OliverWyman

VM-20 UPDATES AND HOT TOPICS

An Actuaries' Club of Boston webinar

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May 20th, 2022

AGENDA

1 VM-20 Overview

2 Future Mortality Improvement

3 ESG Update

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VM-20 OVERVIEW

PBR REQUIREMENTS ARE IS REVISED PERIODICALLY

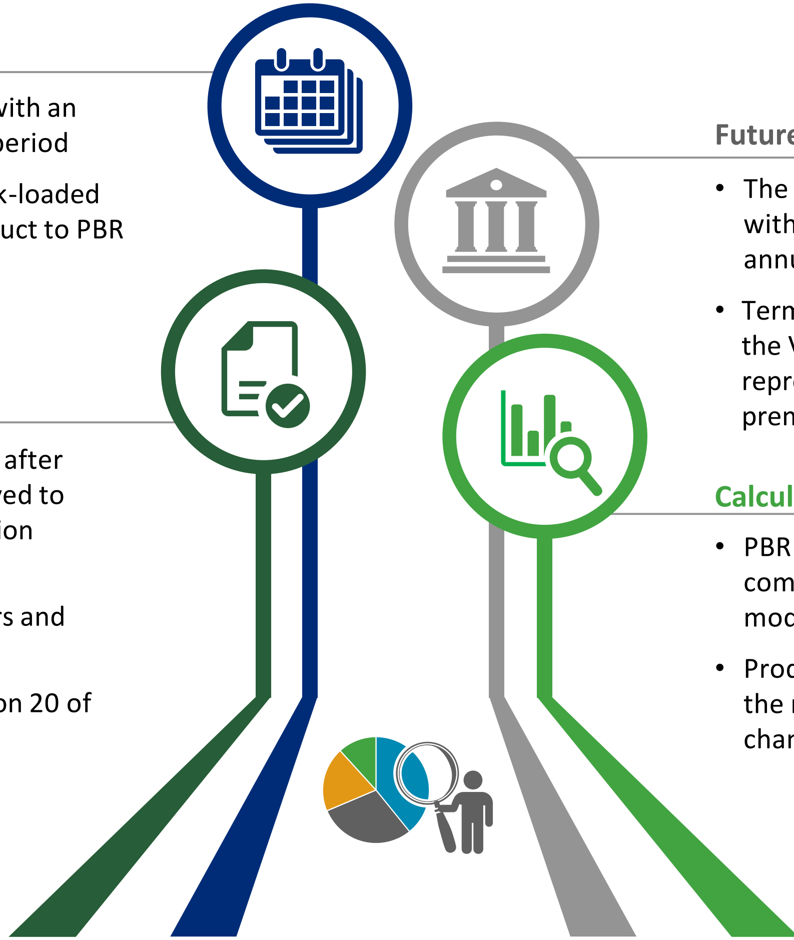
The Valuation Manual is published annually and numerous Amendment Proposal Forms (“APF”) are submitted, discussed, and ultimately adopted or rejected. The expectation is that changes are retroactive.

Timing and implementation

- Life PBR became effective 1/1/2017 with an optional three-year implementation period
- PBR implementations are heavily back-loaded and only 23 companies moved a product to PBR in 2017

Applicability

- Applies to all life new business issued after 1/1/2020 as well as any business moved to PBR during the optional implementation period
- Requirements apply to both reinsurers and direct writers
- Requirements are prescribed in Section 20 of the new valuation manual (VM-20)



Future changes

- The valuation manual is a “living document” with revised requirements released on an annual basis
- Terms for adoption are the same as those for the VM itself (requires 42 states/ territories representing 75% of total US life insurance premium)

Calculations

- PBR is the maximum of three reserve components; a formulaic floor and two modeled reserve components
- Products may be exempt from components of the requirements if they are not sensitive to changes in interest rates

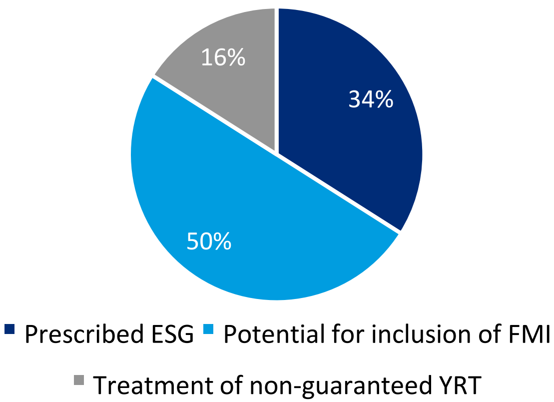
ANTICIPATED IMPACT OF REGULATORY CHANGES

Insurance writers are expecting significant impacts to PBR reserves as a result of the inclusion of future mortality improvement (“FMI”) under VM-20 and the changes to the economic scenario generator (“ESG”)

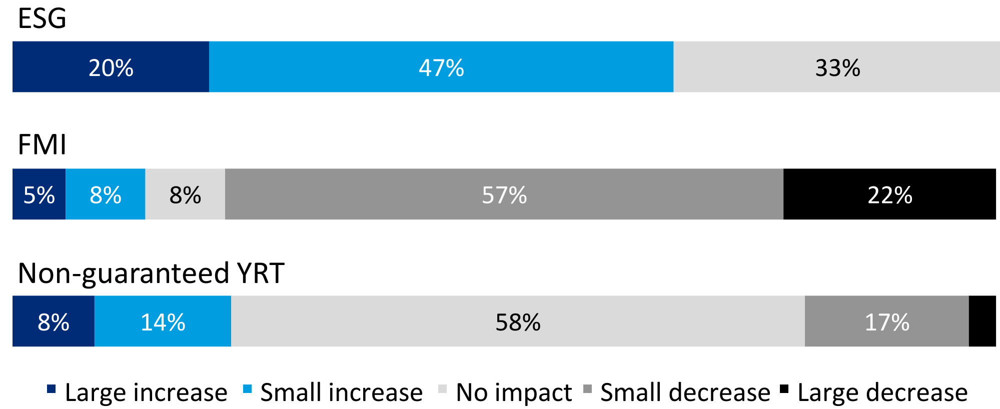
Regulatory impacts

Regulatory and valuation

Regulatory changes causing the most significant impact on PBR reserves



Expected impact of VM updates on reserves



40% of participants have performed some level of analysis on the upcoming changes to ESG

The level of effort to implement the upcoming 2023 ESG changes is dependent on:

- Format of new ESG scenarios
- Support offered by actuarial vendor
- Proprietary index design
- Integration with modeling system

Source: Oliver Wyman 2021 US Life Insurance Survey

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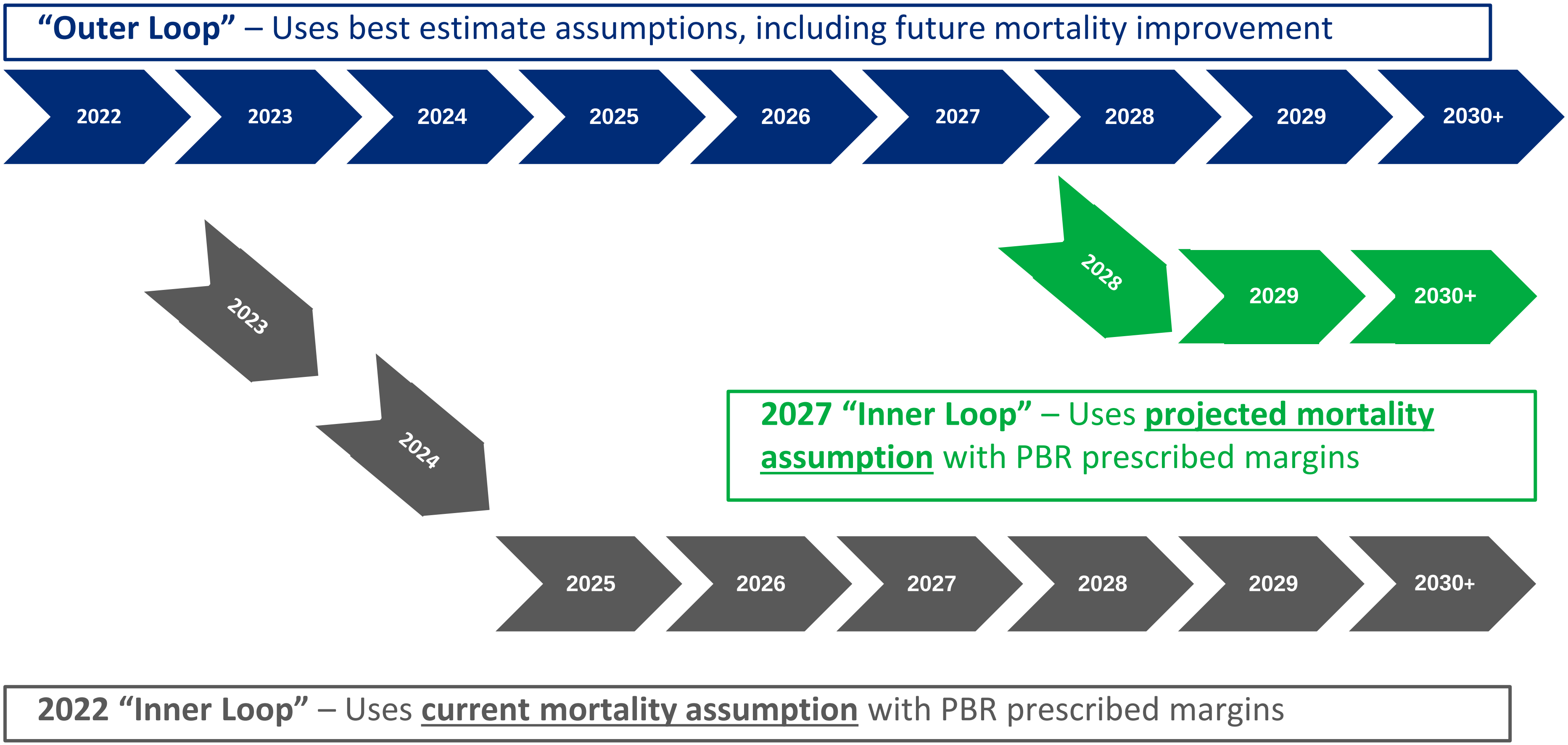
FUTURE MORTALITY IMPROVEMENT

MORTALITY UNDER VM-20 PRIOR TO APF 2020-10

Mortality improvement is permitted up to the valuation date, but no FMI can be reflected in the DR and SR assumptions



MORTALITY UNDER VM-20 AFTER APF 2020-10 FMI

VM-20 Section 9.C.7.f will include guidance on applying mortality improvement beyond the valuation date

Implementation guidance

- FMI **<u>shall not</u>** be reflected
  - On the company experience mortality rates
  - On the industry basic table
- FMI **<u>shall</u>** be reflected
  - On the prudent mortality assumptions
  - For a duration of 20 years

FMI rate considerations

- Company best estimate mortality improvement should be used
- FMI rates may not exceed those published annually by the SOA and approved by LATF
- FMI rates my be positive or negative (deterioration)

Other comments

- VM-31 Section 3.D.3.1 is modified to include the description and rationale for the mortality improvement rates applied beyond the valuation date

	Before APF 2020-10	After APF 2020-10
Explicit margins	Yes, applied to both company and industry tables	Unchanged
Historical Mortality Improvement	Yes, until the valuation date	Unchanged
Future Mortality Improvement	No	Yes, applied to the prudent estimate mortality for 20 years

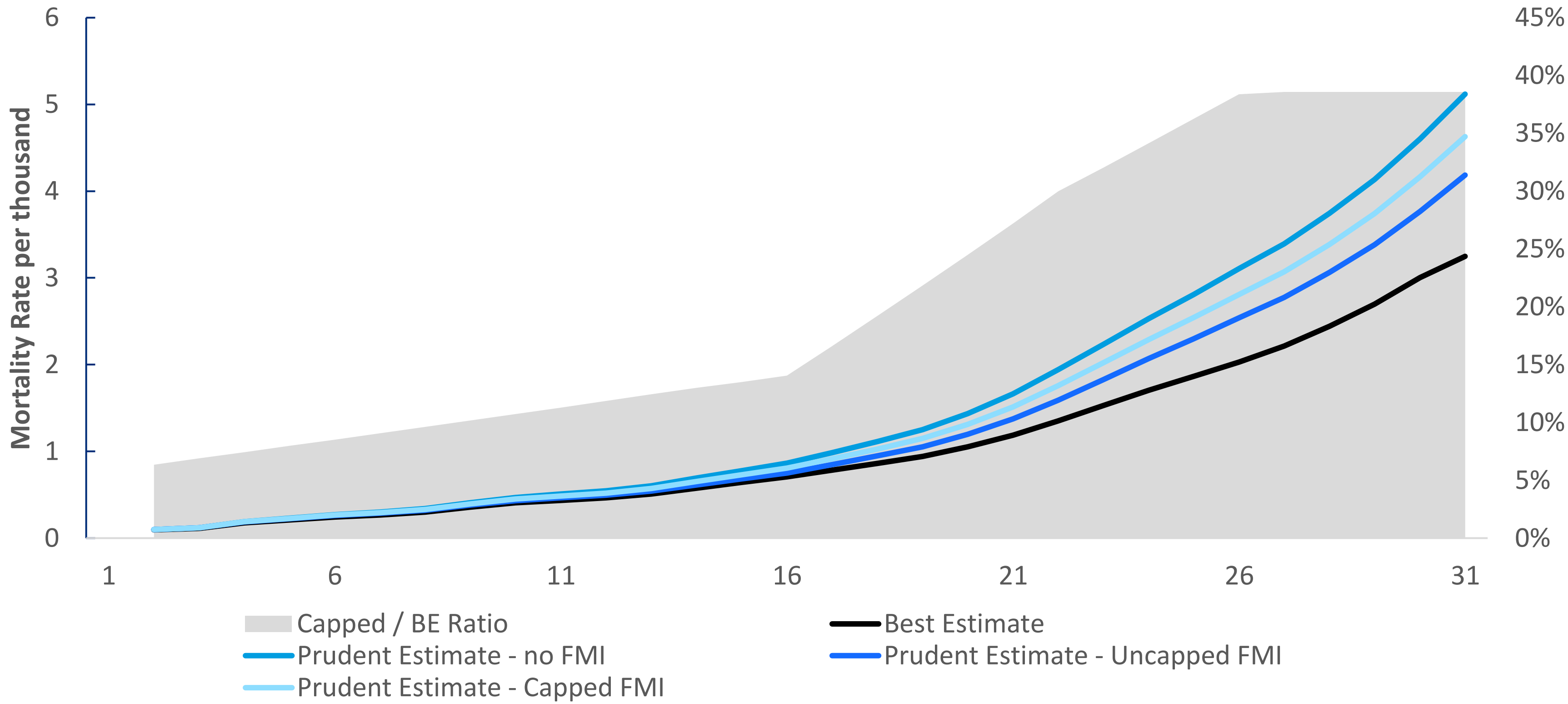
SINGLE POLICY ILLUSTRATION

Model assumptions and product features were selected to be a simplified representation of products currently offered

Projection Details	▪ 30-year Term ▪ 35-year-old male, preferred non-tobacco
Best estimate assumptions	▪ Mortality follows 80% of industry table ▪ Mortality experience is 60% credible with 10 years of sufficient data ▪ Future mortality improvement of 1% per annum for 20 years
Prudent estimate assumptions	▪ Future mortality improvement assuming VM-20 constraint of 0.5% per annum ▪ VM-20 prescribed mortality margins based on credibility and sufficient data period ▪ Removal of post-level-term profits

SINGLE POLICY ILLUSTRATION

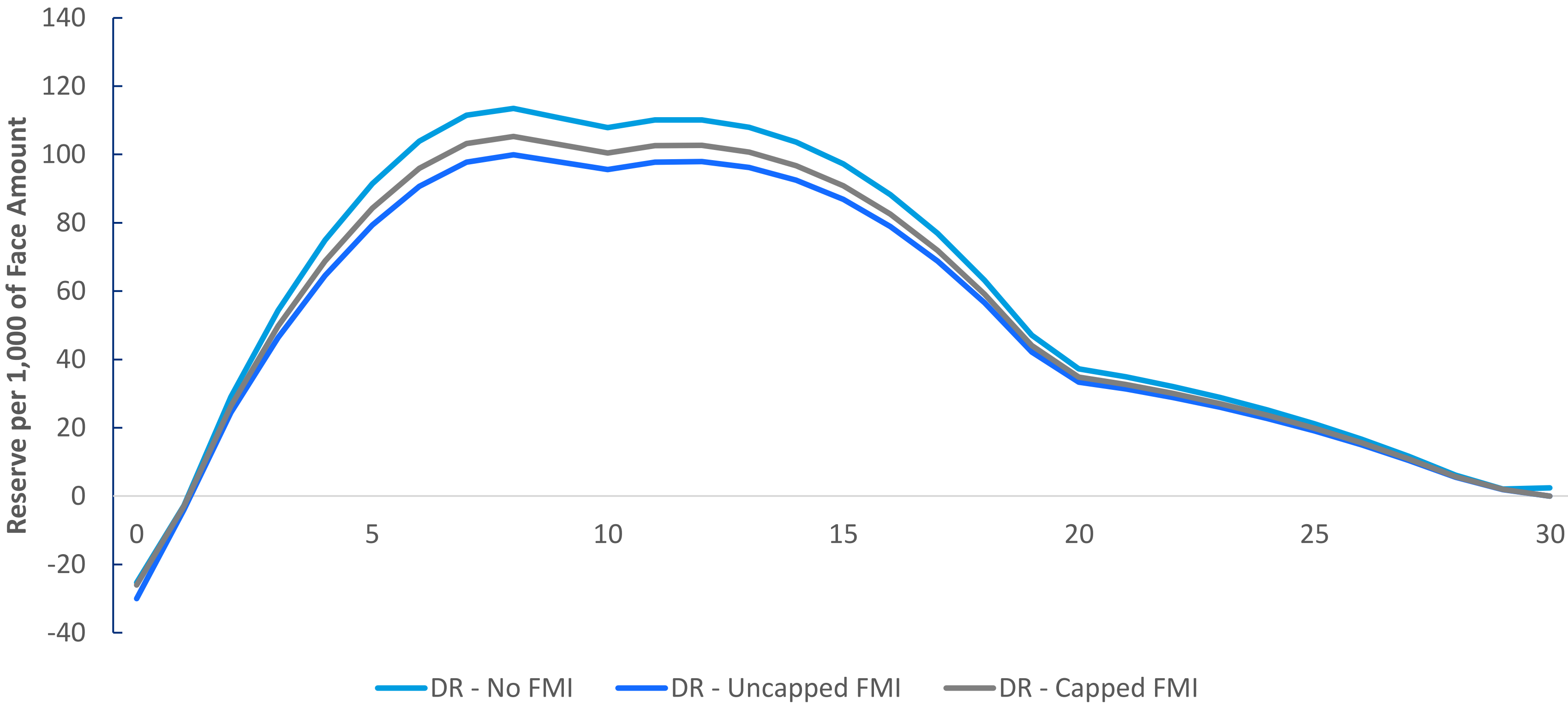
Allowing 20 years of future mortality improvement on the prudent mortality estimate bridges the gap between outer and inner loop mortality



Explicit mortality margins continue to apply; the level of implicit margin is reduced as a result of applying FMI up to prescribed maximums

ILLUSTRATIVE DR IMPACT

The impact of 20 years of mortality improvement beyond the valuation date is expected to decrease modeled reserves, so long as prescribed improvements rates are greater than 0



Prescribed maximum future mortality improvement rates may limit the level of relief to modeled reserves

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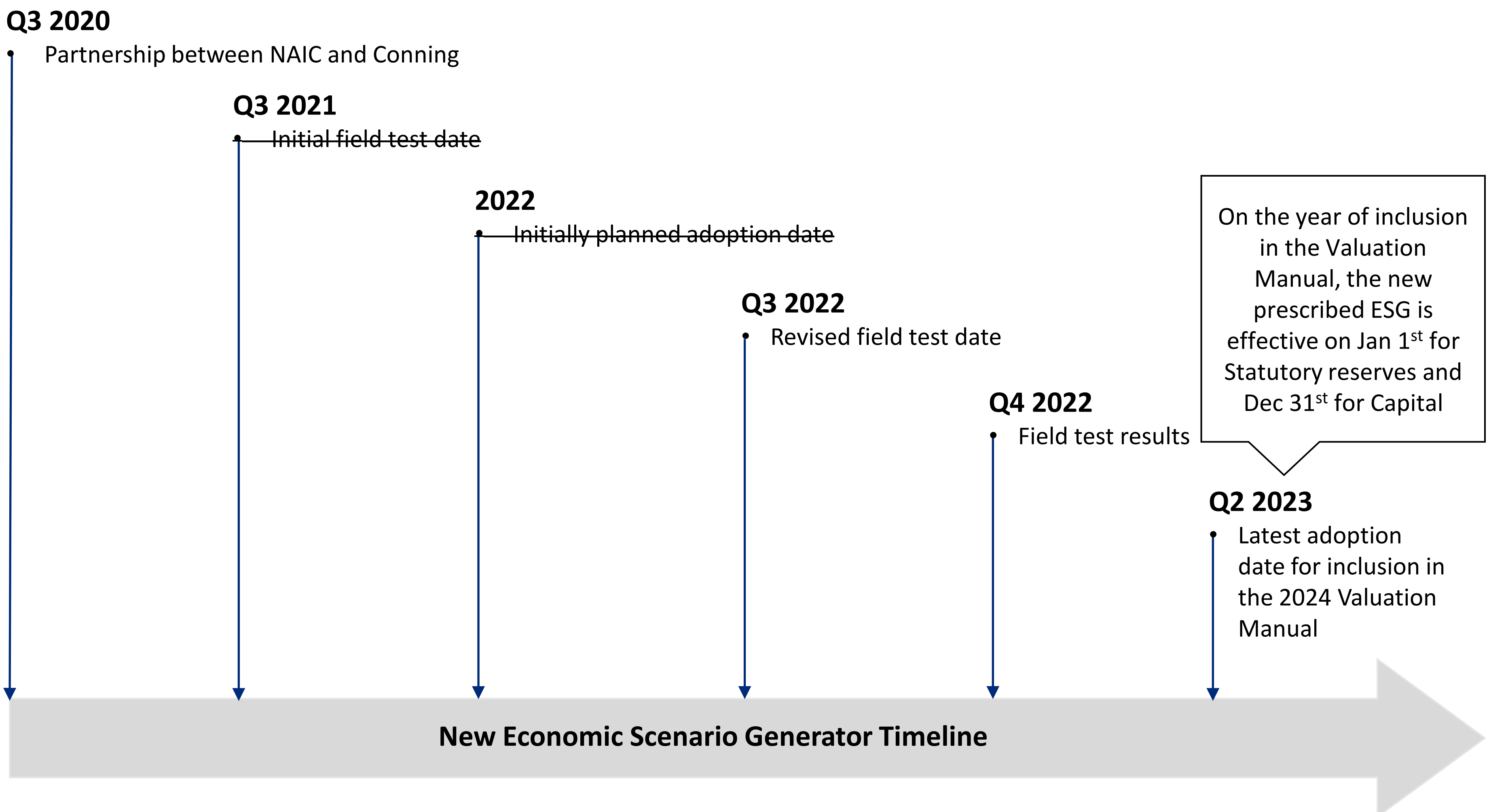
ECONOMIC SCENARIO GENERATOR

PRESCRIBED ESG UPDATE TIMELINE

The timeline for the adoption of the prescribed ESG updates by the NAIC has been extended to allow further analysis by interested parties, refinements to the field test parameters, and updates to model calibration



TREASURY MODEL ACCEPTANCE CRITERIA AND CALIBRATION

The Conning GEMS Treasury model may produce negative interest rates, the frequency and severity of these negative rates is controlled by a generalized fractional floor

Category: *Low for Long* **Criteria:** 1. At least 10% of scenarios should have a 10-year geometric average of the 20-year UST that is below 1.45% 2. At least 5% of scenarios should have a 30-year geometric average of the 20-year UST that is below 1.45%	**Category:** *Prevalence of High Rates, Upper Bound on T-Rates* **Criteria:** 1. The scenario set should reasonably reflect history, with some allowance for more extreme high and low interest rate environments 2. Upper Bound on 3M and 10Y yields
Category: *Lower Bound on Negative Interest Rates, Arbitrage Free Considerations* **Criteria:** 1. Apply the following guidance for negative rates: a) All maturities could experience negative interest rates b) Interest rates may remain negative for multi-year periods c) Rates should generally not be lower than -1.5%	**Category:** *Initial Yield Curve Fit, Yield Curve Shapes in Projection, and Steady State Yield Curve Shape* **Criteria:** 1. Review of initial and fitted spot curve, frequency of yield curve shapes, and steady-state curve

Source: NAIC ESG Update 2/27/2022 https://naic.conning.com/scenariofiles

EQUITY MODEL CONSIDERATIONS

VA Model office testing by the American Academy of Actuaries has highlighted significant differences between the GEMS and AIRG Equity Models

Category: *Link between Equity and Treasury Model*

Observations:

1. Equity-Treasury linkage can lead to significant differences in early duration mean equity returns, particularly in a low interest rate environment

ESG Model	Year 1 Mean	Year 1 St. Dev.
AIRG	8.8%	16.4%
GEMS®	5.2%	13.7%

Category: *Prolonged Periods of Negative Cumulative Returns*

Observations:

1. Scenarios with negative cumulative returns for a 30-year projection are more likely to occur in the GEMS ESG
2. Given the Stochastic Reserve relies on tail values, an increase to this component of the PBR reserves in expected

Category: *Equity Model Volatility Calibration*

Observations:

1. Steady state volatility from the GEMS ESG is greater than under the AIRG ESG

ESG Model	Steady State Mean	Steady State St. Dev.
AIRG	8.6%	16.1%
GEMS®	8.6%	17.3%

Category: *Equity Model Jump Process*

Observations:

1. The jump process from the GEMS ESG results in more significant jumps than under the AIRG ESG

Source: NAIC ESG Update 3/31/2022 https://naic.conning.com/scenariofiles

FIELD TEST SPECIFICATIONS AND OBJECTIVES

For VM-20 results, the ESG field test is hoping to highlight impacts to the modeled reserve components and the Stochastic Exclusion Ratio Test

Model	Field Test Recommendation
Treasury	1. Field test two Treasury model candidates
	a. Conning Calibration and Generalized Fractional Floor ("Non-shadow")
	b. Alternative Calibration and Shadow Floor ("Shadow")
Equity	2. Equity Utilize the existing GEMS® equity model with equity-Treasury linkage based on the short Treasury rate for field testing. Additionally, apply the following calibration updates:
	a. Update the equity model calibration to account for changes made to the Treasury model
	b. Apply a Sharpe-ratio approach with a 5% corridor to set the expected returns for the international equity indices
Corporate	3. Include GEMS® corporate model in initial field testing with the calibration updated for consistency with other generated returns on a risk/reward basis

Source: NAIC ESG Field Test Specifications https://naic.conning.com/scenariofiles

PRESENTER CONTACT INFORMATION

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Draft
Actuarial Guideline
Modeling Complex and High Yielding assets during NAIC Asset Adequacy Testing

Catherine Murphy

May 20, 2022

Agenda

and

Executive Summary

Agenda

- Background
- Evolution of the drafts
- Next steps

Executive Summary

- Regulators have observed some aggressiveness in how company project the asset cash flows during Asset Adequacy Testing, particularly for complex assets
- Last December, the MN regulator shared the concerns with Life Actuarial Task Force (LATF)
- In February, the MN regulator proposed a new actuarial guideline to supplement the Valuation Manual when the Appointed Actuary prepares the Actuarial Opinion Memorandum
- Guideline still being discussed
- Expect the guideline to be effective for 2022 year-end

John Hancock

Background - AAT

- Each year, US companies confirm their asset adequacy. We perform Asset Adequacy Testing (AAT) to ensure that our assets are sufficient to diffuse our liabilities. This requires assumptions that could apply for the next 50-100 years for long liabilities.

- Regulators have observed rapid entry of private equity firms into life insurance world through the acquisition of life insurance or fixed annuity blocks. They are concerned that with existing guidelines, some of the liabilities are either missed in AAT (due to testing net of reinsurance) or reflect aggressive projections of complex assets.

Ultimately, regulators want to ensure that companies use appropriate assumptions and methodologies and test all liabilities when performing AAT.

Evolution of the Guideline

- Concepts around a new actuarial guideline were exposed in the Fall. LATF/Industry discussed and shared their feedback on scope, requirement for a constraint or documentation and finally effective date. General thinking was increased documentation on complex assets would be beneficial for regulators, sooner than later. Some parties advocated for setting a constraint.
- 1st draft exposed in February
  - Reaction: 
  - Industry Group Discussions
  - Lobbying

Evolution of the Guideline

Draft 1
February '22

- Cover all complex & high yielding assets
- AAT should be performed gross of reinsurance
- A constraint would be set reflecting a cap yield
- Increased disclosures

Draft 2
April '22

- Cover all complex & high yielding assets
- AAT should comply with ASOP 11 (Reinsurance)
- Perform sensitivities with a cap on spread. Different sensitivities for Fixed Income/Equity-like
- Sensitivities inform actuary in assumptions and margins setting
- Increased disclosures

Expected Draft 3
May '22

- Cover all complex & high yielding assets; *might simplify the ask for vanilla assets*
- AAT should comply with ASOP 11 (Reinsurance)
- Perform sensitivities with a cap on spread. Different sensitivities for Fixed Income vs. Equity, Real estate and schedule BA
- Sensitivities inform actuary for assumptions and margins
- Increased disclosures with templates

Evolution of the Guideline – what's next?

- There were several decisions made or reiterated at the 5/19 LATF meeting on
  - Grouping of assets – Allowed instead of seriatim
  - Benchmark – How to measure if an asset is high yielding
  - Sensitivities to be performed on reinvestment assets only under the level interest rate scenario
  - There should be 2 types of sensitivities 1) fixed income 2) equity, real estate or schedule BAs
  - Attribution analysis – best effort basis
  - Timing to submit additional information – may be a later date
- There are still some details that need to be ironed out, for example
  - How are assets valued when they are sold? E.g. Privately originated assets
  - What are reasonable sensitivities?
    - Fixed Income sensitivity
    - Equity/Real estate and Schedule BA sensitivity
  - Template will require work from companies

Next Steps

- Draft 3 exposed starting this week until end of May likely
- Expect 1-2 more short exposures
- June 16 – LATF is expected to approve the new guideline
- December 31, 2022 reserve reporting – effective date
  - Extra Documentation – would likely require more collaboration between Investment and Actuarial Teams.
  - Perform sensitivities: for fixed income reinvestment and for equity/real estate/Schedule BAs
  - Template requiring info on yields compared to the benchmark cap, attribution analysis and sensitivities

John Hancock

Appendix

References

- Link to LATF where drafts of the AAT guideline would be published:
  - https://content.naic.org/cmte_a_latf.htm#