Annuity Reserves & Capital Work Group Presentation on Longevity Reinsurance/Swaps: A Primer

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Valuation Manual (VM)-22 (A) Subgroup

Background on Longevity Reinsurance and Longevity Swaps

- **Goals for today's discussion**
  - Provide an overview of the major product designs in the market today.
  - Discuss the key features and similarities/differences among the designs
  - Provide input regarding which types of longevity reinsurance/swaps should be in-scope for VM-22 principle-based reserving (PBR) and discuss statutory considerations unique to these products
- **Who buys longevity reinsurance / swaps?**
  - Pension plans who want to reduce exposure to longevity risk; access reinsurance market through captives or insurance intermediaries
  - Insurance carriers who write pension risk transfer (PRT) group annuities or individual payout annuities looking to manage risk and/or optimize capital
  - Public announcements of transactions are the primary source of market data, with tens of billions of disclosed each year, denominated in a variety of currencies
  - Markets with large, publicly-disclosed transactions include the U.S., U.K., Netherlands, and Canada
- **Wide variety of product designs exist in the market, and nomenclature is not standardized**
  - Most contracts are bespoke, and underwriting is typically facultative
  - Many executed transactions and terms are not publicly disclosed

Longevity Reinsurance and Swaps

Category	Covers Named Annuitants vs. Index	Term of coverage	Single vs. Recurring Payments	Risks Transferred	Degree of Basis Risk	Moneyness at Issue	Potential U.S. STAT Classification
Classical Longevity Reinsurance	Named annuitants	Tied to life of block	Recurring premium and benefits, typically net settled	Longevity risk only	Limited (some structuring is common)	At the money	Proportional reinsurance
Temporary Longevity Reinsurance (a.k.a. "Cancellable Swap")	Named annuitants	Fixed horizon less than life of block (typically several years)	Recurring premium and benefits, typically net settled	Longevity risk only	Limited (some structuring is common)	At the money	Unclear; Conceptually similar to yearly renewable term (YRT), but longer term
Funded Reinsurance	Named annuitants	Tied to life of block	Single premium; recurring benefit payments	Longevity and asset risks	None (i.e., reinsurer makes actual benefit payments) to limited (some structuring)	At the money	Proportional reinsurance
Tail Longevity Coverage	Named annuitants	Tied to life of block, but attaches at fixed horizon	Risk fee payable in initial years; may never pay any benefits	Longevity risk only	Limited (some structuring is common)	Deeply out-of-the-money	Non-proportional reinsurance
Index-Based Longevity Swap	Population / Index	Fixed horizon less than life of block	Typically net settled; may be single or recurring settlement	Longevity risk only	Can be significant	Any	Derivative; Suggest including as asset in asset adequacy testing (AAT) / PBR calcs

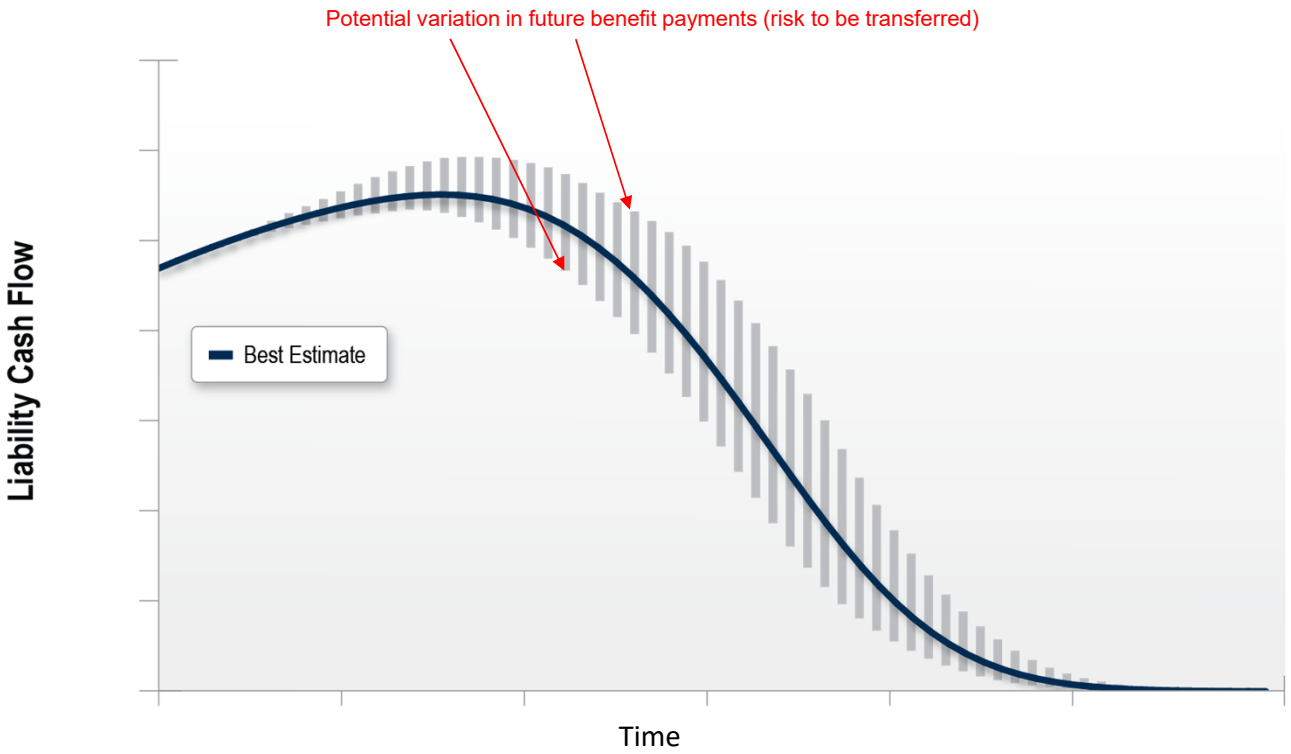
Proposed In-scope VM-22

Other Statutory Accounting and Valuation Considerations

- **Longevity Reinsurance doesn't fit neatly into existing statutory accounting and valuation guidance**
  - Not specifically contemplated by Statement of Statutory Accounting Principles (SSAP) 50, SSAP 61R, or model laws (MDL) 791/Appendix A-791
  - Agreements may be either temporary or permanent and may be either proportional or non-proportional
  - In some cases, only a single risk is reinsured from the underlying direct contract, which contains multiple risks
- **How should ceding companies calculate reinsurance credit? Should assuming companies use the commissioners' reserve valuation method (CRVM) or the commissioners' annuity reserve valuation method (CARVM)?**
- **MDL 791 requires transfer of ALL defined risks (i.e. Credit, Reinvestment, Mortality) for Immediate Annuities to receive statutory credit for reinsurance**
  - Scope excludes only YRT, assumption reinsurance, and "certain nonproportional reinsurance such as stop-loss or catastrophe reinsurance"
  - MDL 791 original intent: "improper…to enter into reinsurance agreements for the principal purpose of producing significant surplus aid for the ceding insurer, typically on a temporary basis, while not transferring all of the significant risks inherent in the business being reinsured"
  - Unclear under VM-30/AAT whether to allow projection of proportional reinsurance without meeting statutory risk transfer requirements
- **For assuming companies, how should the "fee leg" of these transactions be treated?**
  - Guaranteed future fees are available to fund unfavorable future longevity experience.
  - How should VM-22 requirements coordinate with RBC C-2 requirements to properly reflect the net retained longevity risk?
- **How does one treat the "tail mortality risk" to which some of these designs are sensitive? Should stochastic mortality modeling be required?**
  - For Non-Proportional Reinsurance, SSAP 61R paragraph 38 says to review "present value of expected recoveries using realistic assumptions".

Appendix

Designing a Classical Longevity Reinsurance agreement starts by projecting out the future expected benefit payments, similar to a pension risk transfer deal



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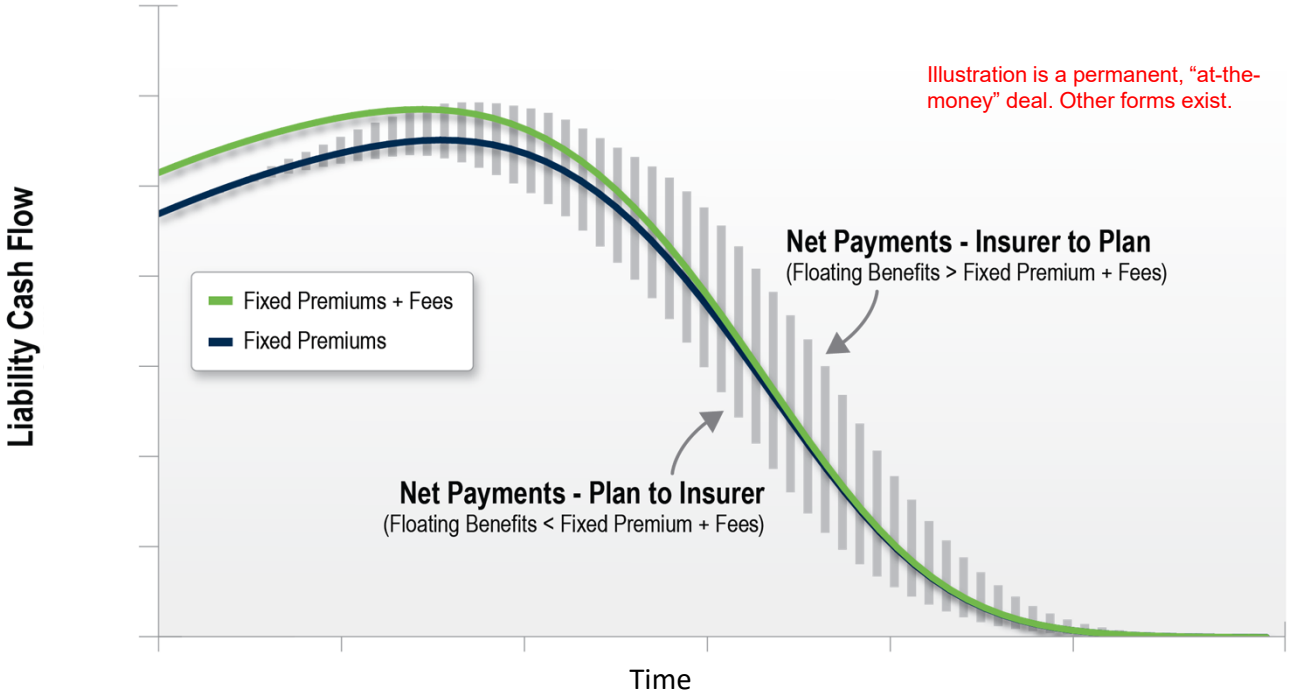
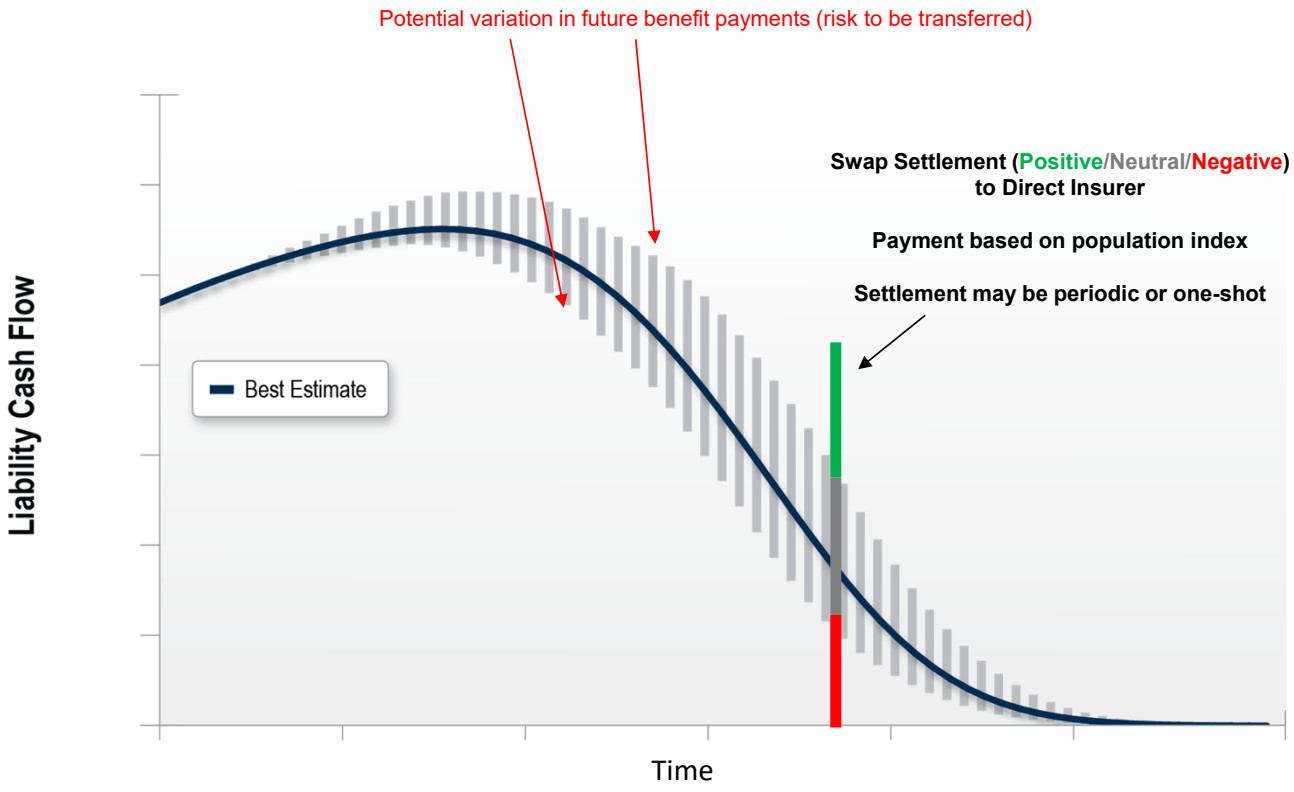
Classical Longevity Reinsurance decomposes the projected benefit payments into the underlying longevity and asset risks, with the goal of transferring only the longevity risks



Instead of being directly tied to a pool of annuitants, indexed-based longevity swaps are designed to transfer longevity risk in a more simplified manner, with a greater degree of basis risk



Questions?

- For more information, please contact the Academy's life policy analyst, Amanda Barry-Moilanen, at barrymoilanen@actuary.org.