55 - PBR Implementation: Lessons Learned

2019 Valuation Actuary Symposium

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Session 55 – PBR Implementation: Lessons Learned

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SESSION 55 – PBR IMPLEMENTATION: LESSONS LEARNED

2019 PBR EMERGING PRACTICES SURVEY

AUGUST 27, 2019

Tom Mao, FSA, CERA

Agenda

1 **Background and key findings**

2 **Analysis to date**

3 **Assumptions and margins**

4 **Case study | Reinsurance**

5 **Key take-aways**

1 Background and key findings

Background

This presentation contains select results from a survey that Oliver Wyman conducted in 2019 related to PBR implementation plans and emerging topics

85%

US individual life insurance market coverage by sales

40+

Total number of participants

5

Number of reinsurers

23

Number of top 25 insurers

Respondents were asked to describe their practices as of December 31, 2018

Key findings
Overall

PBR Emerging Practices

Analysis to date

- PBR implementations are heavily back-loaded, with 75% of participants' products moving to PBR in Q3 2019 and later
- PBR implementations were light in 2018 as compared to 2017, perhaps indicative of the effort required to support products transitioned in 2017

Assumptions and margins

- Reserve margins are more than double what participants believe to be an appropriate level for Term, ULSG, IUL, and VUL
- Participants have trended toward more conservative approaches to modeling non-guaranteed YRT rates as compared to last year's survey, likely driven by regulatory discussions on the topic

2 Analysis to date

Key findings
Analysis to date

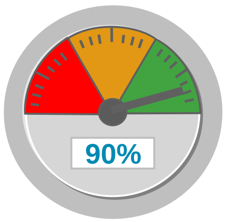
PBR Emerging Practices

- Less than 20% of participants' products were on PBR at the end of 2018 with delayed implementation more prevalent for accumulation oriented products (WL, UL, IUL, VUL)
- With a majority of participants having completed PBR analysis for Term, ULSG and IUL as of last year's survey, writers are turning their attention to VUL (nearly 20% more writers have analyzed the impact of PBR compared to last year's survey)
- A majority of Term, WL, UL and VUL writers expect these products to be exempt from Stochastic Reserve requirements, and a handful of writers expect to be exempt for their other products
- The use of reserve financing appears to have decreased slightly for Term and more significantly for ULSG as compared to 2017 results

There remains significant work for the industry over the rest of 2019

Term

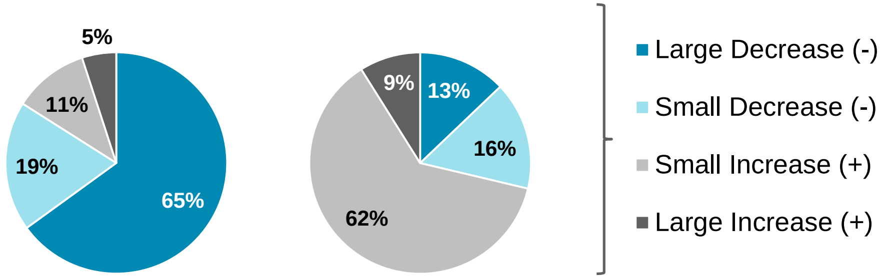
A large majority of writers have analyzed PBR on their Term products and tend to see large reserve decreases



90% **of Term writers have analyzed the impact of PBR on their offerings**

Impact on reserves
% of Term writers

Impact on profitability
% of Term writers

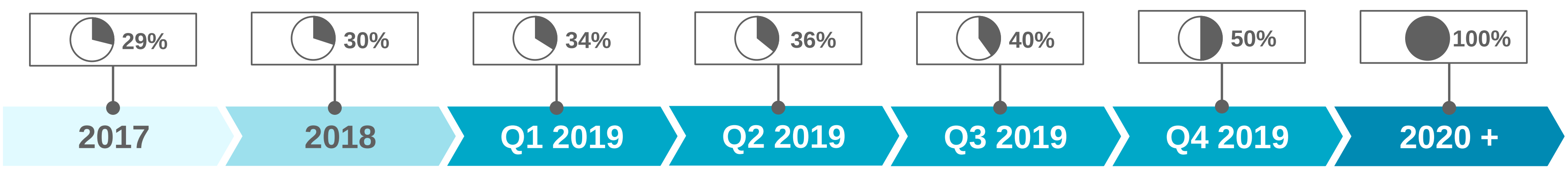


Exclusion testing
% of Term writers

85% **of writers anticipate passing stochastic exclusion tests**

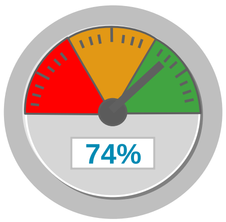
0% **of writers anticipate passing deterministic exclusion tests**

% of Term products on PBR
Across all participants%



Universal life with secondary guarantee (ULSG)

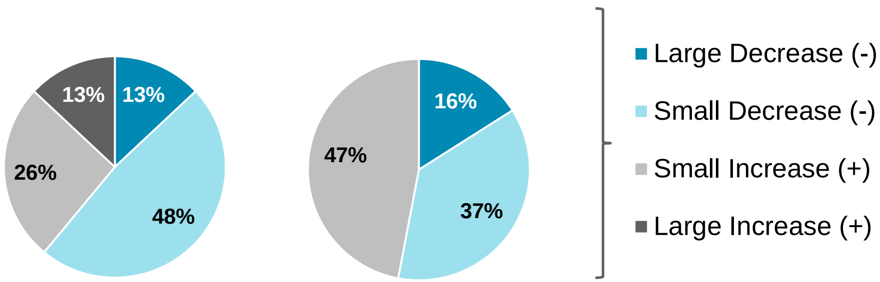
PBR readiness for ULSG is the second highest and most participants are seeing small changes in profitability under PBR



74% **of ULSG writers have analyzed the impact of PBR on their offerings**

Impact on reserves
% of ULSG writers

Impact on profitability
% of ULSG writers

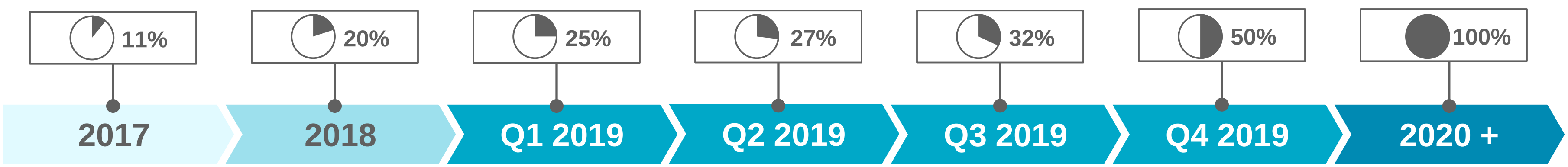


Exclusion testing
% of ULSG writers

21% **of writers anticipate passing stochastic exclusion tests**

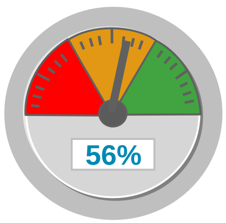
0% **of writers anticipate passing deterministic exclusion tests**

% of ULSG products on PBR
Across all participants



Whole Life (WL)

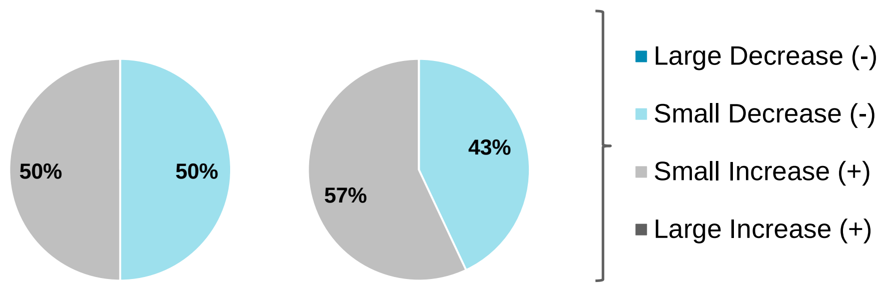
Adoption is delayed to Q4 2019 and beyond for a majority of WL writers and most expect to be exempt from modeled reserve requirements



56% of WL writers have analyzed the impact of PBR on their offerings

Impact on reserves
% of WL writers

Impact on profitability
% of WL writers

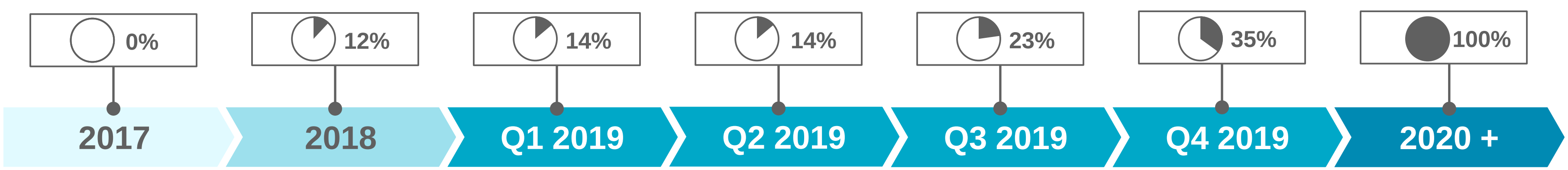


Exclusion testing
% of WL writers

87% of writers anticipate passing stochastic exclusion tests

77% of writers anticipate passing deterministic exclusion tests

% of WL products on PBR
Across all participants



3 Assumptions and margins

Key findings
Assumptions and margins

PBR Emerging Practices

- Most writers feel an appropriate level of margin is 5-10%; however, they are observing margins in excess of 25% under PBR
- While approaches have increased in conservatism from a year ago, more than two-thirds of participants are projecting changes to non-guaranteed YRT rates that produce more favorable outcomes than proposed changes to PBR being made by regulators
- A majority of writers are modeling changes to credited rates in their PBR projections; and one-third are projecting changes to their COI rates, leading to enhanced documentation and governance around non-guaranteed elements as a result of PBR

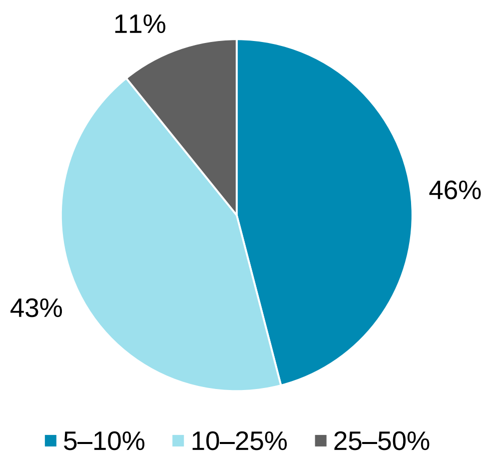
The industry is still exposed to areas where significant discretion exists

Aggregate margin levels

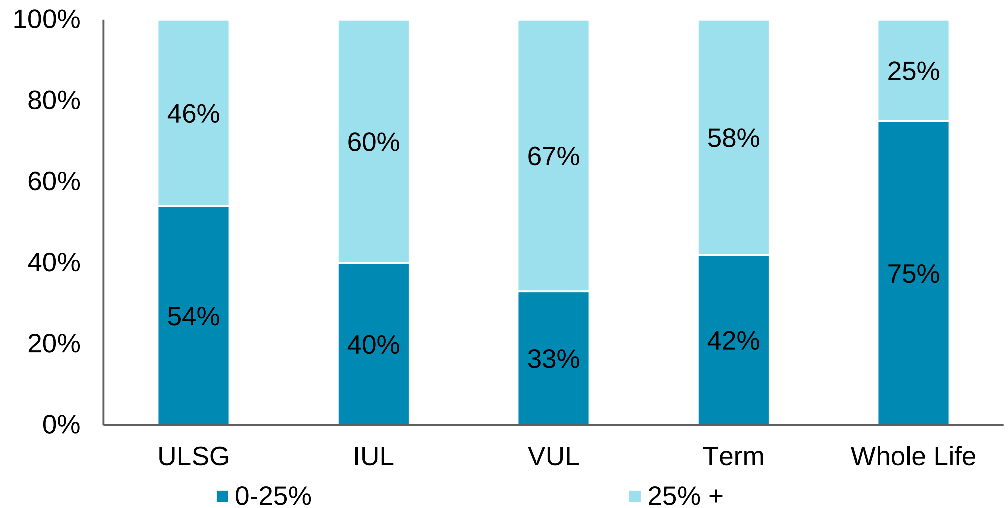
Reserve margins are more than double what participants feel is an appropriate level for Term, ULSG, IUL, and VUL

89% **of participants think an appropriate level of aggregate margin is less than 25%**

Appropriate level of aggregate margin



Actual level of aggregate margin



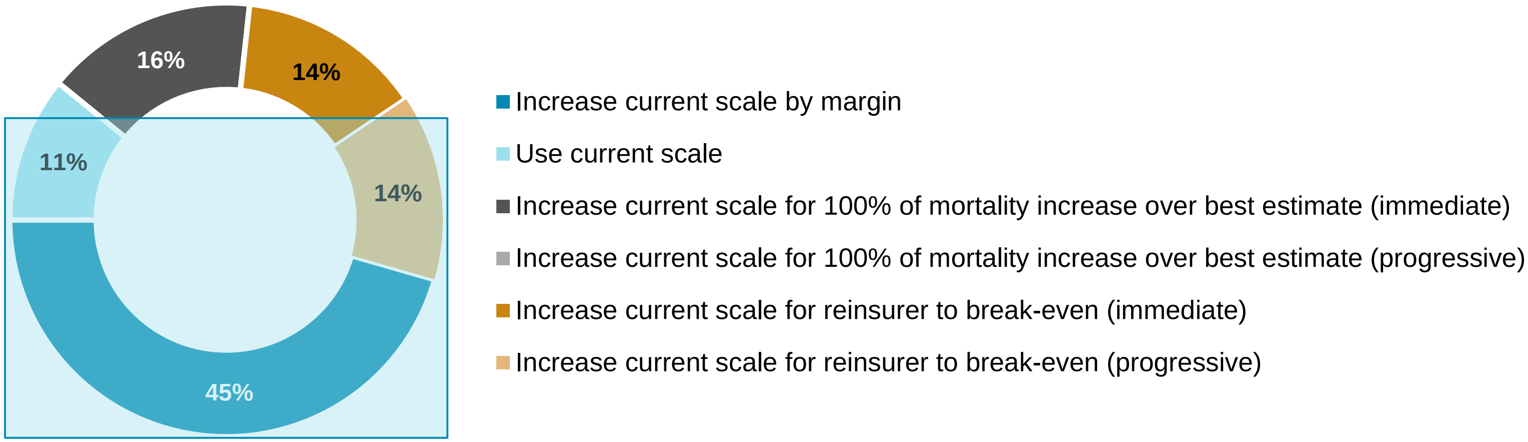
Note: ULSG includes IUL SG and VUL SG

Observed margins in excess of 25% are common across all product types

Reinsurance
PBR has necessitated robust modeling of reinsurance and may have an impact on reinsurance treaties

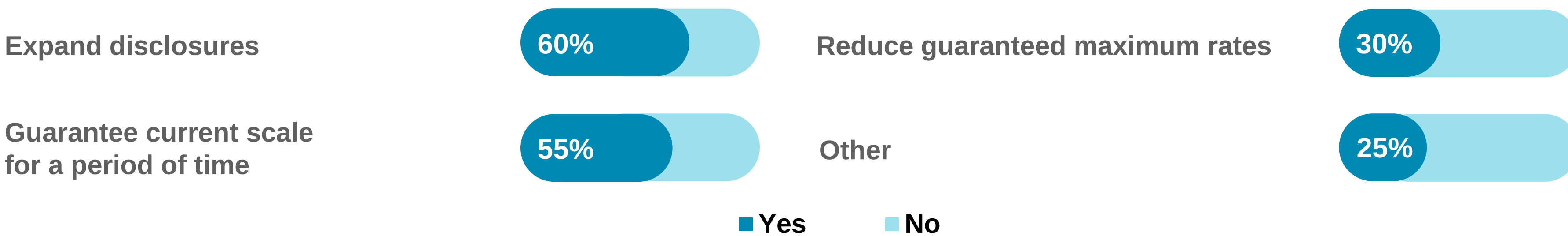
YRT modeling approach

Nearly three-quarters of companies are assuming less than 100% reaction to adverse mortality under PBR (shown in shaded range)



Potential changes to reinsurance arrangements

Close to a third of companies anticipate making changes to their reinsurance agreements because of PBR, with the prevalence of various changes summarized below (as a percent of those that anticipate making changes)



4 | Case study | Reinsurance

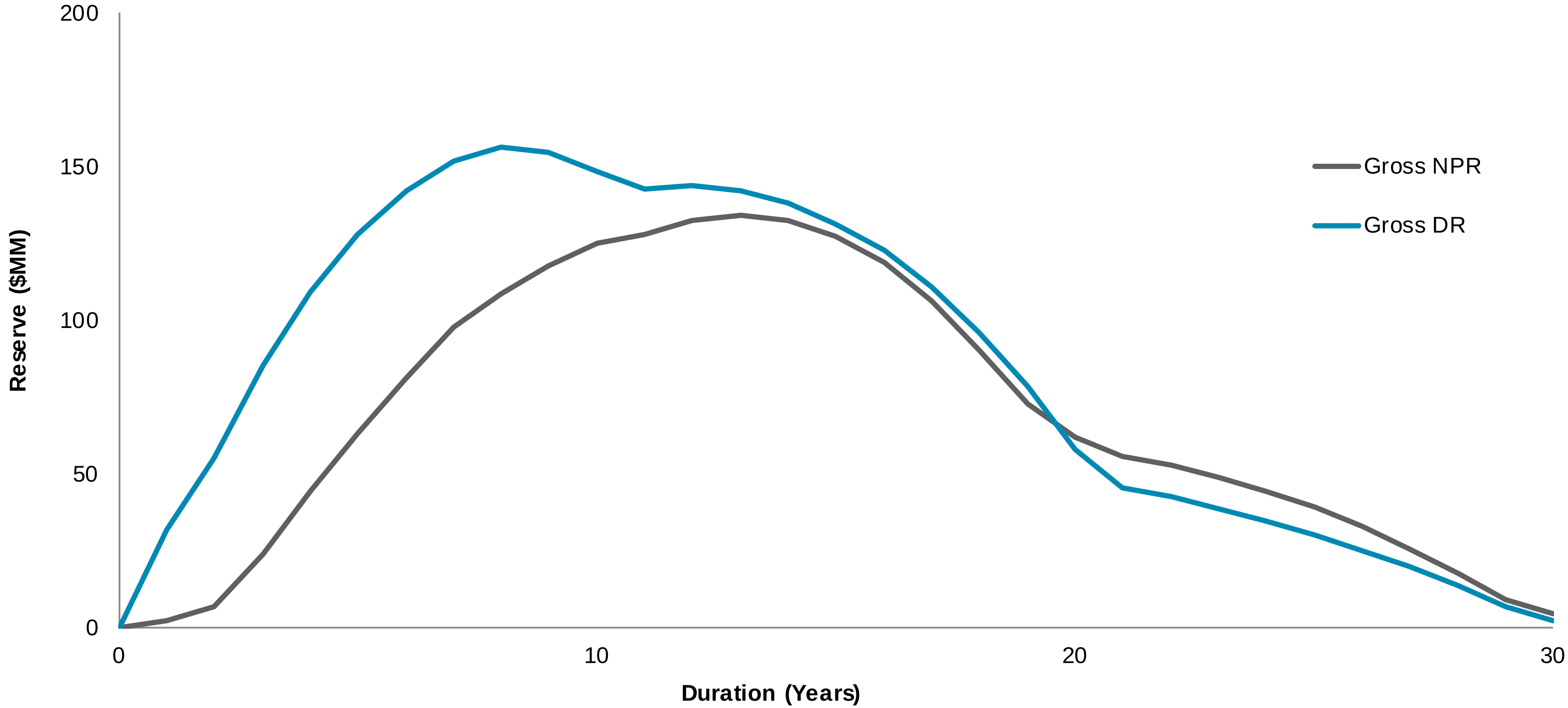
Case study

A cohort of new business with $50 MM 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

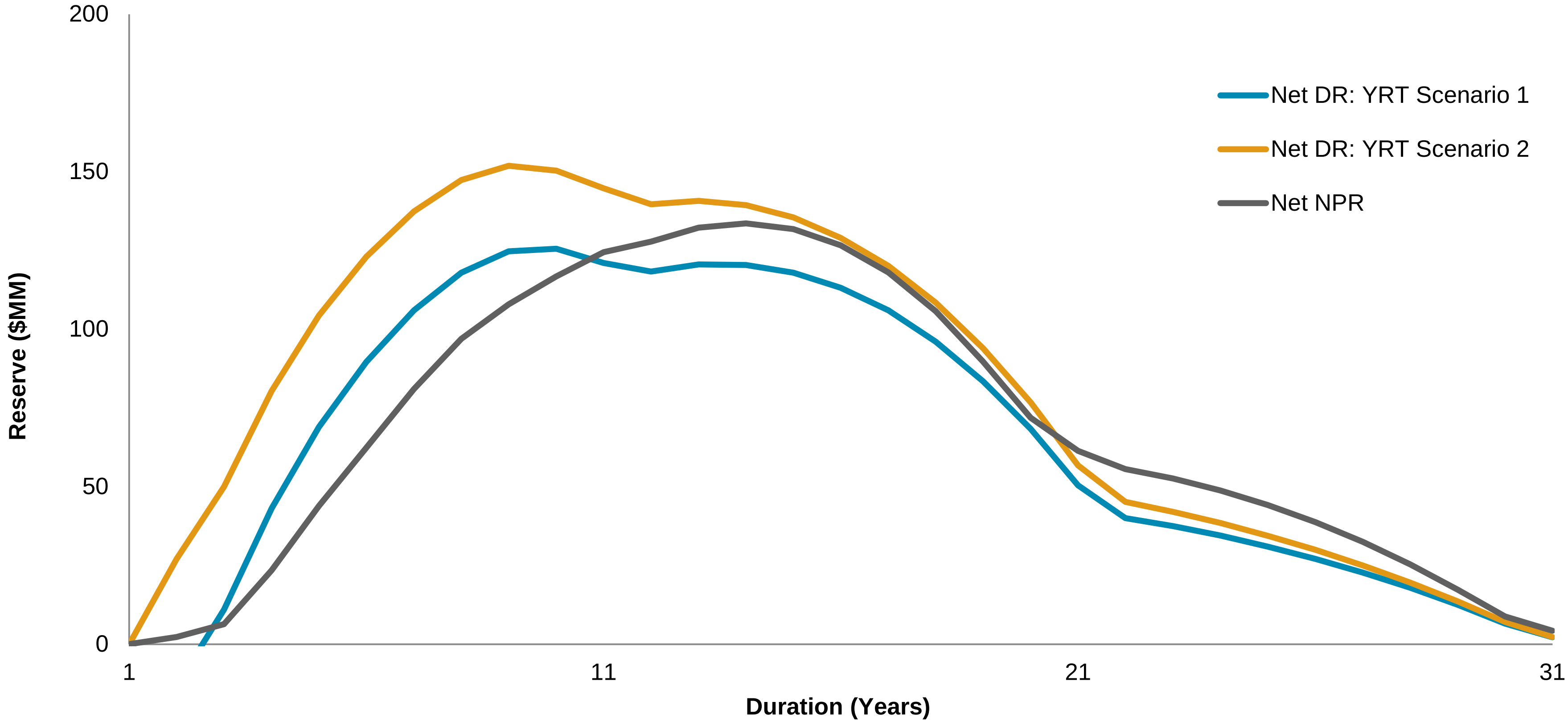
Case study
The gross NPR and DR for this cohort of new business are shown below



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

Case study

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



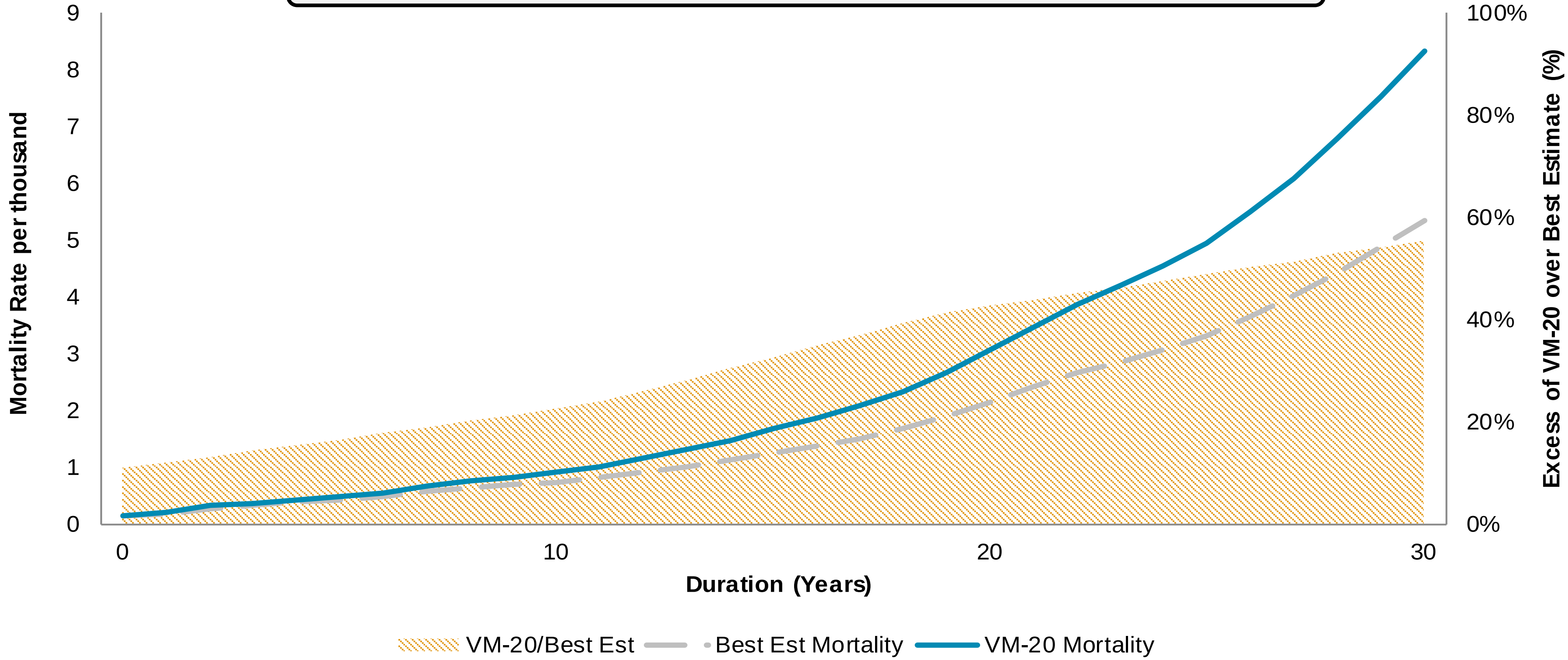
YRT Scenario 1: No change in rates

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

Case study

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

Reinsurance
June 2019 LATF decision on non-guaranteed reinsurance

APF number	APF 2019-39
Applicability	Business issued in 2020 and beyond; optional to business on PBR in 2017-19
Modeling of reinsurance	Not required
Reserve credit for reinsurance	½ C_x
Solution	Temporary

Link to APF: https://naic.org/documents/cmte_a_latf_exposure_apf_2019-39_revised.docx

5 Key take-aways

Key take-aways

1

There remains significant work for the industry over the rest of 2019

2

The industry is still exposed to areas where significant discretion exists

3

The regulation is ever-evolving and changes are anticipated to be retroactive

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