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# Challenges for insurers running Matching Adjustment portfolios

by the Matching Adjustment Working Party

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## Abstract

The significance of the Matching Adjustment for annuity writers is well understood.

In April 2018, the Prudential Regulation Authority reported that the Matching Adjustment was worth £66bn to the UK insurance industry. The value today is expected to be materially bigger than this, as a result of the strong growth we have seen in the bulk annuity market.

However, running Matching Adjustment portfolios is far from plain sailing – firms are encountering a number of challenges on a day-to-day basis.

The aim of this paper is to summarise some of these challenges – using examples to bring them to life – and to put forward high-level thoughts on some potential ways in which firms may be able to overcome these challenges.

Please note that a basic working level of knowledge of the Matching Adjustment framework is assumed in this paper.

## Keywords

Matching Adjustment, Solvency II, bulk annuity, pension scheme, Brexit

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# 1. Introduction

## 1.1 Significance of the Matching Adjustment

The starting premise for Solvency II is that all liabilities must be discounted using a risk-free rate curve which is prescribed by the European Insurance and Occupational Pensions Authority (EIOPA). However, UK-style annuities and other contracts with fixed payments may qualify for a different treatment – firms may be able to increase the risk-free rate curve by an amount called the Matching Adjustment (MA).

In April 2018, David Rule (Executive Director of Insurance Supervision, Prudential Regulation Authority (PRA)) reported that the MA was worth £66bn to the UK insurance industry.<sup>1</sup>

Around half of the MA impact comes from a lower value of best estimate liabilities (BEL) (because in effect the firm uses a higher discount rate than the basic risk-free rate curve); the other half comes from lower capital requirements.

One of the big growth areas in UK insurance at the moment is bulk annuities. This is where corporates de-risk their defined benefit pension schemes by implementing buy-ins and buy-outs<sup>2</sup> with insurance companies.

There is in the region of £2 trillion worth of defined benefit pension scheme liabilities outstanding, and for many pension schemes the ultimate end game is to buy-out their liabilities with an insurance company. So, we expect to see continued growth in buy-in and buy-out transactions, meaning more annuity liabilities sitting on insurance company balance sheets, and hence more use of the MA.

Historically we have seen about £10bn of bulk annuity transactions per annum. 2018 proved to be a record-breaking year during which more than £20bn of bulk transactions were completed.<sup>3</sup> Then, in 2019, the total value of transactions completed surpassed the £40bn mark<sup>4</sup> – nearly doubling 2018's record.

Consequently, the value of the MA to the UK insurance industry today is expected to be materially bigger than the £66bn figure quoted by David Rule in April 2018.

Without the MA – in which case annuities would have to be valued using the risk-free rate curve plus a Volatility Adjustment – annuity prices would increase, and it would simply not be affordable for many pension schemes to buy-out with an insurance company. The same is also true of individuals reaching retirement, where annuities can be an important part of the retirement toolkit for those wanting a stable income and longevity insurance.

So, the MA is of importance to UK insurers, UK pension schemes and individuals.

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<sup>1</sup> (Rule, 2018)

<sup>2</sup> In the case of a buy-out a pension scheme discharges its obligations to pay benefits to members.

<sup>3</sup> (Hymans Robertson, 2018)

<sup>4</sup> (Hymans Robertson, 2020)

We can also see the importance of the MA to the UK insurance industry if we take a look at Solvency and Financial Condition Reports, which quantify the impact on the firm's regulatory balance sheet if the MA were reduced to zero.

## **1.2 Applying for approval to use the Matching Adjustment, and monitoring of regulatory compliance**

In order to avail of the capital benefits provided, Solvency II imposes stringent rules on insurers that wish to apply the MA. In the UK, these rules are enforced by the PRA, supplemented by guidance e.g. in Supervisory Statement SS7/18.

There are three important aspects to the rules and guidance:

1. Firms must receive approval from the PRA to apply the MA, and these approval applications have to demonstrate how the portfolios will be managed in a way that complies with all the relevant rules and guidance;
2. On an ongoing basis, firms must comply (and monitor compliance) with what is set out in their regulatory approvals; and
3. Firms must receive approval from the PRA to make changes to their MA portfolios that go beyond the scope of their current approvals.

The Solvency II Directive sets out criteria that liabilities and backing assets must meet in order to be eligible for inclusion in MA portfolios. There are also rules relating to the ongoing management of these portfolios, e.g. ensuring they are not exposed to other parts of the insurer's business operations.

Firms applying the MA must also adopt a buy-to-hold investment strategy. Indeed, most of the detailed requirements stem from this central requirement. This strategy is achieved by investing in assets which deliver fixed cash flows that match the expected liability payments in timing, amount and currency.

Under a buy-to-hold strategy the insurer is not exposed to short term volatility in the market value of its assets, but it is exposed to the risk of defaults and downgrades on its assets. These default and downgrade risks are captured through the EIOPA-prescribed "fundamental spreads" which have to be reflected in the calculation of the MA.

These rules, and their enforcement by the PRA, are designed to ensure appropriate use of the MA, and as part of the regulatory remit to protect policyholders.

There is also tangible evidence that the introduction of the Solvency II MA has increased the quality of risk management in annuity portfolios. As an example of this, the detailed analysis firms have performed on their asset portfolios (both prior to receiving day one approval and on an ongoing basis for new investments) has helped to identify potential sources of optionality in asset cash flows – and this has allowed firms to plan for these potential risks, e.g. through appropriate limit frameworks.

In summary, the need to seek regulatory approval and the assessment of ongoing compliance play an important role in ensuring continued policyholder protection.

### 1.3 Evolution of the Matching Adjustment – Regulatory developments

Since its introduction on 1 January 2016, there have been several developments in the MA regulatory framework. Most of this relates to consultations and subsequent supervisory statements regarding the PRA’s rules and guidance for how firms should interpret and apply the requirements of the Solvency II Directive and regulations in respect of the MA.

The table below summarises some of the most note-worthy developments following Solvency II implementation.

Regulatory development	Date	Some of the key points
<b>SS3/17</b> <i>Solvency II matching adjustment – illiquid unrated assets and equity release mortgages</i>	July 2017	<ul style="list-style-type: none"> <li>Introduced concept of Effective Value Test (EVT) for valuation of equity release mortgages.</li> <li>Sets out the PRA’s expectations regarding the need to assign internal ratings to unrated assets for the purpose of mapping to fundamental spreads.</li> </ul>
<b>CP21/17</b> <i>Solvency II matching adjustment</i>	October 2017	<ul style="list-style-type: none"> <li>Extension of callable bond treatment to other asset types.</li> <li>Permitting “haircutting” of asset cash flows where they do not meet the firm’s approved modified spreads limits.</li> <li>Clarifications for situations where breaches of the MA rules occur.</li> </ul>
<b>Report from the UK Treasury Select Committee</b> <i>The Solvency II Directive and its impact on the UK Insurance Industry</i>	December 2017	<ul style="list-style-type: none"> <li>The Committee’s view was that the balance had swung too far towards policyholder protection, at the cost of more expensive insurance products and hampering firms’ ability to invest in the UK economy.</li> <li>Recommendations in relation to the MA included: more flexibility for firms; a more principles-based approach; and removing barriers to investing in long term assets.</li> </ul>
<b>CP24/17</b> <i>Solvency II: Internal models – modelling of the matching adjustment</i>	November 2017	<ul style="list-style-type: none"> <li>PRA warns firms against using “mechanistic” approaches to modelling how fundamental spreads change under stress conditions.</li> </ul>
<b>David Rule Speech</b> <i>An annuity is a very serious business</i>	April 2018	<ul style="list-style-type: none"> <li>David Rule discussed the risks facing UK insurers as they expand into the bulk purchase annuity market and increase their investment in illiquid assets.</li> <li>Annuities are currently backed 25% by illiquids, and this is expected to rise to 40% by 2020.</li> </ul>



Regulatory development	Date	Some of the key points
		<ul style="list-style-type: none"> <li>• A large focus of the speech was on equity release mortgages, and insurers' resulting exposure to the UK housing market.</li> <li>• PRA will be increasing scrutiny on those illiquid assets where firms take a large MA benefit.</li> </ul>
<b>SS7/18</b> <i>Solvency II matching adjustment</i>	July 2018	<ul style="list-style-type: none"> <li>• Published supervisory statement.</li> <li>• Consolidates all previous PRA letters and guidance issued over 2014-2016.</li> <li>• Compared to CP21/17, also provides for some potential easing of MA re-application requirements (e.g. permitting more than once re-application at any given time).</li> </ul>
<b>CP13/18</b> <i>Solvency II: Equity release mortgages</i>	July 2018	<ul style="list-style-type: none"> <li>• Consults on a risk-neutral methodology and accompanying set of parameters for No Negative Equity Valuation (NNEG) which meets the requirements of the EVT in SS3/17.</li> <li>• Also consults on the need to recalculate Transitional Measure on Technical Provisions (TMTP) to ensure pre-Solvency II approach meets EVT.</li> </ul>
<b>SS8/18</b> <i>Solvency II: Internal models – modelling of the matching adjustment</i>	July 2018	<ul style="list-style-type: none"> <li>• Published supervisory statement.</li> </ul>
<b>SS3/17</b> <i>Solvency II matching adjustment – illiquid unrated assets and equity release mortgages</i>	December 2018	<ul style="list-style-type: none"> <li>• Update of supervisory statement.</li> <li>• Incorporates outcome of CP13/18. <ul style="list-style-type: none"> <li>○ Removes need to recalculate TMTP.</li> <li>○ Sets expectations for deferment rate and volatility parameters.</li> <li>○ Effective date now 31/12/2019.</li> <li>○ Phasing-in period.</li> </ul> </li> </ul>
<b>Treasury Select Committee</b>	January 2019	<ul style="list-style-type: none"> <li>• MPs challenge PRA on delaying implementation of equity release mortgage rules for insurers.<sup>5</sup></li> </ul>
<b>CP7/19</b> <i>Solvency II: Equity release mortgages – Part 2</i>	April 2019	<ul style="list-style-type: none"> <li>• PRA proposed how it would update parameters for the EVT set out in SS3/17.</li> <li>• Clarifies treatment of non-ERM assets within SPVs.</li> </ul>

<sup>5</sup> (InsuranceERM, 2019)

Regulatory development	Date	Some of the key points
		<ul style="list-style-type: none"> <li>• Sets out frequency with which firms are expected to assess the EVT.</li> <li>• Expectation for an “EVT-in-stress” calculation.</li> </ul>
<b>David Rule Speech</b> <i>An annuity is a very serious business: Part Two</i>	April 2019	<ul style="list-style-type: none"> <li>• David Rule discussed the risks facing UK insurers as they take on significant annuity obligations.</li> <li>• Particular issues facing insurers are highlighted, including “fallen angels”, internal ratings, equity release mortgages (exposure to individual property prices) and risks from climate change.</li> <li>• Insurers active in the bulk annuity market are said to be targeting 40-50% direct investment share of total assets backing annuity obligations.</li> <li>• The PRA will continue to supervise insurers closely to ensure that they have the necessary capabilities to take on bulk annuity business and invest in direct investments.</li> </ul>
<b>PRA Dear Chief Actuary letter</b>	June 2019	<ul style="list-style-type: none"> <li>• Firms’ monitoring of MA portfolios is identified as an area where further industry-wide PRA activity is expected in the next 12 months.</li> <li>• The PRA says that Chief Actuaries may wish to consider the adequacy of how they monitor: the trading of MA assets; and collateral management.</li> </ul>
<b>SS3/17</b> <i>Solvency II matching adjustment – illiquid unrated assets and equity release mortgages</i>	September 2019	<ul style="list-style-type: none"> <li>• Updated SS3/17 via PS19/19.</li> <li>• Finalises (with some amendments) the rules set out in CP7/19.</li> <li>• Alongside PS19/19, the PRA released an updated set of parameters for the EVT.</li> </ul>
<b>CP23/19</b> <i>Solvency II: Income producing real estate loans and internal credit assessments for illiquid, unrated assets</i>	September 2019	<ul style="list-style-type: none"> <li>• Proposals to update SS3/17.</li> <li>• Sets out the PRA’s expectations in relation to firms investing in “income producing real estate” loans.</li> <li>• Thorough risk identification is important for insurers investing in illiquid assets.</li> <li>• Elaborates on expectations for the use of internal credit assessments for assets held in MA portfolios.</li> <li>• Sets out considerations for internal models, highlighting the likely greater</li> </ul>

Regulatory development	Date	Some of the key points
		role of expert judgements in the calibration vs. other assets.
<b>EIOPA consultation on Solvency II 2020 Review</b>	October 2019	<ul style="list-style-type: none"> <li>• EIOPA sets out proposals to allow restructured assets into MA portfolios.</li> <li>• This is subject to insurers “looking-through” to the underlying assets to ensure (amongst other things) that the cash flows on those assets are sufficiently fixed.</li> <li>• EIOPA also proposes to allow Standard Formula firms to recognise diversification between the MA portfolio and the rest of the business.</li> </ul>
<b>SS3/17 Solvency II matching adjustment – illiquid unrated assets and equity release mortgages</b>	April 2020	<ul style="list-style-type: none"> <li>• Updated and final version of SS3/17 via PS9/20.</li> <li>• PS9/20 provides feedback on CP23/19 (“Income producing real estate loans and internal credit assessments for illiquid unrated assets”).</li> </ul>

## 1.4 Evolution of the Matching Adjustment – Market developments

As well as developments on the regulatory side, we have also seen developments in capital markets, with financial instruments being refined to better serve the needs of UK insurers operating MA portfolios.

For example, “standard” prepayment conditions traditionally found in long-dated assets may not be sufficient to meet MA requirements. And, until recently, some borrowers may not even have been aware of their ability to link repayments to an inflation index or a fixed rate for the lifetime of the loan (for example, because existing bank-dominated markets are not set up in this way).

Therefore, we have seen annuity writers seeking to overcome these restrictions by working directly with borrowers or by liaising with originators who have strong, long-established relationships with borrowers. As a result, insurers are finding more and more ways to source assets with cash flow profiles that provide a better match for their annuity outflows. Some examples of recent transactions are shown in the table below.

One noticeable, more recent development relates to assets that provide cash flows linked to Consumer Price Inflation (CPI). Further information on this, together with some examples, can be found in Appendix 2.

Insurer	Transaction details
Legal & General	<p>March 2020   £22m lending to Croydon Council for the construction of 250 homes for homeless families.</p> <p><i>"The investment is made on behalf of Legal &amp; General Retirement Institutional and ... it provides an excellent match for L&amp;G's long-term annuity and pension commitments."</i> <sup>6</sup></p>
Pension Insurance Corporation	<p>December 2019   £160 million debt investment in student accommodation for the University of York.</p> <p><i>"The senior secured bond spans 45 years, and has a maturity tailored to a year when it is hard to find cashflows in the public debt markets."</i> <sup>7</sup></p>
Aviva	<p>July 2020   £60m private corporate debt facility with Coastal Housing Group</p> <p><i>"The investment in the 30-year debt facility is part of Aviva Investors' strategy of investing in long dated secured investments that seek to provide illiquidity premium and enhance risk adjusted returns to its investors."</i> <sup>8</sup></p>

## 1.5 Purpose of this paper

It is clear that the MA is of vital importance to UK insurers, UK defined benefit pension schemes and individuals. And its value to the UK insurance industry is only expected to get bigger as a result of continued strong growth in the bulk annuity market.

However, running MA portfolios on a day-to-day basis is far from plain sailing, for example:

- Firms have to monitor and report on ongoing compliance with their regulatory approvals – typically every month;
- New business and new investments have to be screened for eligibility prior to inclusion in the portfolio – both in principle and with regard to the approval already granted by the PRA;
- Changes to the ways in which the portfolios are managed may require prior regulatory approval; and
- Surplus can only be extracted from the portfolios after a rigorous profit and loss attribution exercise and, even then, only specific categories of surplus arising can be extracted.

The aim of this paper is therefore to summarise some of the challenges firms are encountering on a day-to-day basis – using examples to bring them to life – and to put forward high-level thoughts on some potential ways in which firms may be able to overcome them.

<sup>6</sup> (Insurance Asset Risk, 2020)

<sup>7</sup> (property funds world, 2019)

<sup>8</sup> (property funds world, 2020)

2020 will clearly be a very important year for the MA. Firstly, the resilience of MA portfolios will be tested by the COVID-19 pandemic, which could lead to downgrades and defaults in certain sectors (e.g. retail, manufacturing, leisure, travel). And secondly, there may also be changes on the horizon following the end of the Brexit transition period (which is due to last until 31 December 2020).

In this paper we will therefore consider what may be achievable within the confines of the current Solvency II regulatory framework, and we will also consider what life may look like after the Brexit transition period.

Based on feedback from industry, including a poll conducted at the 2018 Life Conference, below are some of the more topical challenges that we will cover in this paper:

### **1. New asset features – Early repayment options**

Assets may contain early repayment features which affect the “fixity” of cash flows – a requirement of the MA rules. Where this optionality exists, the asset is only MA eligible if “sufficient compensation” is received in the event of early repayment to allow the insurer to replace the lost cash flows by reinvesting in an asset of same or better credit quality.

A key challenge for firms is the wide range of potential early repayment terms – every asset is unique and early repayment terms tend to be bespoke – therefore it is not possible for firms to foresee every possible early repayment feature in their MA applications. It could become very onerous if a firm needed to seek regulatory approval (via a request to make changes to its MA application document) every time it wanted to invest in a new asset with a slightly different early repayment option compared to those present in its existing portfolio of assets.

### **2. Defined benefit pension scheme liabilities – Surrender options and liability management exercises**

Given the strong growth we are seeing in the bulk annuity market, surrender options and liability management exercises are becoming ever more commonplace for MA portfolios. This is partly being driven by the growth in the buy-out market – deferred pensioners with different retirement options are increasingly being transferred to insurers. But there are also increasingly innovative transactions, where liability management exercises are carried out as part of a buy-in or buy-out.

The MA rules state that an insurer should not offer policyholders (or pension scheme members) the option to take out a surrender value that exceeds:

*“...the value of the assets [...] covering the insurance or reinsurance obligations at the time the surrender option is exercised.”<sup>9</sup>*

Some insurers may interpret this as not being allowed to pay out more than the value of the Best Estimate Liabilities (BEL). This interpretation could result in restrictions being placed on what can be paid to individual policyholders. It could also mean that liability management exercises (which typically improve pension scheme funding and buy-out affordability) are harder to conduct or more costly to achieve post a buy-in/buy-out.

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<sup>9</sup> (Directive 2009/138/EC - Article 77b, 2009)

### **3. Asset types with uncertain cash flows**

As noted in 1 above, fixity of asset cash flows is a requirement under MA. Restructuring of assets (which is potentially complex and expensive) can potentially be used to achieve fixed cash flows, but as the Treasury Select Committee stated in its October 2017 report:

*“In developing the future regulatory model, specific efforts should be made to avoid creating situations where artificial structures are encouraged to achieve an appropriate regulatory treatment for any class of assets or liabilities.”<sup>10</sup>*

Therefore, after the Brexit transition period (which is due to last until 31 December 2020), we may be able to take a step back and consider assets that do not deliver fixed cash flows, but which provide highly predictable cash flows – in which case they may still be considered to provide a good match to annuity liabilities.

We consider two examples: callable bonds; and real estate/commercial property.

### **4. Making changes to existing MA approvals**

Existing approvals to apply the MA to a portfolio of annuity liabilities can be considered to cover future assets and liabilities that are added to that MA portfolio, provided that the firm can demonstrate that: (i) the future obligations and assets have the same features as the assets and liabilities included in the MA portfolio for which the approval was granted; and (ii) the MA portfolio continues to meet the relevant conditions of Directive 2009/138/EC. In all other cases, a new application is required to modify/extend the original approval.

Firms are encountering a number of challenges in this area. Firstly, “features” is not a well-defined term. Secondly, there can be ambiguity as to what is required when making a new application to the PRA – for example is adding a small additional section sufficient, or does the existing application document need a full overhaul and update? Thirdly, and arguably most important, is the time required to turn-around a new application – allowing for pre-engagement with the PRA, it could take as long as 12 months to obtain approval to make a change.

## **1.6 Making changes to the MA framework post Brexit**

Underpinning the MA is the requirement for close cash flow matching between asset cash flows and expected liability outgo. Matching asset inflows with liability outflows enables the insurer to adopt a buy-and-hold investment strategy, meaning that it is not a forced seller of its assets. Under this approach, the insurer is not exposed to short-term fluctuations in asset values arising from exaggerations of spreads on fixed income assets – and the MA ensures the Solvency II balance sheet reflects this.

Therefore, any proposals to amend any of the rules and guidance for the MA must consider the extent to which they would expose the insurer to short-term fluctuations in asset values

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<sup>10</sup> (House of Commons Treasury Committee, 2017)

arising from exaggerations of spreads on fixed income assets. Where this is the case, this risk exposure would need to be addressed.

In a speech given to the London Business School in March 2017<sup>11</sup>, Sam Woods (Deputy Governor, Prudential Regulation and Chief Executive Officer, PRA) said that “given a completely free hand I would probably make modest design changes to the MA, perhaps with ... a greater allowance for unexpected credit defaults”. We understand the reference to unexpected credit defaults to be in relation to the fundamental spreads under Solvency II, which are risk-adjustments for defaults and downgrades. Care needs to be taken that any change to the fundamental spreads does not introduce pro-cyclical effects (i.e. forcing firms to sell credit risky assets during a period of market downturn).

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<sup>11</sup> (Woods, 2017)

## 2. Assets with early repayment features

### 2.1 Description of the challenge

Assets may contain early repayment optionality which impacts on the “fixity” of cash flows (a requirement under the MA rules).

Compared to Solvency I, the MA rules under Solvency II place much more focus on prepayment risks, which is a positive development.

Where optionality exists, an asset is only deemed to be MA eligible if the compensation received is sufficient to allow reinvestment (into an asset of the same or better credit quality) to replace the lost cash flows. In particular, the MA rules state that:

*“In the event that issuers or third parties have the right to change the cash flows of an asset in such a manner that the investor receives sufficient compensation to allow it to obtain the same cash flows by re-investing in assets of an equivalent or better credit quality, the right to change the cash flows shall not disqualify the asset for admissibility...”<sup>12</sup>*

This reflects a material concern where economically driven prepayments could occur as issuers/borrowers may find it attractive to refinance when interest rates and/or spreads are at low levels.

In broad terms, early repayment clauses can be considered to be either:

1. Optional (at the discretion of the issuer/borrower); or
2. Non-optional (triggered by external events).

In respect of optional prepayments, lenders are typically paid compensation for loss of future interest based on the discounted value of the future cash flows. These are known as “make-whole” or “spens” or “modified spens” clauses.

Most insurers with MA portfolios have (independently) set limits on the spread<sup>13</sup> that can be used to calculate the compensation received to ensure they can replace cash flows using assets of equivalent credit quality, even in a time of historically low spreads.

For non-optional prepayments, where compensation to the lender is typically a return of the amount originally lent (“principal” / “at par” in corporate bond language), firms have had to justify that the events triggering prepayment are outside the control of the issuer/borrower. For example, many index-linked bonds have clauses where the cessation of publication of the inflation index triggers prepayment.

There are many clauses that fall in a grey area between these two classifications. For example, there may be prepayment clauses included for credit protection purposes (e.g. following a rating downgrade of the issuer) or for practical reasons (e.g. if the issuer is

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<sup>12</sup> (Directive 2009/138/EC - Article 77b, 2009)

<sup>13</sup> Assets that have a modified spens clause will provide to the insurer, when called, the present value of the future cash flows discounted at a reference rate (typically gilts) plus a spread.



subject to sanctions). Firms can make reference to some of these grey area clauses in their MA applications, but in practice every asset is different and hence it is not possible for firms to describe every possible prepayment clause in an application.

## 2.2 Which firms does this impact?

A significant proportion of the sterling fixed interest bond and loan universe (public and private) contains some form of early repayment clause.

Fortunately, many of the assets which have early repayment optionality and are typically held by annuity providers do include make-whole language or can be judged only to repay in circumstances outside the control of the borrower – and are therefore MA eligible.

There are large groups of assets, however, that are problematic for annuity providers using MA portfolios. These include various types of structured finance/asset-backed securities (where “default risk” – which is permitted by the MA rules – is replaced by “non-performance risk” – which is not permitted by the MA rules) and callable bonds.

Firms looking to invest in alternative asset classes, such as secondary market private loans, may also be affected. This is because early repayment terms are more likely to be bespoke and hence: (i) more work is needed to demonstrate how they comply with the MA rules; (ii) they may not be captured by the firm’s approved MA application.

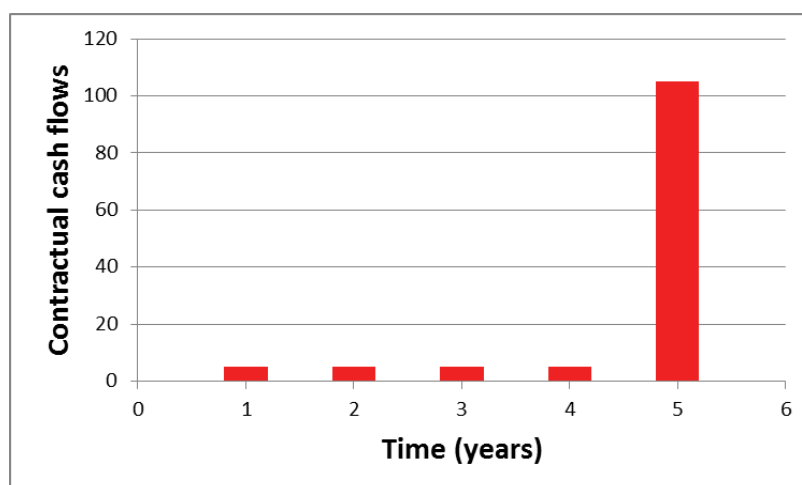
## 2.3 Practical examples

Three examples are considered below to show how these early repayment clauses can work in practice and their interaction with the MA requirements.

### 2.3.1 An asset with an optional prepayment clause outside of a firm’s limits agreed in its MA application

Consider a 5-year bond with principal of 100 paying annual 5% coupons in arrear. Here the prepayment amount is calculated using a modified spens clause<sup>14</sup> with a spread of 0.75%.

The prepayment amount would be based on the discounted value of these cash flows.



<sup>14</sup> Assets that have a modified spens clause will provide to the insurer, when called, the present value of the future cash flows discounted at a reference rate (typically gilts) plus a spread.

For example, assuming a risk-free reference rate of 1% p.a. the prepayment amount at inception would be 115.43.

There is concern that, if spreads on similar assets fell to, say, 70 basis points (0.7% p.a.) and early repayment occurred, it would cost more (i.e. 115.69) to replace the asset cash flows and hence a loss would occur.

Where a firm cannot show that it should be able to fully replace the lost cash flows using the early repayment proceeds, a firm may not be able to put the asset into its MA portfolio. This is despite early repayment being considered to be unlikely (it is typically rare for issuers/borrowers to enact these clauses) and, in the example above, potential losses being small.

Fortunately, updated guidance from the PRA, issued as part of SS7/18 in July 2018, clarified that firms could include assets like this in their MA portfolios by only recognising part of the cash flows for the purpose of the MA calculation and for cash flow matching – see section 2.5 below for further details.

### **2.3.2 Commercial mortgage prepayment clauses**

Some commercial mortgages include prepayment clauses that are based on the cost of replacement with another mortgage asset. For example, this could be calculated in the following manner:

- (a) Calculate the contractual cash flows
- (b) Calculate the cash flows of a replacement mortgage, based on “current market lending conditions”

The prepayment penalty (or “compensation”) is set equal to:

$$\max[\textit{Present Value}(a) - \textit{Present Value}(b); 0]$$

It could be the case that the interest rate for calculating both of the present values in the formula above is the original mortgage rate. This means that if current interest rates are below the original rates at the time of prepayment, we may not receive adequate compensation to replace the lost cash flows.

As noted in section 2.3.1 above, updated guidance from the PRA may allow firms to include this form of asset in their MA portfolios by only recognising part of the asset’s cash flows for the MA calculation and for cash flow matching purposes.

### **2.3.3 CPI-linked asset where prepayment clause relies on an assumed RPI-CPI wedge**

Where asset cash flows are linked to CPI, which is a relatively new reference index, there is limited market data on long term expectations of the index. As a result, many market participants use RPI expectations (where there is more market data) less the “wedge” (i.e. the expected difference between RPI and CPI).

However, there are reasons why the wedge used in the calculation of the early repayment amount needs to be lower than the market expectation in order to meet the MA guidance, including:

1. The wedge is not stable (as evidenced by the recent proposed reforms to RPI – see box below) and therefore firms may need to allow for the risk of being selected against by the borrower; and
2. There are currently relatively few CPI-linked assets in the market, meaning a lender subject to early repayment may have additional costs associated with trying to replace the asset.

This means that firms may need to set a prudent limit on the size of the wedge used in the calculation of early repayment amounts in make-whole clauses.

Additionally, the inclusion of the wedge in the calculation of the early repayment amount may be seen as a new asset feature (see section 1.5 above). If so, this would require firms to go through the MA application process in order to obtain approval to add assets with this feature to the MA portfolio – and this will take time and resource.

Whilst there is some risk of loss in the event of early repayment, the better matching offered by CPI-linked assets for MA portfolios with CPI-linked liabilities may be argued to outweigh this risk. Where firms need to set a limit on the wedge that can be used in the calculation of the early repayment amount, and this is below the market expectation, this may inhibit improved cash flow matching.

#### **Recent developments in RPI**

In January 2019, the House of Lords Economic Affairs Committee<sup>15</sup> recommended to the UK Government that the “problems” with RPI be “fixed”. Then, in March 2019, the UK Statistical Authority<sup>16</sup> proposed that the publication of RPI should be ceased. Responding to these proposals, the UK Government launched a consultation in March 2020 to gauge whether alignment between RPI and CPI-H<sup>17</sup> should occur between 2025 and 2030 – this consultation is due to close in August 2020. Under this proposal, the wedge between RPI and CPI would become much smaller (as RPI and CPI-H converge – noting that CPI and CPI-H are strongly correlated).

## **2.4 Implications for other parties: customers, UK economy**

The risk of significant early repayments on bonds and loans may be considered to be small – especially across a large portfolio of well diversified assets.

Some in the industry argue that imposing these restrictions reduces the universe of eligible assets available to insurers. This, in turn, may have an effect on annuity prices available to individuals and to defined benefit pension schemes. Furthermore, it limits the wider benefits that investment in these asset classes can have on the economy.

To some extent, these challenges have been addressed by the updated guidance issued by the PRA in July 2018 (see section 2.5 below), permitting firms to take partial credit for an

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<sup>15</sup> (House of Lords Economic Affairs Committee, 2019)

<sup>16</sup> (UK Statistics Authority, 2019)

<sup>17</sup> CPI-H is based on the CPI measure of inflation but includes an allowance for owner-occupied housing.

asset's cash flows (in the MA calculation and cash flow matching tests) where the early repayment amount does not provide sufficient compensation.

## 2.5 Considerations for firms

### 1. *Market standard redemption clauses*

PRA guidance states that early repayment clauses triggered by events that fit the following criteria may be able to be considered MA eligible:

1. Outside the issuer or third party's control;
2. Cannot be avoided by the issuer or third party; and
3. Would otherwise materially change the nature or substance of the obligations of the issuer or counterparty under, or as a result of, the contract.

### 2. *Sufficient compensation*

In addition to the situations above, early repayment (or a change in cash flows) could be triggered at the discretion of the borrower. In such cases, to be considered MA eligible, a firm must demonstrate that it receives sufficient compensation "to obtain the same cash flows by reinvesting in assets of equivalent or better credit quality".<sup>18</sup>

Below we set out some thoughts on how firms can ensure sufficient compensation.

- Firms could consider using a more principles-based approach in their MA applications for how they assess "sufficient compensation", rather than setting out specific early repayment clauses. However, it may be difficult to get the PRA to agree to such an approach. Notwithstanding this, when submitting MA applications, firms should consider a wide range of early repayment circumstances to limit the need to re-apply to the PRA in the future.
- Where possible, firms should negotiate with borrowers to ensure MA compliant early repayment clauses. This is clearly not possible in the secondary market and may be hard to achieve in the primary market in practice (e.g. with a public bond issuance or a syndicated loan).
- In July 2018, the PRA released updated MA rules and guidance in SS7/18. Paragraph 2.41 says that firms may be able to satisfy the sufficient compensation requirement by recognising only a proportion of the asset's cash flows (in the MA calculation and cash flow matching tests). This is equivalent to saying that the firm can recognise that proportion of the asset cash flows that it would be able to replace in the event of early repayment. Note, however, that the full market value of the asset still needs to be reflected in the MA calculation – so although you can include the asset in the MA portfolio, the effective yield is reduced by only taking credit for a proportion of the cash flows.

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<sup>18</sup> (Prudential Regulation Authority, 2018)

## 2.6 Looking ahead – post Brexit transition period

Below we set out thoughts on potential amendments to the current MA framework that could be considered after the end of the Brexit transition period.

### 1. *Internal governance*

One example of where greater flexibility could be applied is to allow firms to determine internally – through their governance frameworks – whether an early repayment clause provides them with sufficient compensation, rather than needing to apply to the PRA for each individual circumstance.

### 2. *Materiality considerations*

Firms could also be allowed to take into account materiality, in terms of the quantum of early repayment risk across the entire portfolio. For example, where early repayment risk is specific to an individual asset, or applies only to a small number of similar assets/clauses, the risk of material loss to the portfolio (even in a mass early repayment scenario, including at a time when replacement is difficult/expensive) may be small.

In a similar way to making minor changes to internal models, firms could be allowed to determine this internally, up to a certain level, at which point fresh approval would have to be sought from the PRA.

### 3. *Capital*

Where firms are exposed to early repayment risk (i.e. they do not receive “sufficient compensation”), they could hold additional capital (in the form of additional BEL and/or Solvency Capital Requirement (SCR) as appropriate), rather than needing to consider such assets to be MA ineligible. This capital could be used to fund any shortfalls in compensation in the event of early repayments.

Where appropriate, any capital allowance could also be set at a level which reflects the overall risk profile of the firm – e.g. early repayment risk is normally considered to be highest when spreads are narrow, whereas the firm in question may (at an overall level) be exposed to spreads widening.

## 3. Defined benefit pension scheme liabilities – Surrender options and liability management exercises

*The ideas discussed in this section reflect discussion amongst working party members about possible alternative ways of dealing with some of the restrictions imposed by the current MA framework.*

*It is intended that such ideas might help inform the debate in the event that changes to MA rules come under consideration.*

*Please note that the ideas are not presented as ways of dealing with the issues outlined under current MA rules and should not be interpreted as recommendations or advice.*

*Attention is also drawn to the disclaimer on page 2 of this paper.*

### 3.1 Introduction

Surrender options typically arise in respect of liabilities that transfer across to insurance company balance sheets from defined benefit pension schemes – i.e. as part of a buy-in or buy-out.

In this section we consider the following two categories of optionality:

1. Individual policyholders (or pension scheme members) with options relating to their future annuity income; and
2. Pension schemes running liability management exercises on their defined benefit pension scheme books, after having bought a buy-in contract from an insurer to cover those liabilities.

The PRA has done much to clarify its expectations around eligibility of surrender options under the MA rules – in particular, within SS7/18. In general, quite a wide range of options are now allowed in MA portfolios, with many insurers having approval to include deferred annuitants, for example.

This section outlines some key challenges around satisfying MA eligibility requirements for liabilities that give policyholders the option to surrender. It also sets out how firms may look to overcome these challenges.

### 3.2 What the MA rules say

The MA rules<sup>19</sup> state that an insurer should not offer policyholders (or pension scheme members) the option to take a surrender value that exceeds:

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<sup>19</sup> (The Solvency 2 Regulations 2015, 2015)

*“...the value of the assets [...] covering the insurance or reinsurance obligations at the time the surrender option is exercised.”*

Some insurers may interpret this as not being allowed to pay out more than the value of the BEL in respect of those insurance or reinsurance obligations.<sup>20</sup> This interpretation could mean that:

- Material restrictions may be placed on what can be paid out to individual policyholders (or pension scheme members); and
- Liability management exercises, which typically improve pension scheme funding and buy-out affordability, may be hard to conduct or more costly to achieve after having implemented a buy-in.

### **3.3 What are the most common types of individual surrender option?**

Typical options offered under defined benefit pension schemes include:

- Ill health or early retirement;
- Late retirements;
- Discretionary/Non-discretionary<sup>21</sup> transfer values; and
- Discretionary/Non-discretionary cash commutation.

In addition, individual with-profits pensions business may also include:

- Guaranteed annuity options (GAOs – for example, S226 contracts);
- Guaranteed minimum pensions (GMPs – for example, S32 contracts); and
- Guaranteed cash options.

Further details on these various options can be found in Appendix 1.

### **3.4 What is a liability management exercise?**

The three most common types of liability management exercise are:

- Enhanced Transfer Values (ETVs);
- Pension Increase Exchanges (PIE); and

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<sup>20</sup> In SS7/18, the PRA also confirmed that this is how it considers whether the requirement of Regulation 42 is satisfied – *“For the purposes of assessing whether the surrender value exceeds the value of the assets held, the PRA’s preferred approach is for the surrender value to be compared against the best estimate of liabilities.”* (SS7/18 Paragraph 3.13)

<sup>21</sup> For example, fixed factor commutations (e.g. 10 x pension at age y, which doesn’t change with market conditions).

- Winding up lump sums (WULS).

These exercises should usually be undertaken in accordance with the spirit of the pension industry's Code of Good Practice.<sup>22</sup> The responsibility for running these exercises sits with pension scheme trustees.

Further details of these liability management exercises can be found in Appendix 1.

Liability management exercises can have a number of impacts on the profile of the liabilities, given they are usually aimed at changing the nature of benefits covered by contracts (e.g. PIE) or reducing the members covered (e.g. ETVs/WULS). They can therefore impact the level of matching or liquidity in the MA portfolio.

Typically, past exercises need to be disclosed by pension schemes prior to entering into a buy-in, while future exercises (post buy-in) would require consent from the insurer.

## **3.5 What are the benefits of allowing more flexibility?**

### **3.5.1 Individual options**

Options embedded within occupational retirement provisions are intended, in most cases, to reflect aspects of the benefits to which an individual member is entitled (for example, ill-health provisions), natural differences in the way that members choose to retire (for example, due to early- or late- retirement) or differences in the way that members use their benefits (for example, transfers or commutation).

For the bulk annuity market to be a viable de-risking option for defined benefit pension schemes, it is important that insurers are able to uphold members' entitlements in this regard. Ideally, provision of such benefits would not come at a cost which is prohibitive to the ceding pension scheme.

### **3.5.2 Liability management exercises**

Liability management exercises are typically carried out prior to buy-in.

The ability to do liability management post buy-in would be particularly beneficial for pension schemes that offer non-statutory increases, or for those schemes that have entered pension protection fund (PPF) assessment following the sponsor running into financial difficulty. It is also beneficial for increasing buy-in and buy-out affordability, and hence increasing the security of benefits for remaining members.

The Nortel UK pension scheme is an example where a scheme carried out liability management exercises while in PPF assessment for several years, enabling it to subsequently buy-out member benefits (in 2018) at higher than PPF levels.<sup>23</sup>

In general, when a scheme is in PPF assessment, some members may receive reduced benefits (i.e. at the PPF levels specified in schedule 7 of the Pensions Act 2004). Securing a buy-in earlier, with the flexibility to carry out liability management exercises thereafter (and

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<sup>22</sup> (Incentive Exercises Monitoring Board, 2016)

<sup>23</sup> (IPE, 2018)



then also reflecting any subsequent recoveries made against the sponsoring employer) could, therefore, lead to better outcomes for members in some circumstances.

The table below sets out an illustrative level of price saving that could potentially be achieved from different liability management exercises, relative to a buy-out basis. (Note that this assumes that the exercises are carried out based on offer terms aligned with the scheme, i.e. prior to a buy-in.)

Exercise	Illustrative saving per member	Assumed % of total benefit	Assumed % of liabilities	Assumed take-up	Illustrative pricing benefit
<b>PIE</b>	12%	67%	65%	35%	2.0%
<b>ETV</b>	40%	100%	30%	20%	2.5%
<b>WULS</b>	20%	100%	5%	50%	0.5%

*Source: Hymans Robertson LLP. Figures are illustrative only, based on a hypothetical defined benefit pension scheme. Impacts will differ from those presented here, and will vary by scheme. Figures are not advice and should not be relied upon, or quoted, without the prior permission of Hymans Robertson LLP. Hymans Robertson LLP accepts no liability for errors or omissions in these figures.*

### 1. **PIE**

Our understanding is that PIE exercises are typically offered at around 70 to 90 per cent<sup>24</sup> of the value of the pension increase that is given up (where value is typically measured on the scheme's best estimate basis). Take-up could be in the region of 20<sup>25</sup> to 40<sup>26</sup> per cent. The saving to buy-out cost could therefore be around 2 per cent.

### 2. **ETV**

Savings on ETV exercises could be significant. The impact of transfers should improve a scheme's funding position and reduce buy-out cost, as ETVs are likely to be paid out at a lower level than the buy-out price. We estimate that with 20 per cent take-up the savings could be around 2.5 per cent on the typical buy-out price. It is worth noting that ETV exercises can often also trigger early retirements, which themselves could slightly improve the buy-out position by removing some of the cash flow uncertainty associated with deferred members.

### 3. **WULS**

Savings on WULS in proportion to individual benefits would be lower than transfers as WULS are also available to retired members (for whom the savings against buy-out are lower) and on a much smaller portion of the scheme's total liabilities (given only small pots are eligible). Savings of around 0.5 per cent may still be possible.

<sup>24</sup> (Pensions Expert, 2018)

<sup>25</sup> (KPMG, 2014)

<sup>26</sup> (Actuarial Post, 2018)

### 3.6 What are the challenges?

A key consideration for individual options or liability management exercises, with respect to the MA, is surrender risk. This is the risk that the MA portfolio might face losses if, for example:

- Option take-up rates are different to expected: or
- Pay-outs are more than the assets held in relation to the liabilities being surrendered or restructured.

Paying out amounts greater than BEL (from the MA portfolio) is generally difficult to justify under the MA rules. SS7/18 states that, when assessing surrender values:

*“...the PRA’s preferred approach is for the surrender value to be compared against the best estimate of liabilities. Where firms have compared against the best estimate of liabilities plus risk margin, the PRA expects firms clearly to demonstrate that the contribution of an MA portfolio to any surrender pay-out would be limited to the amount of assets held in that MA portfolio in respect of the surrendered contract(s), in order to demonstrate compliance with Regulation 42(4)(j)(ii). For the avoidance of doubt, the PRA considers that including the contract’s contribution to the SCR in the cost-neutrality assessment would be appropriate only in exceptional circumstances.”*

Furthermore, when demonstrating compliance with the eligibility conditions in Regulation 42(4)(j)(i) and (ii), the PRA expects firms to:

*“...demonstrate that none of the contracts proposed for inclusion could cause a surrender loss that is material in the context of an MA portfolio<sup>27</sup>, including under stressed conditions”; and*

*“... provide a detailed description of how the surrender basis is set and the controls in place around this to manage the risk of loss on surrender”.*

In respect of liability management exercises, or pension scheme options, SS7/18 further notes that:

*“...where a single contract covers a number of individual scheme members or beneficiaries, the PRA would expect the points above to be considered in respect of these individual members or beneficiaries.”*

(Underlining indicates working party emphasis.)

For individual policyholders, it would need to be argued that potential surrender losses are not material in the context of the wider MA portfolio. This may be challenging when the surrender basis is guaranteed or remains static over time. Under stressed conditions, it may become even more difficult to demonstrate that surrender losses are not material.

For liability management exercises, although the basis would reflect most recent market conditions, there is a risk that actual experience is different to expected. This could have a

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<sup>27</sup> SS7/18 further clarifies that this assessment should be done both in the context of base conditions, as well as under stress. However, materiality is to be assessed in the “context of an MA portfolio”, so it could be interpreted that if only a few members have, for example, guaranteed or static surrender benefits, then that would not be deemed material.

one-off impact on the cash-flow matching profile of the MA portfolio or the profitability of the exercise.

Overcoming these challenges therefore requires careful assessment of the following:

- Surrender basis;
- Risk of loss;
- Matching and liquidity impacts; and
- Liability eligibility.

### 3.7 How firms might look to overcome these challenges

*The working party expects that any changes to a firm's approach for managing its MA portfolio(s) will be accompanied by dialogue with the firm's usual supervisory contacts.*

*Attention is also drawn to the disclaimer on page 2 of this paper.*

In this section we consider four possible approaches for firms to consider:

1. Defining an appropriate surrender basis;
2. Putting in place appropriate mitigating factors against risk of loss;
3. Separate MA and non-MA contracts; and
4. Holding capital against residual risk.

#### 3.7.1 Surrender basis

Where the basis is discretionary, insurers typically offer surrender pay-outs that are cost neutral relative to the BEL. So, a policyholder would (on average) receive a cash amount equal to his or her BEL. These options should be MA eligible, as they closely follow the PRA's interpretation of the MA rules.

However, it is also informative to consider the levels at which insurers might transact annuity business when thinking about cost neutrality. Annuity premiums would typically be higher than BEL, as insurers need to set aside risk capital and hold a risk margin. Paying out cash amounts equal to BEL would therefore lead to a release of Solvency II surplus for insurers. (The same is likely to be the case on an accounting or internal economic basis.)

So, it may be possible for insurers to set surrender values at a level that is higher than the BEL, without generating a surrender loss. In practice, this is more likely to be the case for liability management exercises than it is for individual options.

#### 1. Individual options

A surrender value would typically be based on a firm's best estimate mortality basis, best estimate expense basis etc. and a discount rate reflecting its MA. This would effectively mean paying out an amount equal to the BEL on surrender. This should be accompanied by appropriate modelling to ensure that there is no material surrender loss under stress.

Pay-outs may be restricted by practical constraints. Although companies might be able to justify paying more than BEL (for example, BEL + risk margin) it may be hard to monitor this in practice. Examples of practical constraints include:

- The “current” MA spread for out-of-cycle of reporting commitments may need to be calculated using representative indices rather than yields on actual holdings at the time of the calculation; and
- Surrender values for individual options are typically guaranteed for a period of time, e.g. 3 months.

Paying more than BEL on individual options may therefore be possible, but practically could be difficult to monitor. One potential alternative – discussed in section 3.7.3 below – could be to have a separate non-MA contract to cover any excess payments.

## **2. Liability management exercises**

Liability management exercises are typically one-off, and they could have a material impact on a scheme and its members. There is therefore an argument for considering surrender payments in excess of BEL.

Insurers will typically have more discretion over the basis for agreed, one-off liability management exercises, compared to exercises which are permitted on an ongoing basis. Since all of the conversions and pay-outs may occur on a specified date (or over a short, specified period of time), the insurer should have more control over its risks and can set aside appropriate liquidity in the short term.

The premium an insurer charges for a buy-in or buy-out is expected to be below the total Solvency II resource requirement. (This follows from the Solvency II new business strains that insurers have reported in the past.) Where the business is already insured (e.g. via a buy-in), the insurer may therefore generate Solvency II surplus (as opposed to suffering a “surrender loss”) if the liability management exercises are done at a level below the insurance premium, but above the BEL.

### **3.7.2 Putting in place mitigating factors against risk of loss**

Below we list potential sources of loss and how firms may seek to mitigate them.

#### **1. Pay-outs lead to a strain**

This could arise due to market movements or because of changes in longevity or expense assumptions, resulting in divergence between reserving and surrender bases.

The risk is larger for options where the basis is non-discretionary (vs. discretionary), given that pay-out factors cannot be updated.

Insurers should put in place appropriate trigger levels at which bases are revisited to reflect material (market or other) movements.

#### **2. Restructuring of liabilities leads to a strain**

Liability management exercises may involve restructuring of future pay-outs (e.g. PIE). The insurer’s balance sheet position (both own funds and Solvency II surplus) may therefore look different after the exercise. For example, where policyholders exchange

inflation linkage for a higher fixed annuity, this could result in changes to: the duration of the liabilities; capital requirements; and the risk margin.

It is therefore important to work through the practical considerations and potential risks arising from such an exercise. Insurers should put in place appropriate safeguards to prevent an increase in Solvency II resource requirements.

### **3. Liquidity**

Physical cash payments (e.g. transfers out or WULS in the case of liability management exercises) require liquidity to be held in the MA portfolio.

SS7/18 states that companies need to carefully assess the risks associated with the exercise of surrender options, including (amongst others):

*“...the impact of increased or reduced surrenders on cash flow matching; and any liquidity strain associated with increased or reduced surrenders.”*

(Underlining indicates working party emphasis.)

A lack of liquidity in the MA portfolio could lead to losses – for example if insurers need to sell down credit assets at inopportune times. Firms should therefore carefully assess the extent to which they have sufficient liquidity to fund surrender payments (alongside their other liquidity requirements) under both base and stressed conditions. This may be captured within the firm’s liquidity plan, as part of its ongoing monitoring in respect of the MA portfolio.

While liability management exercises are ongoing, insurers may need to include additional, appropriately sized liquidity buffers in the MA portfolio. This is especially relevant to firms that have material allocations to illiquid asset classes. Where liability management exercises are funded by divesting from liquid assets, this may result in a higher allocation to illiquid assets following the exercise.

### **4. Hedging requirements**

Changes to duration, or inflation linkage, could mean that existing hedges are no longer appropriate and need to be rebalanced. This could lead to additional costs.

This needs to be carefully considered when setting the surrender/restructuring basis.

#### **3.7.3 Separate MA and non-MA contracts**

Separate contracts for MA eligible and MA ineligible components could be explored by firms. For example, under a buy-in, surrender pay-outs above the cost neutral level could be covered by a separate non-MA contract.

However, this adds complexity for both the insurer and the pension scheme. In addition, the non-MA contract will be more capital intensive, potentially increasing the buy-in/buy-out cost.

## 3.8 Looking ahead – post Brexit transition period

Below we set out thoughts on potential amendments to the current MA framework that could be considered after the end of the Brexit transition period.

### 1. *Flexibility for liability management exercises*

Liability management exercises are an important tool for many pension schemes on their journey to buyout. Member benefits could potentially be secured earlier, if trustees were given more flexibility to trigger exercises post a buy-in. (Such flexibility is unlikely to be compatible with the current MA rules, e.g. given the potential for surrender risk or future premiums).

If there was greater flexibility after the end of the Brexit transition period, a framework would need to be put in place by firms governing how exercises are conducted – to ensure any risks for the MA portfolio can be appropriately mitigated and managed.

### 2. *Sharing of excess surplus realised on surrender*

Where a buy-in is in place, insurers could consider arrangements with the pension scheme to share any excess surplus realised on surrender. An analogy to this is when insurers pay out cost neutral surrender values to pension schemes under a buy-in, and the schemes then pay surrender values based on their own commutation factors.

This idea could possibly be extended to buyout, where any excess surplus realised on surrender could be shared with the new policyholders or original sponsor (or an SPV set up for this purpose), instead of the pension scheme which would no longer exist.

### 3. *Surrender risk capital*

One potential alternative way to mitigate the risk of loss on surrender could be to hold additional capital (either in the form of a higher BEL or SCR). This may not be permitted under the current MA rules, but may be something that could be considered after the end of the Brexit transition period.

We note there may be some practical challenges, for example limited experience data from which to determine appropriate stresses. If an overly prudent approach is adopted, the additional surrender risk capital required could negate any additional MA benefit. For example, many with-profits funds that have (typically in-the-money) guaranteed annuity rates (GARs) include a lapse assumption in their best estimate basis. This reflects the fact that they do not expect to have to pay out on all of their GARs. However, a prudent calibration may require them to hold enough capital to cover a 0% lapse assumption, which is akin to calculating their best estimate on this basis – this is no different to the current MA rules which require no surrender risk.<sup>28</sup> In this case, the additional MA benefit could be more than offset by the additional capital requirements.

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<sup>28</sup> The working party considers the firm may need to cover a 0% lapse assumption as a result of Article 77b 1.(g) which states “the contracts underlying the portfolio of insurance or reinsurance obligations include no options for the policyholder or only a surrender option where the surrender value does not exceed the value of the assets, valued in accordance with Article 75, covering the insurance or reinsurance obligations at the time the surrender option is exercised;”.

## 4. Asset types with uncertain cash flows

*The ideas discussed in this section reflect discussion amongst working party members about possible alternative ways of dealing with some of the challenges posed by the current MA framework.*

*It is intended that such ideas might help inform the debate in the event that changes to MA rules come under consideration.*

*Please note that the ideas are not presented as ways of dealing with the issues outlined under current MA rules and should not be interpreted as recommendations or advice.*

*Attention is also drawn to the disclaimer on page 2 of this paper.*

### 4.1 Description of the challenge

In this section, we consider assets that do not satisfy the requirements of the MA under Solvency II, but that provide predictable (if not certain) cash flows.

These assets may be considered to provide a good match to annuity liabilities, and after the end of the Brexit transition period (due to last until 31 December 2020) there could be scope to consider allowing firms to hold these within MA portfolios in a way that does not impact the protection of policyholder benefits.

In particular, we consider two asset classes:

1. Callable bonds; and
2. Real estate / Commercial property.

Whilst neither of these assets provide certain cash flows, they may provide diversification and the potential for greater risk-adjusted returns to insurers if appropriately understood (i.e. risk assessed) and managed (e.g. limiting amounts held within the portfolio to prudent levels). In fact, the requirement to only invest in assets if the firm can identify, measure, monitor, manage, control and report on the risks of those assets is an established part of Solvency II, as enshrined in the Prudent Person Principle.<sup>29</sup>

In the case of callable bonds, any cash flow between the first call date and the final maturity date can be considered uncertain. Whilst collectively the PRA and industry have come up with a solution within Solvency II to allow firms to hold them within MA portfolios, this results in recognition of cash flows below what is considered to be a reasonable economic assessment.

In the case of property, cash flows take the form of (certain) rent payments up to the end of a lease, plus an uncertain sale value (a single cash flow) or an uncertain set of cash flows based on re-letting the property.

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<sup>29</sup> In May 2020 the PRA issued Supervisory Statement SS1/20, setting out its expectations for investment by firms in accordance with the Prudent Person Principle (<https://www.bankofengland.co.uk/prudential-regulation/publication/2020/solvency-ii-prudent-person-principle-ss>).

Rental cash flows often have some form of inflation linkage included in the contractual terms (e.g. rent will increase by RPI, floored at 2% and capped at 5%), giving a stream of cash flows that can provide a good match to certain annuity liabilities – especially those arising from the bulk annuity market. However, given the inherent uncertainty within the sale value at the end of the lease term (or the cash flows arising from the property being re-let), such property assets do not meet the MA rules.

Consequently, only the contractually certain cash flows from the property can be assigned against the market value of the property. Therefore, similar to callable bonds, this results in recognition of cash flows below what is considered to be an economic assessment.

In this section, we consider each of these assets in turn. We look at the cash flows they provide, how they are treated under current MA rules, and we provide some thoughts on potential alternative treatments after the end of the Brexit transition period.

## 4.2 Callable bonds

### 4.2.1 Callable bond example

We consider below a hypothetical callable bond, and examine the impact that the treatment under Solvency II (and specifically the MA) has on the recognition of cash flows.

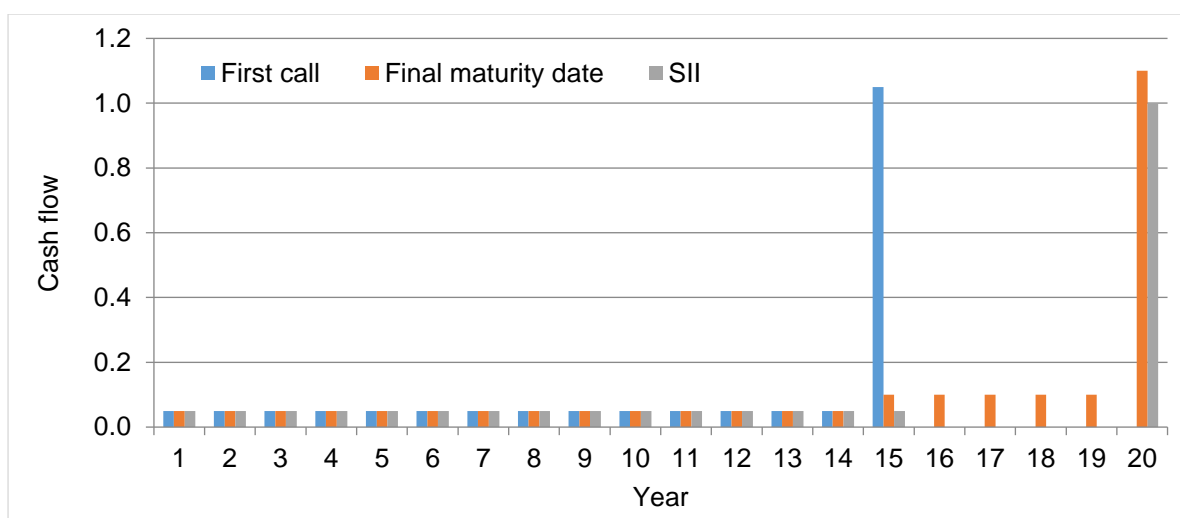
- Current coupon – 5% fixed to first call (annually in arrear)
- Current price – 100
- First call date – 15 years from now
- Subsequent call date (and final maturity) – 20 years from now
- Coupon reset – 5-year gilt + 8%
- Current 15-year forward 5-year gilt rate – 2%

The coupon after the first call date is set at a punitive level above a variable risk-free reference rate – this is designed to ensure that the investor does not lose out if interest rates increase rapidly.

The graph below shows the cash flows from the bond in three scenarios:

1. The bond is called on the first call date;
2. The bond is called on the final maturity date (coupon resets at 10% in year 15);
3. The Solvency II scenario – the bond is called at the final maturity date, but no cash flow is assumed to be received between the first and final call dates.





The cash flows in the first 14 years are the same under all scenarios. However, there are differences for years 15 to 20.

- In the “first call” scenario, the return of principal is received in year 15.
- In the “final maturity” scenario, the investor receives the higher coupon in years 15 to 20, plus the principal back in year 20.
- In the “Solvency II” scenario there are no coupons in years 16 to 20, and the principal is paid back in year 20.

The calculated gross yield of the bond in each of these scenarios is as follows:

- Gross yield to first call – 5%
- Gross yield to final maturity – 6%
- Gross yield under current MA rules – 4.1%

The insurer may therefore expect to achieve a gross yield of at least 5% in practice, however the gross yield under the MA rules is 0.9% lower than this.

#### 4.2.2 Alternative modelling approaches

There are a number of methods that may be used to assess the yield for callable bonds:

##### 1. Yield to first

Assume that the bond will be re-paid at the first possible occasion, reflecting what is commonly observed for many of these bonds.

##### 2. Yield to final maturity

Assume that the bond will not be re-paid until the last possible occasion.

##### 3. Yield to worst

Assume that the borrower, as the entity with the optionality, repays the bond at the point that is most advantageous for them. The insurer would project the cash flows to all

possible maturity dates, and then take the result that gives the lowest resulting gross redemption yield. This would then determine the maturity date to be used in cash flow projections and modelling.

#### 4. “Best estimate” maturity date

Here, asset managers/credit analysts are asked to provide “expert judgement” on the most likely date of repayment. The asset managers/credit analysts would be able to leverage information such as current market practice, indications from the borrower, current borrowing power of the borrower etc. to formulate their judgement.

Each of these methods could be argued to provide a set of cash flows that more closely aligns to the economic substance of the asset.

#### 4.2.3 Considerations of each methodology

We now consider the pros and cons of the different methods, from the perspective of an insurer matching annuity liabilities. The areas we have considered are shown in the table below:

<b>Prudence</b>	It is important that any method is suitably prudent to avoid overstating the MA benefit from the asset, otherwise there could be a risk of the insurer not being able to meet its obligations as they fall due.
<b>Alignment to reality</b>	Ideally, the method should align to the “reality” of the expected cash flow profile. This meets the criteria for the projected asset cash flows to be best estimate.
<b>Alignment with liquidity risk management</b>	The liquidity risk framework an insurer has in place for assets with uncertain cash flows will include making assessments of any large cash flows and their likelihood of being paid. Where a large cash flow may not be made, the insurer will need to put in place suitable mitigations.
<b>Stability of results</b>	How consistent will the MA result be month to month for the asset?
<b>Computational ease</b>	Today this may be less critical, given advancements in technologies and computational power. The ease of implementing a method is nevertheless still an important factor for actuarial departments.
<b>Objectivity vs. assumptions required</b>	Ideally, the method will not rely heavily on assumptions/judgements, and instead be objective such that multiple firms holding the same asset end up with a consistent MA benefit for that asset.

The table overleaf summarises our subjective assessments for each method against the criteria in the table above.

(The colour scheme used in the table provides an indication of the working party’s subjective views on whether the points raised for the various methods are **advantages**, **disadvantages**, or **require consideration**.)

advantages disadvantages  
requires consideration

	Yield to first	Yield to final maturity	Yield to worst	Best estimate
<b>Prudence</b>	<p>Reduces the duration over which the insurer recognises the spread on the asset.</p> <p>Avoids the insurer taking credit for high coupon re-sets.</p> <p>Could understate capital, especially if the bond is close to the first call date and the market expects an extension.</p>	<p>Could give a result that is more favourable than what occurs in practice. This is especially true where “coupon resets” are at high levels.</p>	<p>Gives a prudent assessment of the yield available on the asset.</p>	<p>No guarantee of prudence, as this may result in a maturity date being chosen that gives a less prudent result than other scenarios.</p>
<b>Alignment to reality</b>	<p>Reflects the most likely scenario for most bonds, but this is not guaranteed.</p>	<p>Not considered to be the most likely scenario for the majority of bonds.</p>	<p>May not reflect reality as, in practice, a number of issues impact the decision to re-pay – not just optimal economics.</p>	<p>Should reflect reality as closely as possible, assuming expert judgement is sound.</p>
<b>Liquidity risk management</b>	<p>Could result in a liquidity strain if the bond is not called and the redemption cash flow is needed to meet liabilities.</p>	<p>Prudent assessment of when the large redemption cash flow will be received.</p>	<p>May result in the firm assuming the redemption proceeds are received at the first call date, but no guarantee that this will be the case – in which case there could be a liquidity strain.</p>	<p>Result should align with what is expected. However, the result is not guaranteed and so could give rise to an unexpected liquidity strain.</p>
<b>Stability of results</b>	<p>Results should be stable month on month.</p>	<p>Results should be stable month on month.</p>	<p>Results may fluctuate month to month, as the assumed maturity date can change.</p>	<p>Results may vary month on month if the best estimate changes, however this would be explained via the expert judgements.</p>
<b>Computational ease</b>	<p>Straightforward to model – same as a standard bond.</p>	<p>Need to be able to model the step-up, with the step-up possibly determined by dynamic inputs.</p>	<p>More complicated to model, with multiple projections and comparison logic required.</p>	<p>May need to be able to model the step-up, with the step-up possibly determined by dynamic inputs.</p>
<b>Objectivity</b>	<p>No assumptions required.</p>	<p>Requires assumptions about future risk-free rates.</p>	<p>Requires assumptions about future risk-free rates.</p>	<p>Requires assumptions about next call date, which are potentially subjective.</p>

#### 4.2.4 Concluding remarks

For a solvency calculation, the working party considers that the “yield to worst” method would provide a suitably prudent assessment. This should then be supported by a sound liquidity risk management framework, with suitable mitigations in place to allow for the risk of cash flows not being received in line with what is being assumed.

In practice, firms may want to have the flexibility to use a combination of the methods, to enable them to balance liquidity risk against the risk of overstating the future spreads they will earn on the assets.

### 4.3 Property

#### 4.3.1 Real estate example

We consider below an office building that an insurer has invested in. The insurer holds the freehold, and there is currently a single tenant in the building with 10 years remaining on the lease.

- Property market value – £10m
- Rent – £600k p.a.
- Lease – annual upward only rent reviews, linked to RPI and capped at 5%

The only contractually certain cash flows are the rental payments. Every other cash flow is uncertain, and therefore cannot be taken into account in the MA calculations.

The impact of this asset in the MA calculation is therefore:

- Liability cash flows you can “match” – £6m (being the sum of 10 years of £600k)
- Market value of the asset – £10m
- MA on the asset = negative (and getting more negative each year)

Given this, it is more likely that:

1. The asset would be held outside of the MA portfolio; or
2. The insurer would need to restructure the asset (which could be complex and costly) to separate it into two parts:
  - (a) An asset whose cash flows are the future rent payments only – this could then be an MA eligible asset; and
  - (b) An asset with a single future cash flow, that being the future value of the property at the expiry date of the lease – this asset would need to be held outside of the MA portfolio.

#### 4.3.2 Alternative modelling approaches

There are a number of methods that may be used to assess the yield on the property, including:

1. Running yield
2. Assumed sale at end of current lease
3. Assume re-let at end of current lease

Below we consider how the example property asset set out in section 4.3.1 above looks under each of these three methods. In doing so we make the following assumptions:

- Current vacant possession value – £5m
- Risk-free rate – 2.5%
- Assumed future RPI – 2%
- Rental voids / Fundamental spread – 10% of rental cash flow

### 1. *Running yield approach*

This is the Solvency I method, where the “current” rent is divided by the market value of the property.

The current rent can be based on factual information (e.g. last quarter’s income × 4, last year’s income, next quarter’s income × 4), or any minimum/maximum of these as is considered to be appropriate. It can also take into account any expected or known changes in the future (e.g. falling rents for a shop in a declining location).

There remains the question as to what duration of cash flows to include (as this method does not lend itself well to a cash flow-based approach), which will impact the level of MA benefit. Below we have assumed a 5-year duration.

The results are as follows:

	Result	Calculation
<b>Gross yield</b>	6.0%	£600k / £10m
<b>Risk-adjusted yield</b>	5.4%	( £600k × (1 - 10%) ) / £10m
<b>Risk-adjusted spread</b>	2.9%	5.4% - 2.5%
<b>Value of MA benefit</b>	£1.45m	2.9% × 5 × £10m

### 2. *Assumed sale at end of current lease*

With this method, cash flows are projected to the end of the current lease (i.e. contractual rent), with an assumed sale of the property at the end of this period.

The projection would take into consideration any contractual future rent increases, which could be aligned to the insurer’s liability valuation model (e.g. for future inflation assumptions).

The future sale value of the property could be determined based on a number of possible inputs, including:

- Current market value;
- Current vacant possession value (an assessment of the underlying value of the property if it was not occupied); and
- Value of potential future leases.

(These inputs can be adjusted for growth, market shocks, dilapidation etc.)

Variations of the method include:

1. Assume a delay between the end of the lease and the sale of the property (e.g. two years); and
2. Assume the property is sold over a number of years (e.g. four years) to avoid over-reliance on “lumpy” cash flows in matching.

(We provide sensitivities against the base method using these variations below.)

For the “base” method, we have assumed sale at the end of the lease period for 90% of the current market value (i.e. we have applied the 10% void rate assumption to the property value for fundamental spread purposes).

Below are the projected cash flows (allowing for annual RPI increases):

Year	Gross cash flow (£m)	Net of fundamental spread (£m)
1	0.60	0.54
2	0.61	0.55
3	0.62	0.56
4	0.64	0.57
5	0.65	0.58
6	0.66	0.60
7	0.68	0.61
8	0.69	0.62
9	0.70	0.63
10	10.72	9.65

The results are as follows:

	Base	Variation 1	Variation 2
<b>Gross Yield</b>	6.5%	5.7%	5.9%
<b>Risk-adjusted yield</b>	5.1%	4.4%	4.6%
<b>Risk-adjusted spread</b>	2.6%	1.9%	2.1%
<b>Value of MA benefit</b>	£2.18m	£1.85m	£1.93m

### 3. Assume re-let at end of current lease

With this method, cash flows are projected to the end of the current lease based on the contractually agreed rent. At this point, an allowance for the property to be re-let is made, instead of assuming the property is sold (and therefore a large single cash flow).

As with the “assumed sale at end of lease” method, the firm would need to consider making allowances for possible periods of vacancy, the likelihood of re-letting to the current tenant, length of future lease etc.

For this method, a further set of assumptions are required. For our example, we have made the following assumptions:

- Period of vacancy – 1 year
- Re-let at same terms as currently, for another 10 years
- Final sale value (in 21 years’ time) – vacant possession value (£6m)

The projected cash flows, net of the Fundamental Spread, are shown in the table below:

Year	Net of fundamental spread (£m)
1	0.54
2	0.55
3	0.56
4	0.57
5	0.58
6	0.60
7	0.61
8	0.62
9	0.63
10	0.65
11	0.00
12	0.67
13	0.68
14	0.70
15	0.71
16	0.73
17	0.74
18	0.76
19	0.77
20	0.79
21	6.20

The results are as follows:

	Result
<b>Gross yield</b>	5.7%
<b>Risk-adjusted yield</b>	4.8%
<b>Risk-adjusted spread</b>	2.3%
<b>Value of MA benefit</b>	£3.25m

### 4.3.3 Considerations of each methodology

The table overleaf summarises our subjective assessments for each method against the same criteria we considered for callable bonds, namely: prudence; alignment to reality; liquidity risk management; stability of results; computational ease; and objectivity.

advantages disadvantages  
requires consideration

	Running yield	Sale at end of lease	Re-let at end of current lease
<b>Prudence</b>	Method does not allow for contractual rental increases, which adds prudence. However, care is needed with the assumed duration, which will be a key driver of the MA benefit.	The method can be adjusted to allow for a prudent future value of the property market, either for best estimate or capital purposes. The modelled cash flow profile is in line with contractually agreed rental periods.	The method can be adjusted to allow for a prudent future value of the property market, either for best estimate or for capital purposes. However, the modelled cash flow profile may exceed that realised in practice (e.g. if property cannot be re-let).
<b>Alignment to reality</b>	Method does not allow for contractual rental increases, which adds prudence. Ultimately, it is likely that the firm will need to "sell" the property at some point.	Makes allowance for contractual rental increases. The firm does have the option to sell the property at the end of the lease.	Makes allowance for contractual rental increases. For firms who are writing new business, they may wish to re-let the property to avail of longer-dated cash flows.
<b>Liquidity risk management</b>	No reliance on a large, one-off payment to meet liability payments.	Liquidity risk can emerge, especially if the large, one-off sale value is required to pay liability cash flows.	No reliance on a large, one-off payment to meet liability payments.
<b>Stability of results</b>	Results should be relatively stable, however the method could result in a step change in results if, for example, there is a period of vacancy or a large step up in current rent.	Results should be stable, and only influenced by changes in the quality of the asset. The MA run-off might not be smooth, depending on the level of prudence within the assumed property sale value at the end of the lease term. As the maturity date approaches the rental element will contribute a smaller proportion of the overall market value, and the residual a larger component.	Results should be relatively stable, and only change as the economic situation changes.
<b>Computational ease</b>	Straightforward to calculate.	Straightforward to calculate.	Straightforward to calculate.
<b>Objectivity</b>	This method is not intended to be a cash flow projection, so it is not clear for how long to project the rental cash flows.	Some level of expert judgement is required to determine an assumed sale value for the property at the end of the lease term.	Expert judgement is required to determine the assumptions for re-letting the property at the end of the existing lease term.



#### **4.3.4 Concluding remarks**

From a solvency perspective, the working party considers that the “assumed sale at end of lease” method, with suitable prudence built into the assumed sale value, strikes a balance between policyholder protection and enabling the insurer to invest in this long-dated asset.

Were any of these methods to be used in the future, firms will need careful portfolio-level controls to manage both liquidity risk and exposure to re-let market conditions.

#### **4.4 Implications for other parties: customers, UK economy**

In general, firms have moved away from investing in such assets, especially for new annuity business (where transitional measures do not apply).

To the extent these assets offer attractive risk-adjusted returns, and assuming the insurer is able to satisfy the requirements of the Prudent Person Principle, being able to add them to the MA portfolio – without having to exclude certain cash flows – could result in improved prices for both bulk and individual annuities.

In addition, placing restrictions on assets such as these is likely to increase the demand for other assets that do satisfy the MA requirement for fixed cash flows, which could have the effect of pushing down available returns on these other assets (relative to the risks they present).

As described in section 1.1, bulk annuity flows continue to be large, with more than £40bn of transactions completed in 2019. This makes insurers – particularly annuity providers – an important source of lending for the UK economy. Callable bonds (which provide a flexible source of financing for companies) and commercial property are two examples of important lending that are now more difficult for annuity providers under Solvency II.

#### **4.5 Looking ahead – post Brexit transition period**

In a speech given to the London Business School in March 2017<sup>30</sup>, Sam Woods (Deputy Governor, Prudential Regulation and Chief Executive Officer, PRA) said that “given a completely free hand I would probably make modest design changes to the MA, perhaps with slightly greater flexibility around the definition of “fixity” ...”.

As per the ideas we have outlined in this section of the paper, an approach that begins by ascribing some value to those cash flows that are not fixed, and making an appropriate allowance for liquidity and other risks, may help to achieve this.

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<sup>30</sup> (Woods, 2017)

## 5. Making changes to existing MA approvals

### 5.1 Introduction

Many firms received their MA approvals from the PRA prior to the implementation of Solvency II on 1 January 2016. Since then, this working party understands that several firms have made changes to their MA portfolios.

These changes could range from adding new assets and/or liabilities, to merging one or more MA portfolios, to making changes to the ways in which the MA portfolio is managed. Some of these changes may require a new approval from the PRA, whereas others may not.

The ability to make changes to existing MA portfolios and approvals, in as efficient a manner as possible, is very important to firms – for example:

- New investment opportunities may present themselves, and these will typically only be available for a limited period of time;
- Pension scheme trustees may be looking to implement a buy-in or buy-out within a defined period of time;
- Market conditions may present windows of opportunities to firms; and
- There has been lots of M&A activity relating to UK annuity books over the past few years – requiring merging of MA portfolios.

Despite many firms having successfully made changes to existing MA portfolios, the working party understands through its research that the ability to make changes, and the process for doing so, has been one of the most challenging areas for firms.

As noted above, needing to apply to the PRA to make a change to an MA portfolio could result in a firm missing out on an opportunity. At its extreme, some firms might even take the decision not to make changes to their MA portfolios on the basis of the significant time and effort required to do so, especially when there is no guarantee the approval will be granted.

This section therefore sets out some of the challenges associated with making changes to MA portfolios. There are no obvious and easy means of solving all of these, at least not within the confines of the current Solvency II framework. The PRA has done much to clarify its expectations (see section 5.4 below) and it is important that any process for making changes ensures firms act in a prudent manner and in the best interests of policyholders.

### 5.2 Description of the challenges faced by firms

#### 5.2.1 Determining whether a new application is required

The PRA has provided firms with additional guidance in SS7/18<sup>31</sup> on situations where a new approval application may need to be submitted, for example:

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<sup>31</sup> (Prudential Regulation Authority, 2018)

- Restructurings, mergers or disposals;
- The entry into new, or changes to existing, reinsurance and other risk transfer arrangements; and
- Changes to the scope of the MA portfolios, including the addition or removal of MA assets or liabilities.

Given the nature of annuity portfolios and their evolution over time, it is not possible for the PRA to give an exhaustive list of potential changes requiring new approvals.

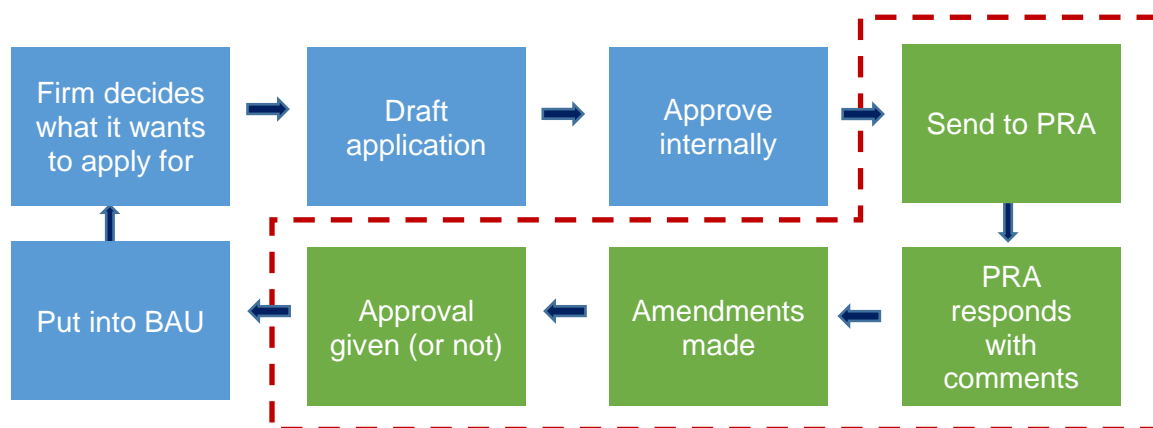
This means that firms, as they make changes to their MA portfolios on an ongoing basis, need to carefully decide whether or not they require prior regulatory approval. This is not always straightforward. There will inevitably be grey areas, and judgement will need to be applied based on the content of the existing MA approval.

In part this is due to the challenge of determining when something constitutes a new “feature”, as discussed in section 5.2.3 below.

Where a firm does not believe a new approval application is required, it may still produce an “application-like” document and send it to the PRA – to give advance notice of the changes that it is planning on implementing.

### 5.2.2 Timescales for getting regulatory approval to make a change

Where a new application is required to be made to the PRA, the end-to-end process can be lengthy – potentially far greater than the maximum six months that the PRA has to respond to a “complete” application document submitted by a firm.



Once an application is submitted, the PRA has six months to approve the application or otherwise. The clock only begins counting if the PRA views the submitted application as complete.

It may be possible for the PRA to approve an application in less time than six months, for example if the firm is looking to make a relatively simple change to its existing MA portfolio, and/or a change that the PRA has already seen on multiple occasions with other firms.

Prior to submitting an application, however:

- The firm will put the proposed changes through its internal governance; and
- The firm and the PRA are likely to engage in various discussions on the forthcoming changes that the firm is seeking regulatory approval for.

All of this could be more complicated if the change being proposed for the MA portfolio will also necessitate a change to the firm's full or partial internal model.

There is no limit to how long this period of "pre-engagement" with the PRA may take. We understand from our research that it can be several months, perhaps longer for more complex and material changes that the firm is proposing.

As a consequence of all this, it is possible for the end-to-end process for making a change to an MA portfolio to take between 9-12 months.

### 5.2.3 New features

Existing approvals to apply the MA to a portfolio of assets and liabilities can be considered to cover future assets and liabilities that are added to that MA portfolio, provided that firms can demonstrate:

1. The assets and liabilities to be added have the same features as the assets and liabilities already included in the MA portfolio; and
2. The MA portfolio continues to meet the relevant conditions of Directive 2009/138/EC.<sup>32</sup>

However, there is no formal definition of what constitutes a new "feature".

This was emphasised by the PRA in SS7/18, where it made reference to there being no prescribed "closed list" of features, and it went on to say that what constitutes a new feature needs to be reviewed on a case-by-case basis.

Consequently, this is an area that will require judgement from firms. We expect firms to use their own internal governance frameworks to determine whether a feature is already present in the existing MA portfolio and whether a new regulatory approval is required.

SS7/18 usefully provides some examples of what the PRA believes might constitute a new feature, for example:

- Bulk annuity deals with collateralisation, where existing deals within the MA portfolio are not collateralised;
- Assets that require restructuring to make them MA eligible;
- Assets with different forms of early repayment compensation clauses to those already included in the MA portfolio; and
- New reinsurance arrangements with different features to those already included in the MA portfolio.

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<sup>32</sup> (Directive 2009/138/EC - Article 77b, 2009)

Whilst this provides firms with some helpful guidance, the view of the working party is that the examples serve to demonstrate the potential high bar for demonstrating that a new approval is not required.

Should a firm decide to make a change to its portfolio without seeking regulatory approval (on the basis that it believes the change to be within the scope of its existing approval), it takes the risk of the PRA reviewing that change at some point in the future and determining that approval would have been required. The PRA has usefully clarified in SS7/18 that this situation would not constitute a breach of MA, but the implications of having to undo the change could, of course, be significant.

Some firms may prefer to invest in a (small amount) of an asset before seeking approval from the PRA to add that asset to the MA portfolio. In this case the asset would need to be held outside the MA portfolio for a period of time. This will have capital implications for the firm, and there is no guarantee the approval will be granted.

#### **5.2.4 Format of required approval application document**

Initial MA application documents (e.g. prior to 1 January 2016) were very long and detailed, and today they potentially contain out-of-date information – given most were submitted several years ago. Updating the entire document is a potentially significant undertaking at each subsequent application to make one or more changes.

The working party's experience is that it is now generally accepted that firms do not need to update their entire applications, particularly when only applying for small changes.

The PRA has made some movement towards streamlining applications, including only requiring updates to sections relating to the changes being made (see section 5.4 below). However, as every change is unique, and firms have individual applications, there remains uncertainty as to what is required.

In addition, firms may feel obliged to update out-of-date information when submitting revised applications, for fear that this will for example introduce apparent inconsistencies causing confusion (e.g. quoting figures at different valuation dates).

Submitting addendums to existing applications may be easier for firms.

### **5.3 Potential implications for firms**

There could be a variety of potential impacts on firms due to the above challenges:

- Missed investment opportunities – e.g. some private loans may transact within a matter of weeks, let alone months;
- Unable to quote on certain buy-in / buy-out deals;
- Some firms electing not to make certain changes to their MA portfolios because of the significant effort involved;
- Some assets warehoused outside of the MA portfolio – pushing up the firm's cost of capital;
- Some liabilities having to be held outside of the MA portfolio; and

- Even though adding a new covenant (e.g. in a private bilateral loan) provides the investor with additional protection, it may constitute a new feature for the MA portfolio and hence require regulatory approval to include it.

In turn, this could have potential impacts wider than just the UK insurance industry:

- Certain buy-ins / buy-outs are more expensive / less affordable – e.g. where some benefits have to be provisioned for outside of the MA portfolio;
- There could be fewer firms quoting on certain buy-in / buy-out deals;
- Less institutional investment in certain asset types; and
- Higher annuity rates for UK customers.

## 5.4 Regulatory developments

Some of the challenges highlighted above have been addressed and/or clarified by the PRA in July 2018 as part of SS7/18 and the “Solvency II: Two and a half years on” letter sent to Chief Actuaries.<sup>33</sup> These are highlighted in the table below.

(Note that quotes in the table below are extracts from SS7/18 and the PRA’s “Dear Chief Actuary” letter, with underlining added by the working party.)

Area	Additional guidance and clarifications
Making multiple applications to the PRA	<i>“The PRA considers that it may be possible for a firm to submit <u>more than one MA application in a year</u>, and that there may be circumstances in which firms could submit an additional MA application while an existing application is still being considered by the PRA, if the interdependencies between the changes are minimal.”</i>
What constitutes a new “feature”	Some examples provided for what may be considered to be a new feature.
When there is a breach of the PRA rules vs. when there is a breach of the MA requirements	<i>“If a firm makes changes to its MA portfolio without prior supervisory approval, and if these changes are outside the scope of what is contemplated in Article 7(5) of the ITS <u>this would not of itself necessarily amount to a breach of the relevant MA conditions as set out in Regulation 42(4)</u> but would constitute a breach of Technical Provisions 6 of the PRA rules, in respect of which the PRA would consider exercising its relevant supervisory powers under s.55M of FSMA.”</i>
Application format	<i>“... the PRA will accept updated MA applications where the changes to the most recently approved MA application are clearly shown (eg ‘tracked changes’)...”</i>  <i>“Firms may propose not to update sections of the existing MA application where the change does not relate to that section. For example, it may not be necessary to update the mortality risk assessment where the updated MA application is solely to add a new asset class. The PRA has found it helpful where firms have set out clearly where they have proposed not to update the existing MA application.”</i>

<sup>33</sup> (Prudential Regulation Authority, 2018)

## 5.5 Considerations for firms

### 5.5.1 Quality of documentation

All firms can help the application process by ensuring the documentation submitted to the PRA is complete and clear. This includes any pre-application documentation or responses to questions raised by the PRA. Items that firms should consider include:

- Purpose of document;
- Regulations and professional standards considered;
- Internal governance process followed;
- References to relevant PRA guidance;
- What is new or changing;
- How it interacts with existing approvals;
- How it interacts with other approval applications currently live or expected to be submitted in the near future; and
- How it is being considered as part of the firm's wider risk management framework and Solvency II requirements (e.g. internal model implications and contingency planning should the application not be successful).

The working party believes that references to guidance and previous applications should be contained through the main body. Firms may also wish to consider including a checklist (e.g. as part of the appendices) for easy cross reference.

Supplementary documentation could also be submitted to the PRA, for example detailing relevant conversations that have taken place and what part of the application they refer to.

### 5.5.2 Ensuring a smooth process for making changes

As explained earlier, there are no obvious and easy means of solving all of these challenges, at least not within the confines of the current Solvency II framework.

Below, we have set out some high-level thoughts on what firms can do to try and increase the efficiency of the process for making changes.

#### **1. *Engage early with the PRA***

Early engagement can be used to request additional guidance for the specific change(s) that the firm is looking to make, and to agree a high-level timetable where the change will require regulatory approval, prioritising any time sensitive opportunities.

#### **2. *Template cover note***

Firms may wish to consider having a template cover note (which could also be used during any pre-engagement period) to cover everything the PRA might want to know about the change(s) being proposed and to sign-post the amendments that have been made to the existing MA application document.

### **3. Application change governance**

Firms should have internal governance processes for determining whether a change requires an approval application to be submitted to the PRA.

### **4. Application change checklist**

Firms could produce (and regularly update) a checklist of items that need to be thought through when making a change – regardless of whether or not the change ends up requiring PRA approval. This would aid those stakeholders tasked with making changes to the MA portfolio.

### **5. Approval timelines**

Firms should embed MA approval timelines within wider strategic planning.

### **6. Consider test transactions**

Some firms may wish to carry out smaller sized, test-like transactions, as a precursor to larger transactions of that type, to help facilitate early PRA engagement.

### **7. Record PRA decisions of no new application required**

Where the PRA has determined that no new application is required, firms should make a record of this to help inform internal governance processes and/or PRA engagement for other future changes.

## **5.6 Looking ahead – post Brexit transition period**

Below, we set out thoughts on potential amendments to the current MA framework that could be considered after the end of the Brexit transition period.

### **1. Minor change process**

In a similar way to making minor changes to internal models, firms could be allowed to make certain changes to their MA portfolios, up to a defined threshold, at which point fresh approval would have to be sought from the PRA.

### **2. Thresholds for investing**

Consideration could be given to allowing firms to invest a small amount in a new asset class, without needing prior MA approval.

By allowing firms to invest in the asset, they can build up their experience of the asset, better understand the risks, identify the right external managers to partner with etc.

This knowledge can also be used to better inform the firm's application to invest a material amount in the asset class.

### **3. Materiality considerations**

The current MA rules are sometimes described as being black and white, for example when it comes to eligibility (i.e. an asset is either eligible and can be included in the MA portfolio, or it is ineligible and therefore cannot be included).



This means that, for example, taking on a new bulk annuity deal with an immaterial level of ineligible liabilities (in the context of the entire MA portfolio) may require these liabilities to be separated out and excluded from the MA portfolio.

In the example above, subject to appropriate due diligence and monitoring, adding a handful of such policies should not expose the overall MA portfolio to the risk of material loss. Any risks identified could also be mitigated in other ways (such as setting aside risk capital).

Permitting materiality under certain situations could streamline firms' abilities to take on new blocks of liabilities and portfolios of assets.

#### ***4. Documentation to be submitted as part of application to make change***

The documentation produced as part of the firm's internal governance processes could be collated (possibly together with a cover note) and submitted to the PRA, rather than having to update the MA application document.

# Appendix 1 – Examples of surrender options and liability management exercises

## Surrender options

### **Ill health retirement**

Individual deferred annuity contracts may include provisions to enable a policyholder to take a retirement income prior to their expected retirement date following early retirement on health grounds.

The morbidity risk giving rise to such early retirements is not currently permitted by the Solvency II MA rules.

### **Early / late retirement**

Typically, an individual scheme member will be entitled to receive benefits on retirement at a range of possible dates. Often, benefits defined in terms of pension at age 60/65 will have a pre-determined (not always market-linked) method for actuarially adjusting benefits according to the actual retirement age. Consequently, the date of the first annuity cash flow is not known with complete certainty.

### **Discretionary transfer values / cash commutation**

A discretionary basis may allow the scheme (buy-out provider) to make an appropriate assessment of a transfer value out of a pension scheme (pre-retirement) or commutation of retirement income to cash (at retirement) based on prevailing conditions, reserving / funding etc.

However, it is likely that some consideration of policyholder expectations should be allowed for, which may restrict the complete discretion on the part of the provider to set benefit amounts.

### **Non-discretionary transfer values / cash commutation**

Under non-discretionary arrangements, the providers must acknowledge conversion terms defined by the conditions that governed the proposed provision of retirement benefits by the scheme.

In this situation, an insurer would be unable to deviate from these terms in response to changes in market conditions.

### **Guaranteed Annuity Options (GAOs)**

A GAO provides the policyholder with the option to convert pension savings into a retirement annuity at a guaranteed rate. Most contracts were written in the 1980s, typically as part of a with-profits pension savings contract, and sold with guarantee rates that were deemed to be conservative at the time, but are typically in the region of 10%.

Following subsequent falls in interest rates and improvements in life expectancy, such guarantees are now extremely valuable.

Until the policyholder retires:

- The size of the “pot” to be converted into an annuity is not certain – it is dependent on investment returns (via with-profits bonus declarations); and
- The retirement date may not be fixed – often, the policyholder can choose to retire on one of a range of possible dates.

Section 226 pensions (Retirement Annuity Contracts) written before July 1988 typically included a GAO.

### **Guaranteed Minimum Pensions (GMPs)**

Under a contract with a GMP, a policyholder’s accumulated pension pot must be converted in at least the specified minimum amount. Policies with GMPs include:

- Section 32 (Finance Act 1981, deferred annuities) or “buy out” pension is a policy bought with funds from (transferred out of) a registered occupational pension scheme – here, the GMP represents the preservation of rights accrued under the scheme at a specific retirement date; and
- Members of contracted out salary related pension schemes (who contracted out of the State Earning Related Pensions Scheme prior to 6th April 1997).

### **Guaranteed Cash Options (GCOs)**

Sometimes, if the benefits under a pension contract are specified in terms of an annual annuity amount, a GCO may attach to allow the policyholder to convert the benefit into cash at a guaranteed rate. Reserving for the GCO needs careful consideration, as conversion at market annuity rates may be more/less beneficial for the policyholder.

## **Liability management exercises**

### **Enhanced Transfer Values (ETVs)**

A bulk ETV exercise involves offering deferred pensioners an opportunity to transfer out of a pension scheme and receive a one-off (but only temporary available) incentive to their standard transfer value (which may be free financial advice, or an enhancement to the cash value). In many cases the transfer value is lower than the corresponding technical provisions held by the scheme and, therefore, surpluses are released to the extent that members take-up the offer. Schemes often use this to improve buy-in affordability.

Recent Pensions Freedom legislation has also led to large amounts of members transferring out of defined benefit pension schemes. Under the new legislation, people aged 55 and over are given much greater choice about how and when to access defined contribution pensions. The requirement for most people to purchase an annuity was removed. All individuals now have a range of options, including flexibly drawing down income from a fund that remains invested and taking a pension as cash.

When transferring out, the defined benefit pension scheme will convert the benefits a member has built up into a cash sum. This is called a “transfer value” (also known as a “cash-equivalent transfer value”).

Members would then need to reinvest the transfer value either into:

- Personal or stakeholder pension;
- Pension scheme with another employer; or
- Self-invested personal pension (SIPPs).

### **Pension Increase Exchanges (PIE)**

A PIE exercise involves offering members the option to exchange an entitlement to non-statutory pension increases for a higher immediate pension with no future increases.

The impact is therefore to shorten the duration of the liabilities and reduce exposure to inflation, both of which can improve buy-in affordability.

### **Winding-Up Lump Sums (WULS)**

A WULS exercise involves exchanging all future pension for an immediate lump sum.

For a WULS payment to be made:

- The scheme must be winding up;
- The value of the member's scheme benefits cannot be more than £18,000; and
- The WULS must extinguish all benefit rights the member has in the scheme, including contingent benefits.

### **Other exercises**

Schemes may also run trivial commutation or other small pot exercises.<sup>34</sup>

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<sup>34</sup> (The Pensions Advisory Service, n.d.)

## Appendix 2 – Examples of market developments in Consumer Price Inflation (CPI)

One noticeable development in recent years relates to assets that provide cash flows linked to Consumer Price Inflation (CPI).

To date, it has been more difficult to source assets linked to CPI than to source assets linked to Retail Price Inflation (RPI). At the same time, there is increasing demand for CPI-linked assets from UK annuity writers – driven by the large volumes of bulk annuity transactions completing each year, increasing proportions of which have benefit payments linked to CPI.

This creates a supply demand imbalance, however the situation has been improving.

Some of the natural supply of inflation comes from regulated utility companies. Historically this supply has been RPI in nature, however we expect a greater proportion of their revenue streams to be CPI in nature in the future.

For example, Water company regulator Ofwat made the decision to move from setting water tariffs in-line with RPI to tariffs that track CPI-H (with effect from 2020). As a result, some water companies have started issuing CPI-linked debt (e.g. United Utilities, Affinity Water). In some cases, firms have even approached holders of their existing RPI-linked debt to explore opportunities to replace them with CPI-linked alternatives.

### Example 1: University of Cambridge (2018)

This features CPI-linked coupons where the CPI is capped and floored in exactly the same way as some in-payment pension scheme liabilities.

Cambridge may not have natural in-flows that are capped and floored in this way, but the demand from insurers for this type of repayment profile could, potentially, result in more favourable borrowing costs compared to other funding sources (subject to due consideration of the increased risk retained by the borrower).

### Example 2: Heathrow Airport (2018)

Heathrow Airport issued a 40-year index-linked bond in 2018.

The inflation linkage is expected to switch between RPI and CPI during its lifetime to precisely mirror the behaviour of the bulk annuity deal entered into between BAA and Legal & General during 2018.<sup>35</sup>

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<sup>35</sup> (Legal & General, 2018)

## Appendix 3 – Bibliography

- Actuarial Post, 2018. *Aon advises PA Consulting on GBP850 million scheme*. [Online]  
Available at: <http://www.actuarialpost.co.uk/article/aon-advises-pa-consulting-on-gbp850-million-scheme-buyout-13698.htm>
- Directive 2009/138/EC - Article 77b, 2009. *Directive 2009/138/EC - Article 77b*. [Online]  
Available at: <https://www.legislation.gov.uk/eudr/2009/138/article/77b#>
- House of Commons Treasury Committee, 2017. *The Solvency II Directive and its impact on the UK Insurance Industry*. [Online]  
Available at: <https://publications.parliament.uk/pa/cm201719/cmselect/cmtreasy/324/324.pdf>
- House of Lords Economic Affairs Committee, 2019. *Measuring Inflation*. [Online]  
Available at: <https://publications.parliament.uk/pa/ld201719/ldselect/ldeconaf/246/246.pdf>
- Hymans Robertson, 2018. *Buy-outs, buy-ins and longevity hedging - H2 2018*. [Online]  
Available at: [https://www.hymans.co.uk/media/uploads/Buy-outs\\_Buy-ins\\_and\\_Longevity\\_Hedging\\_H2\\_2018.pdf](https://www.hymans.co.uk/media/uploads/Buy-outs_Buy-ins_and_Longevity_Hedging_H2_2018.pdf)
- Hymans Robertson, 2020. *Risk Transfer report 2020*. [Online]  
Available at: [https://www.hymans.co.uk/media/uploads/Risk\\_Transfer\\_report\\_2020.pdf](https://www.hymans.co.uk/media/uploads/Risk_Transfer_report_2020.pdf)
- Incentive Exercises Monitoring Board, 2016. *INCENTIVE EXERCISES FOR PENSIONS - A CODE OF GOOD PRACTICE*. [Online]  
Available at: <https://www.thepensionsregulator.gov.uk/-/media/thepensionsregulator/files/import/pdf/incentive-exercises-industry-code-of-practice.ashx>
- Insurance Asset Risk, 2020. *LGIM to invest additional £21.4m in UK affordable housing*. [Online]  
Available at: <https://www.insuranceassetrisk.com/content/news/lgim-to-invest-additional-21.4m-in-uk-affordable-housing.html>
- InsuranceERM, 2019. *MPs grill Rule and Woods on equity release, ethics and Brexit*. [Online]  
Available at: <https://www.insuranceerm.com/analysis/mps-grill-rule-and-woods-on-equity-release-ethics-and-brexite.html>
- IPE, 2018. *Nortel UK pension scheme avoids PPF with £2.4bn L&G buyout*. [Online]  
Available at: <https://www.ipe.com/nortel-uk-pension-scheme-avoids-ppf-with-24bn-landg-buyout/10027117.article>
- KPMG, 2014. *Member Options Survey 2014*. [Online]  
Available at: <https://home.kpmg/content/dam/kpmg/pdf/2015/03/member-options-brochure.pdf>
- Legal & General, 2018. *Legal & General agrees £325m buy-in with Heathrow's Pension Scheme*. [Online]  
Available at: <https://www.legalandgeneralgroup.com/media-centre/press-releases/legal-general-agrees-325m-buy-in-with-heathrow-s-pension-scheme/>

Pensions Expert, 2018. *Northumbrian Water makes moves to manage liabilities*. [Online]  
Available at: <https://www.pensions-expert.com/DB-Derisking/Northumbrian-Water-makes-moves-to-manage-liabilities?ct=true>

property funds world, 2019. *PIC invests GBP160m in University of York student accommodation scheme*. [Online]

Available at: <https://www.propertyfundsworld.com/2019/12/18/281487/pic-invests-gbp160m-university-york-student-accommodation-scheme>

property funds world, 2020. *Aviva Investors provides GBP60m debt facility to Coastal Housing Group*. [Online]

Available at: <https://www.propertyfundsworld.com/2020/07/20/287675/aviva-investors-provides-gbp60m-debt-facility-coastal-housing-group>

Prudential Regulation Authority, 2018. *Dear Chief Actuary letter - Solvency II: Two and a half years on*. [Online]

Available at: <https://www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/letter/2018/solvency-2-two-and-a-half-years-on.pdf?la=en&hash=91BEE0DEE0BDC338B28E7E0287301540AD155E51>

Prudential Regulation Authority, 2018. *SS7/18 Solvency II: Matching adjustment*. [Online]

Available at: <https://www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/supervisory-statement/2018/ss718.pdf?la=en&hash=22A504591729AF307F1F1F2DEE9E4DB3CC0ACCB9>

Rule, D., 2018. *An annuity is a very serious business*. [Online]

Available at: <https://www.bankofengland.co.uk/-/media/boe/files/speech/2018/an-annuity-is-a-very-serious-business-speech-by-david-rule>

The Pensions Advisory Service, n.d. *Taking a small pension as a cash lump sum*. [Online]

Available at: <https://www.pensionsadvisoryservice.org.uk/about-pensions/retirement-choices/the-right-choice-for-me/taking-a-small-pension-as-a-cash-lump-sum>

The Solvency 2 Regulations 2015, 2015. *The Solvency 2 Regulations 2015*. [Online]

Available at: [http://www.legislation.gov.uk/uksi/2015/575/pdfs/uksi\\_20150575\\_en.pdf](http://www.legislation.gov.uk/uksi/2015/575/pdfs/uksi_20150575_en.pdf)

UK Statistics Authority, 2019. *Letter to the Chancellor of the Exchequer*. [Online]

Available at: <https://uksa.statisticsauthority.gov.uk/correspondence/letter-to-the-chancellor-of-the-exchequer-section-21/>

Woods, S., 2017. *Speech given by Sam Woods (Deputy Governor, Prudential Regulation and CEO, PRA) to London Business School*. [Online]

Available at: <https://www.bankofengland.co.uk/-/media/boe/files/speech/2017/insurance-supervision-at-the-pra.pdf?la=en&hash=FFAA867ACC01F0D38A164DCA90127855B7AB6494>



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