

# Solvency UK – What is a high degree of confidence?

## Solvency UK Taskforce

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### **Introduction to task force**

On 28 September 2023, the PRA published a consultation paper called 'CP19/23 – Review of Solvency II: Reform of the Matching Adjustment'[1]. The consultation closed on 5 January 2024 and the PRA is expected to publish the final supervisory statement in June with an effective date of 30 June 2024.

The PRA intends to reform the regulations that apply to the calculation of the Matching Adjustment to introduce a more principle-based approach. The end outcome of the reforms is intended to enable broader and quicker investments by UK based insurers to encourage them to play a greater role in the UK economy while ensuring that insurers hold sufficient capital to protect their policyholders.

Within the new requirements there a number of areas where there is no established actuarial practice. To assist Life actuarial practitioners, the Life Board of the IFoA established a Solvency UK task force, with the intent of publishing several timely discussions and thought leadership pieces to help establish potential acceptable approaches to meeting the PRA's requirements. This article is the first of many that we plan to publish over the next few weeks.

### **Background to the Attestation**

A key new requirement is the annual Matching Adjustment attestation, to be provided by a suitably designated SMF[2], likely to be the CFO. We will cover the expected governance associated with the attestation in a separate article. We will also cover separately the attestation connected to a new category of investment (assets with "highly predictable" cash flows), focusing here just on assets with fixed, rather than highly predictable, contractual cash flows.

In HM Treasury's (HMT) publication "Review of Solvency II: Consultation Response" it was set out that firms would be required to assess "whether or not the level of the fundamental spread (FS) on their firm's assets is sufficient to reflect all retained risks, and that the resulting Matching Adjustment (MA) reflects only liquidity premium, on

the basis of a rigorous assessment of the characteristics and valuations of assets held in their matching adjustment portfolios, including the results of the stress testing exercises”.

There is some judgement connected to what risks are retained by the firm. The HMT text suggests that all risks other than liquidity premium should be recognised as retained risks. The PRA’s view is that there are many sources of compensation that a buy and hold investor does not need to consider as retained risk and should be included within the MA. These include the liquidity premium; barriers to entry that allow lenders to earn additional spread; assets where a firm has invested in specialised skills to source, develop and manage the investment; investment and ongoing expenses. Note this is not an exhaustive list.

There is some deviation from the HMT’s wording in the PRA’s proposed wording: “As at the effective date of the firm’s Solvency and Financial Condition Report (SFCR): the fundamental spread used by the firm in calculating the matching adjustment reflects compensation for all retained risks, and the matching adjustment can be earned with a high degree of confidence from the assets held in the relevant portfolio of assets.” This wording feeds through to the draft revision of ‘PRA Rulebook: Solvency II Firms: Matching Adjustment instrument 2024’.

In particular, the term “high degree of confidence” is introduced. In this article, we focus on this new concept introduced by the PRA.

## What is a high degree of confidence?

There has been much debate already around what is meant by a **high degree of confidence**. It seems likely that, if no clarification is provided by the PRA, firms will need to apply judgement in determining how to interpret the regulation. Within this article we discuss and propose potential interpretations and how actuarial practitioners might be able to produce evidence to meet this PRA requirement. It is important to note that this is an introductory article and we plan to publish follow-up articles that go into more detail on the ideas shared in this article.

The PRA expects firms to demonstrate that “they understand how the market is pricing the asset’s risks and hence are able to identify the source of anticipated returns”. The PRA suggests in CP19/23 that a **high degree of confidence** is materially more certain than a 50th percentile or best estimate basis, which might suggest a stochastic modelling approach is required. It adds that firms should target the same level of certainty as they would for a portfolio of liquid corporate bonds with fixed cash flows and up to date, accurate credit ratings. The PRA also provides in the draft revision to SS7/18 a non-exhaustive list of evidence that firms can use to provide as justification that they have the ability to earn the MA with a **high degree**

**of confidence.** This opens up (at least) two potential interpretations of a **high degree of confidence**:

1. A percentile on a distribution, greater than the 50th percentile; or
2. An MA supported by robust evidence and analysis.

We discuss these two interpretations further now in this article.

## **1. A Percentile on a Distribution**

We consider two options within this interpretation.

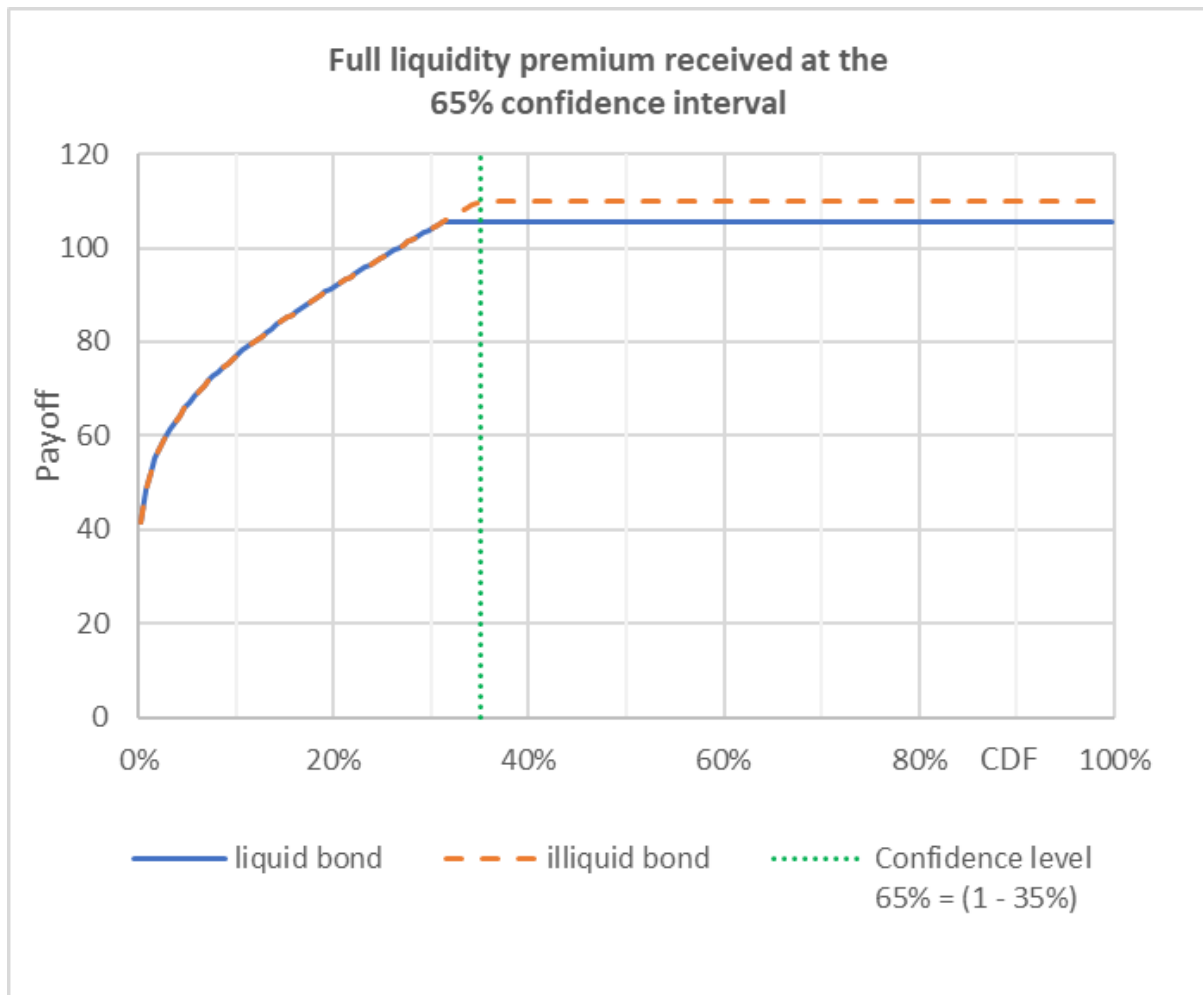
### **Option 1**

A firm might use a model calibrated to produce a distribution of individual asset cashflows and then pick a suitably high percentile on that distribution to meet the “materially more certain than a 50th percentile” definition. The PRA have not been explicit about what percentile they would consider acceptable for assets that are already MA eligible under the current regime, i.e. with fixed cashflows. Therefore, firms will need to identify the target percentile that they would use for the attestation. A possible approach would be to refer to the distributions in the existing internal models for liquid corporate bonds and determine implied biting percentiles across different categories (e.g. rating, tenors, financial vs non-financial).

We also note that the PRA suggests a confidence interval of around 85% (or between 80% and 90% depending on the shape of the distribution in the tail) for the determination of a suitable FS add-on for highly predictable assets in 2.54. This is in the context of assessing cash flow variability within highly predictable assets which has a minimum of 10 bps add-on and so is unlikely to an appropriate reference point.

Once the target percentile has been determined, this can then be used to assess illiquid assets by comparing whether the confidence level for achieving the full liquidity premium on the illiquid asset is above the target percentile.

For example, using a simple Merton model, the graph below compares a theoretically perfectly liquid bond (solid blue line), assumed to have no liquidity premium, with an illiquid, but otherwise identical, bond with the same market value but providing a higher coupon (dashed orange line). Please note the example is based on a simplified model and is purely for illustrative purposes.



**Assumptions (chosen for simplicity for illustrative purposes)** - Return on underlying assets are lognormally distributed. Term of bond is 1 year. Coupon is paid at the end of the year.

The liquidity premium is the difference between the dashed orange and the solid blue line. Here, by way of example, the full liquidity premium is received in 65% of all credit default scenarios (as shown by the green dotted line). Should this be insufficient to meet the target percentile calculated by the firm for demonstrating “a high level of confidence” then an FS add-on would be required. We will cover approaches for determining a suitable add-on using a quantitative approach in another paper.

## Option 2

Such an approach might be extended for more complex assets. For illiquid assets, there may be collateral associated with infrastructure or commercial/residential property investments that replaces the underlying company assets used to value bonds in the Merton model.

A different process which takes account of the liabilities might be:

1. Identify a risk distribution for the sale value of the underlying collateral (e.g. commercial property), inflation and swaps.
2. Use a stochastic model to project asset values, loan-to-value, debt-service-coverage-ratio and loss given default over time. The probability of default may depend on indicators such as the projected LTV and DSCR.
3. Determine the confidence level at which all future liabilities can be paid.
4. Where this confidence level meets the hurdle confidence level then the attestation is met.

Note that many firms already have some form of cashflow distribution or confidence levels from internal capital or ratings models.

Simplifications may be used e.g. using broad credit ratings and then interpolating for notched credit ratings. Allowance could also be made within the model for reinvestment, hedging and potential liquidity strain.

Suitable scenario analysis could be used, in line with the HMT's "on the basis of a rigorous assessment of the characteristics and valuations of assets held in their matching adjustment portfolios, including the results of the stress testing exercises."

In 5.35 of the draft SS7/18, the PRA says that it expects firms to take a proportionate approach to satisfying themselves of their ability to earn the MA so this approach may be better suited to firms that are larger and assets that attract a higher MA. Were a number of firms to develop different modelling approaches, this would avoid over-reliance on one particular model and so reduce systemic model risk across the industry.

## **2. Evidence and analysis based approach**

Another potential approach to demonstrating that the MA can be earned with a **high degree of confidence** is to follow a systematic approach to analysing the contributing factors to the spread on the underlying asset or asset class which is a function of the underlying risks and use the analysis to demonstrate whether or not the Fundamental Spread is a sufficient allowance for risks retained by a buy and hold investor. We describe a potential approach to this below.

A first step in the approach could be to triage the assets in the MA portfolio (as proposed by the PRA) based on the underlying characteristics bucketing assets into 'Step 1', 'Step 2' and 'Step 3' assets. Step 1 assets being those that are materially similar in risk profile to the assets underpinning the PRA's calibration of the existing Fundamental Spread tables. This is likely to be corporate bonds or corporate bond-

like assets. Step 2 assets are anything else that doesn't fall within the Step 1 definition. Step 3 assets are a subset of Step 1 and Step 2 assets which are assets assessed to be material contributors to the MA and requiring additional analysis and supporting evidence, as proposed by the PRA in CP19/23.

For Step 1 and Step 2 assets one might expect to do the analysis at the homogeneous risk group level, rather than the individual asset level, and form a view on whether or not adjustments are needed to the rating or FS to reflect risks not already allowed for in the rating and the PRA calibration of the FS tables. For Step 3 assets the PRA are clear that they expect the analysis to be performed at the individual asset level.

For **Step 1 assets**, one could consider if there are any retained risks not already reflected in the FS tables. This could also involve checking that that credit rating of the assets is consistent with an approach used by an external Credit Rating Agency (CRA) and that the rating is based on the latest available information. Criteria that could be used to assess if an asset does not fall within the **Step 1** criteria could be:

- Assets with internal ratings;
- Assets that are internally valued;
- Privately placed illiquids or restructured assets;
- Where credit ratings methodology is materially different from an ECAI/CRA approach.

**Step 2 assets**, could follow similar checks to Step 1 assets, but given the difference in nature to corporate bonds, additional checks are likely to be expected such as:

- Check for risks not captured in the rating and determine an appropriate FS add-on.
- Check effectiveness of any underlying collateral and implied impacts on the recovery rate and how that relates to the recovery rate underpinning the FS calculation.

**Step 3 assets**, determine the assets within the portfolio that are material contributors to the MA and perform additional individual asset level analysis on these assets to ensure that one has a **high degree of confidence** that all retained risks are reflected in the credit rating and that the risk adjustment that would be derived for the asset is less than the relevant FS for the given asset. If the FS is lower than the expected risk adjustment then one would need to apply an asset level adjustment to the FS, effectively a FS add-on being the difference between the expected risk adjustment and the PRA referenced FS.

The PRA suggests criteria to be used for identifying the most material contributors to the MA such as the Xth biggest contributors in £ terms to the MA or assets with a

spread more than Xbps above a comparable corporate bond. We don't explore this criteria in this article any further, but perhaps we could in a follow up article...

**For all assets**, the attestation places greater emphasis on having proper risk identification documents and mapping to external credit rating methodologies. CQS mapping should be appropriate and allow for all the risks. Assets which have ratings that don't reflect the current risk of the asset, perhaps those on a watch list or those with an exposure to a risk not reflected within the rating could potentially require an adjustment to the FS if it is shown that the risk adjustment needed for the asset, allowing for these points is greater than the PRA FS. It could be that even allowing for additional adjustments needed for assets on watch list or retained risks not allowed for in the rating that the FS is greater than the expected risk adjustment and no FS add-on is required.

There is a question on materiality, at what level should firms apply an FS add-on – perhaps the answer is the same materiality rules that they apply to the production of the SFCR?

Two asset classes that one would expect to easily meet the definition of a high degree of confidence of earning the MA would be vanilla corporate bonds (Step 1) assets – it is expected that no further analysis will be needed. Separately, given that the PRA has specified prescriptive rules to the testing the level of MA on equity release mortgages through meeting the Effective Value Test within SS3/17, is it reasonable to assume that as long as the MA on equity release mortgages is lower than that allowed under the Effective Value Test one does not need to perform any additional analysis.

There are pros and cons to the two approaches discussed above which vary by asset class:

Asset Class	Quantitative/Model		Analysis and evidence	
	Pros	Cons	Pros	Cons
Corporate bonds	Data is available to calibrate models; Limited need for expert judgement.	Questionable if really needed given the PRA calibration of the FS tables is already based on historic data	Can be used to identify outlier bonds not likely to be within PRA calibration	Relies on expert judgement, so need good governance on how that is controlled e.g. expert judgement panels.
<u>Illiquids</u>	Can leverage existing Internal Model calibrations and internal credit rating methodologies	General lack of data available to calibrate models	Can perform analysis to analyse the pricing of the assets and understand the pricing of the risks at investment relative to corporate bonds	

## Conclusion and next steps

This article has discussed two potential approaches to addressing the PRA requirements drafted as part of CP19/23. In the absence of further clarification from the PRA in their final policy statement, the approach that practitioners choose to adopt could vary by asset class based on a number of factors such as: materiality of the asset class; availability of historic data and models to analyse the assets; as well as the interpretation of what the PRA means by a high degree of confidence – is it to demonstrate that the FS captures all retained risks and therefore the MA can be earned with a high degree of confidence, or is it to show that the FS captures all retained risks and the MA can be earned with a degree of confidence in excess of a percentile on a distribution?

There are many further questions the Solvency UK task force intends to answer through a series of articles and we expect that this article generates discussion and further questions, which we look forward to reading and addressing in follow-up articles over the next few weeks.

***With thanks to the peer and Life Board reviewers for their feedback:*** [Clarence Er](#) , [Joshua Waters FIA CERA CFA](#) , [Joyeeta Kanungo FIA](#) , [Richard Schneider](#).

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[1] [CP19/23 – Review of Solvency II: Reform of the Matching Adjustment | Bank of England](#)

[2] [Senior Managers Regime | Bank of England](#)

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This article by the [Institute and Faculty of Actuaries](#) Life Board [Solvency UK Taskforce](#) discusses the new requirement introduced by the PRA in CP19/23, the Matching Adjustment Attestation and 'a high degree of confidence'.

<https://www.linkedin.com/pulse/solvency-uk-what-high-degree-confidence-solvency-uk-taskforce-vckkf/?trackingId=LlubsjgOCItSWa8tdC6ipA%3D%3D>