

Session 045 PD - De-Risking LTC -Insurers' Perspective

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2017 SOA Annual Meeting & Exhibit

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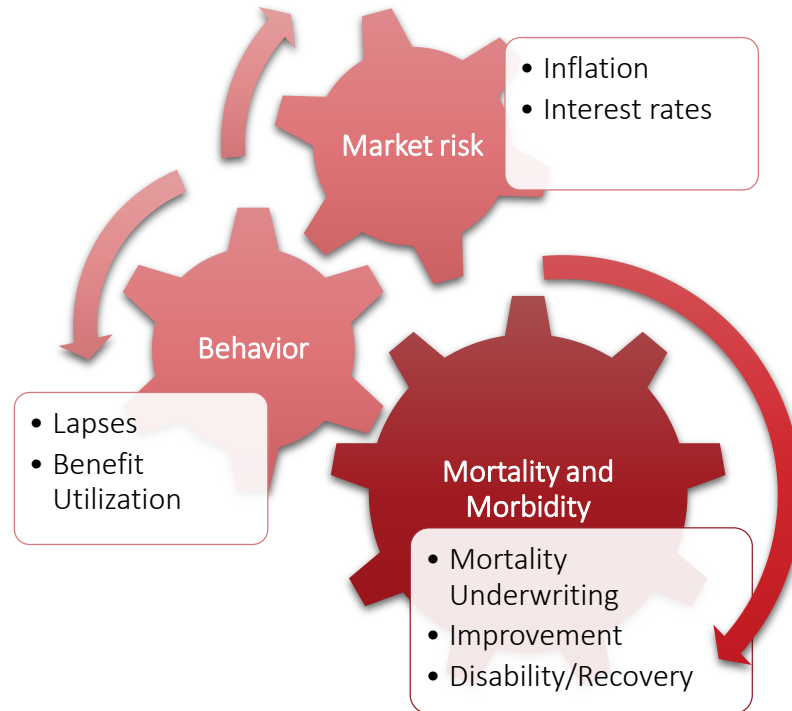
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Agenda

- Long-Term Care Risk Overview
- Managing LTC Risks via Longevity Swaps
- Other Considerations

The Challenges of Long Term Care

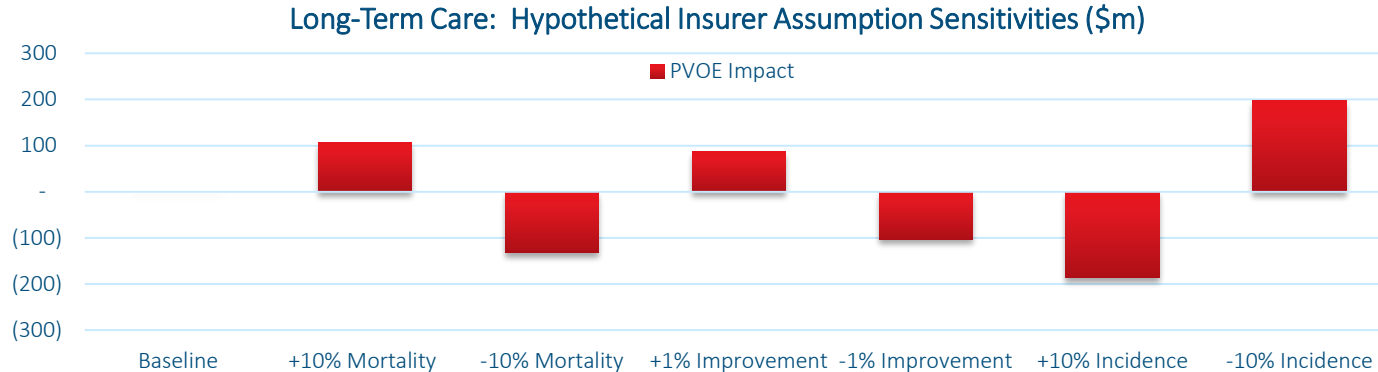


Product Assumptions Heat Map

	Whole Life	Term	ULSG	VUL	IUL	LTC
Actuarial Assumptions						
Mortality – Standard	High Sensitivity	Moderate Sensitivity	Moderate Sensitivity	Moderate Sensitivity	Moderate Sensitivity	Moderate Sensitivity
Mortality - Substandard	High Sensitivity	Moderate Sensitivity	Moderate Sensitivity	Low Sensitivity	Low Sensitivity	No Sensitivity
Lapse/Surrender	High Sensitivity	Moderate Sensitivity	Moderate Sensitivity	Low Sensitivity	Low Sensitivity	Moderate Sensitivity
Partial Withdrawals	No Sensitivity	No Sensitivity	Low Sensitivity	Low Sensitivity	Low Sensitivity	No Sensitivity
Dynamic Lapse	Low Sensitivity	No Sensitivity	Low Sensitivity	Low Sensitivity	Low Sensitivity	No Sensitivity
Premium Persistency	No Sensitivity	No Sensitivity	Moderate Sensitivity	Low Sensitivity	Low Sensitivity	No Sensitivity
Benefit Utilization	No Sensitivity	No Sensitivity	No Sensitivity	No Sensitivity	No Sensitivity	Moderate Sensitivity
Claim Termination	No Sensitivity	No Sensitivity	Low Sensitivity	No Sensitivity	No Sensitivity	Moderate Sensitivity
Rate Increase Approval	No Sensitivity	No Sensitivity	Low Sensitivity	No Sensitivity	No Sensitivity	Moderate Sensitivity
Morbidity Improvement	No Sensitivity	No Sensitivity	Low Sensitivity	No Sensitivity	No Sensitivity	Moderate Sensitivity
Morbidity (including LTC Riders)	Low Sensitivity	Low Sensitivity	Low Sensitivity	Low Sensitivity	Low Sensitivity	Moderate Sensitivity



LTC Earnings - Assumption Sensitivities



Assumptions:

- 1) Initial active life reserve is \$5bn
- 2) PVOE represents present value of operating earnings (product cash flows and changes in reserves)
- 3) 30yr projections of operating income with discount rate of 10%
- 4) Sensitivities do not impact reserve valuation assumptions

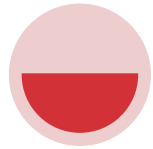
Managing LTC Mortality Risk via Risk Disaggregation

- Longevity impacts Long Term Care business in 2 ways:
 - If Healthy lives experience mortality that is lower than expected, the company needs to establish additional reserves for the greater number of lives in force
 - If disabled lives experience mortality that is lower than expected, the company will pay claims for a longer period of time than expected
- These risks can be transferred to a 3rd party via swaps or insurance

What is a Longevity Swap?

- *A longevity swap is “an insurance or capital markets transaction on a defined pool of lives that entails the periodic exchange of a fixed, pre-determined payment based on anticipated survivorship for a payment based on actual survivorship”*
- Predetermined payments may be calibrated to fit the longevity risk exposures under consideration
 - Examples of exposure include changes in reserves, benefit payments, etc.
- A longevity swap can be structured just for initially active lives, just for initially disabled lives or both

LTC Longevity Swap – Annual Settlement



Fixed Leg

1) **Expected** number of active lives at end of year

- Assumes fixed LTC mortality rates, morbidity rates and zero lapse rate
- Expected lives are re-determined on an annual basis as policyholders die or become disabled

times

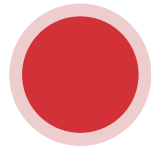
2) Benefit payment

times

3) Calibration factor

times

4) Reinsurer risk Margin



Floating Leg

1) **Actual** number of active lives at end of year times

times

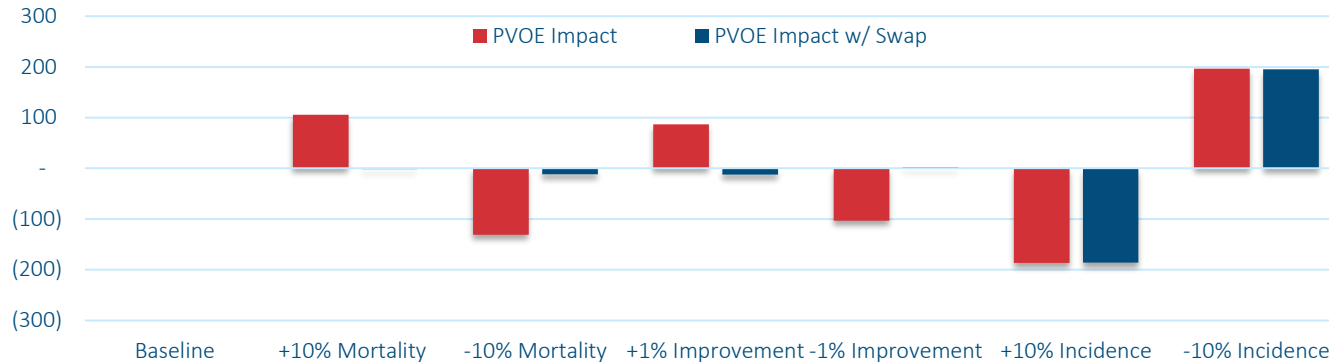
2) Benefit Payment

times

3) Calibration factor

LTC Insurer Earnings with Longevity Swap

Longevity Swap: Hypothetical LTC Insurer Perspective (\$m)



Assumptions:

- 1) PVOE represents present value of operating earnings (product cash flows and changes in reserves)
- 2) Initial active life reserve is \$5bn, initial PV of expected swap payments is \$2.5bn, 10% discount rate
- 3) 30yr projections of operating income and swap with discount rate of 10%
- 4) Annual reinsurer risk margin on PV of expected active life payments is 0%

Reinsurer Exposure to Longevity LTC Swap

Longevity Swap : Reinsurer Perspective (\$m)



Assumptions

- 1) Initial NPV of swap (present value of floating less fixed leg) is zero, discount rate is 10%
- 2) Annual reinsurer risk margin on PV of expected active life payments is 0%

Longevity Swap – Other Considerations

Structure

- Periodic resets of expected lives vs. no resets of expected lives
 - Periodic resets allow for variations in disability or lapses to be removed from the overall pool of lives
- Treatment of transitions between active status and disabled status

Valuation

- Swap may be considered either as a derivative or as an insurance contract
- If an insurance contract, it may require permission from the insurance commissioner to combine with the LTC business for cash-flow testing
- Revaluation of the swap due to permanent changes in the mortality basis may need to be agreed upon by both parties

Administration

- Integrity of policy data on lapses, disability and deaths needs to be managed to minimize impact of underreporting on swap



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