

# September Topical Issues

23 September 2021



# Equity Release Mortgage Investments

## Current Issues

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# Agenda

1. Background
2. Market developments
3. Effective Value Test
4. Other trends

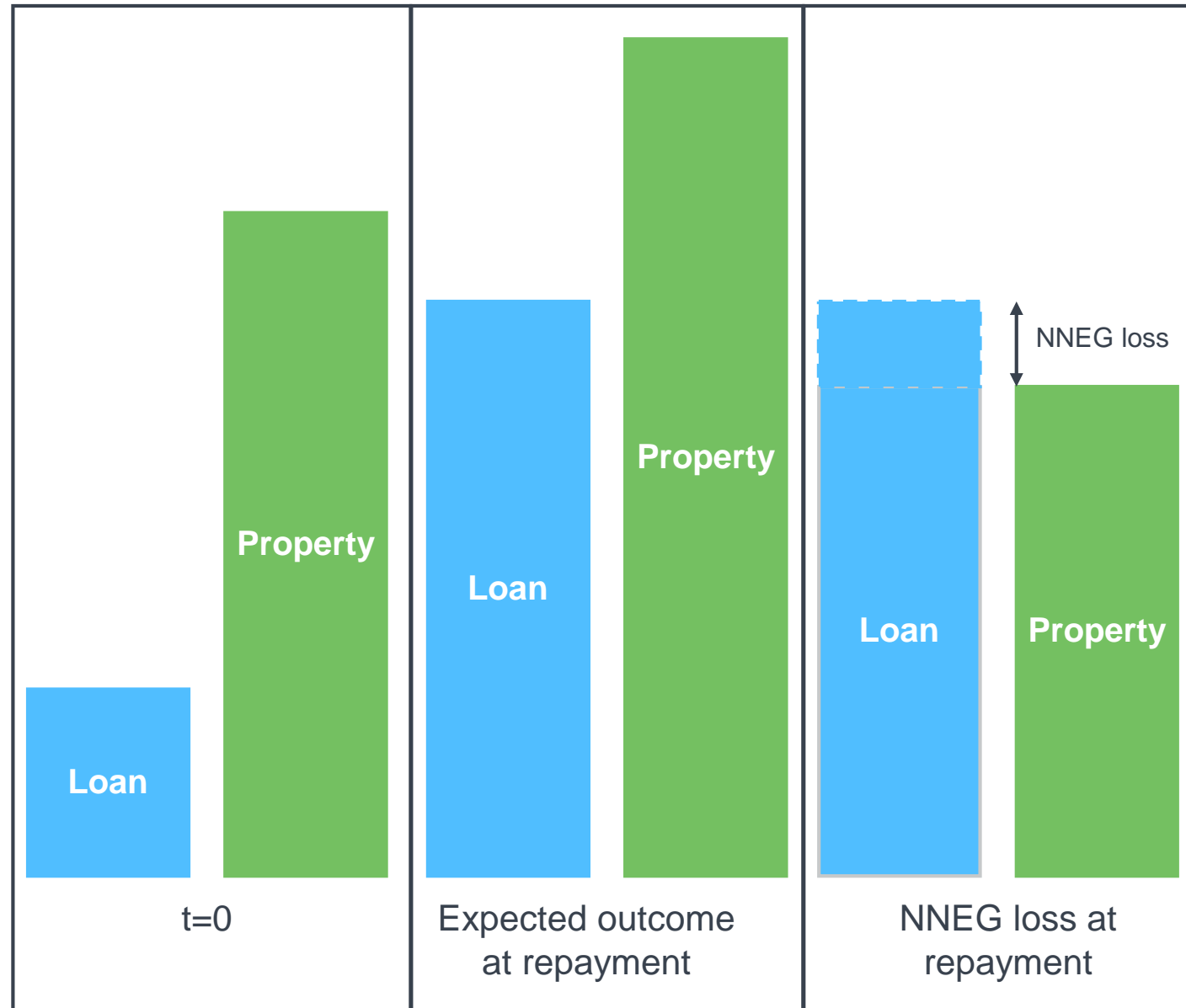
# Background

**Product:** Loan secured against residential property, repayable upon death or entry into long-term care

**Common features:**

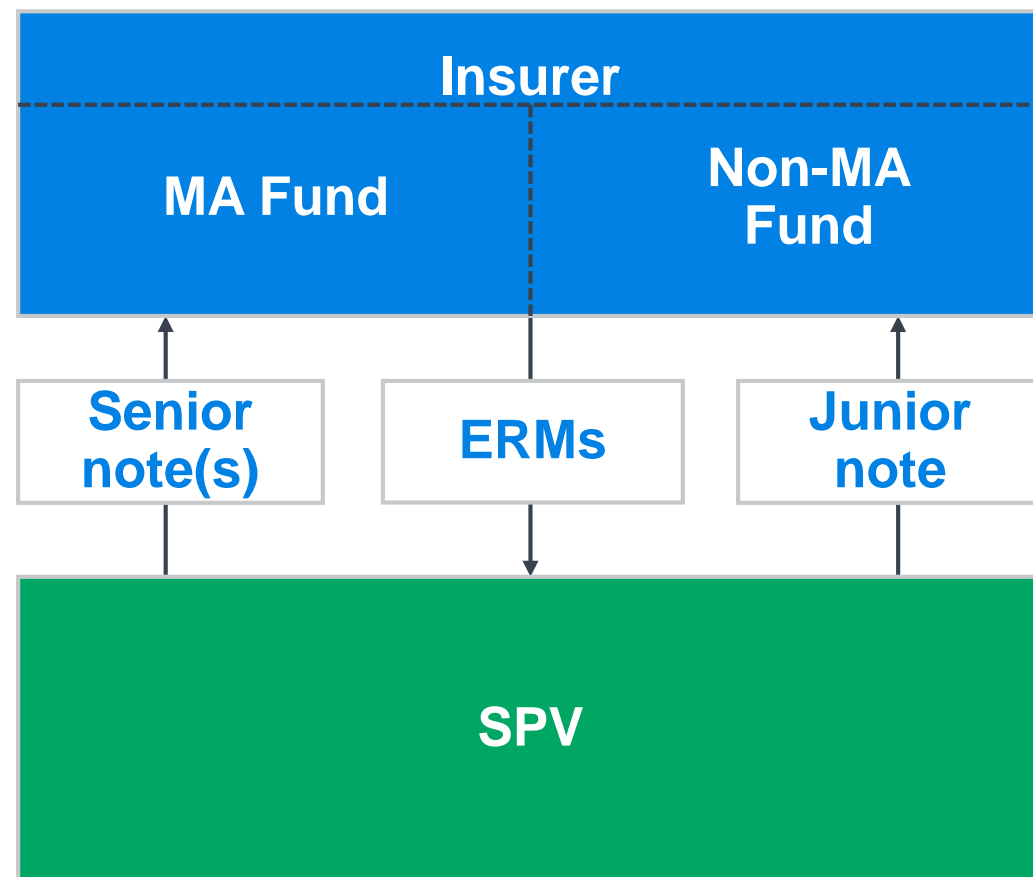
- Fixed interest rate for life
- Roll-up of interest
- Early repayment (sometimes with penalties)
- Drawdown facility
- Downsizing protection
- No-Negative-Equity-Guarantee (“**NNEG**”)
  - *“whenever the amount owing to the provider member is to be repaid from the proceeds of sale of the secured property, the amount owing must not exceed the net proceeds of sale (after deduction of selling agents’ fees, legal fees, disbursements and reasonable costs).”*

Source: Equity Release Council Rules and Guidance



# Matching Adjustment Considerations

- ERM's are often used to back annuity liabilities
- But ERM's do not meet the "fixed cash flows" criterion of the MA rules
- The PRA permits insurers to restructure ERM's by securitising the cash flows, creating:
  - Senior notes with fixed cash flows that match a portion of the liabilities of the MA fund
  - A junior note through which residual ERM cash flows accumulate
- Typical to retain all tranches
- The contribution of the ERM's to the MA is derived as the spread on the senior notes less the Fundamental Spread
- The senior notes need to be rated in order to allocate the most appropriate Fundamental Spread



# Market developments

UK new ERM sales in H1 2021 of £2.3bn:

- L&G = £0.4bn
- Just Group = £0.3bn
- Rothesay = £0.3bn

**JUST**



**Rothesay**

Just Group has disposed of a number of portfolios of ERMs:

- **December 2020:** £540m portfolio to undisclosed buyer
- **August 2021:** Portion of £475m portfolio to Rothesay Life (Consideration of £334m)
- **September 2021:** Portfolio of value of c.£300m to Phoenix Group



# Effective Value Test

- SS3/17 sets out PRA's principles for assessing MA benefit on ERMs
- Includes diagnostic "Effective Value Test" (EVT) to identify firms with potentially excessive MA benefit
- EVT requires a comparison of the value of ERMs plus MA benefit (the "Effective Value") to an "Economic Value" of the ERMs which uses a prescribed approach to the NNEG
- The Economic Value NNEG cost uses a risk-neutral Black-Scholes formula requiring a deferment rate and property volatility parameter
  - PRA minimum deferment rate = 0.5% p.a. (from 31/12/2021)
  - PRA minimum volatility parameter = 13.0% p.a.
- From end-2021, SS3/17 also requires insurers to evaluate EVT in stressed scenarios as a validation technique on the MA benefit assumed in the SCR calculation

Supervisory Statement | SS3/17

Solvency II: Illiquid unrated assets

April 2020

(Updating September 2019)



# EVT in stress

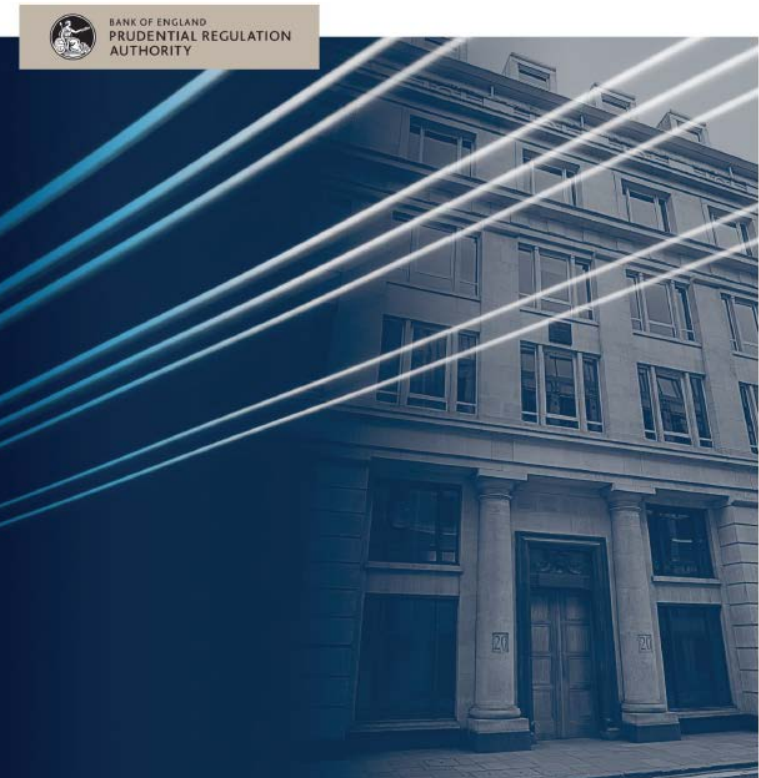
- EVT in stress requires an estimate of the EVT parameters in a given SCR stress/simulation and a comparison of the Economic Value and Effective Value in that simulation
- Could identify weaknesses in the internal model
- SS3/17 states that:
  - Firms should engage with the principles of the EVT to derive their own deferment rate and volatility parameters in stress
  - A zero deferment rate is not credible (in base and in stress)
  - The PRA considers changes in real yields in setting its minimum deferment rate
  - Firms should consider property prices and real and nominal rates in stress
  - EVT should be applied in a sufficiently wide range of scenarios to give assurance that MA is not overstated
  - Where a subset of simulations is used, re-ranking risk should be considered
- Firms likely to require an assessment of the best estimate deferment rate in addition to stressed deferment rate

Supervisory Statement | SS3/17

## Solvency II: Illiquid unrated assets

April 2020

(Updating September 2019)





# EVT in stress (2)

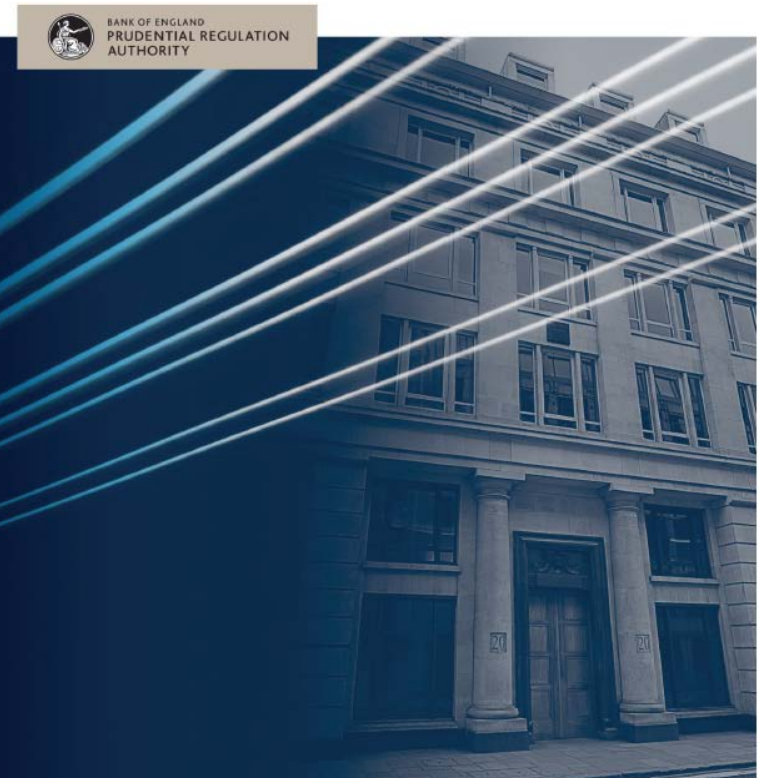
- Potential frameworks for EVT in stress:
  - Apply EVT and derive SCR uplift to ensure EVT is passed
  - Monitor EVT “pass rate”
  - Monitor materiality of EVT shortfall
  - Adopt risk-neutral NNEG as primary approach
- A challenge is to identify where any internal model “weakness” arises:
  - Reported value of ERMs
  - MA benefit
- Stability of results likely to be a challenge

Supervisory Statement | SS3/17

Solvency II: Illiquid unrated assets

April 2020

(Updating September 2019)



# Other trends

**NEEG Hedges**

**Securitisation  
Optimisation**

**PRA QIS  
Implications**

# Potential Impacts of the PRA QIS and Some Implications for Credit Risk Management

Russell Ward, Florin Ginhina

23<sup>RD</sup> SEPTEMBER 2021

# Introduction

## Part 1 - Potential impacts of the PRA QIS exercise

- On 20<sup>th</sup> July 2021, Bank of England published a Quantitative Impact Study (**QIS**) to inform its upcoming review of Solvency II.
- Participating UK firms are asked to model two potential scenarios incorporating a variety of changes to the calculation of both the Risk Margin (RM) and the Matching Adjustment (MA) as well as performing sensitivity testing for rates up and down, moderate and extreme credit spread widening, and extreme credit spread widening with downgrades.
- Milliman has undertaken a quantitative analysis to gauge the impact of these potential reforms. We have focussed our efforts on examining the balance sheet impact of changes to the RM and MA and do not consider any consequential impacts on the Transitional Measure on Technical Provisions (TMTP) or SCR in this analysis.

## Part 2 - Some implications for credit risk management

- Under Solvency II, much of credit risk management for MA portfolios is rooted in the design of the MA. The three-component structure of MA portfolios alongside cashflow matching requirements had a significant influence on firms' MA asset portfolios.
- We consider the impact of the potential reforms on firms' MA portfolios, with a particular focus on the deduction for credit risk from asset yields.

# Part 1

## Potential Impacts of the PRA QIS





# Summary of Hypothetical Reforms

Aspect of regulatory regime	Our summary of the objectives – challenges to be addressed	Scenario A changes	Scenario B changes
Risk Margin	<ul style="list-style-type: none"> <li>- Reduce sensitivity to interest rates</li> <li>- Reduce overall quantum of the RM</li> </ul>	Move from cost-of-capital approach to a distribution based method, similar to the MOCE under ICS.	Implement time-dependent scaling factor $\lambda$ to current cost-of-capital approach, similar to proposed EIOPA reforms.
Matching Adjustment	<ul style="list-style-type: none"> <li>- As spreads change, for the MA to better reflect a sharing of that change between FS and illiquidity.</li> <li>- Maintain mitigation of pro-cyclicality and viability of long-term buy-and-hold investment strategies.</li> </ul>	Fundamental Spread structure: <b>Expected loss</b> <b>+ Credit Risk Premium (CRP):</b> <ul style="list-style-type: none"> <li>- 25% of current Z-spread plus;</li> <li>- 25% of 5-year average spread;</li> <li>- Floor and cap applied by CQS/sector.</li> </ul> <b>+ Valuation Uncertainty (VU):</b> <ul style="list-style-type: none"> <li>- 7.5bps for IFRS Level 2 and Level 3 investment grade;</li> <li>- 25bps for IFRS Level 3 sub-investment grade.</li> </ul>	Fundamental Spread structure: <b>Expected Loss</b> <b>+ Credit Risk Premium (CRP):</b> <ul style="list-style-type: none"> <li>- 25% of current Z-spread plus;</li> <li>- 0% of 5-year average spread;</li> <li>- Floor applied by CQS/sector.</li> </ul> <b>+ Valuation Uncertainty (VU):</b> <ul style="list-style-type: none"> <li>- 3.75bps for IFRS Level 2 and Level 3 investment grade;</li> <li>- 12.5bps for IFRS Level 3 sub-investment grade.</li> </ul>

# Our Approach

- We have compared balance sheet impacts for a representative portfolio of in payment annuities backed by 2 notional asset portfolios across the 3 scenarios defined by the PRA, namely:
  1. Base + sensitivities to rates, spreads and downgrades
  2. Scenario A + sensitivities to rates, spreads and downgrades
  3. Scenario B + sensitivities to rates, spreads and downgrades

The asset portfolios are characterised as:

- **Conservative** - a portfolio of plain vanilla corporate bonds with a base MA of 54bps
- **Specialist** - a portfolio with a significant allocation to illiquid assets (IFRS valuation level 2 and 3) with a base MA of 158bps.

# Our Model

## Key assumptions and limitations

### Assumptions



- Representative annuity portfolio constructed using CMI data - assuming a 10% UK market share.
- Level in-payment annuity liabilities.
- Fixed income assets (zero coupon bonds) back component A of the MAP and the Risk Margin, remaining assets in cash.
- Under the downgrade scenario, cash is used to fill the shortfall in component A assets.
- Risk Margin based on SII Standard Formula stresses.
- Valuation date is year-end 2020.
- Firm assumed to be capitalised to 160% of SCR (all Tier 1).

### Limitations



- SCR is not fully recalculated for each run but modelled approximately as a constant percentage of net BEL.
- The impact of TMTP is ignored.

# Our Model

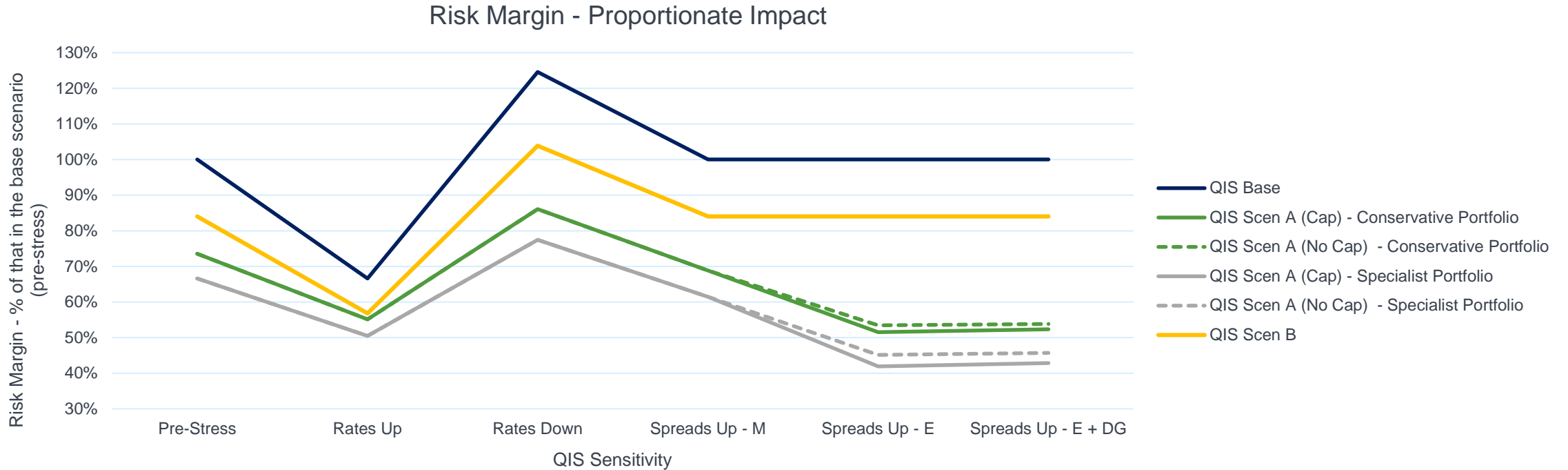
Illustrative asset portfolio compositions

Conservative		
CQS	Financial	Non-Financial
0	4%	6%
1	10%	15%
2	15%	30%
3	8%	12%
4 and below	-	-
IFRS hierarchy assumptions		
Level 1	Level 2	Level 3
100%	-	-

Specialist		
CQS	Financial	Non-Financial
0	3%	2%
1	10%	5%
2	20%	10%
3	33%	17%
4 and below	-	-
IFRS hierarchy assumptions		
Level 1	Level 2	Level 3
5%	45%	50%

# Impact - Risk Margin

First we consider the Risk Margin changes in isolation



## Scenario A (MOCE approach)

- Risk Margin **reduced** in pre-stress base by **c.25%** for the Conservative Portfolio and **c35%** for the Specialist Portfolio.
- Reduced rate movement sensitivity: standard deviation reduced by c.50%.
- Some offset to impact of spreads widening as MA is included.

## Scenario B (Lambda approach)

- Risk Margin **reduced** in pre-stress base by **c.15%**.
- Reduced rate movement sensitivity: standard deviation reduced by c.20%.
- Insensitive to the impact of spreads widening as MA is excluded.

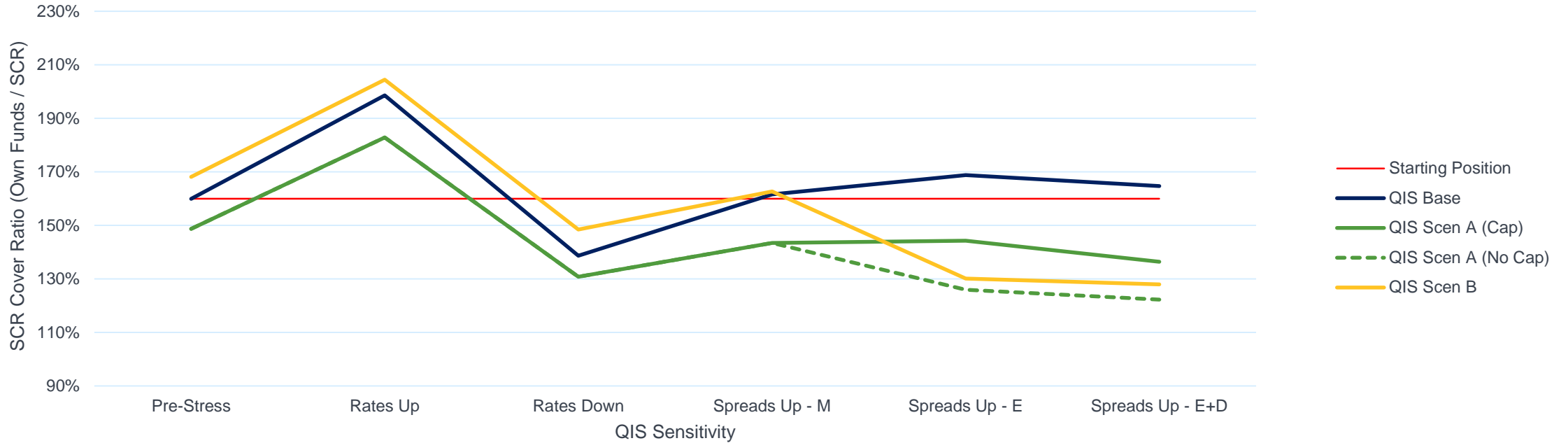


# Impact – Solvency Position

Here we consider the implications for the overall solvency position

Conservative Assets

SCR Cover Ratio - Combined RM and MA Changes



## Scenario A

- Reduced Risk Margin is more than offset by cuts to the MA.
- There is a significant reduction in the SCR cover ratio in the opening position and across all sensitivities.
- Where the CRP is uncapped, Scenario A is consistently more onerous than Scenario B.

## Scenario B

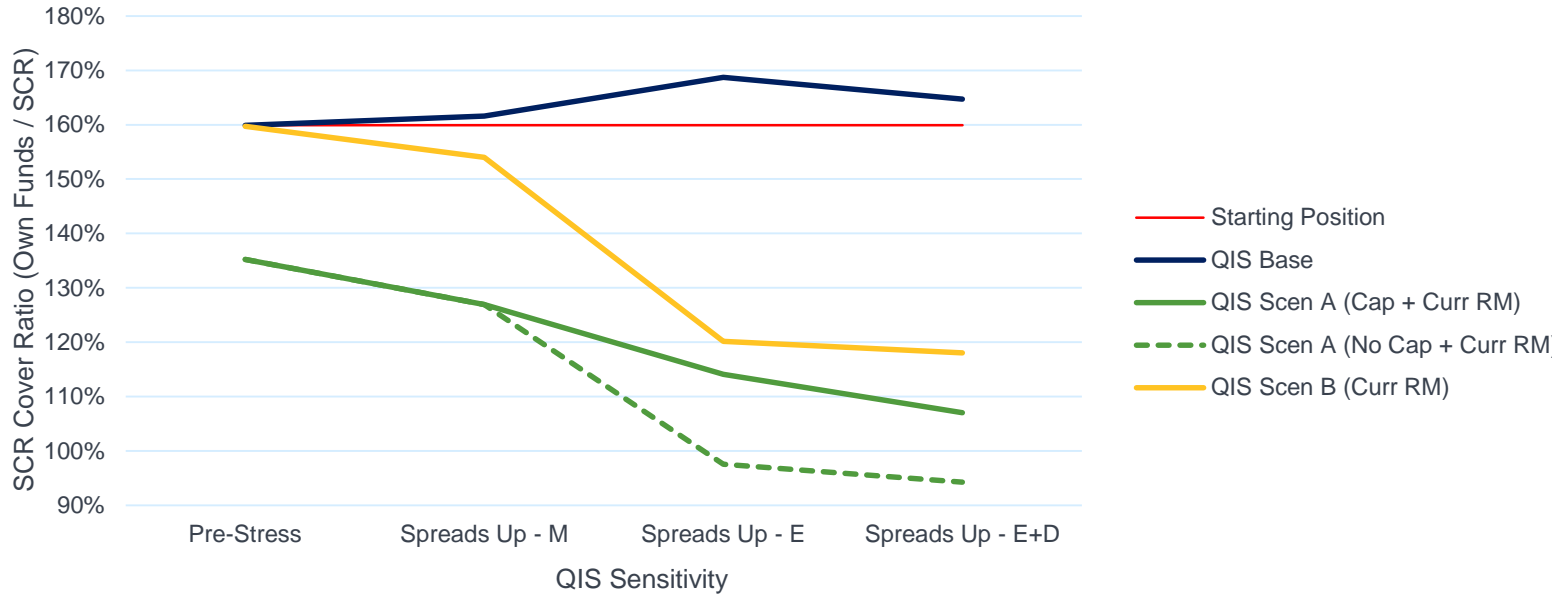
- Reduced Risk Margin dominates delivering an increase in the SCR cover ratio in the base position and rates stresses.
- A more conservative MA bites in the spreads and downgrades stresses quickly reducing the SCR cover ratio to a level similar to Scenario A.

# Impact – Matching Adjustment

Next we consider the impact of the MA changes alone by setting the RM to that in the base scenario

Conservative Assets

SCR Cover Ratio - Impact of MA Changes Under Credit Sensitivities



- Removing the Risk Margin changes makes it clear just how significant and adverse the MA changes are.
- Scenario B avoids up-front change in the base position but appears more likely to generate pro-cyclical investment behaviour as spreads widen and the SCR cover ratio begins to fall significantly.
- Scenario A (CRP capped) produces a material up front hit to the SCR cover ratio c25pp reduction but is less pro-cyclical than Scenario B due to the dampening effect of the CRP cap which bites under the more extreme spreads widening sensitivities.
- Scenario A (CRP uncapped) appears to be the worst of both worlds.

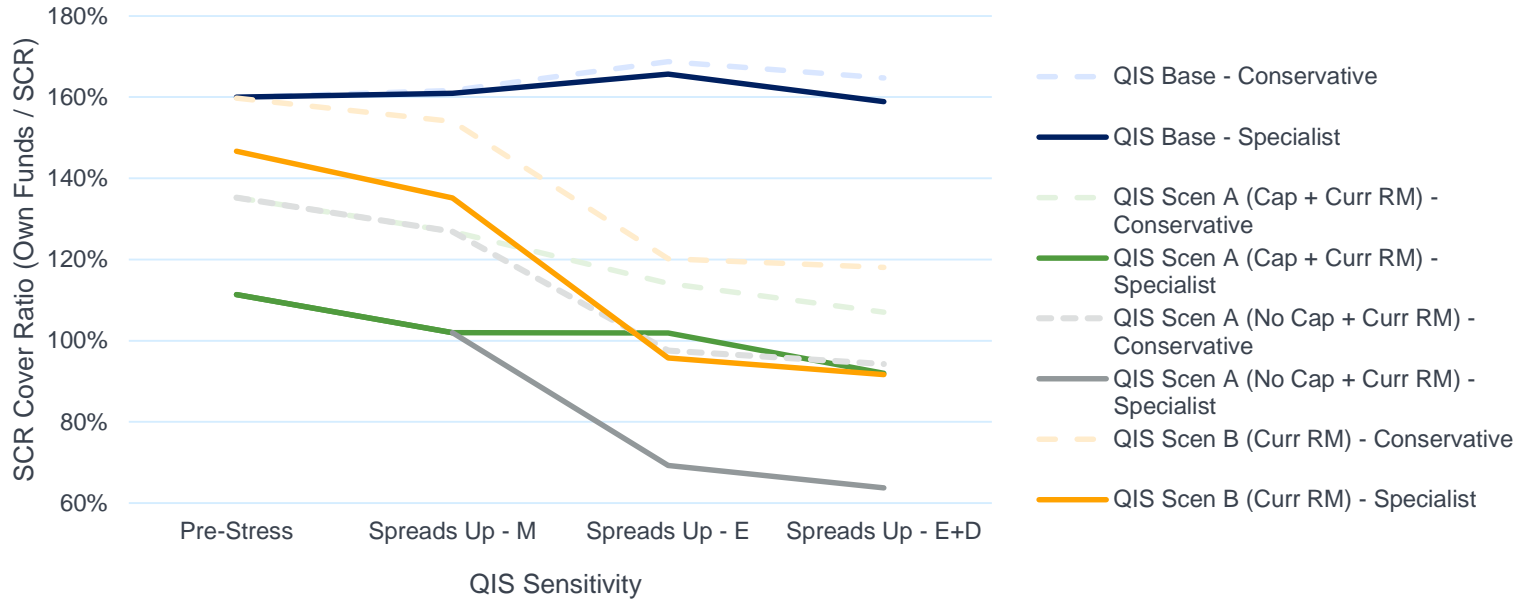
MA Values (bps)				
	Base	Spreads Up - M	Spreads Up - E	Spreads Up - E+D
QIS Base	54	113	361	354
QIS Scen A (Cap + Curr RM)	20	64	271	259
QIS Scen A (No Cap + Curr RM)	20	64	243	238
QIS Scen B (Curr RM)	54	103	281	277

# Impact – Matching Adjustment

Next we consider the impact of the MA changes alone by setting the RM to that in the base scenario

Specialist Assets

QIS - SCR Cover Ratio Progression - Impact of MA Changes



- Note – asset value scaled back to retain 160% SCR cover ratio.
- QIS Base (current SII) is insensitive to the change in asset portfolio.
- MA reductions under stress are increased for the specialist asset portfolio across all alternative approaches tested. The result is a consistently lower SCR cover ratio.
- Where a cap is applied to the CRP under Scenario A, we note the relative deterioration in SCR cover ratio for the specialist asset portfolio reduces with stress severity as the cap bites more heavily.

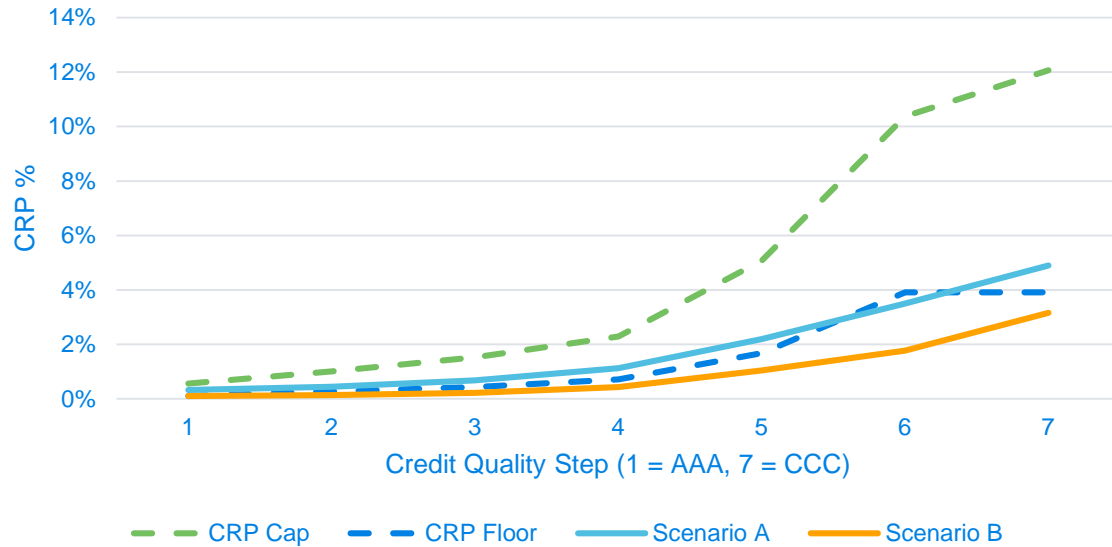
	MA Values (bps)			
	Base	Spreads Up - M	Spreads Up - E	Spreads Up - E+D
QIS Base	158	233	553	541
QIS Scen A (Cap + Curr RM)	87	142	435	417
QIS Scen A (No Cap + Curr RM)	87	142	374	364
QIS Scen B (Curr RM)	138	193	424	416

# CRP – Pre Stress

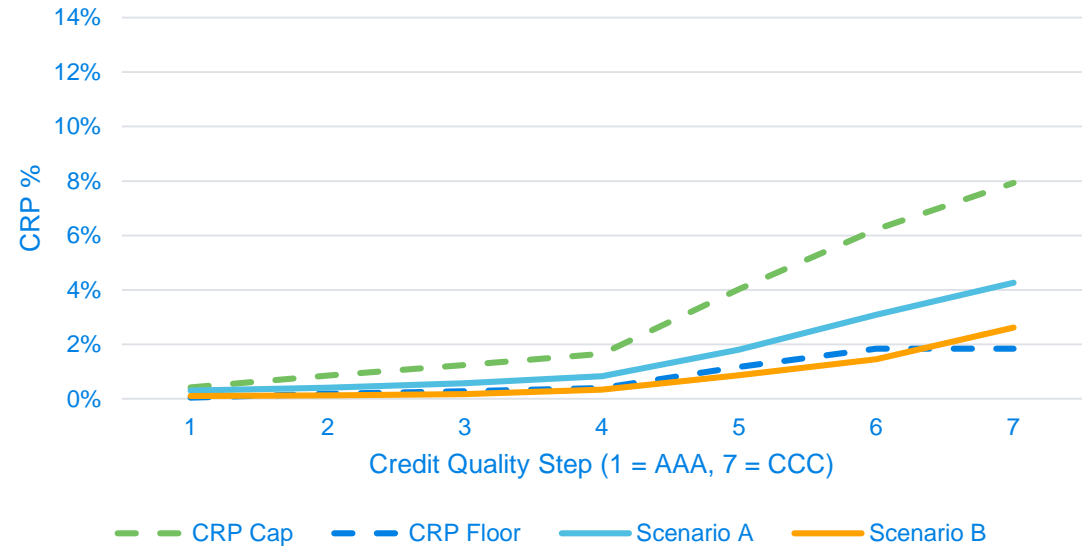
Finally we consider the CRP in greater detail

Conservative Assets

### CRP (Financials) - Pre Stress



### CRP (Non Financials) - Pre Stress

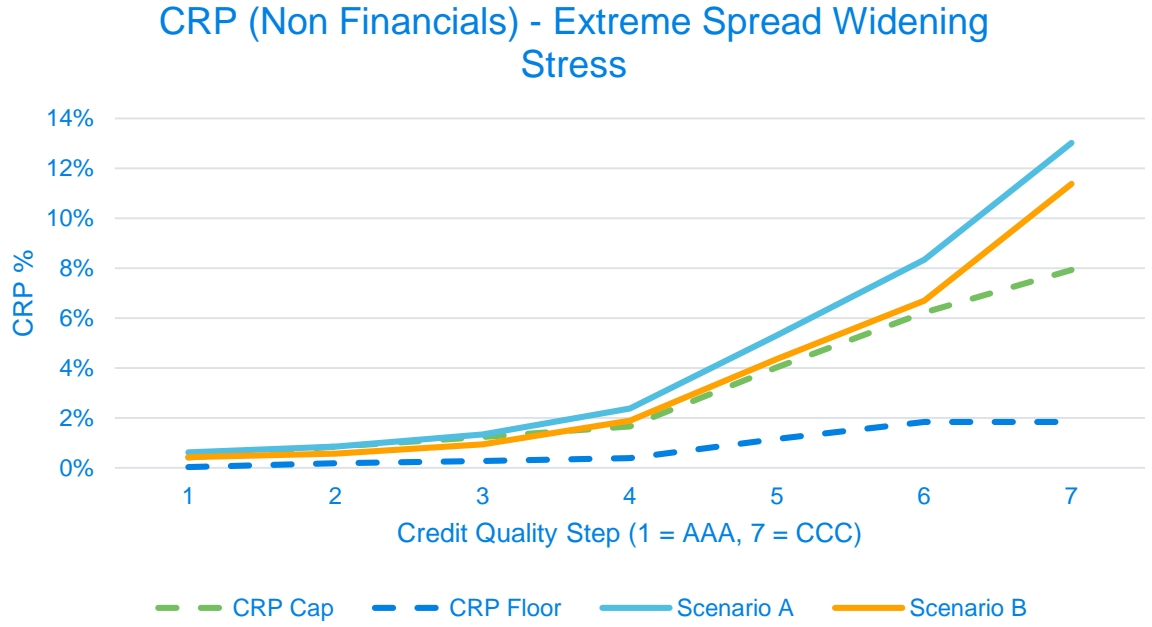
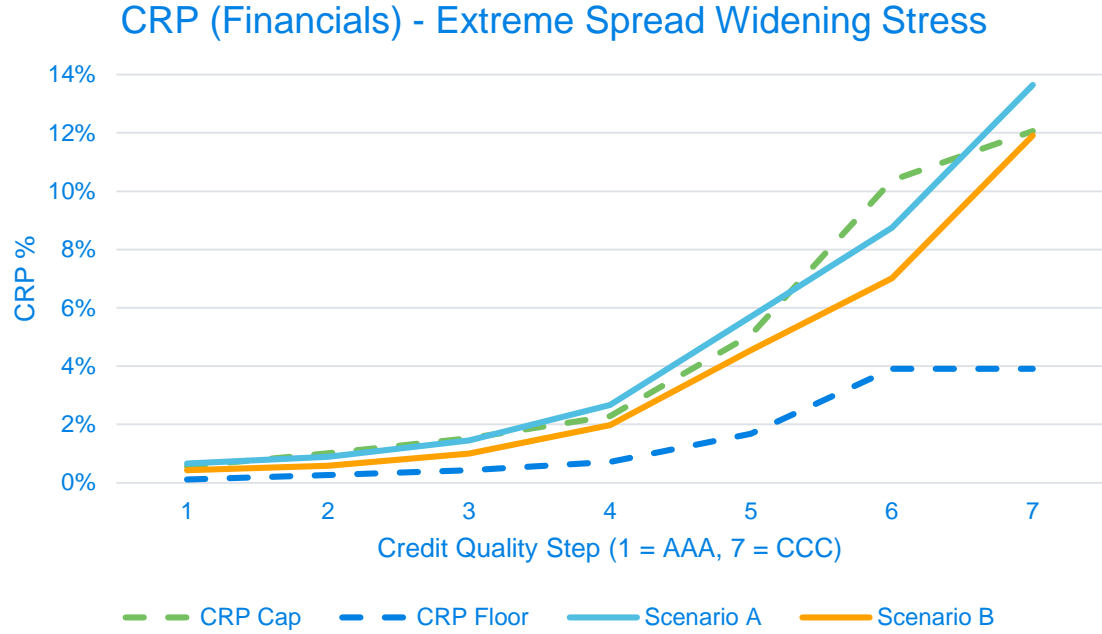


For our model, pre-stress CRP results lie broadly within the cap-floor corridor for Scenario A but for Scenario B the floor can bite.

# CRP – Extreme Spread Widening Stress

Finally we consider the CRP in greater detail

Conservative Assets



- For our model, CRP levels under the extreme spread widening sensitivity bring the cap into play.
- The impact of the cap is greater for Scenario A as expected.
- Our results also indicate a more marked benefit from the presence of the cap when considering non-financials vs financials.



# Summary (1)

## Overarching Comments

- Firstly, we readily acknowledge that designing changes that effectively address the challenges noted with the current SII regime in relation to the Risk Margin and Matching Adjustment while balancing the impacts across a diverse range of insurance firms is going to be difficult.
- It also important to remember that the PRA has made clear that the options tested in the QIS are to inform policy changes but are not themselves direct policy proposals.

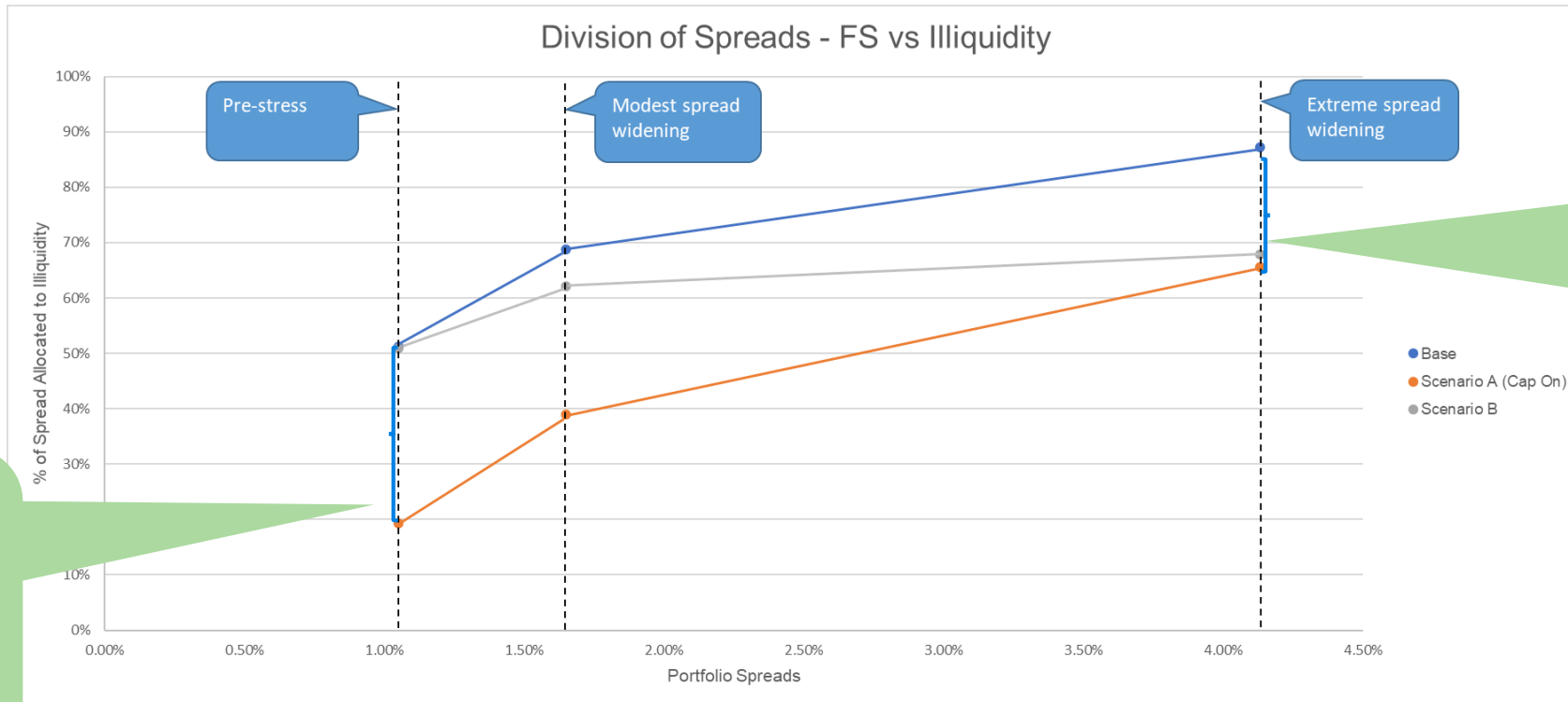
## Risk Margin

- Both alternative proposals support the aim of reducing the RM's sensitivity to interest rates with the Scenario A approach being most effective.
- Generally speaking, both alternative proposals also support the aim of reducing the quantum of the RM – again the Scenario A approach tends to generate the greater reduction. However, this is not universal and we note that for some unit-linked firms Scenario A can generate a significant increase in the RM.
- The overall impact of the changes to RM will be dampened to some extent by movements in the TMTP.

# Summary (2)

## Matching Adjustment

A fundamental question is just what proportion of spreads can be allocated to illiquidity vs credit and how does that proportion change as spreads widen under stress. The QIS scenarios illustrate rather different approaches:



Scenario A (cap On) offers a similar compensation profile but at a much reduced level

Scenario B keeps the illiquidity share more constant => reduced compensation as spreads widen

# Part 2

## Some Implications for Credit Risk Management



# Importance of credit risk management

## Demand for yield

- Driven by growth and diversification of asset portfolios
- Demand for 'Illiquid assets' – higher yield, cash flow match at longer terms
- Bulk Annuity market becoming more competitive

## Regulatory challenges

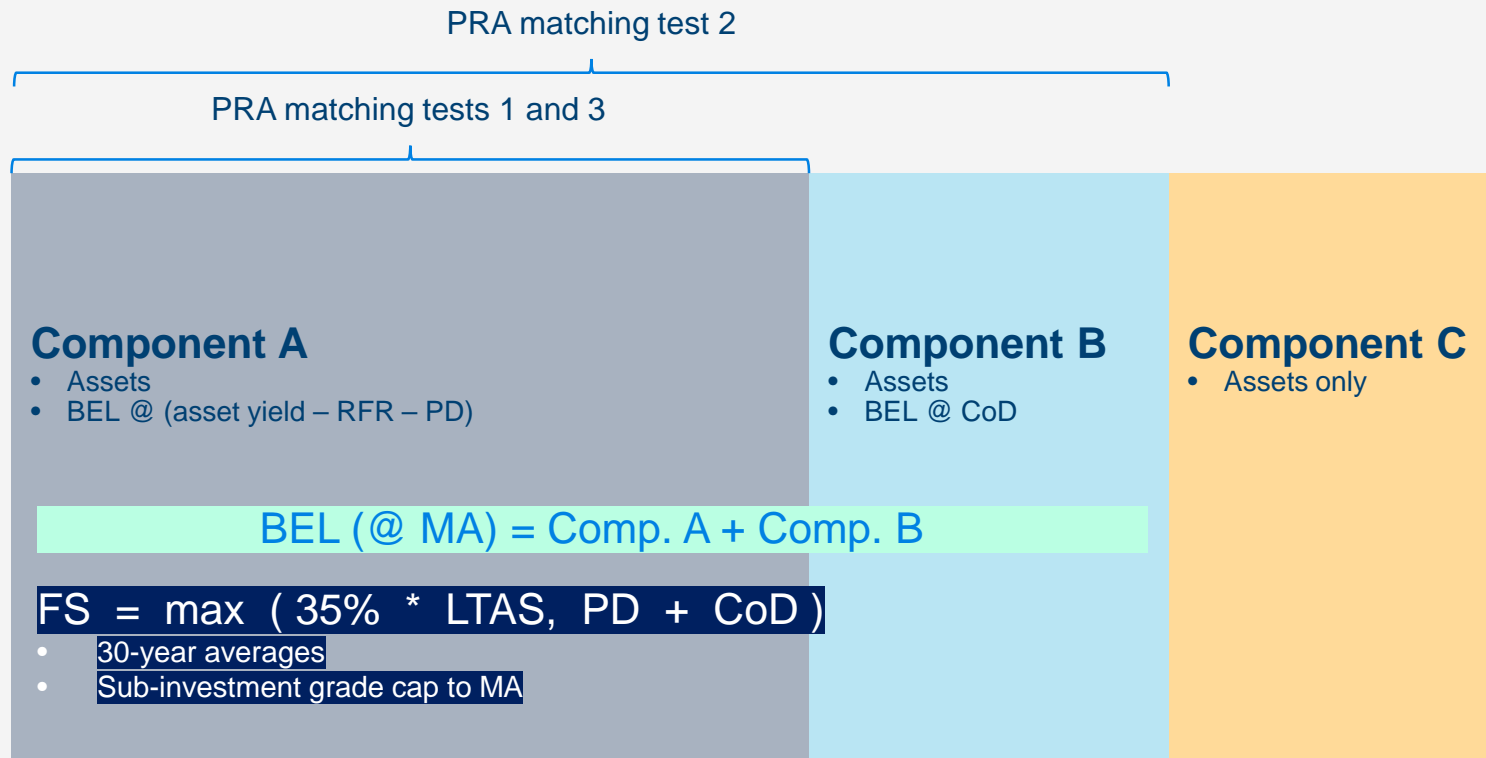
- SS7/18 Solvency II: Matching Adjustment
- SS8/18 Solvency II: Internal models – modelling of the matching adjustment
- SS1/20 Solvency II: Prudent Person Principle
- Thematic 'deep dives'
- Climate-related and other emerging risks
- Ongoing review of Solvency II (PRA QIS)

## Firms' responses

- More granular, complex approaches to credit risk
- More emphasis on asset portfolio risk management and governance
- 'ESG' and 'Green' investments becoming a 'thematic' asset class

# FS in the current Solvency II

## MA fund (illustration)



**Q: How will spreads widening and downgrades impact the MA portfolio?**

### Spreads widening

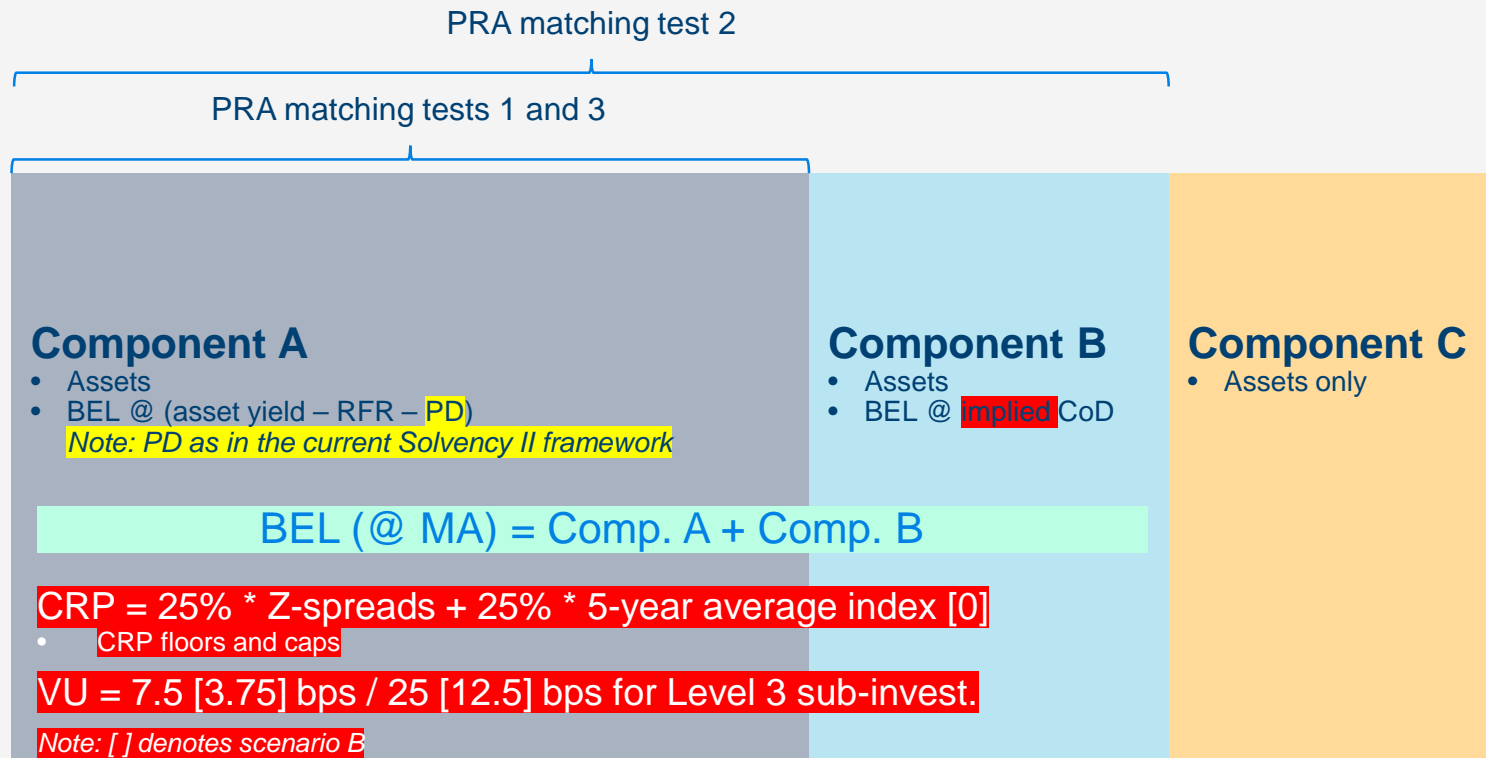
- No impact in Component A (assets and liabilities broadly offsetting)
- No impact in Component B (no changes expected to assets and liabilities)
- Impact in Component C will depend on assets hold

### Downgrades

- Both Component A and B to require an asset injection
- Impact in Component C will depend on assets hold

# FS (CRP + VU) in the PRA QIS

## MA fund (illustration)



**Q: How will spreads widening and downgrades impact the MA portfolio?**

### Spreads widening

- No impact in Component A (assets and liabilities broadly offsetting)
- Assets not expected to change, but liabilities expected to change
- Impact in Component C will depend on assets hold

### Downgrades

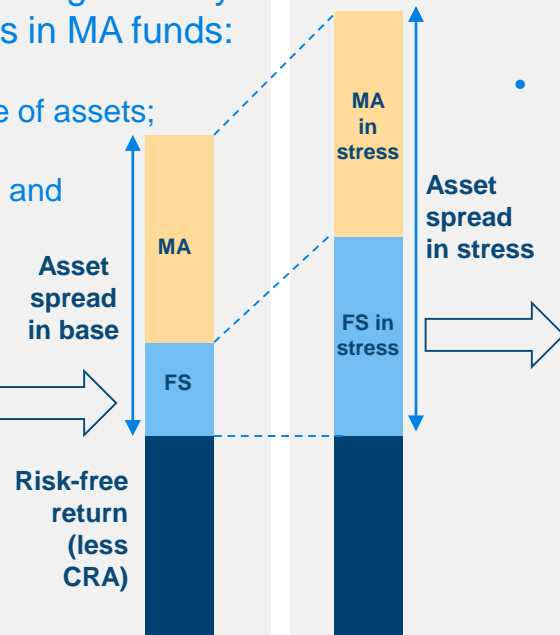
- Asset injection required in Component A
- Asset injection possibly required in Component B (depending on scenario)
- Impact in Component C will depend on assets hold

# FS and MA in stress in the current Solvency II

## FS and MA in base

- FS calibrated based on long-term assumptions (30-year averages)
- The current design FS had significantly influenced firms' portfolios in MA funds:
  - Rating, duration and nature of assets;
  - split between components, and
  - Rebalancing strategy (EIOPA's 'ratchet' approach).

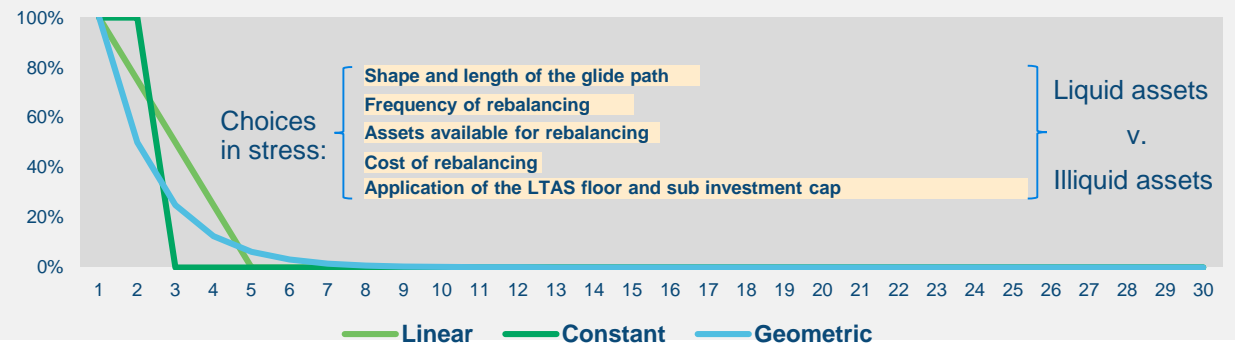
$$FS = \max(35\% * LTAS, PD + CoD)$$



## FS and MA in stress

- SS8/18 sets out a 5-step approach to MA in stress
- Starting from EIOPA's FS in base, the underlying risk factors (transitions, defaults, spreads) are stressed and projected over the recessionary period, reverting back to normal
- Modelling of FS (and MA) requires several expert judgements, such as portfolio rebalancing in stress and the length and shape of the recessionary period ('glide path')

Illustrative recessionary periods ('Glide path') in FS in stress



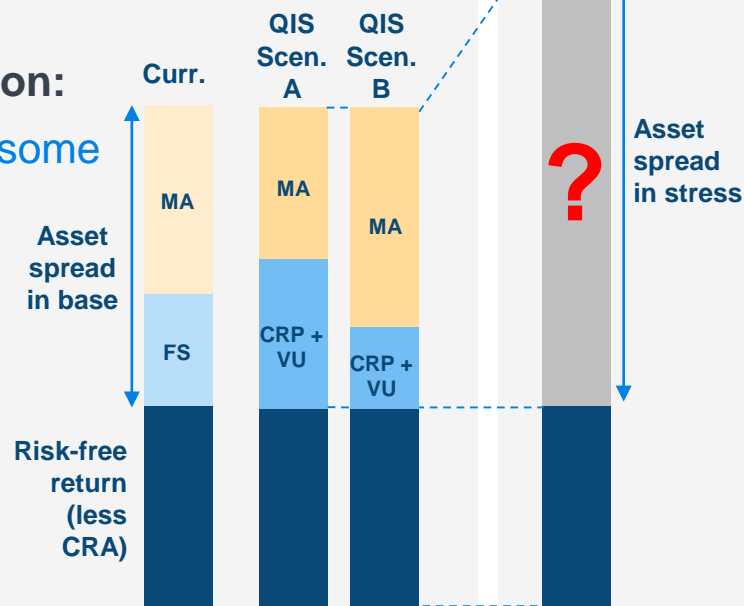
# FS (CRP + VU) and MA in stress in PRA QIS

## FS (CRP + VU) and MA in base

- FS varies with asset Z-spreads and historical average spreads changing
- Downgrades would only impact asset cash flow matching in Component A

### Questions / areas for consideration:

- Data sources and calibration of some of the elements in CRP and VU:
  - CRP floors and caps
  - 5-year average spread
  - VU
- Change to PD?
- MA re-applications?
- Spreads becoming more 'important'?



## FS (CRP + VU) and MA in stress

- In a nutshell, given the significant changes to FS, we could see a complete redesign of FS in stress

### Questions / areas for consideration:

- Difficult to ascertain the 'direction of travel'
  - Items included in the QIS options
  - Items included in the current FS and MA in stress
  - Any other?
- Changes to firms' investment management?



# Summary

- The options considered in the QIS suggest a shift in quantification of credit risk, from transition and default probabilities to credit spreads.
- Retaining the PD adjustment to asset cash flows in Component A provides some consistency with the current Solvency II framework. However, the linkage of CoD to credit spreads could have some significant impacts on MA portfolios:
- Some details included in the options considered in the QIS are not yet available (e.g. calibration of CRP caps and floors, 5-year average index, VU)
- Replacing the MA sub-investment cap with CRP floors could result in significant changes in firms' approaches to sub-investment grade assets
- In the current Solvency II, illiquid assets usually provide a higher MA compared to corporate bonds. It is not clear how this will be impacted by the options considered in the QIS.

# IFRS 17 – Approaches for the determination of Fair Value for Transition Purposes

John Jenkins, Dilesh Patel  
23 SEPTEMBER 2021

# IFRS 17 - Recap



Date of implementation for the new standard is 1<sup>st</sup> January 2023

Transition date is 1<sup>st</sup> January 2022

- Our opening balance sheet position is at this date

Initial Contractual Service Margin (CSM) therefore calculated on transition date for all business

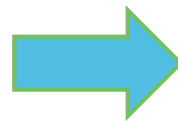
- A range of options available for companies

# Transitioning to IFRS17

The **Full Retrospective Approach (FRA)** should be used unless impracticable. This approach requires relevant pricing and historical data to be available for all in-force contracts in order to estimate the fulfilment cash flows and the CSM at the date of initial recognition and to roll them forward to the transition date



The **Modified Retrospective Approach (MRA)** may be used if the Full Retrospective Approach is impracticable. Information on the actual historical cash flows since initial recognition is required



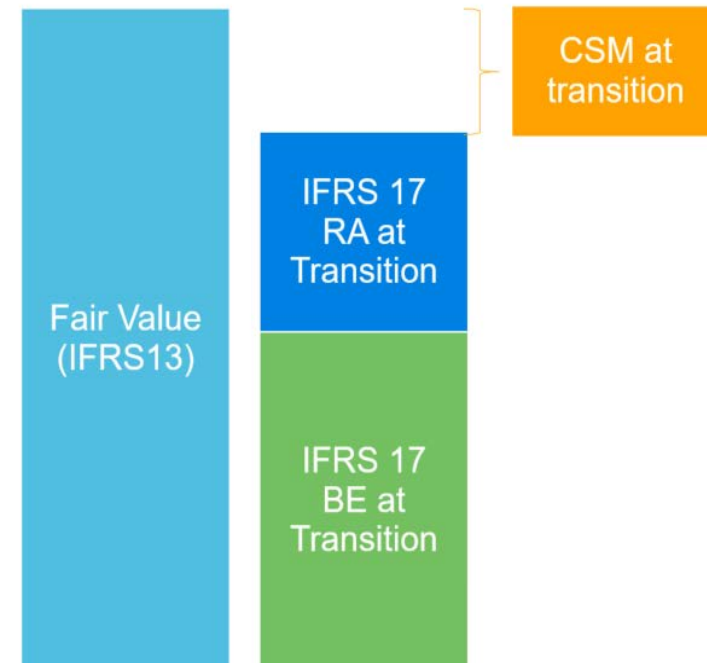
The **Fair Value Approach (FVA)** may be used if the Full Retrospective and/or Modified Retrospective approaches are impracticable. This approach involves determining the CSM at the transition date as the difference between the fair value of the insurance contract at that date and the fulfilment cash flows measured at that date

# Calculation of CSM – Fair Value

- Companies are using FRA or MRA where possible
- The FVA approach is often taken instead for where we cannot use FRA or MRA for example:
  - Lack of historical data
  - Impracticalities of using FRA/MRA
- Hence we see FVA commonly used for at least some parts of the business.
- Companies generally require the largest justifiable opening CSM for commercial reasons.

## IFRS 13 definition:

*“The objective of a fair value measurement is to estimate the price at which an orderly transaction to sell the asset or to transfer the liability would take place between market participants at the measurement date under current market conditions”*



# Summary Flowchart

Is a direct approach (based on market transactions) desirable?

Yes ↓

No ↓

Is portfolio UK Annuity Business?

Choose an appropriate indirect approach

Yes ↓

No ↓

Market Data available and is straightforward to obtain

Market Data limited and could be more difficult



↓

↓

↓

Adjusted Embedded Value

Cost of Capital Approach

Confidence Level Approach

# Direct Approach – UK annuity

- High number of transactions with many pensions schemes seeking a buy in/ buy out
- The key metric is the discount rate which equates the annuity cashflow to the price paid
- The average rate as at year end 2020 has been around Gilts+20bps
- So can this discount rate be used to determine fair value for IFRS 17? We need to consider and make adjustments to reflect the portfolio being valued:
  - Duration of benefits
  - Size of benefits
  - Average case size
  - Gender mix
  - Escalations
  - Expenses



# Direct Approach – Other than UK annuity

- IFRS 13 Fair Value - "**orderly transaction**" between "**market participants**"
- Ideally we would look at observable market data to get a price

One approach:

- Look at recent acquisitions involving insurance companies
- Obtain the latest SII reported figures
- Price can be quoted as a proportion to Own Funds.
- Express this information as a adjustment to BEL to get a fair value of liabilities.

However:

- Buying and selling involves whole entities. Not just the liabilities
- Is the data always available
- Specific features to the block
- The timing of the transaction data may not be relevant



# Indirect Approaches

In the absence of directly observable market information – alternative methods are considered by firms

## Embedded Value/Adjusted S2

- A number of companies are using metrics related to economic value (such as EEV and MCEV) and adjusting
- Discounting cashflows using an appropriate rate of return, such as Dividend Discount Model is al used.
- Alternatively, an “Adjusted SII BEL” plus RM is used.
- Use SII method but correct for where it is unrealistic such as the discount rate, contract boundaries, expenses.

Does not fulfil the markets view of what fair value is but instead is our own view of what we think the market is looking at

## Risk Adjustment/Margin – Capital Cost

- Firms that use the cost of capital technique to determine the Risk Adjustment (RA) use the same method but with a higher capital cost. Or adjust the SII Risk Margin (RM) for IFRS 17 purpose
- Effectively the difference between two RA calculated with different rates becomes the opening CSM
- Firms can leverage existing SII models for both the RA and fair value.
- For example we have seen firms using a 3-4% CoC for the RA and 6% for FV when this approach is taken

These approaches tends to be arbitrary in what parameters are ultimately used and if it reflects the market view of fair value.

They can also lead to a wide range as you would expect the confidence level approach to lead to a very prudent value of the liabilities.

## Risk Adjustment/Margin – Confidence Level

- Firms that use the confidence level technique to determine the Risk Adjustment (RA) use the same method but with a higher confidence level
- For example we have seen firms use a lower confidence level of 60-80% to determine the RA.
- A much higher confidence level closer 95-99.5% is used to determine the Fair Value.

# Survey of firms using FVA approach – UK companies

	Direct/Market Observable Data	Adjusted Embedded Value approaches	Cost of Capital	Confidence Level
Company 1		Y		
Company 2				Y
Company 3	Y (for annuity business)	Under Consideration		
Company 4		Y		
Company 5	Y			

We are aware that direct approach is preferred choice for annuity writers

Direct approach is being used for some non-annuity business too

But for non-annuity, most companies would prefer indirect approach where adjusted embedded value techniques is most popular

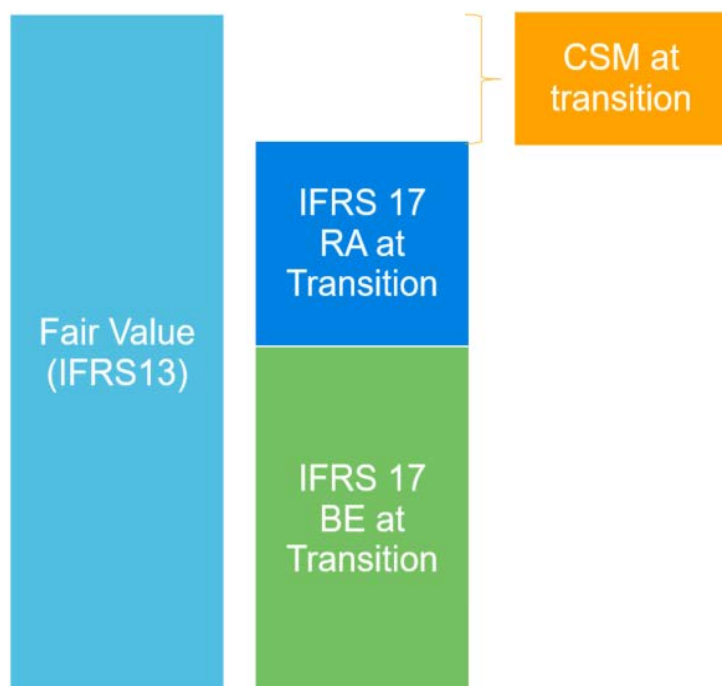
## Survey of firms using FVA approach – Non-UK companies

	Direct/Market Observable Data	Adjusted Embedded Value approaches	Cost of Capital	Confidence Level
Company 1				Y
Company 2			Y	
Company 3				Y
Company 4			Y	
Company 5			Y	

Companies outside of the UK have used one of the Indirect approaches

Confidence level and cost of capital are the two popular choices outside of the UK

# Key Takeaways



Companies are actively trying to maximise the CSM as this achieves the best commercial result. FRA or MVA would ideally be used to value the CSM but the FVA is used when other options cannot be used.

Under Fair Value we see a range of methods being used by insurers. A direct for annuity business otherwise an indirect approach is taken

These indirect approaches are further split into options that insurers can use.

For the indirect approaches significant subjective judgement must be made.

Annuities – A competitive market is driving lower a fair value and a lower opening CSM

Non-annuities – A typical discount to own funds drives a higher fair value of liabilities and a higher opening CSM



# Thank you

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