March Webinar

Milliman

Regulatory outlook 2023

MARCH 13, 2023

Agenda

Dear CEO Letter: PRA Objectives 2023	▪ Ease of exit: Resolution planning (Tatiana Egoshina) ▪ Credit risk and climate change (Florin Ginghina) ▪ Reinsurance risk (Dilesh Patel) ▪ S166 skilled person review (Robert Bugg and John Jenkins)	12:30 – 13:30
Other regulatory considerations for 2023	▪ ICS developments (Russell Ward) ▪ LIST 2022 feedback (Jessica Crowson)	13:30 – 13:45
Panel discussion	Please submit your questions to the chat	13:45 – 14:00

Dear CEO Letter:
PRA Objectives 2023

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Ease of Exit

Recovery and Resolution Planning

Tatiana Egoshina

Milliman

Question 1

Does your organisation have a resolution plan?

Question 2

Has the PRA provided feedback on your resolution plan?

Resolution Regime: Timeline

July 2013

G-SIIs

FSB ad IAIS begin identifying Global Systemically Important Insurers

October 2014

Key Attributes of Effective Resolution regimes for Financial Institutions

First guidance on RRP for insurers

June 2016

FSB and IAIS

issue final guidance on insurance resolution strategies

October 2019

EC

consults on changes to Solvency II and reiterates need for harmonisation

March 2021

Brave New World

Speech by Sam Woods at ABI

September 2021

EC

adopts comprehensive review of SII, including a proposal for a new Insurance Recovery and Resolution Directive

January 2023

Dear CEO letter

'Ease of exit for insurers' as one of 2023 priorities

Introducing an Insurer Resolution Regime

HMT consultation paper

UK Resolution Regime

Developments to date

“…The PRA does not aspire to a zero failure regime… What we do have a very ***low appetite for is disorderly failure***.

...The ***UK does not yet have a resolution authority for insurers***, as recommended in the FSB’s key attributes. Assessing firms’ preparedness for exiting the market in an orderly manner, and working with boards to make improvements where needed, will be ***an increasing focus of our supervision*** in the next few years…**”**

Sam Woods, “Brave New World” speech at the ABI in March 2021

“…we are focused on improving ease of exit for insurers. While some work has been done in this area by the larger insurers, many smaller firms remain without any plans for exit.…”

“…. In the meantime, we expect firms to begin considering how they might exit the market if the need arose, what the obstacles might be, and how they might be overcome. These plans should be executable on a timely basis and appropriately prudent…”

Dear CEO letter on the PRA supervision priorities, January 2023

HMT consultation: Insurer Resolution Regime

Overarching Framework

Bank of England to be the dedicated Resolution Authority (RA)

- Consultation paper outlines:
  - Scope
  - Resolution Objectives
  - Resolution Conditions

Stabilisation Options and Safeguards

- Stabilisation options
  - Transfer to a Private Sector Purchaser
  - Bridge Institution
  - Bail-In
  - Temporary Public Ownership
- No Creditor Worse Off Safeguard

Pre-Resolution Planning

A small number of systemically important insurers would be subject to pre-resolution preparation procedures

- Resolvability Assessments
- RA-led Resolution Plans

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1131030/_Final__IRR_Consultation_-_Templated__Clean___1_.pdf

Ancillary Matters

- Ancillary Provisions: exercise of resolution powers does not trigger a default; time-limited restriction on policyholder surrender rights; restriction of starting insolvency proceedings
- RA Ancillary powers: could be used in conjunction with the stabilisation options

Resolution Conditions

Conditions to trigger resolution

(on a consecutive basis)

RC1

The **PRA** assesses that an insurer is failing or likely to fail

- Justify the variation or cancellation of permissions
- Being or about to become insolvent
- Requiring extraordinary public financial support

RC2

The **RA** assesses that it is not reasonably likely that action will be taken by insurer that will result in RC1 ceasing to be met

- Having regard to timing and other relevant circumstances
- Ignoring the stabilisation powers

RC3

The **RA** assesses that the exercise of the stabilisation powers is necessary having regard to the public interests

RC4

The **RA** assesses that one or more statutory resolution objectives would not be met to the same extent if stabilisation powers were not deployed

Resolution Tools

Transfer to a Private Sector Purchaser

The RA would be able to transfer all or part of the business to a willing private purchaser

- RA would <u>not require court approval</u>

Transfer to a Bridge Institution

Transfer of all or part of the business to a bridge institution owned by RA

- Intended as a temporary measure
- Bridge institution would require the relevant permissions

Bail In

By the RA by reducing or converting all or parts of unsecured creditor claims

- Hierarchy of claims in liquidation to be followed
- So, creditors ranking below insurance claims first
- FSCS is expected to ‘top-up’ to the same limits as in insolvency
- Bail-in to restore a level of capital coverage sufficient for a safe run-off

Temporary public ownership

As a last resort measure

- The insurer’s business to be returned to the private sector as soon as financial and commercial circumstances allow

Other tools

- Balance Sheet management vehicle
- Insurer administration procedure

Resolution Planning: experience to date

Key areas to consider

- Point of entry into resolution
- Routes into resolution, e.g. financial, operational, business model failure
- Resolution vs solvent/insolvent run-off
- What management actions are already ‘used up’ in resolution?
- Continuity of service in resolution scenario
- Effectiveness of reinsurance benefit
- Universe of potential buyers in resolution scenario
- Resolution can be a PRA-led process
- Detailed modelling of resolution scenarios likely to be more difficult
- Staff retention/redundancies
- External communications

Climate change and credit risk

Florin Ginghina

Milliman

“ **The CBES will explore the vulnerability of current business models to future climate policy pathways and the associated changes in global warming. […] For insurers, the CBES will focus on changes in Invested Assets and Insurance Liabilities.**

— Bank of England, 2021 Climate Biennial Exploratory Scenario

“ **We expect your board to ensure that you have a clear understanding of exposure to credit downgrades and defaults, the impact this would have on your financial position, and your ability to recover from losses. You need to have adequate risk management in place in relation to this risk, […] assessing your position against a range of scenarios.**

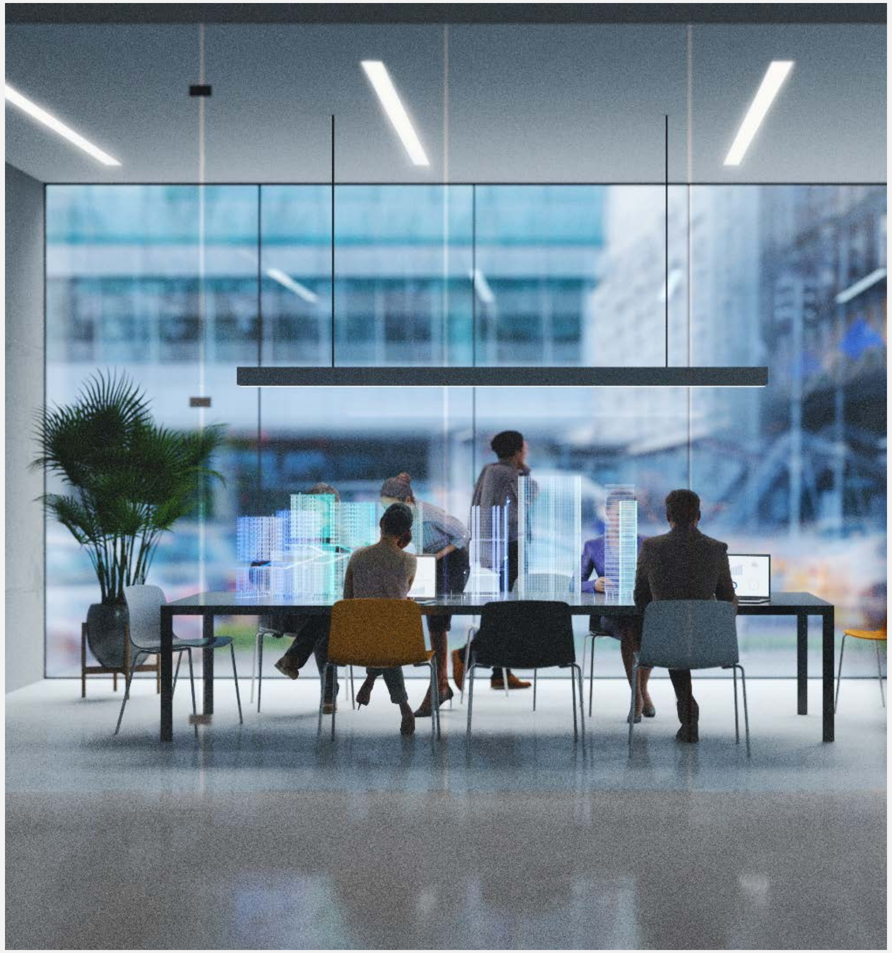
“ **Climate change continues to present an increasing, material risk to firms and the financial system.**

— Dear CEO letter, *Insurance supervision: 2023 priorities*, January 2023

“ **The development of asset class valuations and capital market parameters under different climate change scenarios is a key parameter set for the stress testing of investments under climate risk.**

— CRO Forum *ORSA Stress and Scenario Testing*, February 2023

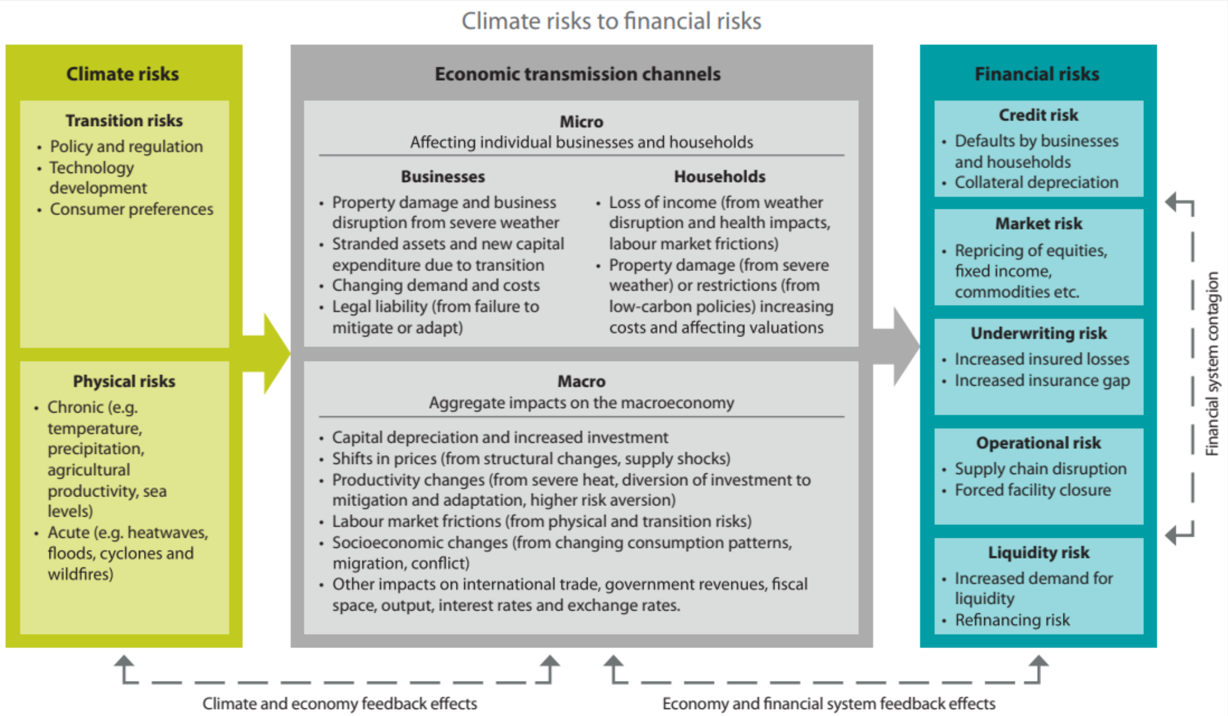
Introduction



- Firms’ investment objective: maximise asset returns within an acceptable level of credit risk
- For a given level of risk, investors can optimize expected returns through diversification (Markowitz’s concept of diversification, 1950s)
- Firms employ sophisticated techniques to build asset portfolios and measure and manage key risks such as credit risks
- In recent years significant consideration has been given to the risks arising from climate change
  - Credit risk is a key transmission channel of risks from climate change on firms’ investment portfolios
- Our presentation will consider:
  - How risks from climate change can be associated with variables and parameters of credit risk models, and
  - Project an asset portfolio’s credit transition risk over a set of climate change scenarios

Financial Risks from Climate Change

- Risks from climate change arise from two types of climate change drivers:
  - Transition risks
  - Physical risks
- Institutional investors are exposed to climate change through (economic) transmission channels
- There are challenges with assessing financial risks from climate change:
  - Long-time horizons for transition impacts.
  - Limited empirical data
  - Risks from climate change vary across sectors and industries
  - Granularity and lack of historical data, particularly for physical risks (e.g., for some locations and climate parameters)



Source: Network for Greening the Financial System, NGFS Scenarios for central banks and supervisors, September 2022

Introduction to credit risk

Why credit risk?

- Providers of long-term insurance business have significant exposures to credit risk
- Credit risk manifests through the evolution of credit ratings and spreads over time
- We focus on the former – changes in credit ratings, and how climate change can impact these

Structural models

- Structural models use the evolution of a firm's structural variables (such as asset and debt values)
  - Can determine probabilities under which borrowers are expected to default
- Default occurs whenever a stochastic variable representing firms' asset values falls below a threshold representing liabilities.
- The Merton model (1974) was one of the first structural models:

$$\mathbf{dA}(\boldsymbol{t}) = \mu\mathbf{A}(\boldsymbol{t})\mathbf{dt} + \boldsymbol{\sigma}\mathbf{A}(\boldsymbol{t})\mathbf{dW}(\boldsymbol{t})$$

$$\xRightarrow{\text{It}\hat{o}'\text{s lemma and t}=T}$$

$$\mathbf{lnA}(\mathbf{T}) = \mathbf{lnA} + \mu\mathbf{T} - \frac{\mathbf{1}}{\mathbf{2}}\boldsymbol{\sigma}^{2}\mathbf{T} + \boldsymbol{\sigma}\sqrt{\boldsymbol{T}}\mathbf{X}$$

Reduced form models

- Assume an exogenous cause of default.
- They model default as a random event (without any focus on a firm's balance sheet)
- The random event of default can be described as a Poisson event.
- As Poisson models look at the arrival rate, or intensity, of a specific event, this approach to credit risk modelling is also referred to as default intensity modelling.

Introduction to credit risk

Vašíček's model

- Oldřich Vašíček extended the Merton's model to a portfolio of assets:

$$\ln A_i(\mathrm{T}) = \ln A_i + \mu_i \mathrm{T} - \frac{1}{2}\sigma_i{}^2 \mathrm{T} + \sigma_i \sqrt{T} X_i$$

- Assumptions:
  - All assets have the same probability of default.
  - All assets are of equal amounts.
  - Any two of the assets are correlated with a coefficient ρ (i.e., assets are equi-correlated).
- The final form of Vašíček's framework is:

$$X_i = \mathrm{Z}\sqrt{\rho} + Y_i\sqrt{1-\rho}, \text{ i = 1,…, n}$$

  - Z, Y_1, Y_2, …, Y_n are mutually independent Standard Normal variables, n the number of firms in a portfolio
  - The result follows from the properties of jointly equi-correlated Standard Normal variables

- Variable Z is common across the entire portfolio of assets
  - E.g., some measure of the state of the economy, or macroeconomic variable
  - It can be seen as a measure of the 'credit cycle'
  - A value of 0 is equivalent to the (long-term) average year.
- Variables Y_i are the i^{th} firm's specific variables
- The asset correlation ρ is an important driver of credit risk
  - it is a measure of the likelihood of the joint default.
  - A portfolio with high correlations produces greater default oscillations over an economic cycle, compared with a portfolio with lower correlations

Introduction to credit risk

6-step process to derive fitted transition rates
See Belkin and Suchower, ‘A one-parameter representation of credit risk and transition matrices’, 1998

Step 1

Select an appropriate long-term average annual transition matrix – e.g., S&P global corporate average annual matrix 1981-2020.

The long-term average annual matrix will correspond to a Z value of zero.

Step 2

Apply any required adjustments to the transition matrix, for example, adjustments for non-rated transitions.

Step 3

Derive Standard Normal bins, including any adjustments needed.

For example, for zero transition rates, non-zero values are required to derive meaningful values for the bins.

Step 4

Select an appropriate value for the asset correlation variable, e.g., 25%.

The statistical theory underlying the Vašíček model requires a single asset correlation for an entire asset portfolio represented in a transition matrix.

Step 5

Select (or calculate) Z variables for the projection period.

Z values can be based on global / macroeconomic variables.

Step 6

Derive projected annual transition matrices based on the Standard Normal bins derived in Step 3, the asset correlation derived in Step 4 and variables Z derived in Step 5.

Bank of England 2021 Climate Biennial Exploratory Scenario

Introduction

- Designed to explore resilience to the physical and transition risks associated with different climate pathways.

- The 2021 CBES considered two routes to net zero GHG emissions, which primarily explore transition risks from climate change:
  - Early Action scenario: the transition to a net zero emissions economy starts in 2021
  - Late Action scenario: the implementation of policy to drive transition is delayed until 2031 and is then more sudden and substantial.

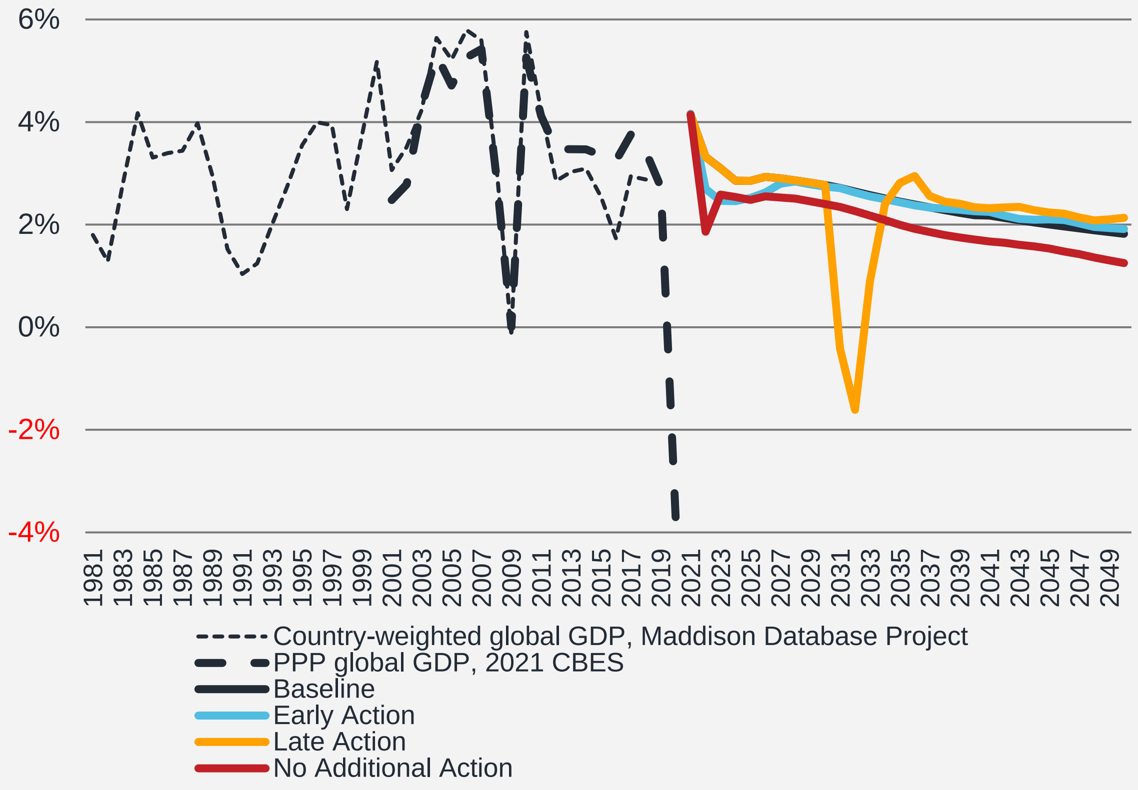
- A third scenario was also included:
  - No Additional Action scenario: no new climate policies introduced beyond those already implemented.

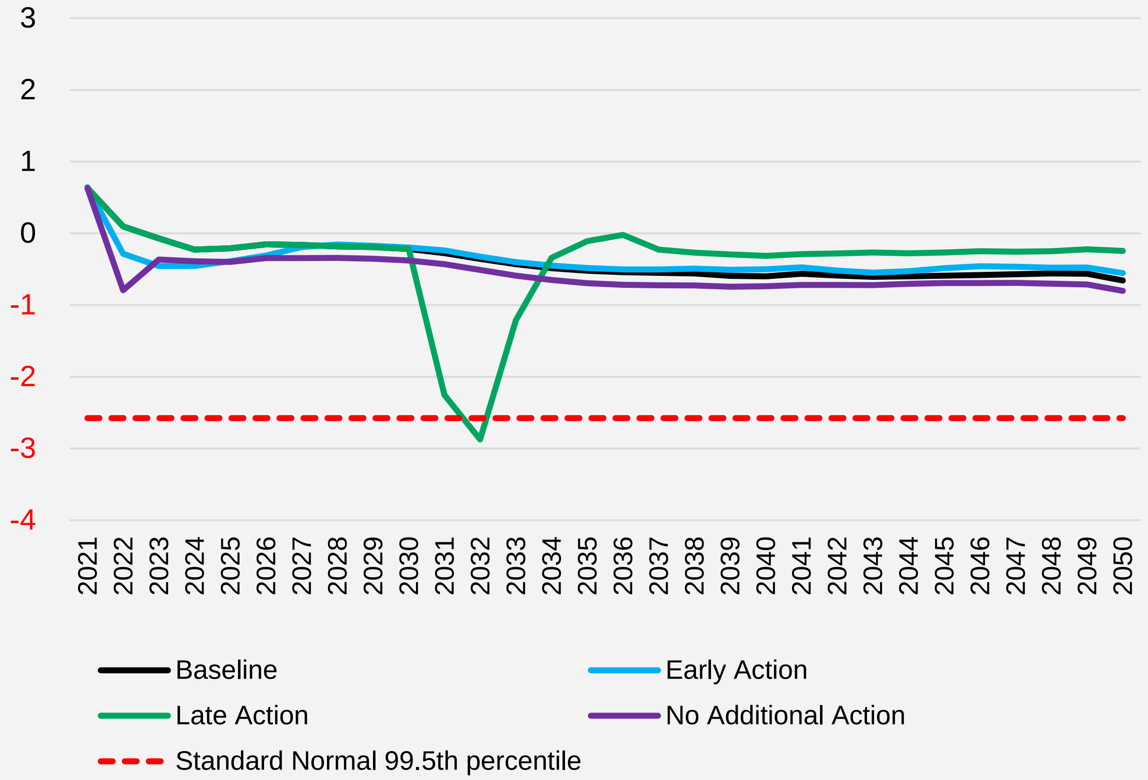
- Projected variables included in the 2021 CBES are split in four categories for each of three scenarios:
  1. Macro variables: gross domestic product (GDP), consumer price index (CPI), unemployment rates etc.
  2. Financial variables: equity prices, bond yields, interest rates, bond spreads, etc.
  3. Transition variables: carbon prices, energy demand, energy prices, cost of coal, car prices, etc.
  4. Physical variables: temperatures, wind speeds in various areas, precipitations, soil moisture, etc.

- The Z and Y_i variables in Vasicek's model for credit risk can be linked to variables in the 2021 CBES, for example:
  - Purchase Power Parity global GDP for the Z variable
  - Crop and animal production for Y_i idiosyncratic variables

Bank of England 2021 Climate Biennial Exploratory Scenario

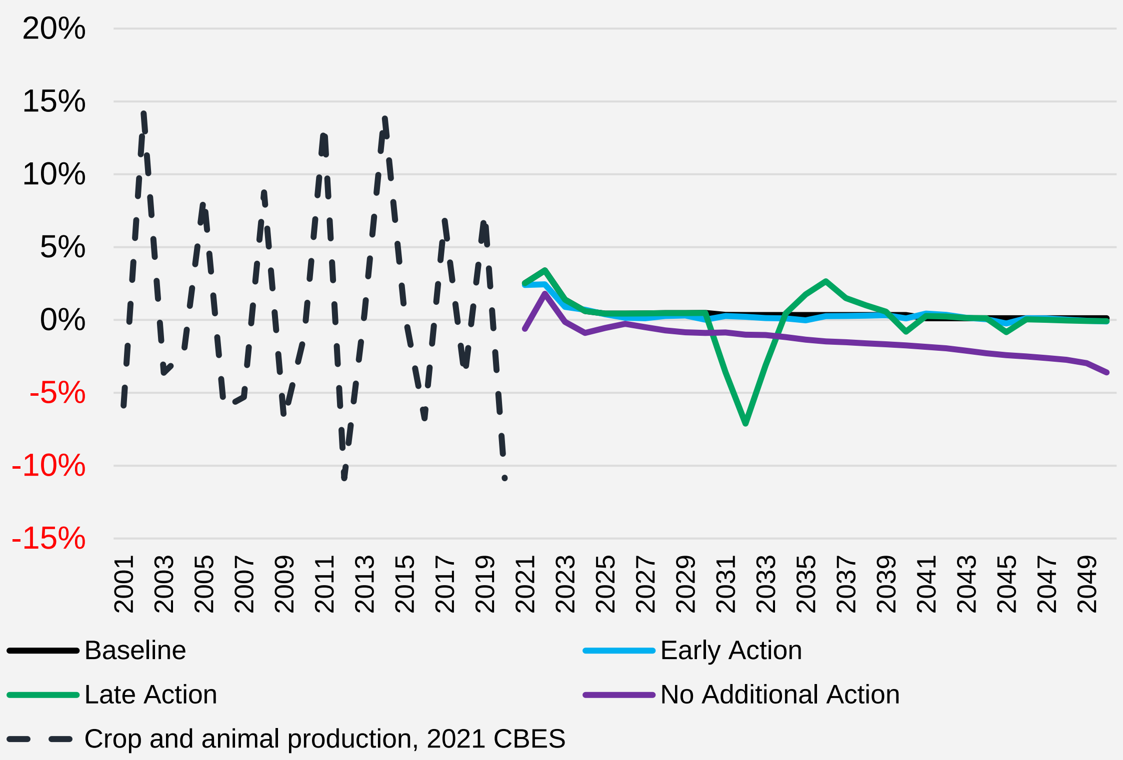
Z variables: annual changes in PPP global GDP

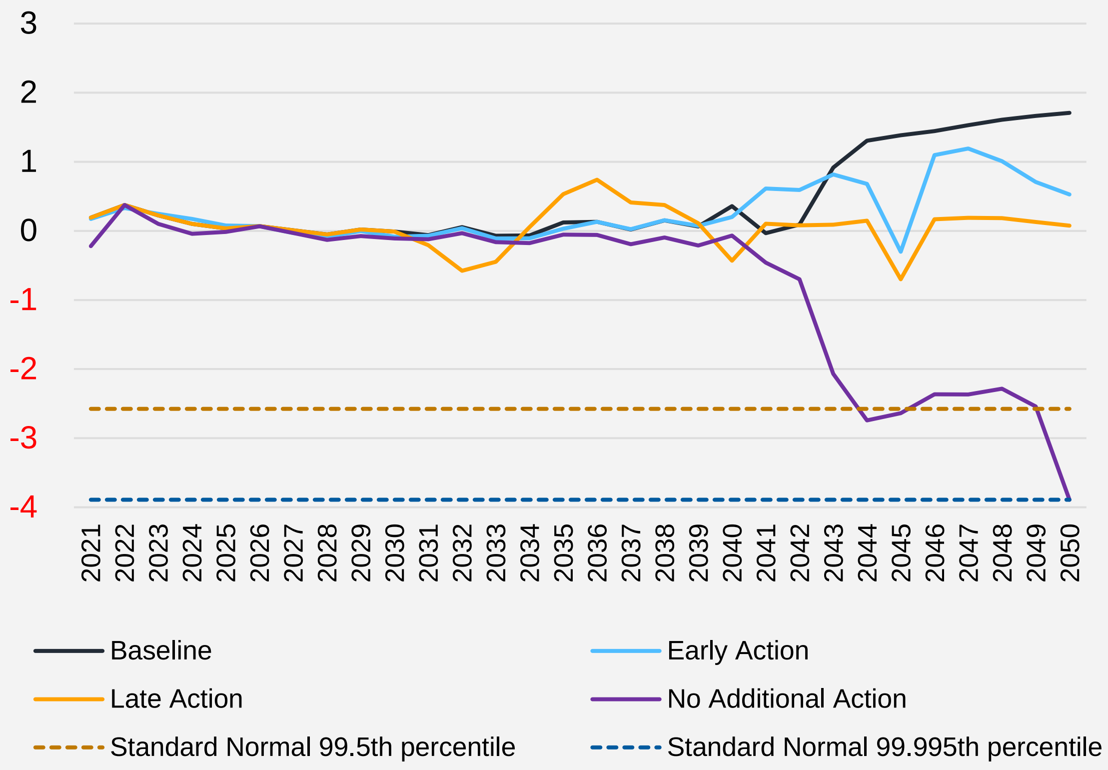




Bank of England 2021 Climate Biennial Exploratory Scenario

Y variables: annual changes in Crop and animal production





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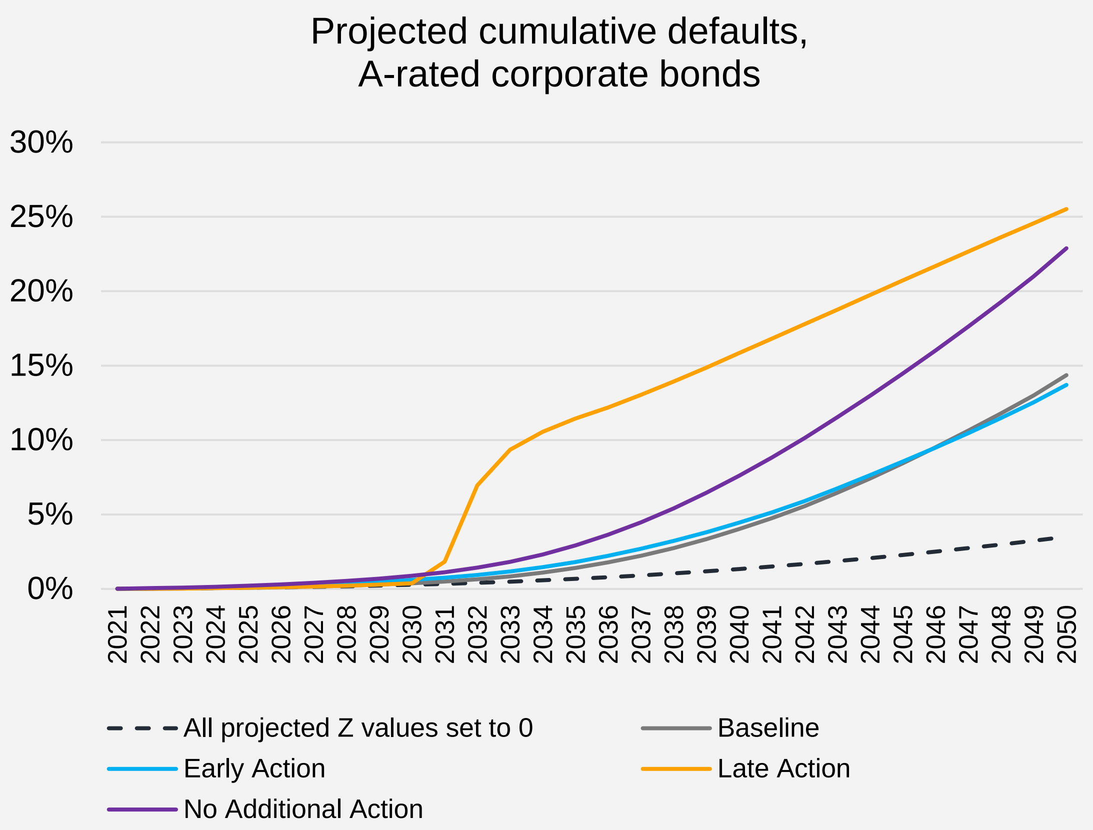
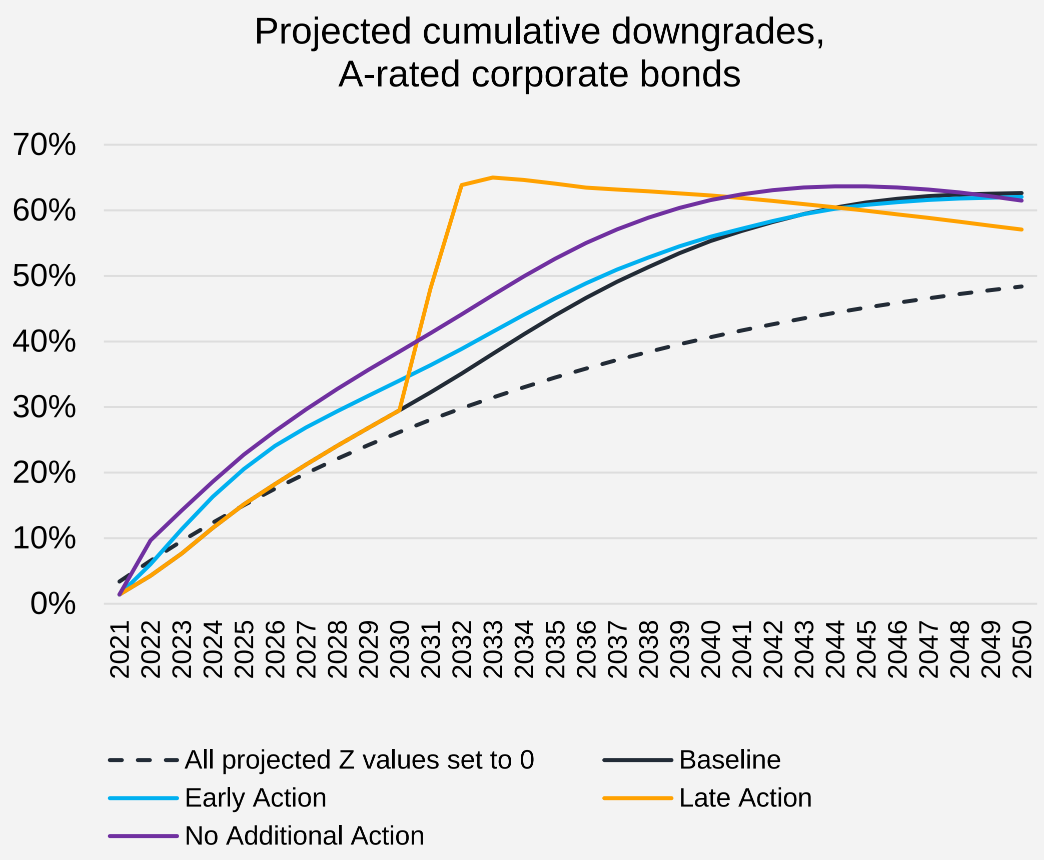
Modelling results

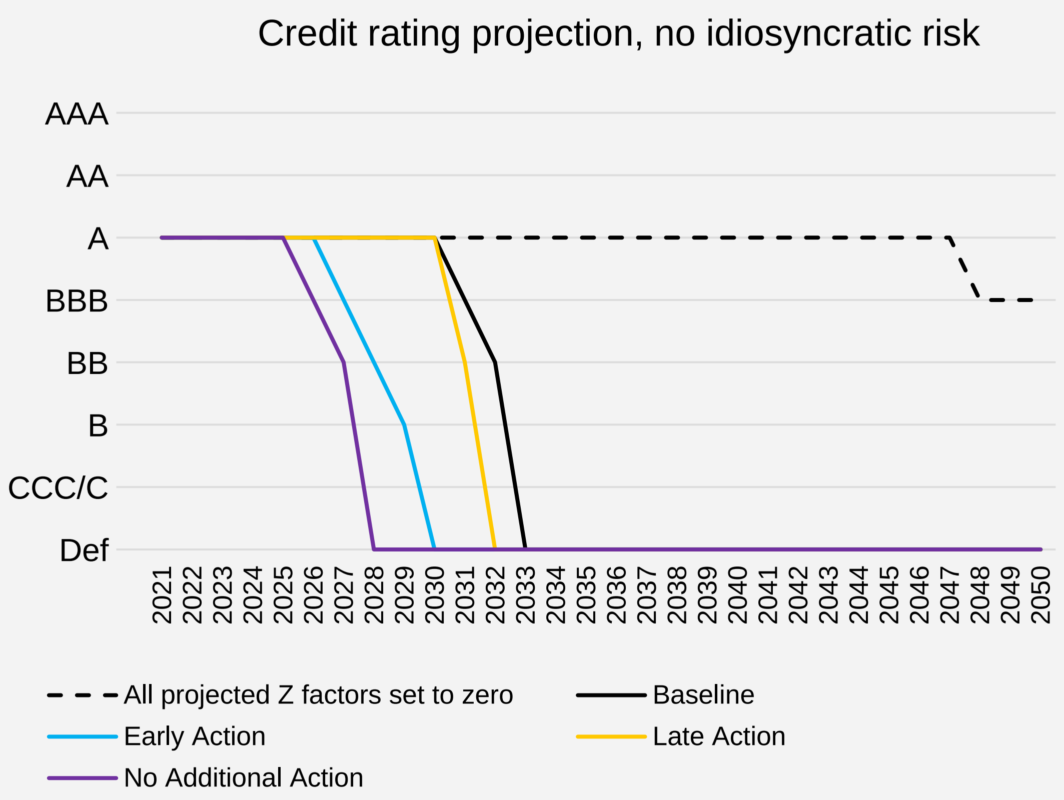
Downgrades and defaults, projected transition matrices, A-rated corporate bonds

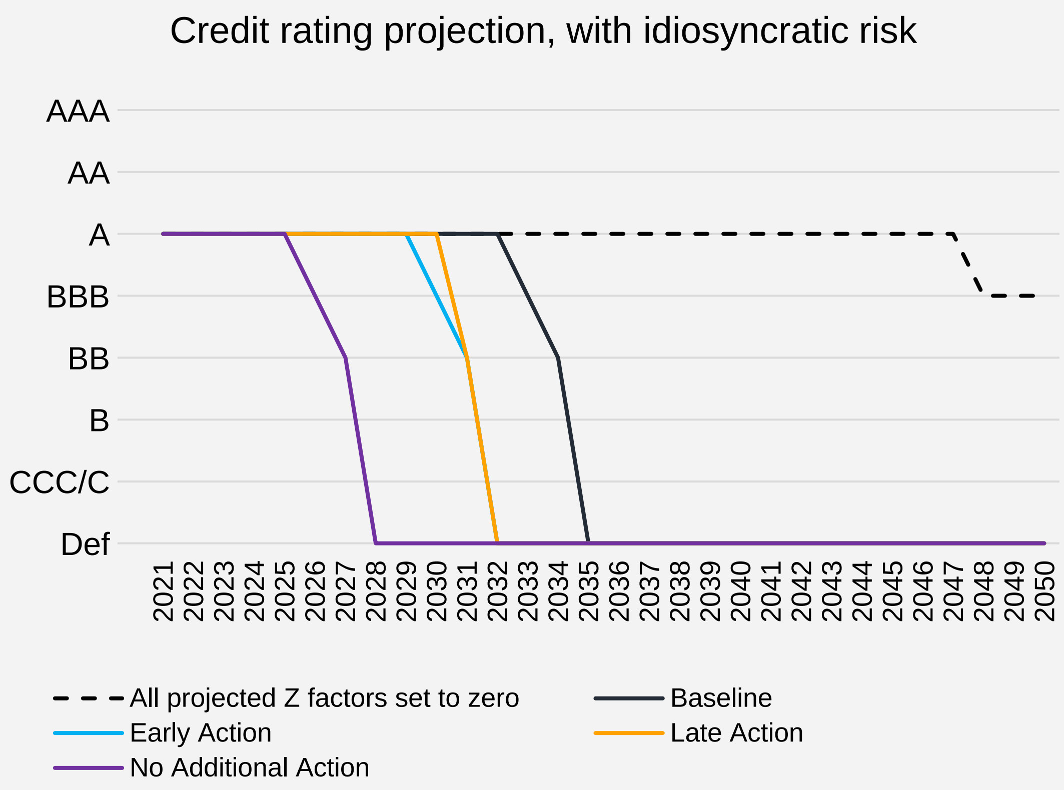




Modelling results

Credit rating pathways, A-rated corporate bonds





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Conclusions

- Financial risks arising from climate change pose unique and significant challenges for portfolio management
  - They can have pro longed, severe, and possibly permanent, impact on assets credit quality
  - The earlier mitigation actions are taken, the more likely impacts on credit risk can be mitigated.
  - Financial risks from climate change require flexible, but robust, approaches to credit risk
- Established, well known credit risk models applied to climate scenarios showed how important is to:
  - Understand historical data and projections pathways
  - Ensure solid understanding of theoretical framework of risk models
  - Be ready to apply well known models in new, unfamiliar contexts.
- Flexibility of frameworks and models used is of key importance – for example, being able to model management actions such as rebalancing of corporate bond portfolios in response to various climate change pathways

- Link to the Milliman white paper ‘Credit Risk and Climate Change’: https://www.milliman.com/en/insight/climate-change-and-credit-risk
- The paper was admitted to the programme of the International Congress of Actuaries 2023, in Sydney.

Reinsurance Risk

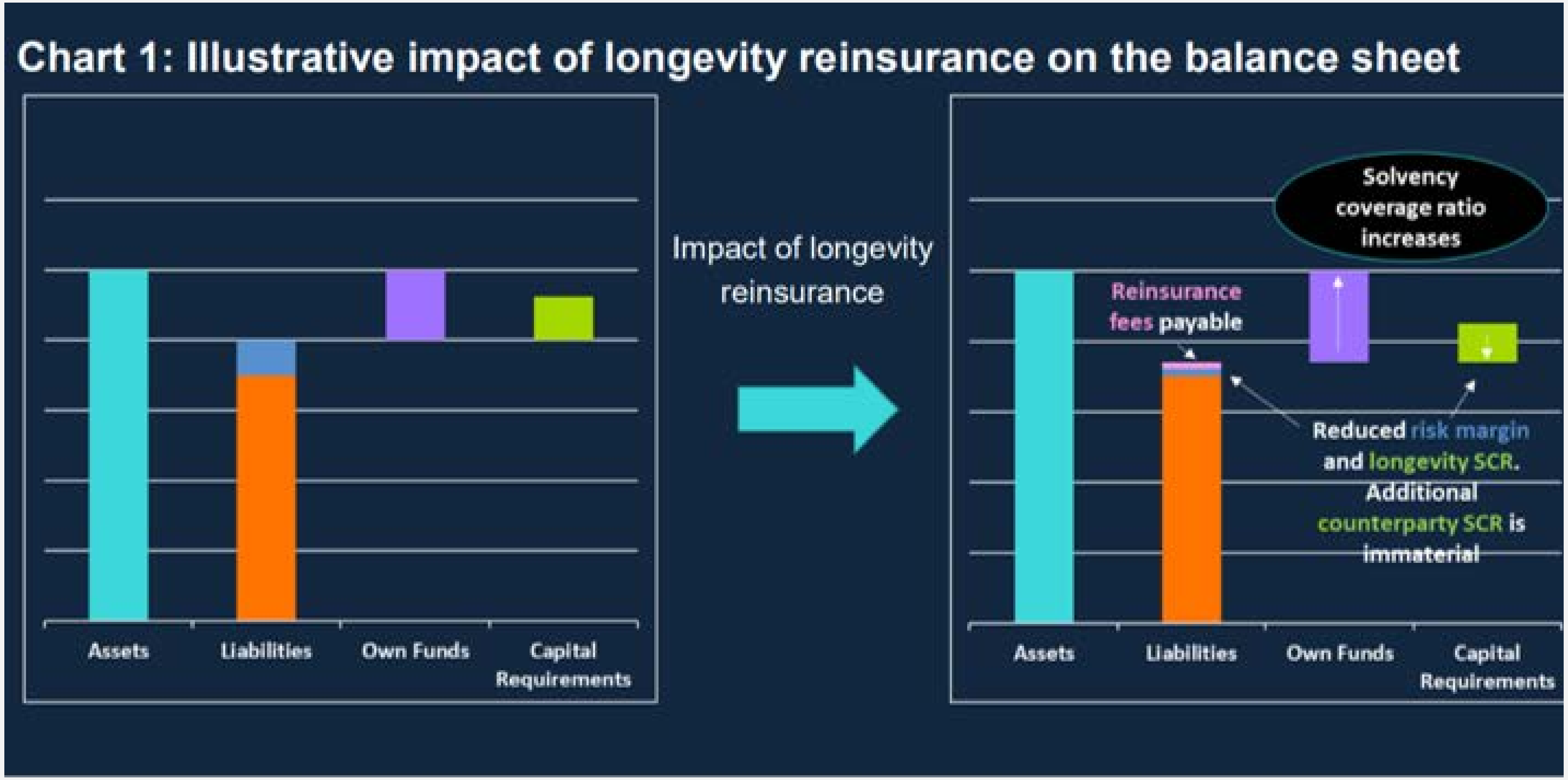
Dilesh Patel

Milliman

“ We are paying close attention to whether the continued high level of longevity reinsurance and the emergence of the more complex ‘funded reinsurance’ in the UK life market reduce the protection UK policyholders should have...”

— Dear CEO Letter – 2023 Insurance Priorities

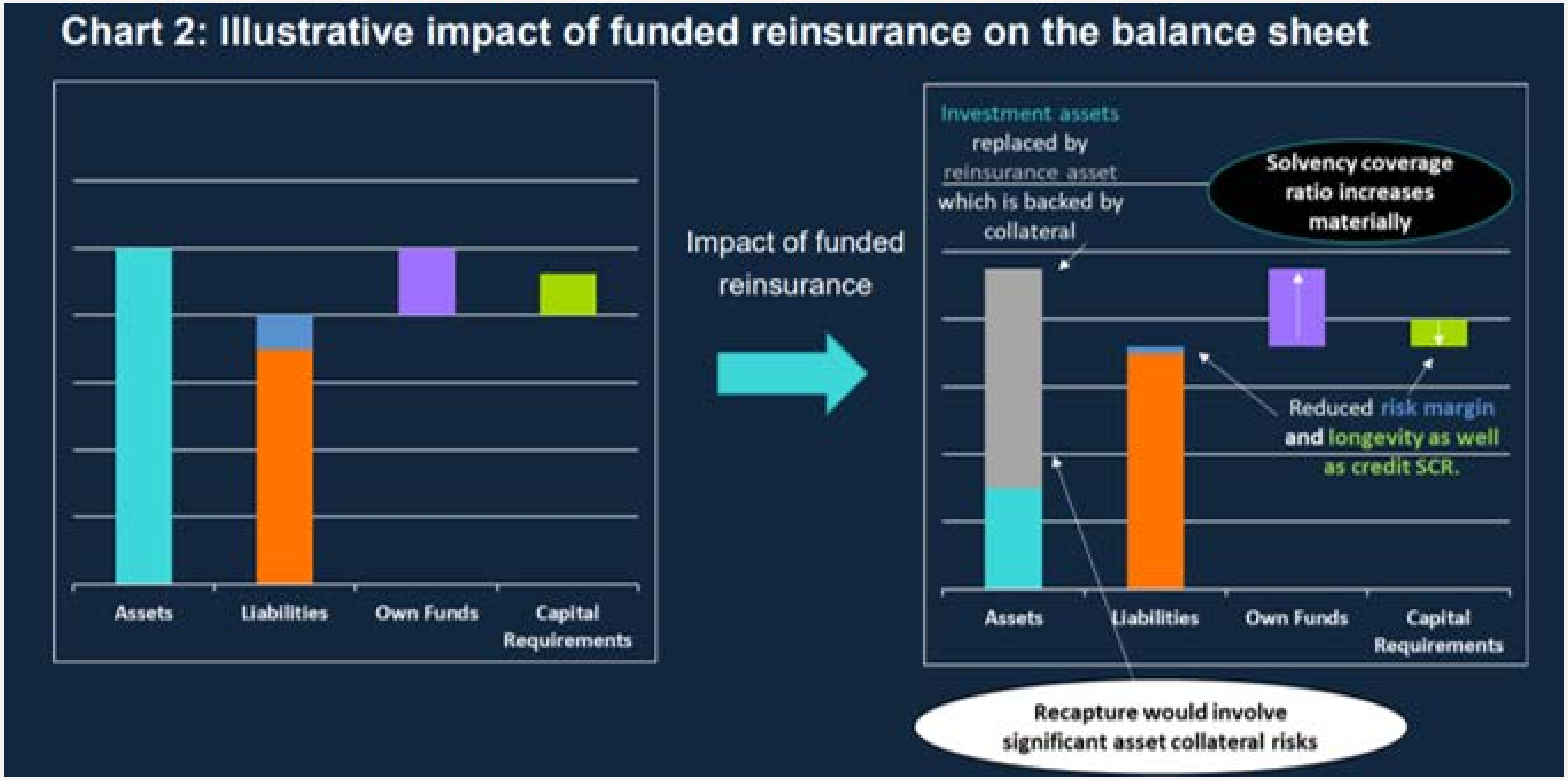
Longevity Reinsurance



- Fixed Schedule of premiums paid
- Floating leg of claims Paid by reinsurer
- Risk Margin reduces
- SCR reduces

Source: Bank of England

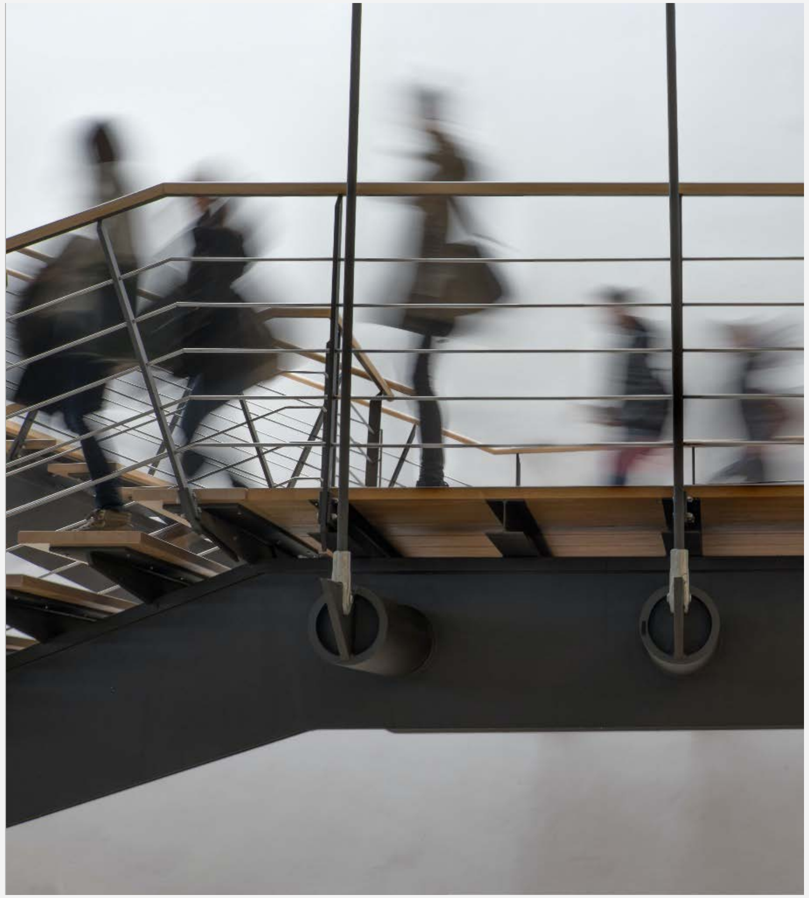
Funded Reinsurance



- Single lump sum premium paid
- Assets backed by collateral
- Claims Paid by reinsurer
- Risk Margin decreases
- SCR reduces
- As assets are transferred Credit Risk reduces

Source: Bank of England

What happens on an unexpected Recapture?



Longevity Reinsurance

- Direct insurer reassumes the transferred risk
- Take control of any collateral assets
- Separately, ensure sufficient capital is put aside
- Find alternative reinsurance?
  - This could be unrealistic

Funded Reinsurance

- Like Longevity Reinsurance, but extra considerations
- Taking control of significant collateral assets

1. Is it MA eligible and could there be large and uncertain costs in re-establishing MA compliant portfolios.
2. Legal terms relating to collateral assets are “non-standard” and “opaque”
3. “Wrong way” risks exists. Failure of a reinsurer and posted collateral are likely to be positively correlated.

Other Points to consider

Concentration and Systemic Risks

- A large proportion of UK annuity is being reinsured to a small number of entities

Offshore Reinsurance

- Held to different standards, not suitable for UK annuity risks?

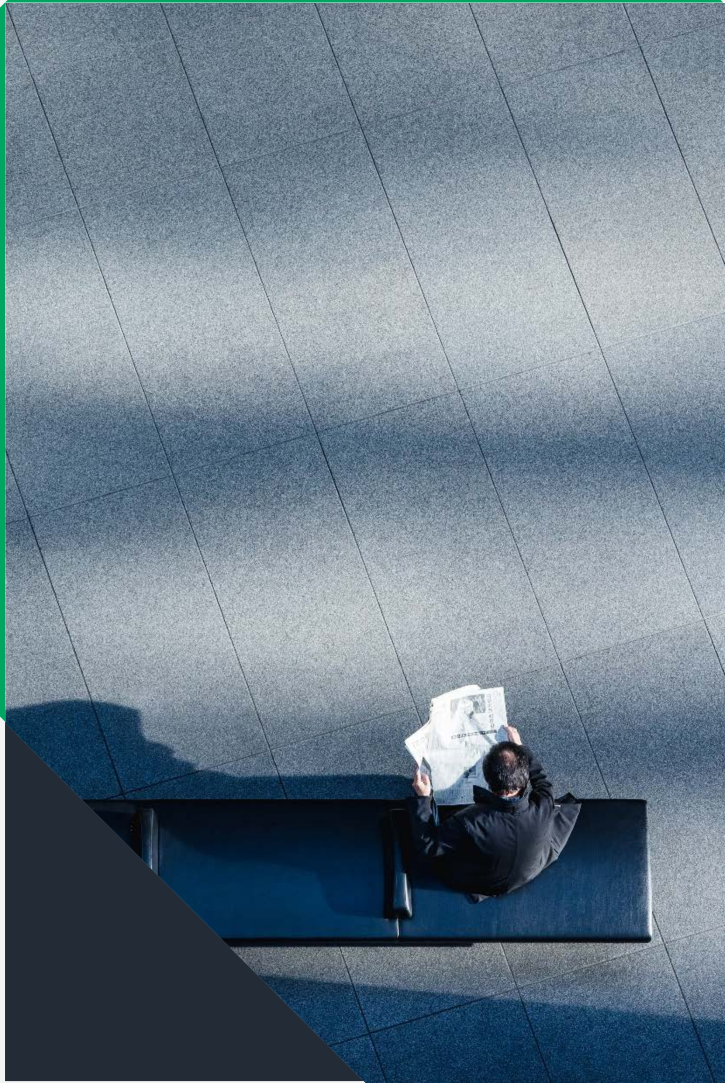
Global Multiline Reinsurer vs Monoline Reinsurer

- Points raised from our recent reinsurance roundtable suggest concerns are more on the monoline reinsurer.

What could the PRA do?

- Focus on stress tests
- Consider limits on acceptable structures
- Place limits on volumes of transactions

Section 166 Skilled Person Reviews



Robert Bugg, John Jenkins

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What is a Section 166 Review?

Governed by Section 166 of the Financial Services and Markets Act 2000, and SS7/14, the PRA/FCA appoints (or requires the appointment of) a skilled person to produce a report. This is a tool at the disposal of the PRA that may be used in the following ways:

Diagnostic Action

To identify, assess and measure risk.

Monitoring Action

To track the development of identified risks, wherever these arise.

Preventative Action

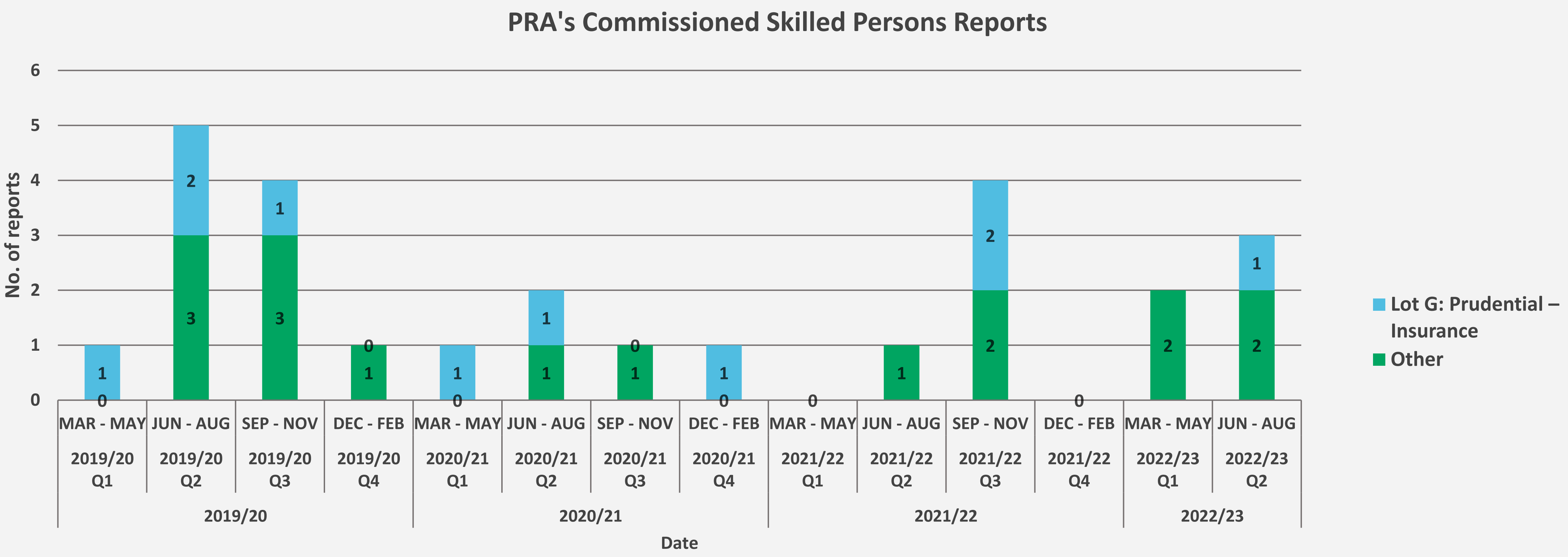
To limit or reduce identified risks and prevent them from crystallising or increasing.

Remedial Action

To allow the PRA to respond to risks when they have crystallised.

Examples of when the tool is used:

- A specific requirement by the PRA for information.
- An analysis of information undertaken by the PRA.
- A decision by the PRA to seek assurance in relation to a regulatory return.
- An assessment of a situation by the PRA.
- Expert advice or recommendations received by the PRA.


PRA's Commissioned Skilled Persons Reports
No. of reports
6
5
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2021/22 Q4
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2022/23 Q2
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2021/22
2022/23
Date
Lot G: Prudential – Insurance
Other

How to pre-empt a Section 166 review

Be open and honest with the PRA.

Seek dialogue around their areas of interest/concern.

Pre-empt the PRA's concerns

- Identify areas likely to be of interest/concern.
- Robust and thorough Line 2 and Line 3 reviews can be useful.

Commission a pre-emptive independent review:

- This is likely to be cheaper than a Section 166.
- Allows you to set a more targeted scope while remaining thorough.
- Share scope and findings with PRA.

How Section 166 Reviews work in practice and how to get the best outcome

Contracting options

Method 1

- Skilled Person's firm contracts directly with the insurer.
- Sometimes the insurer conducts a tender exercise, sometimes not.
- PRA/FCA normally approves the choice.

Method 2

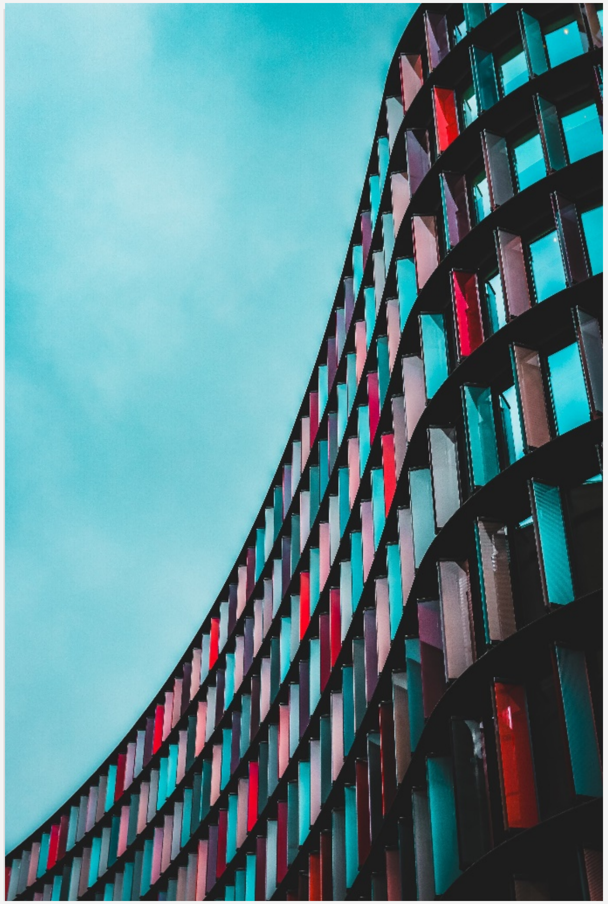
- Skilled Person's firm contracts with PRA/FCA.
- PRA/FCA maintains agreed panels for various scope areas.
- Usually, a tender exercise amongst those on the applicable panel.

Both methods

- Scope initially set by PRA/FCA, usually with input/refinement from the Skilled Person and the insurer.

- Both methods are used. PRA/FCA normally decides which method, but sometimes scope for the insurer to influence.
- "Larger" cases more likely to use Method 2, but not universally so.
- Once underway, little difference in practice from the insurers' point of view.

Types of scope



Type 1

- General investigation, health check, etc.
- No particular PRA/FCA concern, but interest in an important or developing area.

Type 2

- PRA/FCA general or specific concern on a particular area, and PRA/FCA requires independent view and/ or comparison with market or best practice .

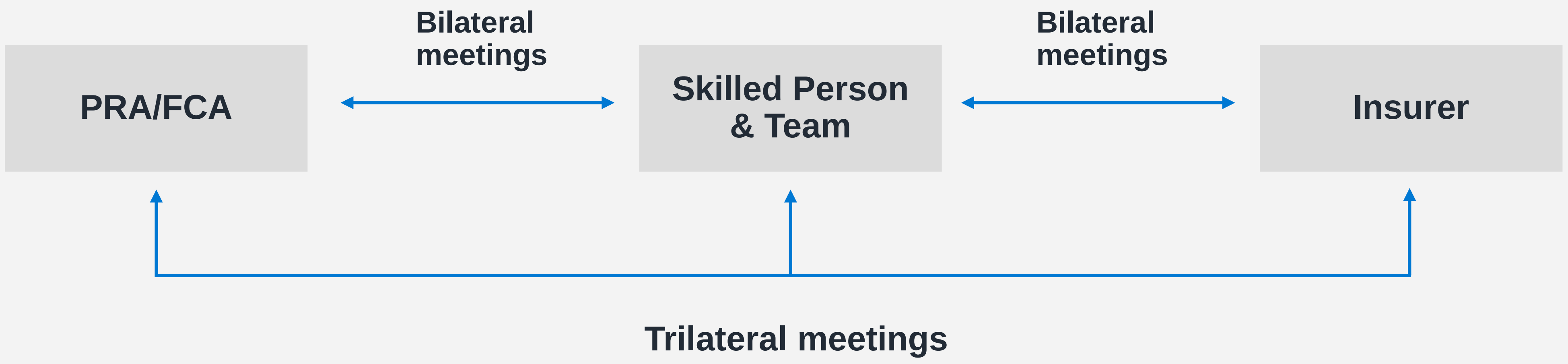
Type 3

- A specific problem/issue/error has occurred in a material process often resulting in a material numerical correction or other adverse outcome.

- Very important to get the scope clear, particularly for Type 2 and Type 3.
- Scope creep is often a concern.

How does it work in practice?

Interactions



Normally, PRA/FCA specifies that drafts of the Skilled Person Report must go to the PRA/FCA simultaneously with the insurer.

How does it work in practice?

Work process

1/3 of the work

Skilled Person and Team does fieldwork, document review, interviews and Q&A’s.

1/3 of the work

Skilled Person and Team drafts the report.

1/3 of the work

Skilled Person and Team redrafts and finalises the report.

- Normally, an extensive and detailed review of the draft report is carried out by both the insurer and PRA/FCA.
- Note the typical split of the workload between the 3 stages – and emphasis on the report.

How best to work with the Skilled Person and get the best outcome

The Skilled Person and his/her team …

- Will be thorough.
- Will listen.
- Will be constructive.
- Will accept that things are seldom perfect.
- Will understand materiality.

But…

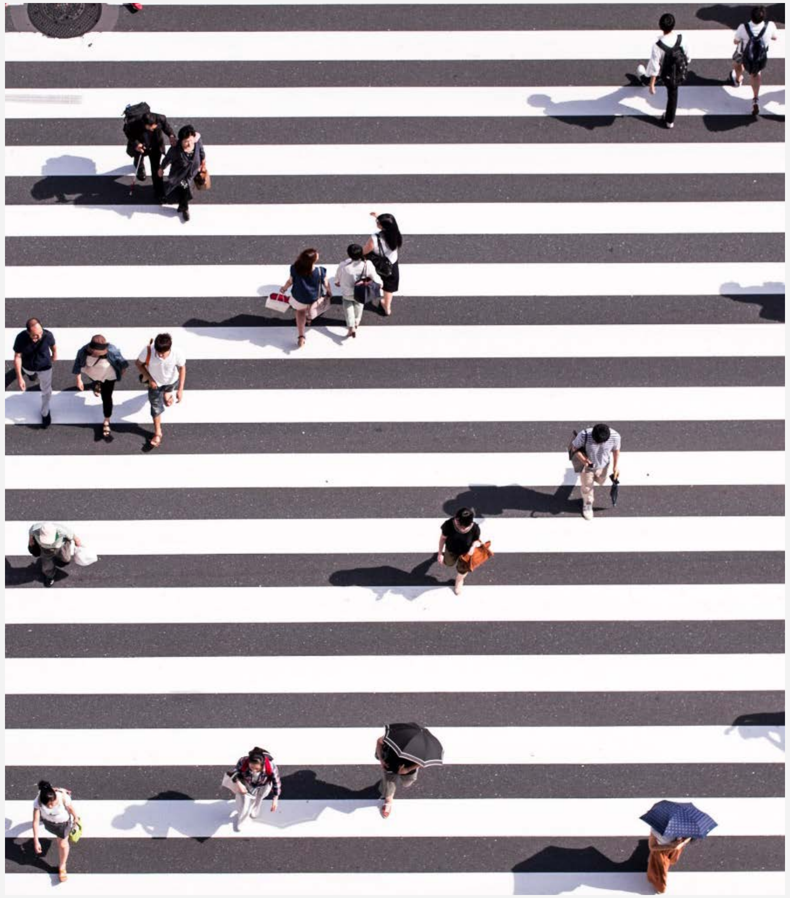
- Will want their questions answered directly and without “spin”.
- Will want to get to the point, without unnecessary history/background/verbiage.

And…

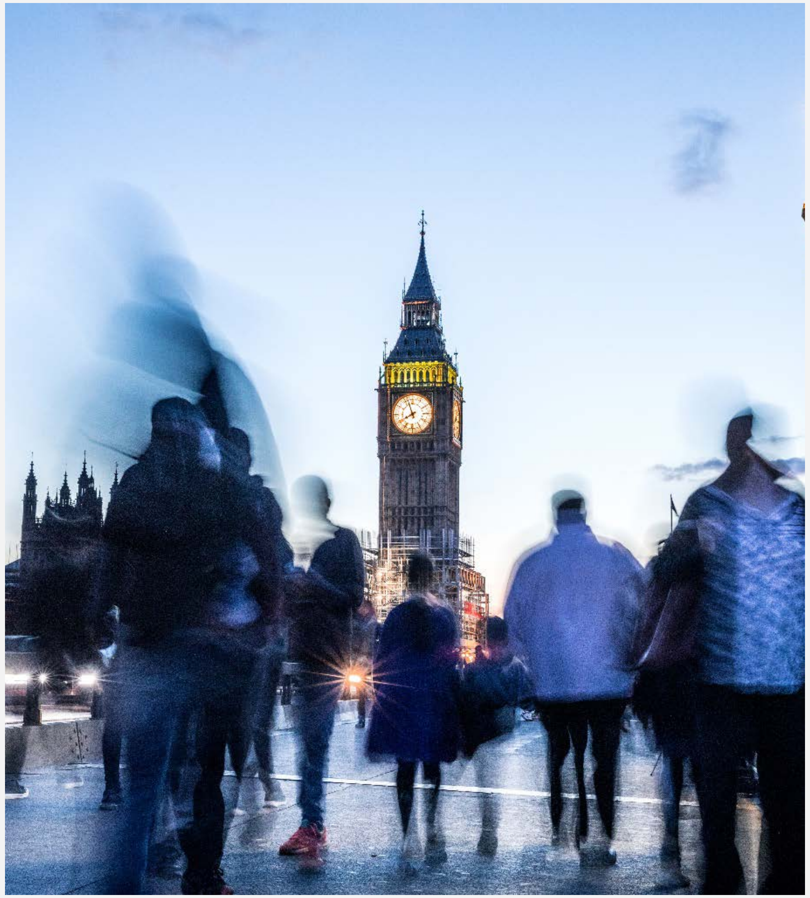
- Will be measured and will not overreact to aspects which are issues/problems.

Hence …

- Be open, clear and helpful with the Skilled Person.
- Acknowledge known/ potential issues.
- Avoid “SPIN” type answers.



How does the skilled person frame his/her recommendations/opinions?



Recommendations and opinions may take the form of:

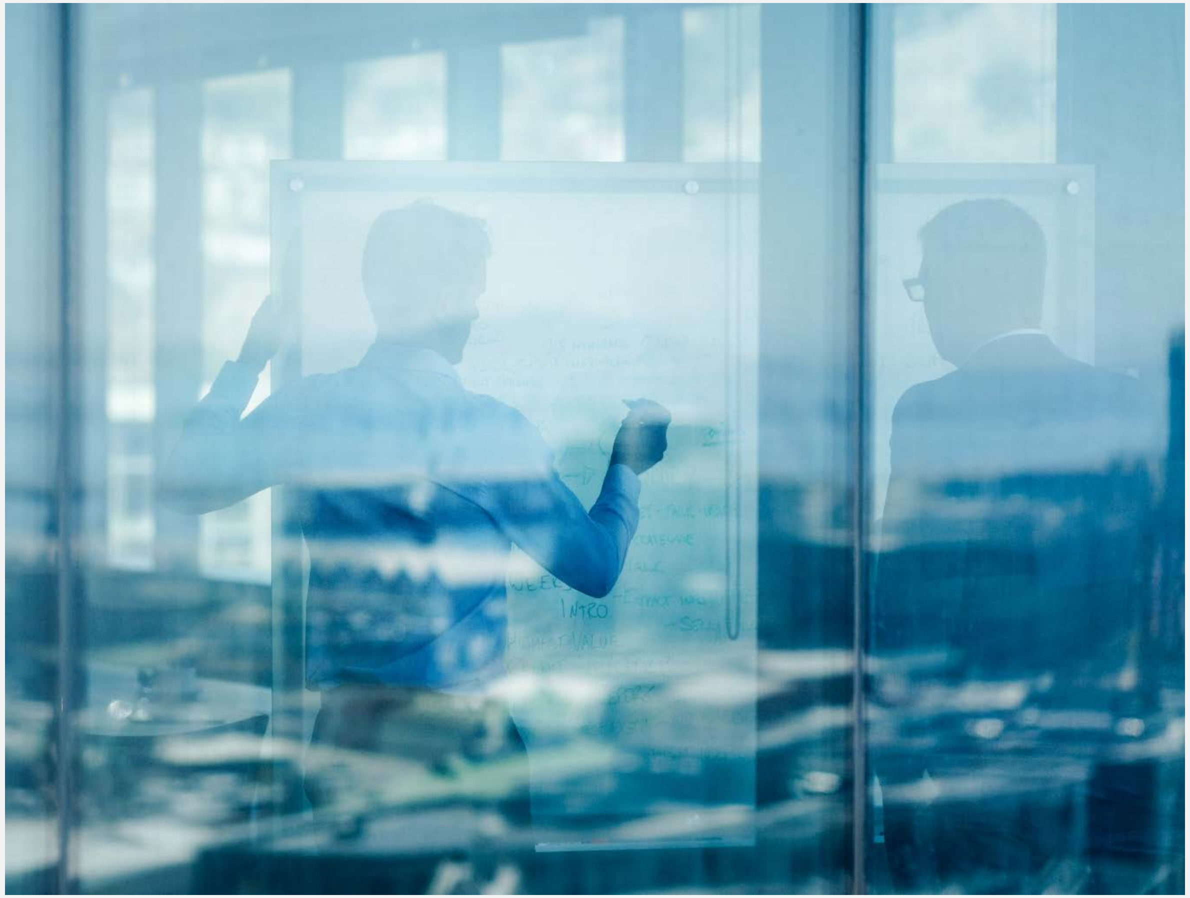
- Benchmarking – comparison against industry norms or best practice for the type of insurer in question.
- Compliance with PRA/FCA rules.
- Degree of prudence/optimism in approaches/assumptions – based on Skilled Person's experience/judgement and market knowledge.
- Specific recommendation for improvement, e.g. in processes.
- Adequacy of resources and availability of the right skills/experience.
- Suitability of systems, processes and controls, and governance.

In some cases, insurers have found Skilled Person recommendations helpful in gaining buy-in and/or budget for improvements which are known to be needed within the function in question.

How does the skilled person frame his/her recommendations/opinions?

Assurance from Skilled Person

- Sometimes the scope includes the Skilled Person providing Assurance …
  - For example, “The Analysis of Change process is in my opinion fit for purpose”; “The allowances for credit risk are in my opinion adequate.”
- This makes the exercise much more onerous/extensive and (usually) more expensive.
- Skilled Persons and insurers normally seek to avoid assurance-type scopes wherever possible.



Other regulatory considerations for 2023

Insurance Capital Standard (ICS) – Developments in 2023

Russell Ward

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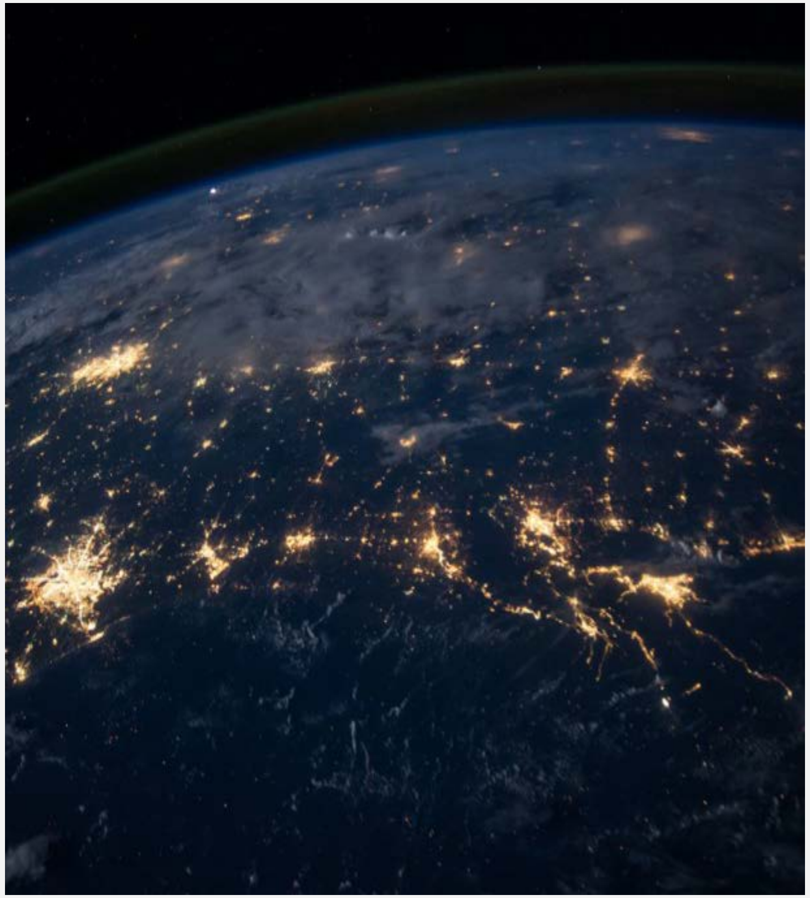
Historical development of the ICS



- The IAIS conducted consultations with stakeholders and field testing of the ICS between 2014 and 2019. Many aspects of the ICS evolved over the course of this field testing.
- The ICS was formally adopted at the end of 2019 – “ICS v2.0 for the monitoring period”
- There is a 5 year monitoring period from the start of 2020.
- Regulators will collect information on the ICS standard model, internal models, and other alternate measures (e.g., GAAP plus or aggregation method).
- Implementation as a prescribed capital requirement will occur at the end of the monitoring period, starting in 2025.

What's happening in 2023?

2023 is seen as a key year of development for the ICS:

Public consultation on the adoption of ICS as a prescribed capital requirement (PCR) – expected to be released at the IAIS Global Seminar scheduled for 12-16 June in Seattle.

Determination of whether the "Aggregation Method" adopted by the US will be deemed an equivalent approach under ICS.

An economic impact assessment – expected to be released in Q3 with results feeding into the finalisation of the ICS in 2024.

Alongside these activities, reporting of results under ICS v2.0 continues.

UK IAIGs

Bank of England 16 December 2022: We have updated the list of Internationally Active Insurance Groups (IAIGs) headquartered in the UK as follows:

Newly designated in December 2022

LIST 2022 Results

An overview of the results from the PRA's LIST 2022 exercise

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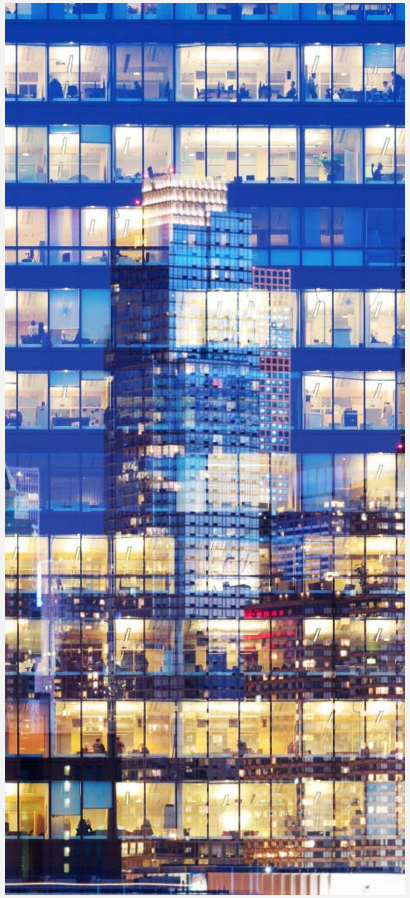
LIST 2022 overview



Life Insurance Stress Test exercise was launched in May 2022, and feedback was published in late January 2023.

The exercise had 3 objectives:

1. To assess sector resilience;
2. To support capacity building in risk management; and
3. To guide supervisory activity.

54 insurers took part (including 16 life insurers), with results published in aggregate.

Stresses focused on interest rates, credit spreads widening, downgrades and longevity, with management actions considerations.

Note, the LIST 2022 didn't include a liquidity or inflation stress, these will be considered in future stress test exercises.

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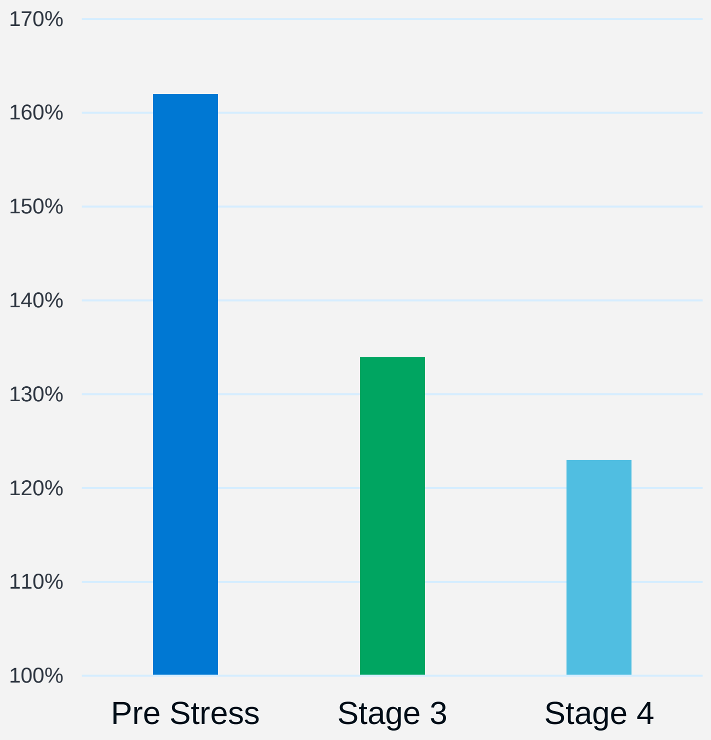
Results

Summary

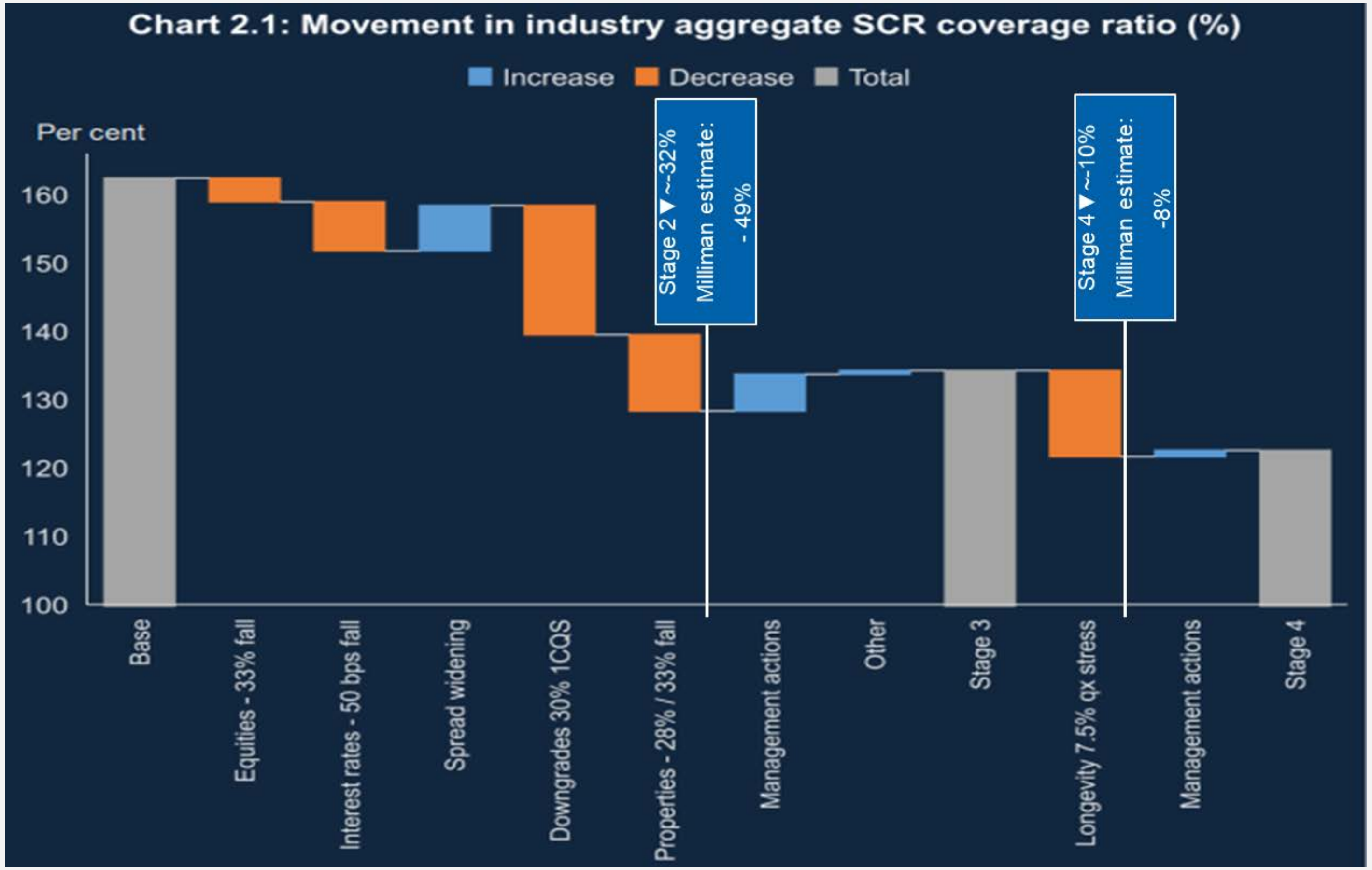
- In aggregate for LIST 2022 participants, the SCR coverage fell from 162% to 134% in the market scenario (Stage 3) and fell further to 123% in the market plus longevity stress scenario (Stage 4), with no entity breaching its MCR.
- The results overall show that major life insurers' solvency was resilient to the tested scenarios. Firms must focus on the priority areas of risk management, financial resilience and reinsurance risk.
- The largest components of the fall in SCR coverage are the impacts of credit downgrades, longevity improvement and property price shocks.
- Insurers were able to use existing reinsurance assets to offset longevity risks, and management actions to dampen the impact of the scenario.
- In the spread widening stress, the increasing MA offsets most of the corresponding reductions in asset values within the MA portfolio; and balance sheet deterioration through increased credit risk is not observed until assets start to downgrade.
- Many firms become reliant on TMTP under the scenarios, representing an aggregate benefit of c. 30% to solvency cover.

LIST results



Step-through of aggregate LIST results

- The chart on the right shows the aggregate results across the industry
- Milliman carried out the LIST exercise on a dummy life insurance company writing annuity only business.
- This included assuming certain management actions, which will differ with those assumed by some firms.



Source: Insurance Stress Test 2022 feedback, PRA

Panel Discussion

If you have a question,
please add it to the chat.

Thank you

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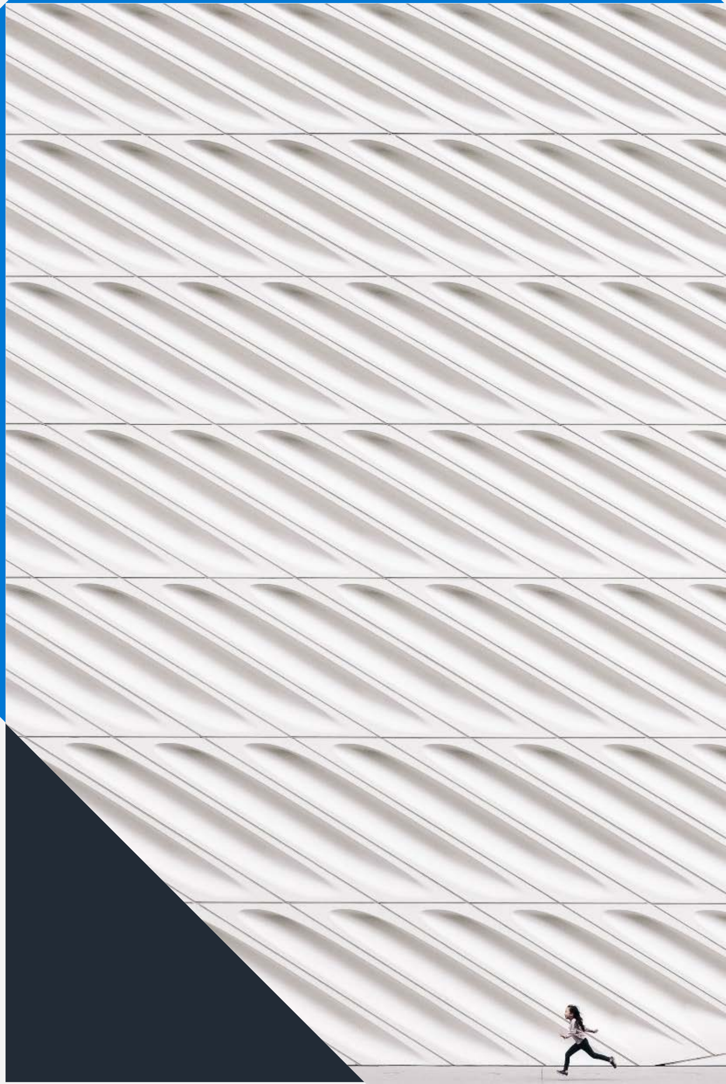
Thank you



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