Objective. Independent. Effective.™

Non-Variable Annuity PBR Update to LATF's VM-22 Subgroup

John R. Miller, MAAA, FSA Co-Chairperson

Chris Olechowski, MAAA, FSA Co-Chairperson

Annuity Reserves Work Group of the American Academy of Actuaries

November 17, 2015

ARWG: Direction

ARWG Chicago meeting, May 2013: VM-22 plan

- Not an annuity version of VM-20
- Like the VM-21 (AG 43) framework: two parts
  - A deterministic floor reserve ("CARVM-like")
  - A modeled reserve (model office projections)
- Consideration of a new modeled reserve approach
- KS insurance department volunteers for a field test

ARWG: Direction / Goals

Report to LATF, August 2013: Update on a Potential VM-22 Reserve Methodology

- Goal: to propose a sound principle-based reserve standard for non-variable annuities incorporating:
  - A formulaic floor reserve that uses CARVM like methods to determine a minimum reserve (not the primary reserve)
    - May reflect lapses & utilization rates other than 0% or 100% for elective benefits
  - A modeled reserve reflecting key product risks
    - Applicable to current and future complex product designs

ARWG: Direction / Goals

- Reserves are “right sized”
- Floor reserve does not overwhelm the modeled Vx
  - Expands on elements found in AG 33, but less conservative
  - Satisfies requirements for treatment as the Tax Reserve
- Modeled Vx based upon on small set of scenarios
  - More manageable run times
  - Key risks modeled stochastically - possibly RSM ?
- Aggregate margin – transparent margins

VM-22 Section 2. Reserve Methodology

- **Minimum Reserve** = Floor Reserve Amount +

  max {0, Modeled Reserve – Floor Reserve Amount}

  where

- Floor Reserve Amount = Σ_k Floor Reserve $_{\text{contract k}}$

  and

- Floor Reserve $_{\text{contract k}}$ = max {FR1, FR2, FR3}

VM-22 Section 3. Floor Reserve

- Serves as a yardstick with which to establish a reasonable floor for the Minimum Reserve
- Serves as a possible model for the computation of tax reserves
- Not necessary that the Floor Reserve be an adequate reserve for each contract valued
- Not designed to reflect the differences in product design to the same degree as the Modeled Reserve

Floor Reserve 1 (FR1)

- Recall: Floor Reserve $_{\text{contract k}}$ = max {FR1, FR2, FR3}

- FR1 = normal CARVM with a couple of differences
  - Assume Listed Benefits are terminated as of the valuation date
  - Possibly use prescribed lapse rates adjusted for In-the-Moneyness (ITM-ness) of rich non-listed benefits, such as significant GMDBs

Floor Reserve 2 (FR2)

- Recall: CARVM = GPV{ all Integrated Benefit Streams}
- FR2 considers *one* of those Integrated Benefit Streams for each Listed Benefit
- Calculation Rules
  - Each Listed Benefit is assumed to be elected eventually (unless death occurs first) (i.e., no other elective benefits in FR2)
  - Each Listed Benefit is assumed to be elected according to a corresponding Listed Benefit Utilization Function (LBUF)
  - If a single contract has multiple Listed Benefits, $FR2_k$ shall be calculated for each Listed Benefit k (for k = 1 to n) ignoring all other Listed Benefits. Then

$$FR2 = \max\{FR_1, FR_2, \ldots, FR_n\}$$

Listed Benefit

- Term that applies to certain elective benefits
- Examples may ultimately include
  - Guaranteed Lifetime Income Benefits (GLIBs)
  - Annuitization within the annuitization tier of a two-tiered annuity

Listed Benefit Utilization Function
Sample Smoothed Utilization Rates for GLIBs
(Rates shown are percent of remaining lives)

Tax-Qualified				Non-Qualified							
Attained Age	Rate	Attained Age	Rate	Attained Age	Rate	Attained Age	Rate	Attained Age	Rate	Attained Age	Rate
0-58	0.0%	65	27.5%	0-58	0.0%	65	17.5%	72	5.0%	79	23.8%
59	5.0%	66	16.3%	59	3.8%	66	11.3%	73	5.0%	80	42.5%
60	15.0%	67	5.0%	60	12.5%	67	5.0%	74	18.8%	81	23.8%
61	10.0%	68	5.0%	61	8.8%	68	5.0%	75	32.5%	82	5.0%
62	5.0%	69	5.0%	62	5.0%	69	13.8%	76	18.8%	83	5.0%
63	5.0%	70	5.0%	63	5.0%	70	22.5%	77	5.0%	84	5.0%
64	16.3%	71+	100.0%	64	11.3%	71	13.8%	78	5.0%	85+	100.0%

Floor Reserve 3 (FR3)

- FR3 is based on the amount available for the contractholder to withdraw from the contract as of the statement date

VM-22 Section 4. Modeled Reserve

- Modeled Reserve Methodology - to be determined
- KS Sponsored Field Test
  - Multi-risk
  - Representative scenarios
  - Aggregate margin

Questions?

American Academy of Actuaries
Objective. Independent. Effective.™