Standards which apply to the work performed in preparing this report are 'TAS 100: Principles for Technical Actuarial Work' and 'TAS 200: Insurance'. We have taken account of the requirements in Practice Standard 'APS X2: Review of Actuarial Work' introduced by the Institute and Faculty of Actuaries on 1 July 2015 and the work has been peer reviewed.

We accept no responsibility or liability for the findings or reports of other entities even though we have referred to their findings and/or reports in our report.

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# 1 Introduction and purpose

On 23 June 2020, the Government announced that it would review certain features of the prudential regulatory regime for insurance firms, known as Solvency II<sup>1</sup>. As set out in that announcement, the financial services sector plays a crucial role in supporting the wider economy, creating jobs across the UK, supporting SMEs, contributing taxes, driving regional growth and investment, tackling climate change and embracing technology and innovation.

On 1 July 2021, HMT published its Response to the Call for Evidence<sup>2</sup> which discusses the next steps on the Solvency II reforms. Following this, the Bank of England published the Quantitative Impact Study (QIS)<sup>3</sup> on 20 July 2021 to gather data from the insurance industry which will support the PRA's analysis of potential Solvency II reforms. The QIS covers the calculation of the matching adjustment, the risk margin and the Transitional Measure on Technical Provisions (TMTPs). This report focuses on the first two elements.

The Association of British Insurers (ABI), in its role of representing the UK insurance industry, has coordinated a response to the QIS and submitted it to the PRA. The impact and suitability of the implementation of Solvency II for UK insurance has been reported on previously by the Treasury Committee<sup>4</sup>. This report does not revisit the debate on appropriateness of Solvency II or recommend specific changes to the regulatory framework. The purpose of this report is to analyse the potential aggregate industry impact on the risk margin and matching adjustment from the scenarios set out in the QIS.

<sup>1</sup> HMT, 2020, [Statement made by the Chancellor of the Exchequer](#)

<sup>2</sup> HMT, 2021, [Response to the Call for Evidence](#)

<sup>3</sup> Bank of England, 2021, [Quantitative Impact Study \(QIS\)](#)

<sup>4</sup> Treasury Committee, [Solvency II](#)

## 2 Executive summary

The QIS has set out two scenarios, summarised in Figure 2-1, for both the risk margin and matching adjustment. This report analyses the impact of these scenarios by comparing them with the current Solvency II approach, based on SONIA rates. Note that the analyses for the risk margin and matching adjustment have been performed on a standalone basis, so no interactions between the two components have been allowed for. Estimates are quoted on a pre-TMTP basis as market data was not available to generate reasonable estimates allowing for the effects of TMTP. Any estimated impacts on Own Funds are quoted on a pre-tax basis. The implications of these scenarios on the Solvency Capital Requirement (SCR) have not been prescribed in the QIS, so this has not been modelled.

Figure 2-1 Summary of scenario A and scenario B

Component	Scenario A	Scenario B		
<b>Risk margin</b>				
Risk margin approach	Margin over current estimate (MOCE) approach (see section 4.1)	Risk tapering (also referred to as the time-dependent or lambda) approach (see section 4.2)		
Impact for life business on pre-TMTP risk margin (£bn)	-14 to -18 (40% - 50% reduction)	-7 to -9 (20% - 25% reduction)		
<b>Matching adjustment (MA)</b>				
Fundamental spread – expected loss	Equivalent to approach used to calculate probability of default under Solvency II			
Fundamental spread – credit risk premium	<ul style="list-style-type: none"> <li>— 25% applied to current z-spread</li> <li>— 25% applied to five-year average spread</li> </ul>	<ul style="list-style-type: none"> <li>— 25% applied to current z-spread</li> <li>— 0% applied to five-year average spread</li> </ul>		
Fundamental spread – credit risk premium floor and cap	<ul style="list-style-type: none"> <li>— Same prescribed floor across both scenarios</li> <li>— Cap on (prescribed) and off</li> </ul>	<ul style="list-style-type: none"> <li>— Same prescribed floor across both scenarios</li> <li>— No cap is applied</li> </ul>		
Fundamental spread – valuation uncertainty (VU)	<b>Credit quality step</b>		<b>VU for scenario A (bps)</b>	<b>VU for scenario B (bps)</b>
	<b>IFRS Level</b>			
	All	Level 1	Nil	Nil
	All	Level 2	7.5	3.75
	0 – 3	Level 3	7.5	3.75
	4 – 6	Level 3	25.0	12.50
Impact on MA BEL on pre-TMTP basis (£bn)	+16 to +24 (5% - 7% increase)	+2 to +5 (0.5% - 1.5% increase)		

For life insurance business, the impact on the pre-TMTP risk margin is a reduction of approximately 40-50% for scenario A and 20-25% for scenario B. For general insurance (GI) business, the risk margin is broadly unaffected in aggregate due to its short-tailed nature. Specifically, the risk margin could increase for some general insurers under scenario A but is expected to decrease under scenario B due to the lambda parameter. Both scenarios reduce the interest rate volatility, with scenario A leading to a greater reduction. Balance sheet volatility due to interest rate changes will reduce but secondary exposure to credit spreads will be introduced for scenario A.

The two matching adjustment scenarios adopt the same methodology approach but differ by the parameters that are prescribed, specifically applying 25% of the five-year average spread and applying a ceiling to the credit risk premium for scenario A only. Both scenarios lead to a reduction in Own Funds compared with the current approach, with Scenario A resulting in a more significant reduction (c.£16-24bn for scenario A and c.£2-5bn for scenario B, assuming an annuity best estimate liabilities (BEL) of £335bn). Where applicable, the TMTP would partially offset this impact but this would only affect business written before 2016.

Both matching adjustment scenarios are more sensitive to credit spread volatility compared with the current approach (see Section 5.1.5 for more information). This means that c.25% of future spread increases would reduce firms' solvency positions. We note that the valuation uncertainty allowance effectively applies an additional deduction for all non-risk free assets, as almost all market traded corporate bonds are Level 2 assets. A consequence of these changes is that it will become less efficient than the existing methodology to substitute liquid assets with higher yielding illiquid assets.

### 3 Methodology and approach

Our aim is to estimate the impact of the methodology approaches set out in the QIS for the risk margin and matching adjustment, and how this may impact the insurance industry. To quantify the potential regulatory balance sheet impacts, we started out by gathering industry data across various sources.

To determine the risk margin under scenario A we used industry risk margin data and also estimated insurers' non-hedgeable risk capital from public Solvency and Financial Condition Report (SFCR) data. For scenario B we modelled the non-hedgeable risk run-off for an annuity portfolio and calculated the impact of the scenario on the risk margin. We have assumed in our quantification of the impact of scenario B that the impact on non-annuity life business is the same as for annuity life business. We note the non-annuity life business may have lower impact, but the extent of the difference will vary by firm depending on the duration of the non-life business. Section 4 sets out the analysis performed for the risk margin.

For the matching adjustment, we used an assumed simplified asset portfolio consistent with available market data, along with corresponding spreads and durations. This analysis treated each asset class as a single asset as a simplification. Section 5 sets out the analysis performed for the matching adjustment.

The following limitations apply as they have not been considered as part of the modelling:

- The analysis of the risk margin and matching adjustment have been performed on a standalone basis, so any interactions between them have not been captured;
- The QIS instructions do not specify how to determine the SCR under both scenarios, so this has not been considered within the report; and
- The impact of TMTP has been excluded from this analysis, but we note that the TMTP offset could reduce the impacts observed.

## 4 QIS scenario impacts – risk margin

In this section, we analyse the impacts of scenario A and scenario B on the risk margin. These scenarios for the risk margin are set out in Annex 1 of the QIS instructions<sup>5</sup>.

For various product groups we can determine the total amount of risk margin relating to each class on a pre-TMTP and post-TMTP basis.

**Figure 4-1 Risk margin (RM) pre- and post-TMTP split by product group**

YE 2020	Life (12.01)							Non-life (general insurance) (17.01)	Total
	Annuities, protection & other life insurance	With-profits funds	Unit-linked funds	Non-life (general insurance) annuities	Accepted reinsurance	Health			
Pre-TMTP risk margin (£bn)	21.0	5.3	5.6	0.5	3.0	0.8	7.6	43.8	
TMTP on risk margin (£bn)	14.2	3.7	2.2	0.1	1.9	0.1	0.0	22.1	
Risk margin net of TMTP (£bn)	6.9	1.6	3.4	0.4	1.2	0.6	7.6	21.8	

Source: YE 2020 QRT S.12.01.02 (Life & Health SLT Technical Provisions), QRT S.17.01.02 (Non-life Technical Provisions)

The £43.8bn pre-TMTP aggregate risk margin, of which £36.2bn corresponds to life companies, forms the basis of our quantitative impact estimates discussed in the remainder of this section. For the purposes of this analysis, the offsetting effect of TMTP has not been considered, however, we note that this is likely to reduce the estimated impact of the two scenarios.

### 4.1 Risk margin scenario A (MOCE)

#### 4.1.1 QIS Specification

Under scenario A, the risk margin is calculated using the margin over current estimate (MOCE) approach. This method applies during the monitoring period for the International Capital Standards (ICS)<sup>6</sup>.

The MOCE is an approximation of a percentile of the distribution of technical provisions. It assumes that technical provisions are normally distributed with a mean equal to best estimate liabilities and a 99.5th percentile equal to the Solvency II SCR for non-hedgeable risks (SCR<sub>0</sub>). The formula for the MOCE approach of the p<sup>th</sup> percentile is as follows:

$$MOCE_p = SCR'_0 \cdot \frac{\Phi^{-1}(p)}{\Phi^{-1}(0.995)}$$

<sup>5</sup> Bank of England, 2021, [Quantitative Impact Study \(QIS\) - page 23](#)

<sup>6</sup> IAIS, 2021, [ICS technical specifications for monitoring period](#)

The non-hedgeable risks should include risks consistent with those in the current risk margin calculation, specifically:

- underwriting risk;
- counterparty credit risk in respect of reinsurance contracts;
- any other counterparty credit risk closely related to (re)insurance obligations; and
- operational risk.

The MOCE approach is specified as the 85th percentile for Life business and the 65<sup>th</sup> percentile for general insurance business which equates to approximately 40% and 15% of the non-hedgeable SCR respectively.

### 4.1.2 Modelling Approach

To determine the risk margin under scenario A, the SCR for non-hedgeable risks must first be estimated. We analysed the public SFCRs for multiple companies and extracted the individual SCR components for non-hedgeable risks (including diversification benefits). We note that the individual SCR components include an allowance for the matching adjustment as required by the QIS instructions. The sum of these individual components provided an estimate for the Solvency II SCR for non-hedgeable risks, which could be used for the MOCE approach.

Referring to the MOCE formula above, the estimated SCR for non-hedgeable risks is multiplied by the MOCE factor (c.40% for Life business, c.15% for general insurance business) to determine the risk margin under scenario A.

We compared the published risk margin with the scenario A risk margin for each company to determine the impact of the new approach. The results of this comparison are explained in the next section.

### 4.1.3 Estimated Impact

The impact is driven by the non-hedgeable SCR run-off profile and how applying a 6% charge to the run-off compares with applying a fixed percentage of the point in time non-hedgeable SCR.

For life insurance companies, we expect to see around a 40-50% reduction in the pre-TMTP risk margin under the MOCE approach, which corresponds to c.£14-18bn reduction in the overall industry risk margin. We note that at an individual company level, the reduction in the risk margin will vary significantly depending on the non-hedgeable SCR run-off profile.

For general insurance companies, the risk margin may be higher for very short-tailed business and whilst for the longer-term general insurance business the risk margin would be less it is likely to be a smaller reduction than for life insurance companies.

Scenario A is less sensitive to interest rates than the current approach because it only considers a point-in-time SCR for non-hedgeable risks, whereas the current approach uses the discounted cost of capital method. When considered alongside the matching adjustment scenarios it is expected for life companies that the risk margin would be more sensitive to credit spreads given that the longevity stress uses the matching adjustment.

## 4.2 Risk margin scenario B (risk tapering)

### 4.2.1 QIS Specification

Under scenario B, the risk margin should be calculated using a 'risk tapering' (also known as the 'lambda') approach. This approach is similar to the cost of capital risk margin formula but allows for a time-varying cost of capital as shown in the formula below:

$$RM = CoC \cdot \sum_{t \geq 0} \frac{SCR_t \cdot \max(\lambda^t, 0.5)}{(1 + r_{(t+1)})^{t+1}}, \text{ where } \lambda = 0.975$$

The scalar starts at 0.975 and then trends down so that the maximum reduction is 50%.

## 4.2.2 Modelling Approach

We have estimated the impact of this scenario using a risk margin calculation on a theoretical non-hedgeable risk run-off pattern and the SONIA-based YE2020 Solvency II discount rate. The run-off pattern was based on the project of a theoretical annuity portfolio. Alongside this we have performed sensitivities to understand how this scenario differs when the discount rate changes and the run-off pattern changes.

## 4.2.3 Estimated Impact

The introduction of such a scalar will reduce the risk margin, where the extent of the reduction will depend on the run-off period. It will also reduce the risk margin's exposure to interest rates.

Life insurance companies with a non-hedgeable SCR duration of 10 years would observe a c20-25% reduction in their pre-TMTP risk margin and the impact would be increased for firms with a longer duration SCR. This corresponds to c.£7-9bn reduction in the life industry risk margin on a pre-TMTP basis. General insurance companies would see a small reduction in their risk margin.

An interest rate sensitivity was applied to this scenario which showed that scenario B is slightly less sensitive than the current approach as a result of the lambda factor reducing the risk margin duration.

# 5 QIS scenario impacts – Matching adjustment

In this section, we analyse the impacts of scenario A and scenario B on the matching adjustment. The suggested scenarios for the matching adjustment are set out in Annex 2 of the QIS instructions<sup>7</sup>.

## 5.1 Matching adjustment scenario A and scenario B

### 5.1.1 QIS specification

The PRA have defined a new fundamental spread which is made up of the following components:

- Expected loss;
- Adjustment for sovereign, supranational and quasi government exposures;
- Credit risk premium (CRP) which will include a floor such that it does not fall below a given level in bps, and a cap in certain circumstances such that it does not rise above a given level in bps; and
- Valuation uncertainty (VU).

These components are discussed in more detail below.

#### 5.1.1.1 Expected Loss

The approach taken to determine the expected loss is the same as that used to calculate the probability of default for the current fundamental spread under Solvency II. It is used to risk adjust the cash flows in order to establish the assigned portfolio of assets.

#### 5.1.1.2 Adjustment for sovereign, supranational and quasi government exposures

For sovereign bonds, supranationals and quasi government exposures, the fundamental spread should be set equal to the fundamental spread under the current Solvency II regime.

#### 5.1.1.3 Credit risk premium

The credit risk premium (CRP) is expressed as a percentage of spread applied at the level of individual assets. The credit risk premium is made up of the following components:

- 25% of the current z-spread of the asset (for both scenarios); and
- 25% of the 5-year average spread on an index of the same sector and credit quality step (CQS) as the asset (for scenario A only).

The PRA prescribes the five-year average spreads to be used for financials and non-financials for each credit quality step.

A floor is applied to the total credit risk premium for both scenarios A and B, while a cap is applied to scenario A only. In the detailed submissions to the PRA, insurance companies are required to provide additional information on scenario A excluding the cap. However, this has not been covered as part of the analysis. The PRA prescribes the floors and caps to be used for each credit quality step, separately for financials and non-financials.

<sup>7</sup> Bank of England, 2021, [Quantitative Impact Study \(QIS\) - page 27](#)

### 5.1.1.4 Valuation Uncertainty

The valuation uncertainty (VU) applies at the level of individual assets and is expressed as a fixed amount in bps depending on the credit quality step and IFRS fair value hierarchy level of the asset in question.

The following table sets out the valuation uncertainty component of the fundamental spread to be tested in the QIS. The valuation uncertainty for scenario A is double that for scenario B.

**Figure 5-1 Valuation uncertainty to be applied for different levels of assets**

CQS	IFRS Level	VU for Scenario A (bps)	VU for Scenario B (bps)
All	Level 1	Nil	Nil
All	Level 2	7.5	3.75
0 – 3	Level 3	7.5	3.75
4 – 6	Level 3	25.0	12.50

We note that in general only risk free assets such as gilts are Level 1 assets and firms generally don't hold sub-investment grade assets in their matching adjustment portfolio. Hence in effect this is a flat 7.5/3.75bps deduction for all credit risky assets.

### 5.1.2 Modelling Approach

We have analysed the impact of the change in the fundamental spread from both scenarios on Own Funds. As a simplification we have not considered how the risk margin would be impacted from the change in matching adjustment. An annuity BEL of £335bn and a duration of 12 years are assumed for these estimates. The calculations are based on a simplified asset mix as at YE20, which assumes 38% illiquid assets. The annuity BEL and proportion of illiquid assets held have been taken from a speech by the PRA<sup>8</sup> on 29<sup>th</sup> April 2021 (refer to 'Appendix 1: Developments in the PRA's supervision of annuity providers' for more detail).

Market spreads are based on typical values from YE20, adjusted for the move to SONIA. Each asset class is treated as a single asset but, in practice, companies would have many assets in each class with a range of spreads.

Debt securities held in respect of annuities and other long-term business are analysed below according to external credit ratings issued. The information below has been sourced from the market disclosures from five major annuity market participants, as at 30 June 2021.

**Figure 5-2 Credit rating of debt securities backing annuities**

	AAA	AA	A	BBB	Below BBB	Not rated
Proportion held as at HY20	8%	26%	32%	29%	2%	3%
Proportion held as at HY21	8%	25%	34%	29%	2%	2%

Source: Publicly available information published by 5 major market participants as at HY 2020 and HY 2021

### 5.1.3 Estimated impact

The impacts are quoted prior to any TMTP adjustments (which could reduce the impact on annuities written pre-2016).

<sup>8</sup> Bank of England, 2021, [Developments in the PRA's supervision of annuity providers](#)

**Figure 5-3 Impact of scenario A and scenario B on the BEL and Own Funds**

Impact compared to current approach	Scenario A	Scenario B
Impact on Own Funds (£bn)	-16 to -24	-2 to -5
Change in BEL (%)	+5% to +7%	+0.5% to +1.5%

Scenario A leads to a larger reduction in Own Funds compared with Scenario B, which is driven primarily by the inclusion of the long-term average spread. Therefore, both of the PRA's QIS scenarios will reduce insurers' Own Funds compared to the current regime.

The ranges are based on our analysis and also discussions with firms on the impacts they are seeing from the QIS exercise. The key sensitivities which derive the range of outcomes include the split of corporates between financials and non-financials, the duration of illiquid assets and the source of market spreads. This is covered in more detail in Appendix 2: Matching adjustment scenarios - asset portfolio

### 5.1.4 Spread Sensitivity

The table below illustrates the impact on Own Funds from applying spread sensitivity of 100bps to all assets. As a result, the annuity BEL reduces from £335bn to c.£295bn.

Both scenarios are more sensitive than the base position due to the inclusion of the current z-spread for each asset. Therefore, this sensitivity results in a reduction of Own Funds compared with the base position, and the absolute reduction in both scenarios is similar (c.£6bn).

**Figure 5-4 Impact of widening credit spreads on Own Funds**

Impact compared to current approach	Scenario A	Scenario B
Sensitivities +100bps all assets (impact of scenario against base, excludes base impact) (£bn)	-22 to -30	-10 to -13

For the 100bps sensitivity, both scenarios are similarly impacted by the increase in spreads as for both 25% of the increase in spread increases the fundamental spread. However, in extreme circumstances, scenario A will be less sensitive than scenario B as a cap is applied to the credit risk premium for scenario A only. This sensitivity is an instantaneous shock, so no assumption has been made about the glidepath for the reversion of spreads or any subsequent change in the 5-year average spread on an index of the same sector and credit quality step (CQS) as the asset.

Both scenarios mean that the fundamental spread will react more directly to changes in market spread, compared to the current Solvency II approach where the fundamental spread for each asset would remain relatively fixed under spread changes (unless this is accompanied by downgrades or defaults). This means that under the new approach firms could be incentivised to take management actions to sell certain assets during times of volatility compared to the current Solvency II approach where the fundamental spread is more stable. Specifically, illiquid assets could be more volatile, so management may want to rebalance their portfolios. Also, the valuation uncertainty could increase the fundamental spread significantly if illiquids are downgraded, which would encourage companies to rebalance their portfolios.

Both scenarios are more sensitive to credit spread volatility compared to the current approach. This means that c.25% of future spread increases would reduce firms' solvency positions. A consequence of these changes is that it will become less efficient than the existing methodology to substitute liquid assets with higher yielding illiquid assets.

## 5.2 Other considerations

Illiquid assets would still offer an increased matching adjustment over liquid assets, however, this does not consider how the SCR might change under such a proposal which would impact firms' views on illiquid assets. With these changes illiquid assets could be less efficient within the matching adjustment portfolio than under the current Solvency II approach.

The valuation uncertainty will cause significant increases under the SCR calculation where downgrades will cause a significant increase in the valuation uncertainty for Level 3 assets going below investment grade. As a result, it will become less efficient than the existing methodology to substitute illiquid assets that have increased yields compared to liquid corporate bonds.

Under the PRA's scenarios, the fundamental spread would be more dynamic under market stresses, as 25% of the change in market spread comes through to the fundamental spread under scenario A and B. This could increase the sensitivity of the insurer's balance sheet and increase capital strain under credit stress events, to which an insurer is likely to consider their credit risk appetite, capital management policy and management actions under stress. Under extreme market conditions, this could result in increased market procyclicality in certain scenarios. We note that the Bank of England themselves found some evidence for this behaviour in the recent financial crisis<sup>9</sup> under the Solvency I regime.

The QIS standardises how the fundamental spread is calculated, which will introduce consistency across the market. Previously, each firm had its own unique approach to reflecting the Solvency II requirements for the fundamental spread, although these differences are likely to have a limited impact on the matching adjustment.

<sup>9</sup> Bank of England, 2014, [Procyclicality and structural trends in investment allocation by insurance companies and pension funds: A Discussion Paper by the Bank of England and the Procyclicality Working Group](#)

# 6 Appendices

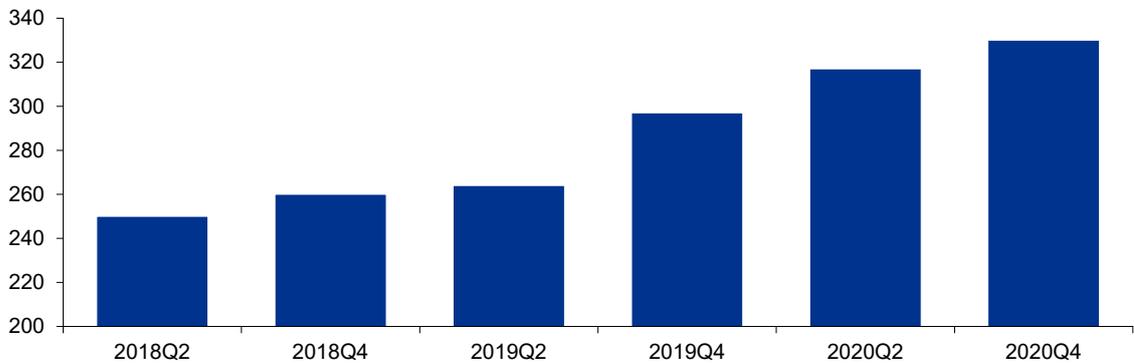
## Appendix 1: Developments in the PRA’s supervision of annuity providers<sup>10</sup>

On 29<sup>th</sup> April 2021, the PRA gave a speech to address the supervision of annuity firms in the UK, with particular focus on the calibration of the fundamental spread and the application process for the matching adjustment.

It was stated that matching adjustment portfolios have increased since the start of 2018 by 30%, to around £335bn, as shown in Figure 6-1. This has been used as the basis for the impacts on Own Funds from the matching adjustment scenarios, which are discussed in Section 5.

**Figure 6-1 Size of matching adjustment portfolios**

### Matching Adjustment Portfolios (£’bn)

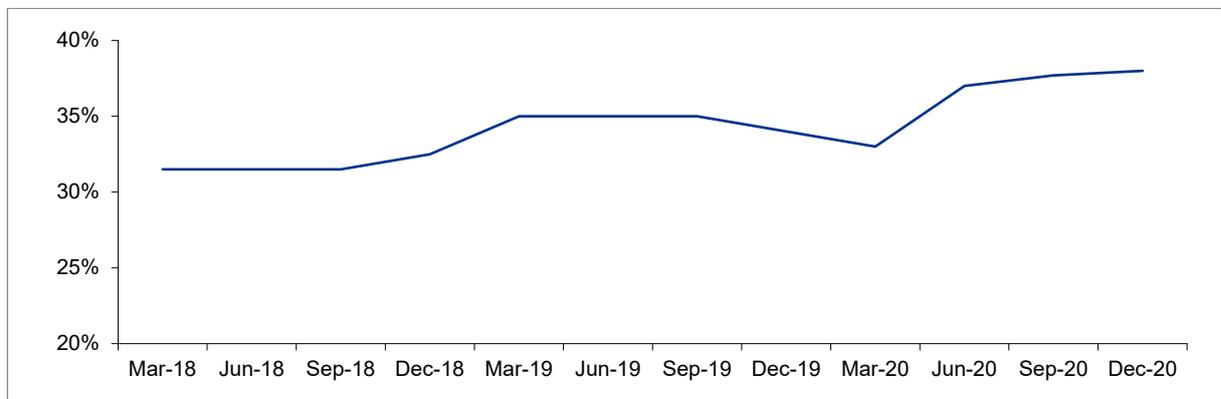


Source: ‘Developments in the PRA’s supervision of annuity providers’ speech – appendix (chart 3)

It was also mentioned that there is a growing tendency for matching adjustment portfolios to consist of a higher proportion of illiquid assets. Figure 6-2 shows that the proportion of illiquid assets held in MA portfolios has increased to approximately 38% as at YE2020. This figure has also been used as a basis for the analysis in Section 5.

**Figure 6-2 Proportion of illiquid assets held in matching adjustment portfolios**

### Illiquid Proportion of MA portfolio assets



Source: ‘Developments in the PRA’s supervision of annuity providers’ speech – appendix (chart 4)

<sup>10</sup> Bank of England, 2021, [Developments in the PRA’s supervision of annuity providers](#)

## Appendix 2: Matching adjustment scenarios - asset portfolio

The assumed asset portfolio is based on a simplified asset mix as at YE20, which assumes that 50% of corporate bonds held are financial and that 38% of the portfolio is held in illiquid assets. The proportion of illiquid assets held has been taken from a speech by the PRA on 29<sup>th</sup> April 2021 (refer to the previous section for more detail). Gilts have not been included in the assumed asset portfolio as they are risk-free assets and therefore, will only serve to dampen the overall impact as there is no fundamental spread. It should also be noted that the inclusion of gilts in the asset portfolio will not change the direction of the overall impact, this also informed the ranges of impacts give in the body of the report.

Market spreads are based on typical values from YE20, adjusted for the move to SONIA. They have been sourced from the 2021 Technical Practices Survey<sup>11</sup> (TPS) to reflect the assets actually held by life insurance companies. Each asset class is treated as a single asset but, in practice, companies would have many assets in each class with a range of spreads. Also, the BBB cliff has been applied to the total fundamental spread under the current approach for each scenario.

Figure 6-3 provides a full breakdown of the assumed asset portfolio along with the fundamental spreads for the current approach and the QIS scenarios based on the assumptions described above. We have also tested the sensitivity of the results to various parameters and in each case, we have found that the overall impact on the MA BEL remains within our quoted ranges. These include:

- Figure 6-4 – assuming the split of corporate bonds is 75% financials and 25% non-financials
- Figure 6-5 – assuming the split of corporate bonds is 25% financials and 75% non-financials
- Figure 6-6 – reducing the duration of illiquid assets by four years
- Figure 6-7 – using market indices for the asset spreads of corporate bonds, instead of the TPS source of actual insurers' average spreads. The market indices had lower spreads and so had a smaller impact compared to the spread of actual assets held

The following acronyms have been used within the tables below:

- PD – Probability of default
- FS – Fundamental spread
- EL – Expected loss
- CRP – Credit risk premium
- VU – Valuation uncertainty

<sup>11</sup> KPMG, 2021, [Technical Practices Survey 2021](#)

Figure 6-3 Full breakdown of assumed asset portfolio – base case

Summary of calculation by asset group - Base							Base (bps)			Scenario A (bps)				Scenario B (bps)			
Asset mix and asset assumptions							PD	Residual FS	Total FS	EL	CRP	VU	Total FS	EL	Collar & Cap CRP	VU	Total FS
	Financials / Non-Financials	Credit Assessment	% holding	Assumed duration	IFRS Asset level	Assumed Spread (bps)											
Corporate Bonds - Financial	Financials	AAA	2%	8	2	73	3	14	17	3	41	8	51	3	18	4	25
	Financials	AA	8%	8	2	111	5	33	38	5	58	8	71	5	28	4	37
	Financials	A	11%	8	2	137	9	51	60	9	79	8	96	9	43	4	56
	Financials	BBB	9%	8	2	196	23	70	93	23	118	8	149	23	72	4	99
	Financials	BB	1%	8	2	398	87	151	294	87	215	8	309	87	168	4	259
Corporate Bonds - Non-Financial	Non-Financials	AAA	2%	8	2	99	0	5	5	0	42	8	50	0	25	4	28
	Non-Financials	AA	8%	8	2	111	2	22	24	2	56	8	65	2	28	4	33
	Non-Financials	A	11%	8	2	142	8	29	37	8	75	8	91	8	36	4	47
	Non-Financials	BBB	9%	8	2	166	23	37	60	23	91	8	121	23	42	4	68
	Non-Financials	BB	1%	8	2	420	100	67	314	100	200	8	307	100	117	4	221
Infrastructure	Non-Financials	BBB	11%	14	3	185	31	26	57	31	115	8	154	31	46	4	81
RE	Financials	A	17%	14	3	215	11	50	61	11	99	8	117	11	54	4	69
ERM	Financials	A	11%	18	3	190	12	49	61	12	93	8	112	12	48	4	63
<b>Total / Average</b>			<b>100%</b>			<b>174</b>	<b>15</b>	<b>42</b>	<b>57</b>	<b>15</b>	<b>91</b>	<b>8</b>	<b>114</b>	<b>15</b>	<b>46</b>	<b>4</b>	<b>65</b>

Source: KPMG assumptions for proportion holding and assumed duration, Technical Practices Survey (TPS) 2021 for assumed spreads

**Figure 6-4 Full breakdown of assumed asset portfolio – 75% financials and 25% non-financials**

Summary of calculation by asset group - 75% financials and 25% non-financials																	
Asset mix and asset assumptions							Base (bps)			Scenario A (bps)				Scenario B (bps)			
	Financials / Non-Financials	Credit Assessment	% holding	Assumed duration	IFRS Asset level	Assumed Spread (bps)	PD	Residual FS	Total FS	EL	CRP	VU	Total FS	EL	Collar & Cap CRP	VU	Total FS
Corporate Bonds - Financial	Financials	AAA	4%	8	2	73	3	14	17	3	41	8	51	3	18	4	25
	Financials	AA	12%	8	2	111	5	33	38	5	58	8	71	5	28	4	37
	Financials	A	16%	8	2	137	9	51	60	9	79	8	96	9	43	4	56
	Financials	BBB	14%	8	2	196	23	70	93	23	118	8	149	23	72	4	99
	Financials	BB	1%	8	2	398	87	151	294	87	215	8	309	87	168	4	259
Corporate Bonds - Non-Financial	Non-Financials	AAA	1%	8	2	99	0	5	5	0	42	8	50	0	25	4	28
	Non-Financials	AA	4%	8	2	111	2	22	24	2	56	8	65	2	28	4	33
	Non-Financials	A	5%	8	2	142	8	29	37	8	75	8	91	8	36	4	47
	Non-Financials	BBB	5%	8	2	166	23	37	60	23	91	8	121	23	42	4	68
	Non-Financials	BB	0%	8	2	420	100	67	314	100	200	8	307	100	117	4	221
Infrastructure	Non-Financials	BBB	11%	14	3	185	31	26	57	31	115	8	154	31	46	4	81
RE	Financials	A	17%	14	3	215	11	50	61	11	99	8	117	11	54	4	69
ERM	Financials	A	11%	18	3	190	12	49	61	12	93	8	112	12	48	4	63
<b>Total / Average</b>			<b>100%</b>			<b>175</b>	<b>15</b>	<b>44</b>	<b>60</b>	<b>15</b>	<b>92</b>	<b>8</b>	<b>115</b>	<b>15</b>	<b>48</b>	<b>4</b>	<b>66</b>

Source: KPMG assumptions for proportion holding and assumed duration, Technical Practices Survey (TPS) 2021 for assumed spreads

**Figure 6-5 Full breakdown of assumed asset portfolio – 25% financials and 75% non-financials**

Summary of calculation by asset group - 25% financials and 75% non-financials																	
Asset mix and asset assumptions							Base (bps)			Scenario A (bps)				Scenario B (bps)			
	Financials / Non-Financials	Credit Assessment	% holding	Assumed duration	IFRS Asset level	Assumed Spread (bps)	PD	Residual FS	Total FS	EL	CRP	VU	Total FS	EL	Collar & Cap CRP	VU	Total FS
Corporate Bonds - Financial	Financials	AAA	1%	8	2	73	3	14	17	3	41	8	51	3	18	4	25
	Financials	AA	4%	8	2	111	5	33	38	5	58	8	71	5	28	4	37
	Financials	A	5%	8	2	137	9	51	60	9	79	8	96	9	43	4	56
	Financials	BBB	5%	8	2	196	23	70	93	23	118	8	149	23	72	4	99
	Financials	BB	0%	8	2	398	87	151	294	87	215	8	309	87	168	4	259
Corporate Bonds - Non-Financial	Non-Financials	AAA	4%	8	2	99	0	5	5	0	42	8	50	0	25	4	28
	Non-Financials	AA	12%	8	2	111	2	22	24	2	56	8	65	2	28	4	33
	Non-Financials	A	16%	8	2	142	8	29	37	8	75	8	91	8	36	4	47
	Non-Financials	BBB	14%	8	2	166	23	37	60	23	91	8	121	23	42	4	68
	Non-Financials	BB	1%	8	2	420	100	67	314	100	200	8	307	100	117	4	221
Infrastructure	Non-Financials	BBB	11%	14	3	185	31	26	57	31	115	8	154	31	46	4	81
RE	Financials	A	17%	14	3	215	11	50	61	11	99	8	117	11	54	4	69
ERM	Financials	A	11%	18	3	190	12	49	61	12	93	8	112	12	48	4	63
<b>Total / Average</b>			<b>100%</b>			<b>174</b>	<b>15</b>	<b>39</b>	<b>55</b>	<b>15</b>	<b>90</b>	<b>8</b>	<b>112</b>	<b>15</b>	<b>45</b>	<b>4</b>	<b>63</b>

Source: KPMG assumptions for proportion holding and assumed duration, Technical Practices Survey (TPS) 2021 for assumed spreads

**Figure 6-6 Full breakdown of assumed asset portfolio – decreasing duration for illiquid assets by four years**

Summary of calculation by asset group - reducing duration for illiquid assets by 4 years																	
Asset mix and asset assumptions							Base (bps)			Scenario A (bps)				Scenario B (bps)			
	Financials / Non-Financials	Credit Assessment	% holding	Assumed duration	IFRS Asset level	Assumed Spread (bps)	PD	Residual FS	Total FS	EL	CRP	VU	Total FS	EL	Collar & Cap CRP	VU	Total FS
Corporate Bonds - Financial	Financials	AAA	2%	8	2	73	3	14	17	3	41	8	51	3	18	4	25
	Financials	AA	8%	8	2	111	5	33	38	5	58	8	71	5	28	4	37
	Financials	A	11%	8	2	137	9	51	60	9	79	8	96	9	43	4	56
	Financials	BBB	9%	8	2	196	23	70	93	23	118	8	149	23	72	4	99
	Financials	BB	1%	8	2	398	87	151	294	87	215	8	309	87	168	4	259
Corporate Bonds - Non-Financial	Non-Financials	AAA	2%	8	2	99	0	5	5	0	42	8	50	0	25	4	28
	Non-Financials	AA	8%	8	2	111	2	22	24	2	56	8	65	2	28	4	33
	Non-Financials	A	11%	8	2	142	8	29	37	8	75	8	91	8	36	4	47
	Non-Financials	BBB	9%	8	2	166	23	37	60	23	91	8	121	23	42	4	68
	Non-Financials	BB	1%	8	2	420	100	67	314	100	200	8	307	100	117	4	221
Infrastructure	Non-Financials	BBB	11%	10	3	185	26	31	57	26	115	8	149	26	46	4	76
RE	Financials	A	17%	10	3	215	9	52	61	9	99	8	115	9	54	4	67
ERM	Financials	A	11%	14	3	190	11	50	61	11	93	8	111	11	48	4	62
<b>Total / Average</b>			<b>100%</b>			<b>170</b>	<b>13</b>	<b>43</b>	<b>57</b>	<b>13</b>	<b>90</b>	<b>8</b>	<b>110</b>	<b>13</b>	<b>46</b>	<b>4</b>	<b>63</b>

Source: KPMG assumptions for proportion holding and assumed duration, Technical Practices Survey (TPS) 2021 for assumed spreads

**Figure 6-7 Full breakdown of assumed asset portfolio – market data**

Summary of calculation by asset group – market data																	
Asset mix and asset assumptions							Base (bps)			Scenario A (bps)				Scenario B (bps)			
	Financials / Non-Financials	Credit Assessment	% holding	Assumed duration	IFRS Asset level	Assumed Spread (bps)	PD	Residual FS	Total FS	EL	CRP	VU	Total FS	EL	Collar & Cap CRP	VU	Total FS
Corporate Bonds - Financial	Financials	AAA	2%	8	2	50	3	14	17	3	35	8	46	3	13	4	19
	Financials	AA	8%	8	2	64	5	33	38	5	46	8	59	5	27	4	36
	Financials	A	11%	8	2	82	9	51	60	9	65	8	82	9	43	4	56
	Financials	BBB	9%	8	2	138	23	70	93	23	103	8	134	23	72	4	99
	Financials	BB	1%	8	2	306	87	151	262	87	192	8	287	87	168	4	259
Corporate Bonds - Non-Financial	Non-Financials	AAA	2%	8	2	50	0	5	5	0	32	8	40	0	13	4	16
	Non-Financials	AA	8%	8	2	64	2	22	24	2	44	8	54	2	19	4	25
	Non-Financials	A	11%	8	2	82	8	29	37	8	60	8	76	8	28	4	40
	Non-Financials	BBB	9%	8	2	138	23	37	60	23	84	8	114	23	40	4	67
	Non-Financials	BB	1%	8	2	306	100	67	229	100	171	8	279	100	117	4	221
Infrastructure	Non-Financials	BBB	11%	14	3	185	31	26	57	31	115	8	154	31	46	4	81
RE	Financials	A	17%	14	3	215	11	50	61	11	99	8	117	11	54	4	69
ERM	Financials	A	11%	18	3	190	12	49	61	12	93	8	112	12	48	4	63
<b>Total / Average</b>			<b>100%</b>			<b>152</b>	<b>15</b>	<b>42</b>	<b>57</b>	<b>15</b>	<b>86</b>	<b>8</b>	<b>108</b>	<b>15</b>	<b>45</b>	<b>4</b>	<b>63</b>

Source: KPMG assumptions for proportion holding and assumed duration, market indices for corporate bond spreads

## Appendix 3: Glossary

Figure 6-8 Abbreviations used within this report

Abbr./term	Description
<b>ABI</b>	Association of British Insurers
<b>BEL</b>	Best estimate liabilities
<b>CoC</b>	Cost of capital
<b>CRP</b>	Credit risk premium
<b>CQS</b>	Credit quality step
<b>CRP</b>	Credit risk premium
<b>EL</b>	Expected loss
<b>FS</b>	Fundamental spread
<b>GI</b>	General insurance
<b>ICS</b>	International Capital Standards
<b>IFRS</b>	International Financial Reporting Standards
<b>MA</b>	Matching adjustment
<b>MOCE</b>	Margin over current estimate
<b>PD</b>	Probability of default
<b>PRA</b>	Prudential Regulation Authority
<b>QIS</b>	Quantitative impact study
<b>QRT</b>	Quantitative reporting templates
<b>RM</b>	Risk margin
<b>SCR</b>	Solvency capital requirement
<b>SFCR</b>	Solvency and financial condition report
<b>TMTF</b>	Transitional Measure on Technical Provisions
<b>TPS</b>	Technical practices survey
<b>VU</b>	Valuation uncertainty

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