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December 21, 2021

Ms. Seong-Min Eom,
Chair, Longevity Risk (A/E) Subgroup
National Association of Insurance Commissioners

Via email: Dave Fleming (dfleming@naic.org)
Re: Longevity Risk Subgroup working agenda item on Longevity Reinsurance

Dear Seong-Min,

The American Academy of Actuaries[1] (Academy) Annuity Reserves and Capital Work Group (ARCWG) recently shared with the Valuation Manual (VM)-22 (A) Subgroup an initial draft of NAIC Valuation Manual Section II and recommended VM-22 requirements associated with the ARCWG proposal on a principle-based reserving (PBR) framework for fixed annuities.[2] The Academy's C-2 Longevity Risk Work Group is providing its observations on implications this reserve proposal may have on the expansion of the scope for C-2 Longevity capital to include longevity reinsurance contracts. To summarize:

1. Longevity reinsurance is explicitly included in the scope of the ARCWG VM-22 draft;
2. Reserve aggregation, as included in the VM-22 draft, could facilitate a simple approach to including longevity reinsurance in C-2 using the same factors that currently apply to other fixed annuities; and
3. The C-2 capital approach for longevity reinsurance business written prior to the VM-22 effective date will require further study and recommendation by the Longevity Risk (E/A) Subgroup.

As you may recall, longevity reinsurance contracts were excluded from the scope of the year-end 2021 implementation of C-2 Longevity within Life Risk-Based Capital (LRBC) given the need for further discussion on appropriate capital methodology given product differences compared to payout annuities. Longevity reinsurance is explicitly included in the scope of ARCWG's VM-22 draft. Progress on these reserve requirements may provide an opportunity to concurrently advance the discussion on C-2 capital.

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[1] The American Academy of Actuaries is a 19,500-member professional association whose mission is to serve the public and the U.S. actuarial profession. For more than 50 years, the Academy has assisted public policymakers on all levels by providing leadership, objective expertise, and actuarial advice on risk and financial security issues. The Academy also sets qualification, practice, and professionalism standards for actuaries in the United States.

[2] https://www.actuary.org/sites/default/files/2021-07/ARCWG_VM_22_Draft_Proposal_July_2021_Combined.pdf

As described in the VM-22 product definition, the reinsurer assumes the longevity risk associated with the periodic payments of the reinsured annuity contract(s). In general, the reinsurer is responsible for paying the periodic annuity payments based on actual longevity experience of the underlying population in exchange for a fixed schedule of periodic payments over the expected lifetime of the underlying annuitants. Such contracts may include net settlement provisions such that only one party makes a payment in any particular period.

The field study, which was conducted in 2018 and used to calibrate the current C-2 Longevity factors, did not include results for longevity reinsurance since there were not enough responses for companies reporting results for the product to allow for aggregated data. As a result, the Academy's C-2 Longevity Risk Work Group is not currently able to calibrate a capital factor based on results specific to the reinsurance product. Because this reinsurance transfers the longevity risk associated with immediate and/or deferred payout annuity products that are already in scope for C-2 Longevity, it seems reasonable to postulate that the longevity risk of a longevity reinsurance contract would be consistent with the longevity risk of the underlying annuity contract prior to reinsurance.

The periodic premium payments drive important differences in reserves compared to single premium payout annuity products. On a stand-alone product basis, the VM-22 stochastic reserve for longevity reinsurance could be quite low because the present value of annuity payments under prudent estimate mortality may not materially exceed the present value of premiums. If longevity reinsurance is aggregated with other products in calculating the stochastic reserve as permitted under the VM-22 draft, the inclusion of longevity reinsurance in the aggregation could in some cases act to reduce the aggregate reserve if the longevity reinsurance premiums exceed the annuity benefits under the prudent estimate reserve assumptions. The Academy's C-2 Longevity Risk Work Group believes this is an appropriate though potentially surprising result that should be clearly understood. Listed below is a hypothetical illustration of reserve results under aggregation.

	Present Value of Future Premium	Present Value of Future Benefits	Reserve
Immediate Annuities	N/A	1,500	
Longevity Reinsurance Assumed	1,010	1,000	
	1,010	**2,500**	**1,490**

In this hypothetical illustration, the future longevity reinsurance premiums exceed future benefit payments, so the aggregate reserve—1,490—is less than the reserve that would have been calculated for the immediate annuities on a stand-alone basis—1,500. (The subsequent allocation of the 1,490 aggregate reserve to the contract level is not shown in this illustration.)

A simple approach to including longevity reinsurance within the scope of C-2 Longevity capital is to apply the existing capital factors to the present value of benefits for longevity reinsurance in addition to the existing reserve basis for products in scope. The ARCWG VM-22 draft as written would reflect the entire longevity reinsurance gross premium in the aggregated reserve calculation so no adjustment for premiums would be required in capital. Continuing the hypothetical illustration above, this would result in a total company basis for C-2 Longevity of 2,490:

Reserve for Products In Scope for Longevity C-2	1,490
Present Value of Benefits for Longevity Reinsurance	1,000
Total Basis for C-2 Longevity	**2,490**

The ARCWG VM-22 draft is written to apply prospectively to contracts issued after Jan. 1, 2024, so it does not address reserving for longevity reinsurance contracts issued before this date. The capital approach above may need to be reconsidered depending on the reserving method for these existing contracts. This retrospective issue may only apply to a small number of companies based on the low response rate for the product in the 2018 field study but will also need to be considered by the Longevity Risk Subgroup as part of the expansion of scope for C-2 Longevity.

The Academy's C-2 Longevity Risk Work Group supports the proposal of the ARCWG, which includes an aggregate calculation of reserves. However, if aggregation of longevity reinsurance with other jointly managed annuity business is ultimately not included in the final VM-22 language (or when considering the retrospective application to contracts issued prior to Jan. 1, 2024, which may use different reserve methods), then it seems likely that a portion of the gross premium under the longevity reinsurance contracts could be excluded from the reserve calculation in order to ensure a reserve greater than zero. In that situation there would be two broad paths forward for C-2 capital:

A) **Continue to use present value of benefits as the basis for longevity reinsurance along with the same C-2 capital factor.** This approach could result in a portion of the gross reinsurance premium being excluded from both the reserve and capital calculations. This could be deemed acceptable within the context of RBC as a simple factor-based calculation for regulatory capital carried out independent of reserves. However, it would be inconsistent with a Total Asset Requirement (TAR) view of reserves and capital together achieving a consistent outcome (such as 95th percentile) across products and could result in the TAR for longevity reinsurance being overstated by the amount of any gross premium that is excluded.

B) **Consider an adjusted capital factor specific to longevity reinsurance that takes into account premium amounts not included in reserves.** It might not be possible to calibrate a single factor that would be appropriate to apply to all longevity reinsurance contracts written at different times with different premium levels and with different emerging experience. It could be possible to include a calculation of a more appropriate adjusted factor within the C-2 Longevity calculation at a company level; however, this would be more complicated than the factor times reserve approach currently used for C-2 Longevity.

Life insurance is an example of a product that also includes recurring premium payments. Under a net premium reserving methodology, a portion of the gross premium is excluded from reserves, yet no adjustment for this is required in capital. There are several key differences for longevity reinsurance that could merit consideration of the gross premium in reserves and/or capital:

- Future premium payments for longevity reinsurance are a contractual obligation that in some cases may be supported by collateral posted as security against default. Future life insurance premiums by contrast are voluntary with a contract holder right to lapse at any time.

- In a mortality risk event for life insurance (premature death), premium payments for a contract cease and are not received by the insurer. By contrast, under a longevity reinsurance risk event (extended longevity), premium payments for a contract continue in their entirety and are netted in full against future benefit obligations.

The impact on C-2 Longevity for companies ceding risk through longevity reinsurance should also be addressed. This could be achieved by clarifying the existing adjustment for modified coinsurance (Modco) reserves ceded to also include reserves for which longevity risk is ceded via longevity reinsurance contracts.

It may not be appropriate to exclude longevity risk transferred by reinsurance from scope of C-2 Longevity while including in scope payout annuity products having the same longevity risk. The Academy's C-2 Longevity Risk Work Group looks forward to supporting the Longevity Risk Subgroup in completing the implementation of C-2 Longevity to include longevity reinsurance.

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Should you have any questions or comments regarding this letter, please contact Khloe Greenwood, life policy analyst at the Academy (greenwood@actuary.org).

Sincerely,

Paul Navratil, MAAA, FSA
Chairperson, C-2 Longevity Risk Work Group
American Academy of Actuaries