COVID-19 Low Interest Rate Environment
Cash Flow Testing Survey
Summary of Results
December 18, 2020
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Section 1: Introduction

The Society of Actuaries (SOA) has partnered with LIMRA to conduct a series of ‘sprint’ surveys on the COVID-19 pandemic and its potential impacts on the insurance industry. Given the importance of changing economic conditions to insurance companies, one of these “sprint” surveys focused on best practices around the potential impact of current market conditions on cash flow testing.

A first round of the surveys was conducted in April of 2020. This report provides results for the second round of surveys and focuses on cash flow testing in order to gauge whether thinking is changing.

The survey was directed at actuaries and/or risk management staff involved in their organization’s cash flow testing efforts. Responses to the survey were collected between November 15, 2020 and December 2, 2020. Forty-three companies responded to the survey. Highlights of the survey responses are found in Section 2 and a summary of results for each question in the survey is found in Section 3.
Section 2: Survey Highlights

This survey covers three topics related to the impact of the COVID-19 pandemic on cash flow testing (CFT): general approach and strategy; deterministic scenarios; and stochastic scenarios.

**General Approach & Strategy:** Fixed rate annuities, single premium immediate annuities, whole life, term and fixed universal life are the most common products offered by the respondents. About one-third have completed a run of their CFT for 2020 and another 53% plan to do so prior to year-end reporting. When asked about what types of scenarios are run for CFT, over 80% run stochastic scenarios for variable annuities, while only 50% run them for general account products. About two-thirds of companies run other deterministic and shock/sensitivity scenarios for general account products and variable annuities.

**Deterministic Scenarios:** Two-thirds of respondents are required to pass 5 or more of the NY7 scenarios. Almost half stated this requirement has decreased given the current rate environment. Two-thirds of the respondents believe the current environmental implied scenario is worse than moderately adverse.

**Stochastic Scenarios:** About 80% of respondents who run stochastic scenarios use the American Academy of Actuaries’ economic scenario generator. Four of the 24 respondents stated they allow for negative rates. The most common range for the assumed long-run single A credit spread was “1% to <1.5%” and “0% to 0.5%” was the most common assumption for the initial shock to equity returns. Almost all respondents have reviewed their mortality assumptions and about half have updated them. About 40% of the companies who have reviewed their policyholder behavior assumptions have updated them. Over half of the companies who have reviewed their mean reversion target and credit spread assumptions have updated them. Almost 90% of the respondents are planning to use provisions for adverse deviation similar to prior years, coupled with short-term assumptions that reflect current events.
Section 3: Cash Flow Testing Survey Questions and Response Detail

3.1 GENERAL APPROACH AND STRATEGY

3.1.1 HAS YOUR COMPANY COMPLETED A RUN OF ITS CASH FLOW TESTING FOR 2020?

![Bar chart showing the response to the question about completing a run of cash flow testing for 2020.]

- **Yes**: 15 companies
- **No, and we will not re-run until year-end reporting**: 5 companies
- **No, but we plan to re-run prior to year-end reporting**: 23 companies

3.1.2 HOW FREQUENTLY DOES YOUR COMPANY TYPICALLY PERFORM CASH FLOW TESTING?

![Bar chart showing the frequency of cash flow testing.]

- **Annually**: 32 companies
- **Semi-annually**: 5 companies
- **Quarterly**: 2 companies
- **Monthly**: 0 companies
- **Other**: 4 companies
3.1.3 WHAT TYPES OF SCENARIOS DOES YOUR COMPANY RUN FOR VARIABLE ANNUITY CASH FLOW TESTING? (SELECT ALL THAT APPLY)

- Stochastic scenarios: 13 companies
- NY7 scenarios: 15 companies
- Other deterministic scenarios: 10 companies
- Shock/sensitivity scenarios: 11 companies
- Don’t run cash flow testing for Variable Annuities: 27 companies

3.1.4 WHAT TYPES OF SCENARIOS DOES YOUR COMPANY RUN FOR GENERAL ACCOUNT PRODUCT CASH FLOW TESTING? (SELECT ALL THAT APPLY)

- Stochastic scenarios: 22 companies
- NY7 scenarios: 40 companies
- Other deterministic scenarios: 30 companies
- Shock/sensitivity scenarios: 29 companies
3.1.5 YOU INDICATED THAT YOUR COMPANY IS RUNNING OTHER DETERMINISTIC SCENARIOS. DO ANY OF THESE SCENARIOS CONSIDER NEGATIVE RATES?
3.2 DETERMINISTIC SCENARIOS

3.2.1 HOW MANY NY7 SCENARIOS ARE YOU TYPICALLY REQUIRED TO PASS?

![Bar chart showing the number of companies required to pass NY7 scenarios.](chart1)

- 5 companies do not run or have no requirement.
- 1 company requires 1 NY7 scenario.
- 1 company requires 2 NY7 scenarios.
- 1 company requires 3 NY7 scenarios.
- 8 companies require 4 NY7 scenarios.
- 15 companies require 5 NY7 scenarios.
- 2 companies require 6 NY7 scenarios.
- 11 companies require 7 NY7 scenarios.

3.2.2 HAS THIS REQUIREMENT CHANGED GIVEN THE CURRENT RATE ENVIRONMENT?

![Bar chart showing the change in NY7 scenario requirements.](chart2)

- 20 companies require NY7 scenarios to pass increased.
- 18 companies require NY7 scenarios to pass to stay the same.
- 5 companies do not run or have no requirement.
3.2.3 WHAT IS YOUR COMPANY’S VIEW REGARDING THE LEVEL SCENARIO RELATIVE TO THE DEFINITION OF “MODERATELY ADVERSE”?

- Current environmental level scenario is moderately adverse: 9 companies
- Current environmental level scenario is better than moderately adverse: 2 companies
- Current environmental level scenario is worse than moderately adverse: 29 companies
- No opinion: 3 companies

3.2.4 WHAT IS THE LOWEST 10-YEAR INTEREST RATE YOUR COMPANY IS USING IN A DETERMINISTIC SCENARIO THAT IS REPORTED TO REGULATORS?

- Less than 0%: 2 companies
- 0%: 4 companies
- >0% but less than 0.5%: 8 companies
- >=0.5% but less than 0.5%: 20 companies
- >=0.5% but less than 1%: 7 companies
- >=1% but less than 2%: 0 companies
- >2%: 2 companies
- Don’t run or not required: 0 companies

3.2.5 IF YOUR COMPANY DOES NOT RUN DETERMINISTIC SCENARIOS WITH NEGATIVE RATES, WHY NOT?

- Considered beyond a moderately adverse scenario
- System/software does not support negative rates
3.3 STOCHASTIC SCENARIOS

3.3.1 FOR STOCHASTIC SCENARIOS, DO YOU USE THE AMERICAN ACADEMY OF ACTUARIES’ ECONOMIC SCENARIO GENERATOR?

3.3.2 FOR STOCHASTIC SCENARIOS, DO YOU ALLOW FOR NEGATIVE RATES?
3.3.3 IF YOUR COMPANY DOES NOT ALLOW FOR NEGATIVE RATES IN STOCHASTIC SCENARIOS, WHY NOT?

- System/software does not support negative rates
- Academy generator does not produce negative rates

3.3.4 WHAT IS YOUR COMPANY ASSUMING AS OF 9/30/20 FOR THE FOLLOWING?

### NUMBER OF COMPANIES IN RATE RANGE

<table>
<thead>
<tr>
<th>Rate Range</th>
<th>Long-run single A credit spreads</th>
<th>Equity return-initial shock*</th>
<th>Equity return-long term return</th>
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<tbody>
<tr>
<td>&lt; -5%</td>
<td>0</td>
<td>6</td>
<td>0</td>
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<tr>
<td>-5% to &lt;0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0% to &lt;0.5%</td>
<td>0</td>
<td>15</td>
<td>8</td>
</tr>
<tr>
<td>0.5% to &lt;1.0%</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1.0% to &lt;1.5%</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
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<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2% to &lt;3%</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3% to &lt;5%</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5% to &lt;10%</td>
<td>0</td>
<td>0</td>
<td>13</td>
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<tr>
<td>10%+</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</table>

*Eight of the 15 companies with no initial shock indicated assuming 0% long-term return.

3.3.5 HAS YOUR COMPANY UPDATED ANY OF THE FOLLOWING ASSUMPTIONS IN LIGHT OF COVID-19 AND THE CURRENT MARKET ENVIRONMENT?

- Mean reversion target
- Credit spread assumptions
- Long-term equity return assumptions
- Policyholder behavior
- Mortality assumptions
- Asset allocation assumptions
3.3.6 PLEASE INDICATE WHICH OF THE FOLLOWING STATEMENTS BEST REFLECTS YOUR CURRENT THINKING REGARDING PROVISIONS FOR ADVERSE DEVIATION (PADS) IN ASSUMPTIONS FOR CASH FLOW TESTING?

![Bar Chart]

3.3.7 YOU SAID YOUR COMPANY RUNS SHOCK/SENSITIVITY SCENARIOS FOR CFT. ARE YOU RUNNING ANY NEW SENSITIVITIES THIS YEAR?

![Bar Chart]

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Section 4: Acknowledgments

The SOA, LIMRA, and Oliver Wyman would like to thank the industry Low Interest Rate Task Force (established in January 2020 by LIMRA, Oliver Wyman and the ACLI), as well as the following individuals for their support in the design and development of the survey.

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David Seidel, FSA, MAAA, Securian
Steve Verhagen, FSA, MAAA, CUNA Mutual

The SOA also thanks the many companies that participated in the survey.

<table>
<thead>
<tr>
<th>5-Star Life Ins Co</th>
<th>Modern Woodmen of America</th>
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<tr>
<td>Allianz Life</td>
<td>National Life Group</td>
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<td>American Equity</td>
<td>National Western Life Insurance Company</td>
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<tr>
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<td>Nationwide</td>
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<td>New York Life</td>
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<td>Columbian Financial Group</td>
<td>RiverSource Life</td>
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<td>Royal Neighbors of America</td>
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<tr>
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