Life Reinsurance

Overview and Emerging Practice

Actuaries Club of Hartford and Springfield

May 14, 2019

ACHS

Life Reinsurance: Overview & Emerging Practice

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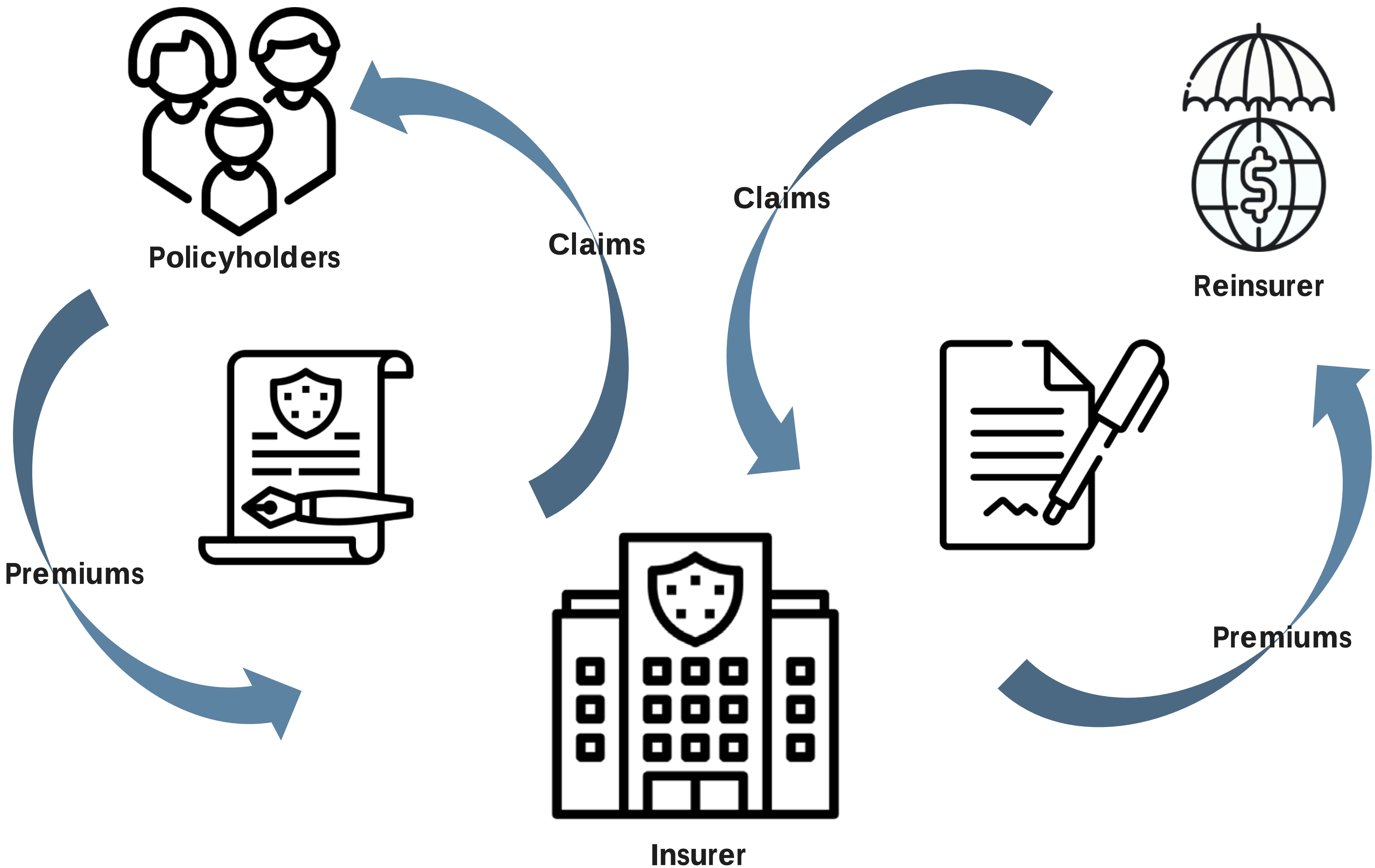
May 14, 2019

Contents

What is Reinsurance



Statutory Accounting for Life Reinsurance

- Governed by SSAP 61R with reference to Appendix A-791

- Outlines 3 types of reinsurance:
  - Coinsurance
  - Yearly-Renewable Term
  - Non-Proportional

- In order to receive reinsurance accounting, reinsurance agreements must pass the risk transfer criteria set forth for the type of reinsurance

- If risk transfer criteria not met, deposit accounting applies

Types of Life Reinsurance - Coinsurance

TALCOTT RESOLUTION

- Reinsurer shares in **<u>all</u>** aspects of the risk of the reinsured policy in the same manner as the Cedant
- Reinsurer shares proportionately in all premiums received on the reinsured policies less an expense allowance
- Reinsurer pays its share of all benefits on the reinsured policies (death or A&H payments and other benefits including nonforfeiture values and dividends)
- Reinsurer establishes reserves for the portion of the policies it has assumed and holds the assets supporting those liabilities

Variations of coinsurance include:

Coinsurance Funds Withheld (CoFWH)

Coinsurance except:

- Cedant retains assets supporting reserves
- Cedant sets up payable to reinsurer equal to asset value
- Reinsurer receives its proportion of net investment income

Modified Coinsurance (Modco)

Coinsurance except:

- Cedant retains assets **<u>and</u>** reserves
- Reinsurer receives its proportion of net investment income
- Reinsurer responsible for increases in reserves on proportion reinsured
- A Modco Adjustment is settled = investment income on modco reserve assets minus the increase/decrease in reserves

Types of Life Reinsurance – Yearly Renewable Term (YRT)

- Although treaties generally entered into for multiple years, protection is purchased one year at a time
- Only the basic mortality or morbidity net amount at risk (NAR) is reinsured (NAR = the amount of insurance provided by the policy in excess of the policy's account value or the Cedant's reserve for it)
- Other risks such as lapse, asset or reinvestment risk are not transferred
- Premium rates generally vary by age and duration and may also be based on underwriting class of the insured
- Expense allowances may or may not be given

Types of Life Reinsurance – Non-Proportional Reinsurance

- Provides for financial protection for aggregate losses
- Individual (single insured or policy) or aggregate (group or block of policies)
- Typically one year coverage but can be on a multiple year basis
- More commonly used for P&C and A&H, but can be used for life insurance
- Reinsurer pays claims up to a specified maximum upon the occurrence of a specified event

Examples of Non-Proportional Reinsurance include:

Stop Loss Reinsurance

- Designed to limit losses on a policy, product or portfolio
- Covers the risk over a certain attachment point (e.g., 100% loss ratio, 120% of expected claims, $X of claims)
- Like High Deductible Health Care Plans

Catastrophe Reinsurance

- Covers claims for a specific, predefined event, often up to a limit
- Typical life cover would be to pay death benefits if 2 or more lives died as the result of a single event
- Premium charged is based on likelihood of catastrophe and maximum benefit provided

Statutory Accounting for Life Reinsurance

Reinsurance Premiums	• Income Statement (IS): booked as premium income (Cedant net) • Balance Sheet (BS): appropriate A/L are established for amounts due and unpaid or prepaid
Reinsurance Benefit Payments	• IS: booked as benefit payments (Cedant net) • BS: appropriate A/L are established for claims payable/receivable
Expenses	• IS: booked as income separate (Cedant) or expense (Reinsurer) • BS: appropriate A/L are established for expenses payable/receivable • If renewal expense allowances are not sufficient to cover anticipated allocable renewal expenses of the cedant on the portion of the business reinsured, a liability equal to the present value of the shortfall must be established

Continuum of Reinsurance Credit/Risk Transfer

	Non-Proportional	Yearly Renewable Term (YRT)	Coinsurance
Credits for Ceded Reinsurance	None until attachment point penetrated, then, then pv (expected recoveries) – pv (guaranteed reinsurance premiums)	One year term mean reserve on amount of insurance ceded	Reinsurer's share of policy and claim reserves
Risk Transfer Requirements	Evaluated to assess whether significant risk is transferred to the reinsurer	Agreement does not contain any of the conditions described in Appendix A-791, paragraphs 2.b, 2.c, 2.d, 2.h, 2.i, 2.j or 2.k	Requirements of paragraphs 2.a through 2.k under Appendix A-791

Credit for Ceded Reinsurance

TALCOTT RESOLUTION

- Credit taken by the ceding entity is reported as a reduction to the gross reserves and not as an asset. Credit varies by type of reinsurance:
  - Coinsurance
    - Equal to reinsured percentage of policy and claim reserves
    - Same methodology and assumptions for direct policy and claims reserves
  - YRT
    - One year term mean reserve on amount of insurance ceded
    - Same mortality and interest bases used for valuing direct policy
  - Non-Proportional:
    - No reserve credit taken until attachment point penetrated
    - Thereafter pv (expected recoveries based on realistic rather than statutory assumptions) – pv (guaranteed reinsurance premiums)

- For all types of reinsurance, credit taken for amounts due from Reinsurer such as unpaid claims and claims incurred but not reported

Risk Transfer Conditions (Appendix A-791)
Reinsurance Agreement Must

Risk Transfer Conditions (Appendix A-791)
Reinsurance Agreement Must Not

- ✘ Require payment to reinsurer of amounts greater than income realized on the reinsured policies (2.e)
- ✘ **Require cedant to terminate/recapture at scheduled points in time (2.d)**
- ✘ **Terminate treaty at reinsurer's option or automatically upon occurrence of an event (2.b)**
- ✘ **Require cedant to reimburse reinsurer for negative experience (2.c)**
- ✘ Require cedant to make reps/warranties about future performance of or not reasonably related to the business reinsured (2.i)

Risk Transfer Conditions (SSAP 61R)

TALCOTT RESOLUTION

For Proportional Reinsurance (Coinsurance & YRT)

The reinsurance agreement should not be entered into for the principal purpose of producing significant surplus aid for the cedant, typically on a temporary basis, while not transferring all of the significant risks inherent in the business reinsured and, in substance or effect, the expected potential liability to the cedant remains basically unchanged. (2.k)

For Non-Proportional Reinsurance

- Contract terms shall be evaluated to assess whether they transfer significant risk to the reinsurer
- Transfer of insurance risk requires that the reinsurer's payment to the cedant depend on and directly vary with the amount and timing of claims settled under the reinsured contracts
- Any feature that can delay timely reimbursement to the cedant limits the risk to the reinsurer and violates the conditions for reinsurance accounting

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MARSH & McLENNAN COMPANIES

Agenda

1 **Background**

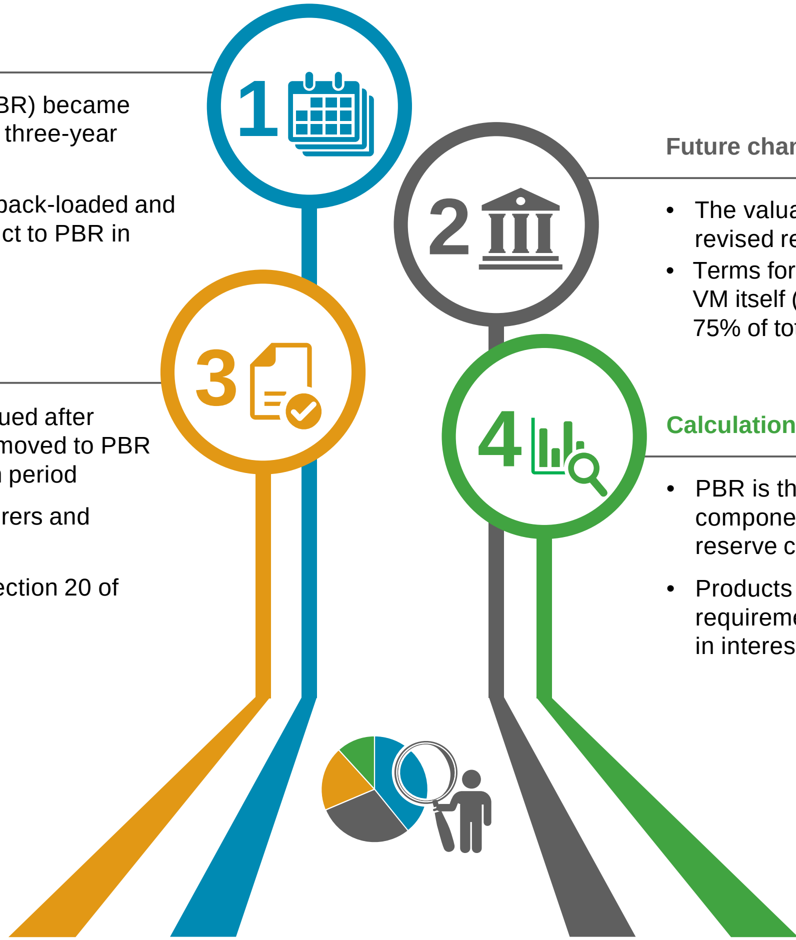
2 **Emerging topics**

3 **Case study**

4 **Conclusion**

Overview

Life PBR became effective on 1/1/2017 with an optional three-year implementation period



Timing and implementation

- Life Principles-based reserving (PBR) became effective 1/1/2017 with an optional three-year implementation period
- PBR implementations are heavily back-loaded and only 23 companies moved a product to PBR in 2017

Applicability

- Applies to all life new business issued after 1/1/2020 as well as any business moved to PBR during the optional implementation period
- Requirements apply to both reinsurers and direct writers
- Requirements are prescribed in Section 20 of the new valuation manual (VM-20)

Future changes

- The valuation manual is a living document with revised requirements released on an annual basis
- Terms for adoption are the same as those for the VM itself (requires 42 states/territories representing 75% of total US life insurance premium)

Calculations

- PBR is the maximum of three reserve components; a formulaic floor and two modeled reserve components
- Products may be exempt from components of the requirements if they are not sensitive to changes in interest rates

Section 8 of VM-20 pertains to the impact of reinsurance on the components of reserves under PBR

Maximum

Component	Considerations in determining reinsurance impact
Net premium reserve	▪ No change as compared to pre-PBR ▪ See previous slides (Credit for ceded reinsurance) for treatment
Deterministic and stochastic reserve	▪ Requires two separate calculations, pre- and post-reinsurance ▪ Exclusion testing, if elected, must be performed on a pre- and post-reinsurance basis
Final PBR reserve	▪ The starting asset collar does not apply to pre-reinsurance reserves ▪ Credit = $Max(NPR_{Gross}, DR_{Gross}, SR_{Gross}) - Max(NPR_{Net}, DR_{Net}, SR_{Net})$

The reserve credit for reinsurance under PBR is significantly different from the formulaic approach that insurers have become accustomed to

Several sources of guidance exist for the modeling of reinsurance cash flows. The **current** guidance is non-prescriptive and takes the form of considerations and required disclosures.

Source	Guidance
VM-20	▪ The actuary should assume that the counterparty is likely to act efficiently ▪ The assumptions used may differ between the ceding and assuming company ▪ Additional (outside the cash flow model) stochastic analysis may be required for certain types of reinsurance (i.e. stop-loss) ▪ Considerations are similar to those for liability modeling
VM-31	▪ Requires a description of assumptions and methodology used to model reinsurance cash flows
PBR ASOP	▪ Recommends consistency between reinsurance assumptions and other assumptions ▪ Margins should consider the guarantees in the arrangements, past practices of the reinsurer and how the company might respond to different actions the reinsurer could take
AAA Practice note	▪ States that "some actuaries will assume less than 100% selection against the company" ▪ Recommends analyzing the financial impact on the reinsurer and assuming more selection if the financial impact is significant

Range of practice

A wide range of practice has been observed in PBR reporting to date and regulators are actively discussing changes to requirements

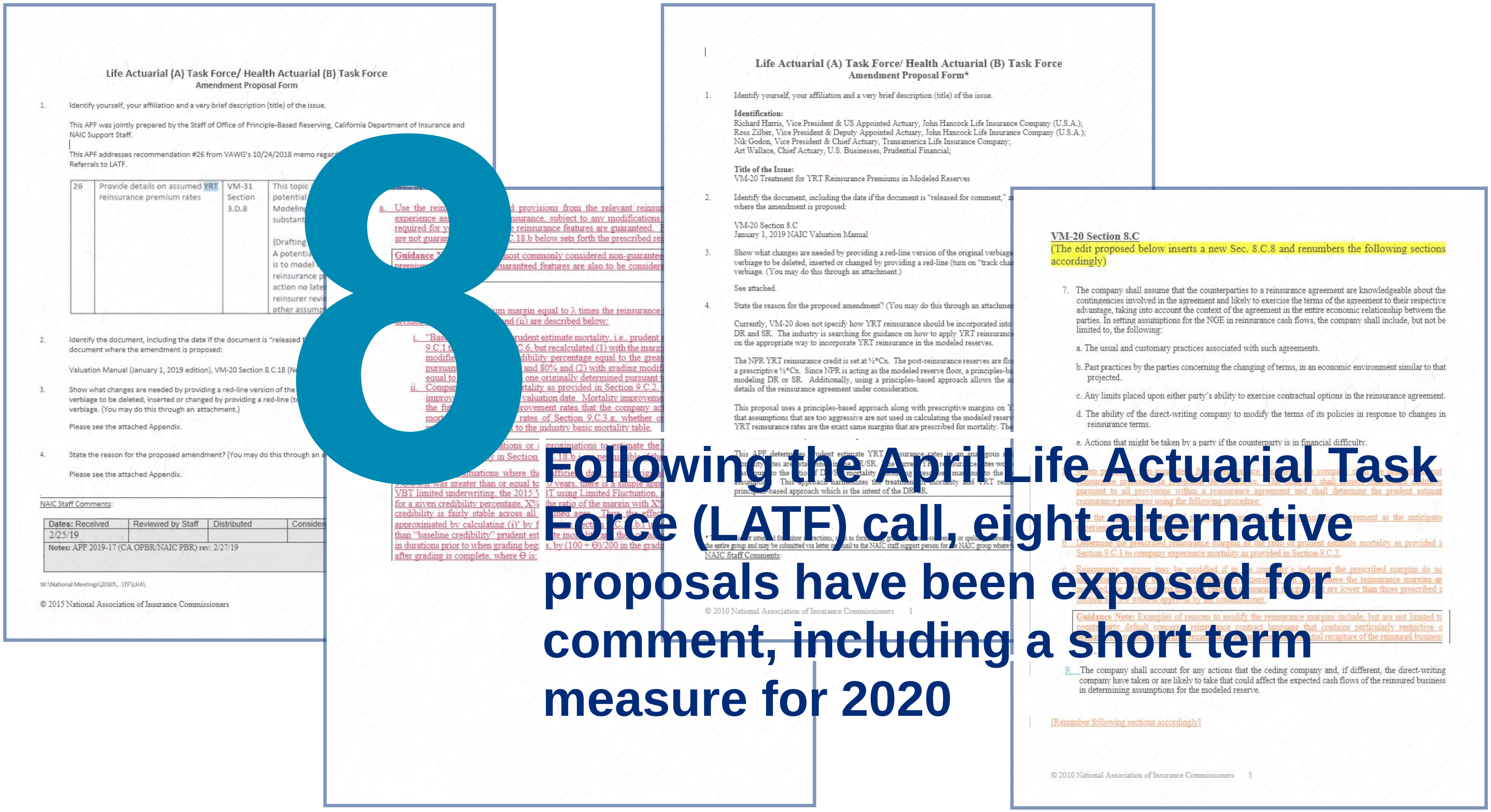
> *Reported reserves were higher post-reinsurance than pre-reinsurance **for some companies**, and **in some cases, the highest reserve changed** between reserve methods pre- and post-reinsurance (e.g. DR highest pre-reinsurance, NPR highest post-reinsurance)*

2017 Principle-Based Reserves (PBR) Review Report
Valuation Analysis (E) Working Group

Regulators have made it a priority to resolve this issue in time for changes to be effective in the 2020 version of the Valuation Manual

Emerging practices – proposed amendments

Several amendments which provide further guidance on the modeling of non-guaranteed reinsurance rates have been exposed for comments (further detail on following slide)



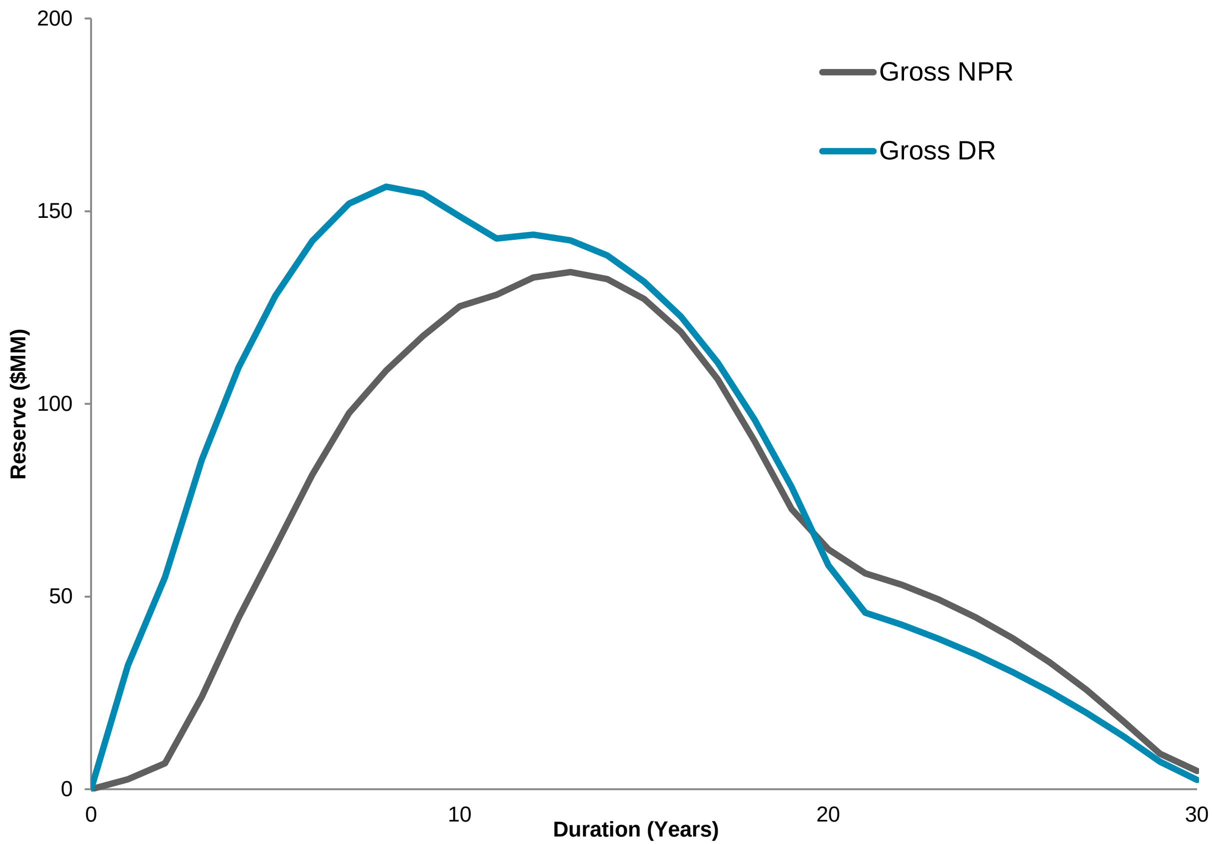
Following the April Life Actuarial Task Force (LATF) call, eight alternative proposals have been exposed for comment, including a short term measure for 2020

A cohort of new business with $50MM of first year premium consisting of 10-, 20- and 30-year term products was projected for 30 years

Model	▪ 30 year projection horizon ▪ Reserve revalued annually
Best estimate assumptions	▪ Mortality follows 100% of 2015 VBT ▪ Mortality experience is 30% credible with 10 years of sufficient data ▪ Expenses, commissions and lapses set at industry averages
Prudent estimate assumptions	▪ Mortality is improved up to each valuation date at 1% per year ▪ 100% shock lapse at end of level term period
Reserve assumptions	▪ NPR uses the 2017 CSO and a valuation interest rate of 4.5% ▪ DR scenarios are re-generated at each valuation date ▪ Starting assets at each valuation date use the ‘direct iteration’ approach ▪ The cohort is assumed to pass the Stochastic Exclusion Test (SET)

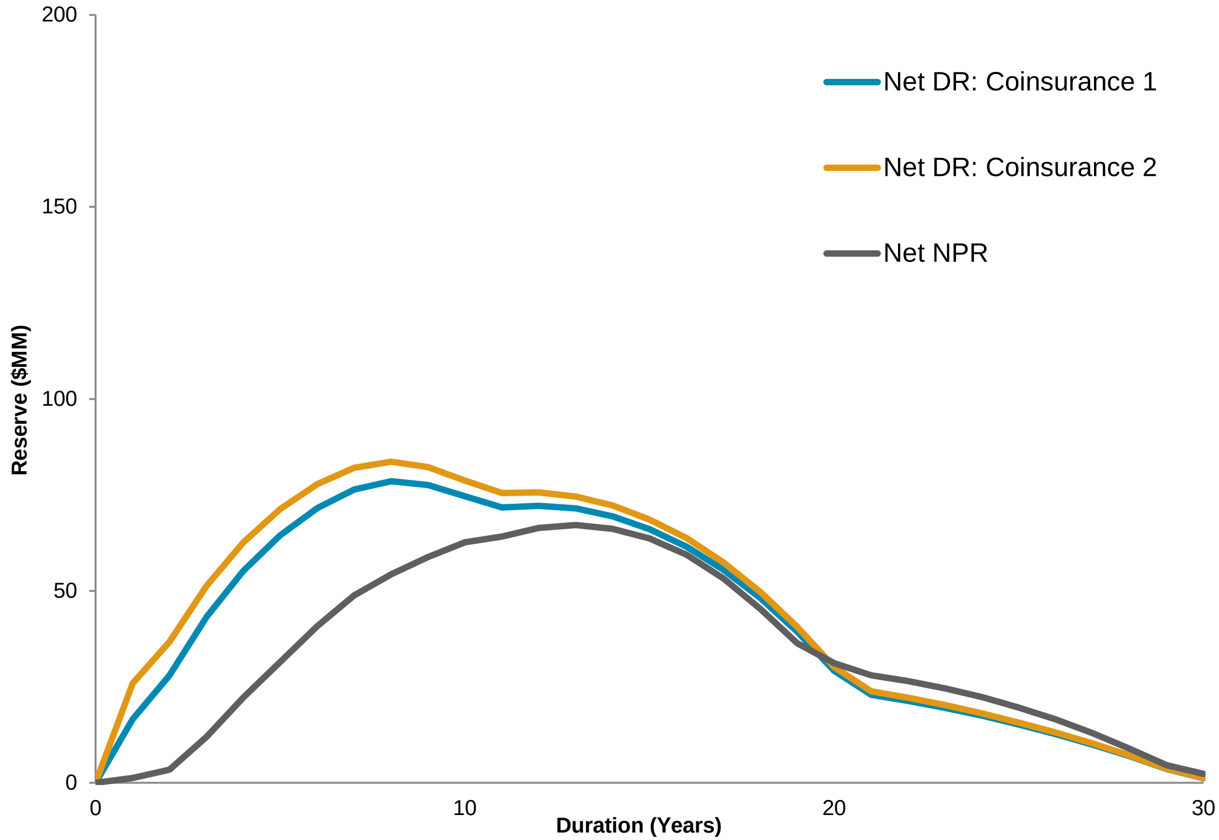
Assumptions used and products modeled are for an illustrative term portfolio intended to be reasonably representative of products offered in the market today

The gross NPR and DR for this cohort of new business are shown below



The DR starts much higher than the NPR, but the gap closes over time, partially because mortality improvement to date is reflected at future valuation dates

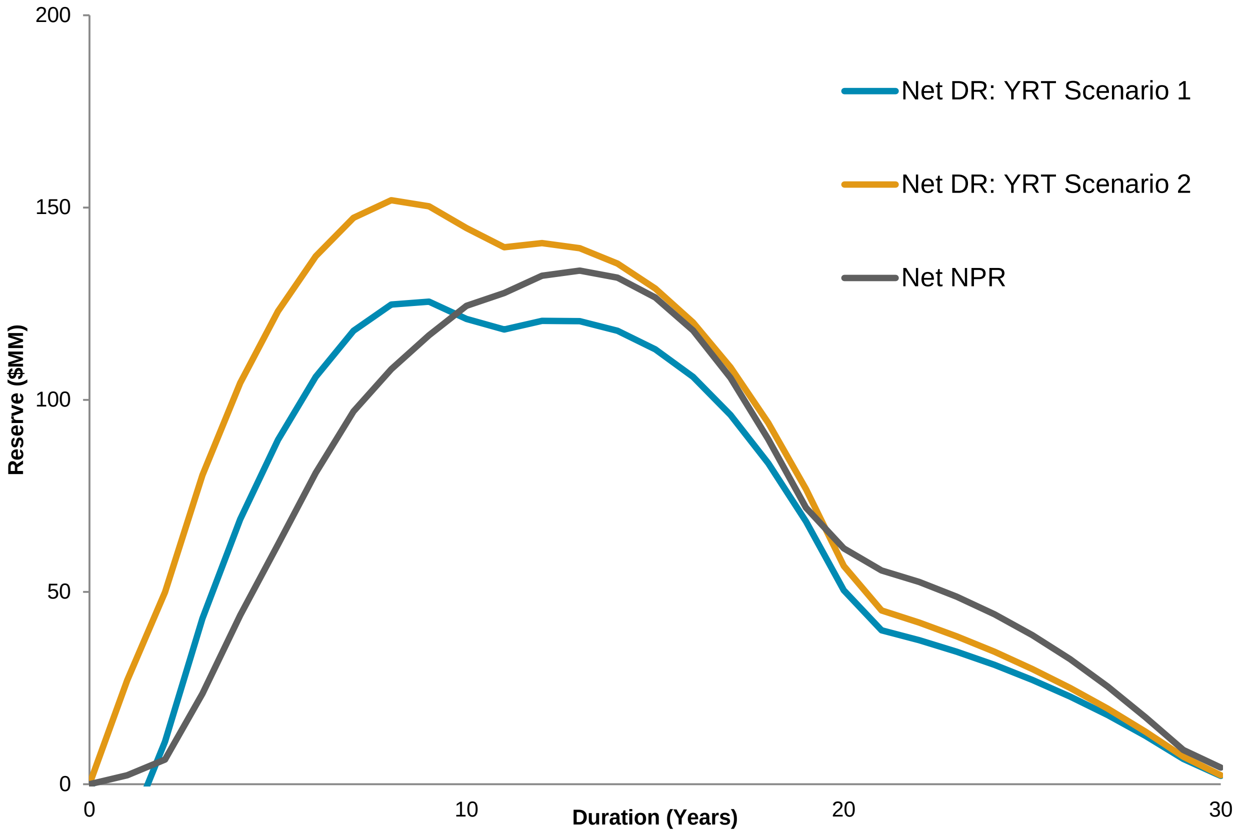
Three 50 percent first dollar coinsurance agreements were modeled. The coinsurance allowances were assumed to be guaranteed.



Coinsurance 1: Reimburse proportion of VM-20 prudent expenses and commissions

Coinsurance 2: Reimburse proportion of best estimate expenses and commissions

A 50 percent first dollar YRT reinsurance arrangement with the current premium scale set equal to 100 percent of the best estimate mortality assumption was modeled

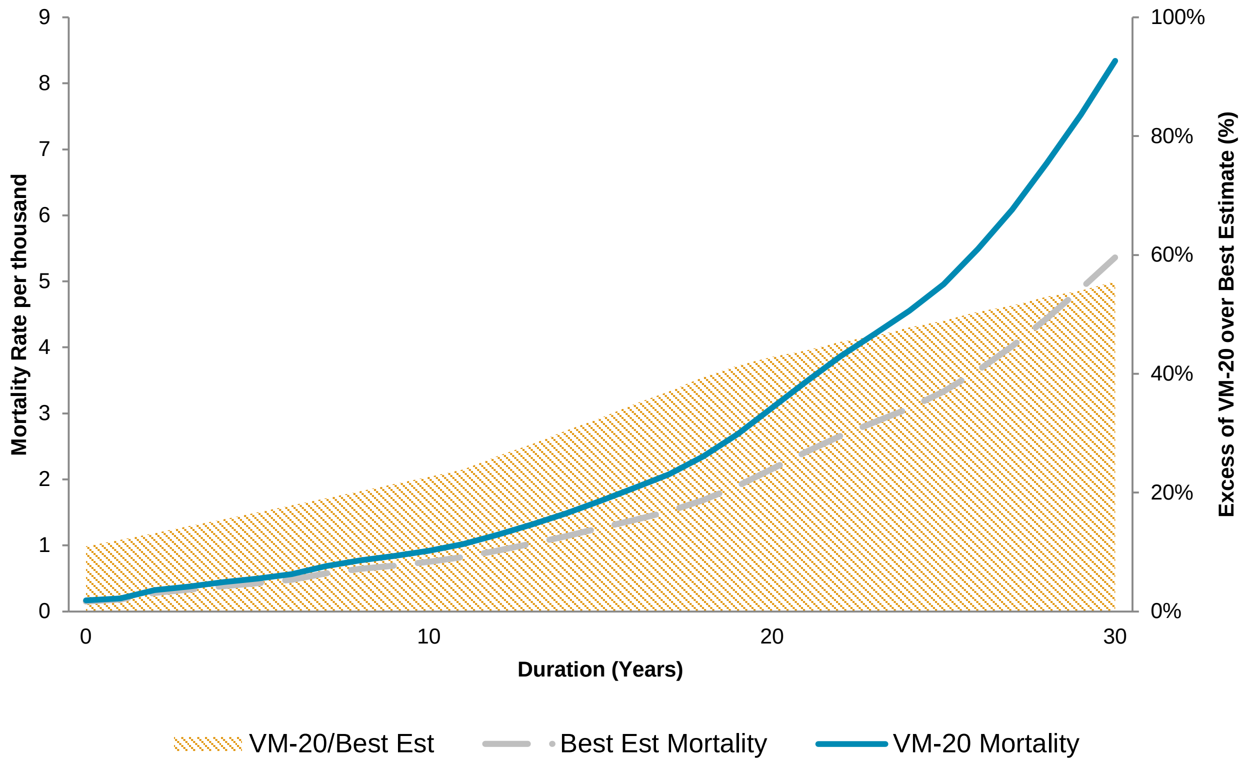


YRT Scenario 1: No change in rates

YRT Scenario 2: Change rates to eliminate any gain/loss from reinsurance

The difference in net reserves under the YRT scenarios modeled is driven by the level of margin in the VM-20 mortality assumption

The result below is for 35-year-old male, preferred non-tobacco, time 1 valuation



The mortality assumption under VM-20 contains no future mortality improvement and is based on a company-specific prudent assumption grading to a prudent industry table when sufficient data no longer exists

Key takeaways

1 **Reinsurance has a less certain impact on reserves**

2 **Models must be granular enough to properly account for the asymmetry arising from reinsurance structures**

3 **Implications of potential regulatory changes should be considered**

4 **PBR is a moving target**

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