ESG Update to the Life Actuarial (A) Task Force and the Life RBC (E) Working Group

2/17/22

NAIC
NATIONAL ASSOCIATION OF
INSURANCE COMMISSIONERS

Agenda

1. ESG Project Status
2. Information on Treasury scenario set candidates for field testing
   a) Conning Calibration and Generalized Fractional Floor ("Non-shadow")
   b) Alternative Calibration and Shadow Floor ("Shadow")
3. Key Decisions for Equity and Corporate Models
4. Field Test Considerations
5. Questions and Comments

ESG Project Status

ESG Project Status

- Over the past year the ESG Drafting Group, which is composed of regulators, subject-matter experts, Conning staff and NAIC Staff, has been working to develop a calibration that will work for use in the upcoming ESG Field Test.
- While public status updates were delivered periodically over this time, more frequent touchpoints will be needed as we move towards the June target for a field test to:
  - receive input from all stakeholders, and to
  - position regulators to be able to make the final recommendation for scenarios to be used in the field test.
- The ESG Drafting Group is currently considering two Treasury model calibration candidates for field testing, as described on the slide 7.
- Additionally, the ESG Drafting Group is also considering key properties of the Equity and Corporate models as outlined in slide 12.

ESG Project Status – Next Steps

- The ESG Field Test is expected to be conducted from June through August 2022
- Once results are compiled by the NAIC, aggregated results of the field test are expected to be presented starting in September 2022.
- After regulators review the field test results, changes may be desired to the calibration of the ESG used in field testing. In that case Conning would begin work in the 4th quarter of 2022 to modify the ESG calibration as appropriate. A follow-up to the field test could be conducted for companies to test this new set of scenarios in the first quarter of 2023.
- After field testing, regulators may approve the ESG for use in determining statutory reserves and capital. For implementation in 2024, amendments to the valuation manual would have to be approved by the Life Actuarial (A) Task Force by June of 2023 according to the normal process. The Life RBC (E) Working Group changes to C3 Phase I and C3 Phase II instructions need to be adopted by June of 2024 for use in 2024 RBC calculations.

Information on Treasury Scenario Set Candidates for Field Testing

Treasury Model Candidates

The ESG Drafting Group is currently considering two Treasury model candidates for field testing.

Conning Calibration and Generalized Fractional Floor	Alternative Calibration and Shadow Floor

• The Conning calibration, paired with a floor, was designed to meet the acceptance criteria that were chosen by regulators for the Treasury scenarios.
• A generalized fractional floor has been applied to the scenarios resulting from the Conning calibration to reduce the frequency and severity of negative interest rates. More details on the generalized fractional floor are shown on slide 8.
• Additional analysis of the scenarios from the Conning calibration and generalized fractional floor will be discussed in the next section.
	• There were several motivations behind the Alternative Calibration including:
	    • producing realistic term premiums and yield curve behavior over time, and
	    • fitting a wide variety of historical yield curves.
	• From the original goals described above, the Alternative Calibration was also adapted to meet regulator objectives.
	• A shadow-rate floor methodology has been applied to reduce the frequency and severity of negative interest rates produced by the Alternative Calibration.
	• The shadow-rate floor methodology seeks to introduce a floor to the Treasury rates while preserving the arbitrage-free property of the scenarios
	• The Alternative Calibration will be discussed in future calls

Generalized Fractional Floor

- The Conning GEMS Treasury model has the capability of producing negative interest rates, which have been a feature prevalent in other countries currently and in recent history.
- While the basic formula for the generalized fractional floor (see below) is relatively simple, the implementation of the floor in the Conning Calibration is more complex. In this particular implementation, the Treasury model is fit to an implicit yield curve that is chosen such that the actual yield curve is matched at time zero after the floor has been applied.
- Applying a generalized fractional floor methodology to the scenarios from the Conning Treasury calibration allows for increased control of the frequency and severity of negative interest rates.
- After testing, Conning has chosen a threshold value of 40 BPs and a factor of 20% to reduce the frequency and severity of negative interest rates while ensuring that other regulator objectives, such as low for long, are met.

Generalized Fractional Floor Formula:
- If Unfloored Rate < Adjustment Threshold,
  - Floored Rate = Adjustment Threshold + Factor * (Unfloored Rate - Adjustment Threshold)
- Otherwise,
  - Floored Rate = Unfloored Rate

Example:
Unfloored Rate = -1%   Threshold = 40BPs   Factor = 20%
Floored Rate = 0.4% + 20%*(-1% - 0.4%) = **0.12%**

Prioritized Acceptance Criteria: Conning Calibration Results

Item	Category	Acceptance Criteria	Criteria Met?
1.	Low For Long	a) At least 10% of scenarios should have a 10-year geometric average of the 20-year UST that is below 1.45%* b) At least 5% of scenarios should have a 30-year geometric average of the 20-year UST that is below 1.45%*	a) 10-year threshold: **19.5% - PASS** b) 30-year threshold: **5.2% - PASS**
2.	Prevalence of High Rates, Upper Bound on Treasury Rates	a) The scenario set should reasonably reflect history, with some allowance for more extreme high and low interest rate environments b) Upper Bound: i. 20% is >= 99th percentile on the 3M yield fan chart, and no more than 5% of scenarios have 3M yields that go above 20% in the first 30 years ii. 20% is >= 99th percentile on the 10Y yield fan chart, and no more than 5% of scenarios have 10Y yields that go above 20% in the first 30 years	a) **PASS** b) **PASS**

*1.45% was the current level of the 20-year UST at 12/31/20.

Prioritized Acceptance Criteria: Conning Calibration Results (cont.)

Item	Category	Acceptance Criteria	Criteria Met?
3.	Lower Bound on Negative Interest Rates, Arbitrage Free Considerations	Apply the following guidance for negative rates: a) All maturities could experience negative interest rates b) Interest rates may remain negative for multi-year time periods c) Rates should generally not be lower than -1.5%	**PASS**
4.	Initial Yield Curve Fit, Yield Curve Shapes in Projection, and Steady State Yield Curve Shape	a) Review initial actual vs. fitted spot curve differences for a sampling of 5 dates representing different shapes and rate levels for the entire curve and review fitted curves qualitatively to confirm they stylistically mimic the different actual yield curve shapes b) The frequency of different yield curve shapes in early durations should be reasonable considering the shape of the starting yield curve (e.g. a flatter yield curve leads to more inversions). c) The steady state curve has normal shape (not inverted for short maturities, longer vs shorter maturities, or between long maturities)	a) **Pending Review** b) **PASS** c) **PASS**

Key Decisions for Equity and Corporate Models

Equity Model Key Decisions	Current Direction for Field Test
Should Existing GEMS ESG Equity-Treasury Linkage be Utilized?	Yes
How should the returns for the international indices be set?	Utilize a Sharpe-ratio approach with a 5% corridor
How should equity returns respond to initial market conditions?	Use existing functionality to allow recent market volatility to impact the equity scenarios.

Corporate Model Key Decisions	
Should the "Complex" GEMS Corporate model be used or a simplified model?	Include Simplified and "Complex" GEMS Corporate models in field testing

Field Test Considerations

Field Test Considerations - Background

- Regulators, NAIC staff, American Academy of Actuaries volunteers, and representatives of the American Council of Life Insurers that form a ESG Field Test Planning Group are collaborating to develop specifications for the ESG field test, a set of instructions for field test participants, and a results template for participating companies to record results.
- The ESG Field Test Planning Group is currently working to address the following questions, among others:
  - Do multiple scenario sets, representing additional valuation dates or sensitivities, need to be included in the field test?
  - Should some portion of the field test be made optional to increase participation?
  - What survey questions can be added to the field test to better understand participant results?
  - Does model office testing need to be performed alongside the field test?
  - Should an attribution analysis be performed by participants to understand the drivers of results?

Field Test Considerations - Scope

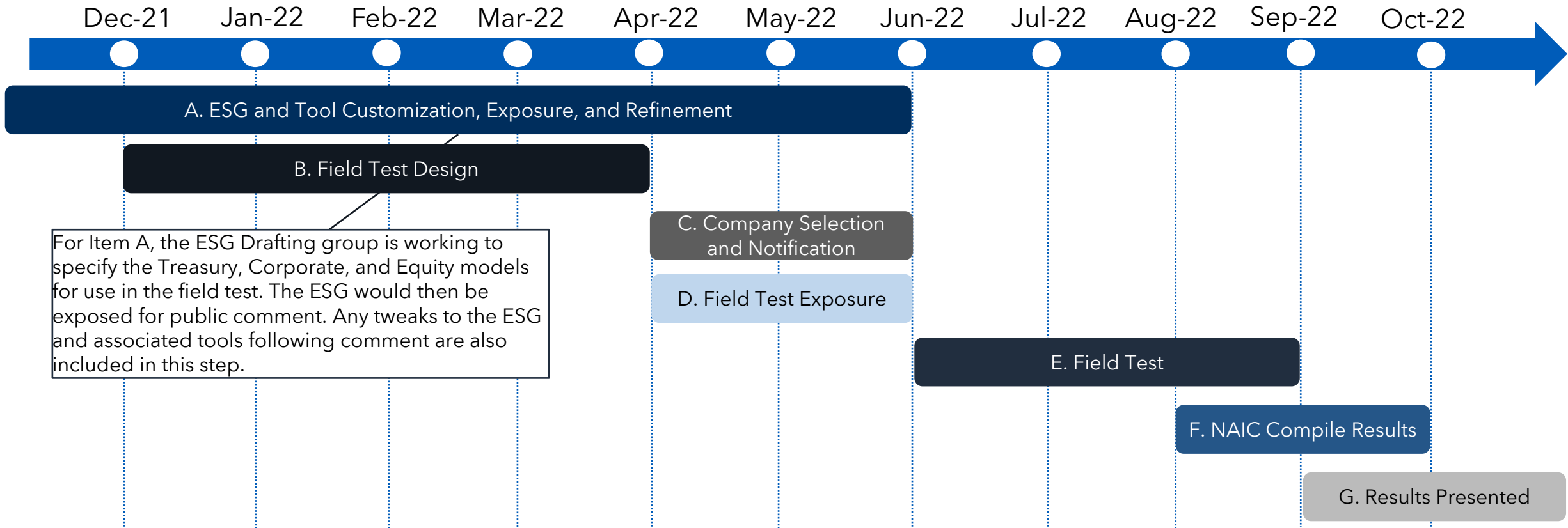| VM-20	VM-21/C3 Phase II	VM-22/C3 Phase I
• All individual life insurance policies issued on or after the operative date of VM-20, or issued during the transition period, if elected by the company. Smaller insurance companies may obtain an exemption. • Stochastic reserves, Deterministic reserves, and stochastic exclusion ratio test (SERT) values will need to be field tested.	• Variable deferred or immediate annuity contracts whether or not they have GMDBs or VAGLBs, group annuity contracts containing GMDBs or VAGLBs, and policies or contracts with guarantees similar in nature to GMDBs or VAGLBs where there is no other explicit reserve requirement. • Stochastic Reserves and CTE with Prescribed Assumptions will need to be field tested. The CTE 70 metric will need to be tested for reserves and the CTE 98 metric will be tested for TAR.	• Include certain annuities (with the exception of indexed annuities) and single premium life insurance for C3 Phase I testing. • VM-22 methodology changes will be deferred to the VM-22 field test, and therefore VM-22 calculations are out of scope for this field test.

Timeline

Questions & Comments