

LONG-TERM SOLUTION (YRT & VM-20) SUPPLEMENT

JANUARY 30, 2020

NAIC 2019 FALL NATIONAL MEETING
LIFE ACTUARIAL (A) TASK FORCE

QUALIFICATIONS, ASSUMPTIONS AND LIMITING CONDITIONS

Oliver Wyman was requested by the American Council of Life Insurers, the American Academy of Actuaries and the National Association of Insurance Commissioners to support an industry field test being conducted to aid the NAIC Life Actuarial (A) Task Force in the selection of a long-term solution for the treatment of non-guaranteed reinsurance under PBR.

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BACKGROUND

This presentation is intended to supplement the materials entitled “YRT & PBR – Overview and Initial Analysis (Fall 2019 NAIC meeting)” that were presented to LATF at the Fall NAIC Meeting in December 2019.

This supplement expands the background information and analysis to an assuming reinsurers perspective. Additionally, it provides key take-aways from the analysis provided in the Background section of the initial materials.

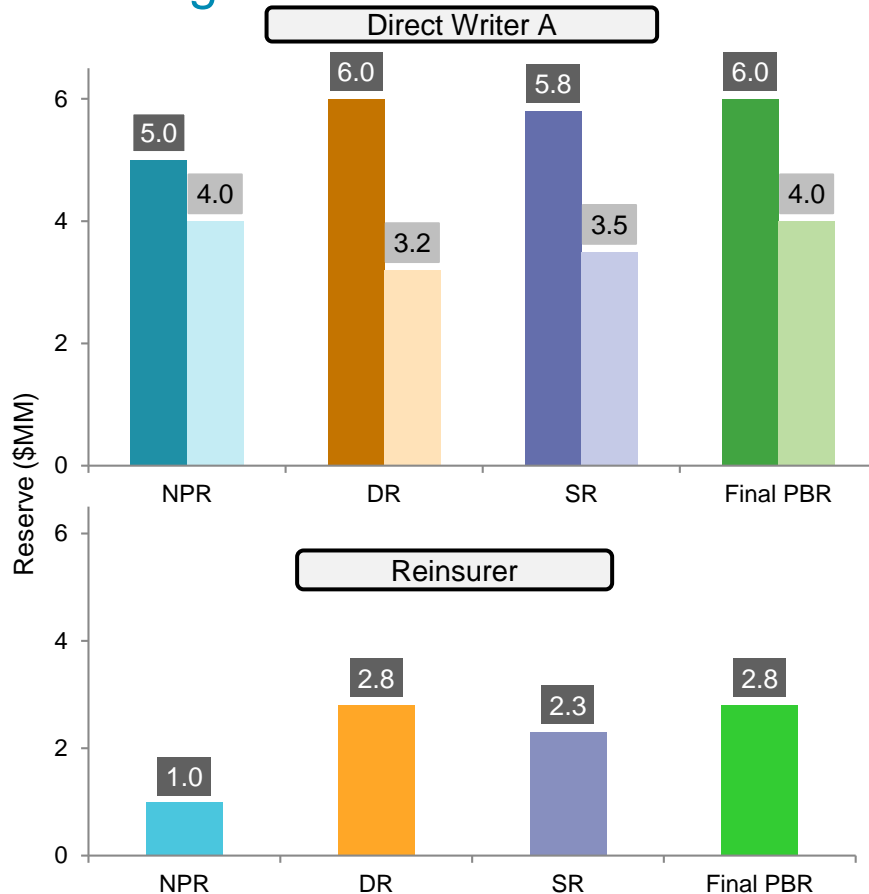
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1 | Assuming reinsurer's perspective

Conceptual example (1 of 2)

As illustrated below, applying the PBR methodology under the same assumptions can produce differences in reserves between the cedant and assuming reinsurer



Detailed commentary

- 1 Assume that valuation assumptions are exactly the same between Direct Writer A and Reinsurer
- 2 Final PBR reserve for Direct Writer A is 4.0, the max of NPR, DR and SR on a net of reinsurance basis
- 3 Direct Writer A's ceded reserves are equal to 2.0
- 4 Reinsurer's final PBR reserve is calculated using the max of the gross less net components for NPR, DR, and SR and equals 2.8

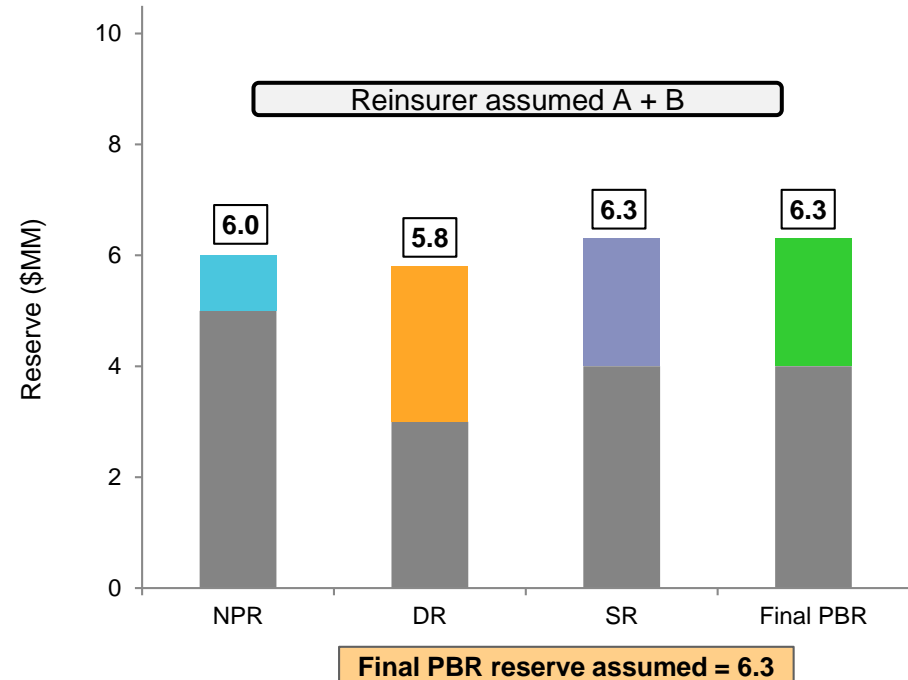
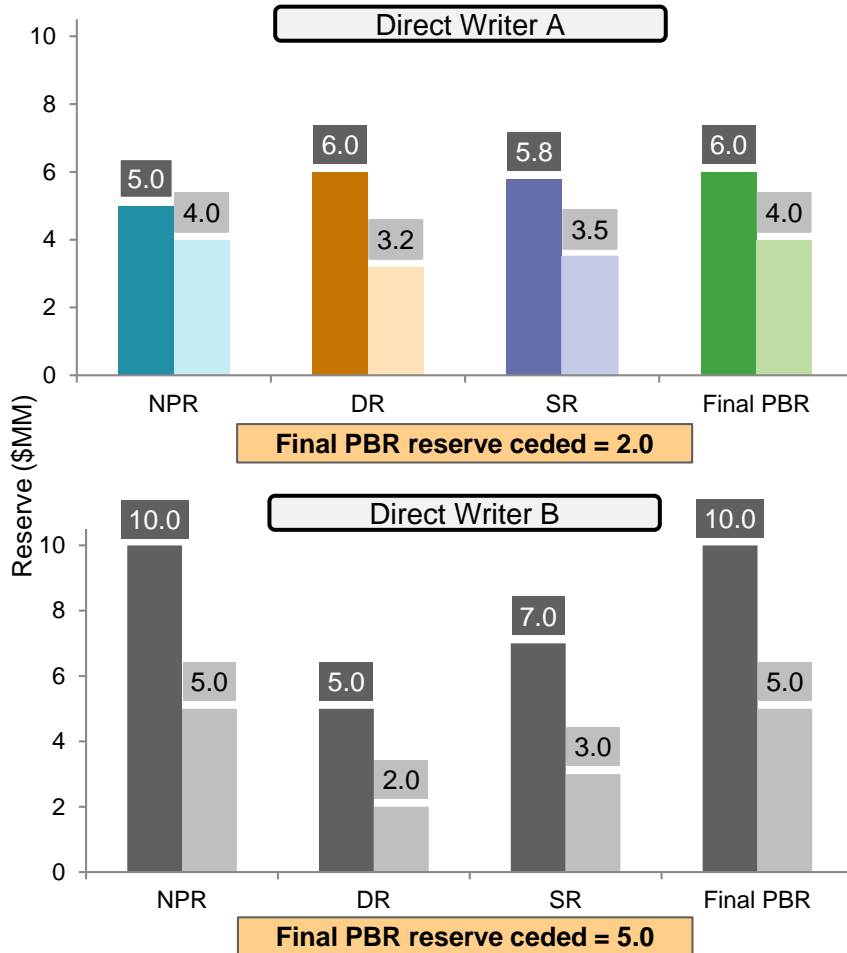
	NPR	DR	SR	Final PBR
Gross	5.0	6.0	5.8	6.0
Net	4.0	3.2	3.5	4.0
Ceded	1.0	2.8	2.3	2.0

	NPR	DR	SR	Final PBR
Assumed	1.0	2.8	2.3	2.8

Even with the exact same assumptions, the mechanics of the PBR calculation can result in a difference in ceded reserves and assumed reserves

Conceptual example (2 of 2)

Aggregation and mix of business can also lead to differences in ceded and assumed reserves



Total reserves ceded by the direct writers is 7.0 while the reserve assumed is 6.3

Supplementary projections (1 of 2)

The graphs show projected ceded and assumed reserves, where YRT rates are modeled as the current scale with no changes

Projected reserves¹

Direct company (70% credibility, 10-years sufficient data)

Chart 1 - Ceded reserves

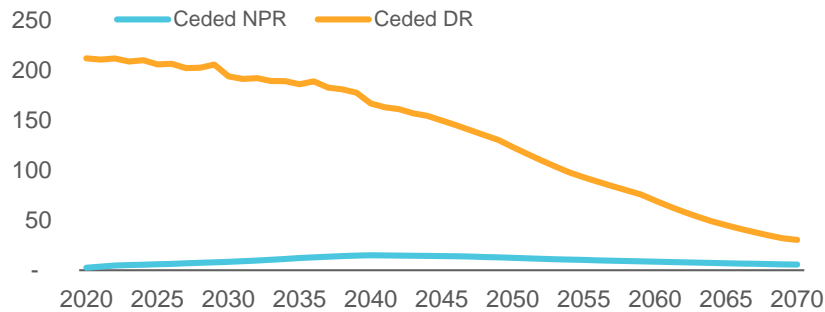
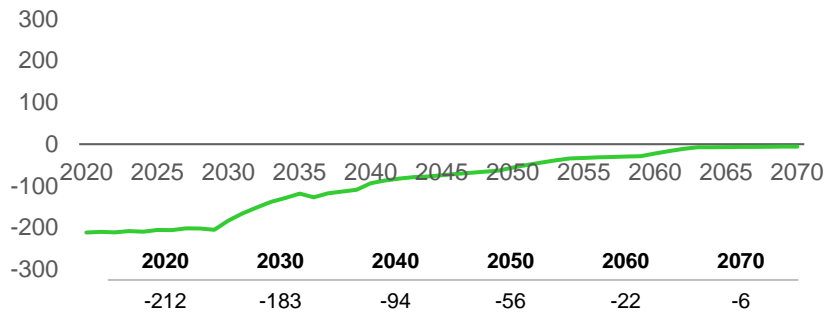


Chart 3 - Reinsurance credit – PBR reserve



Projected reserves

Assuming reinsurer (100% credibility, 15-years sufficient data)

Chart 2 - Assumed reserves

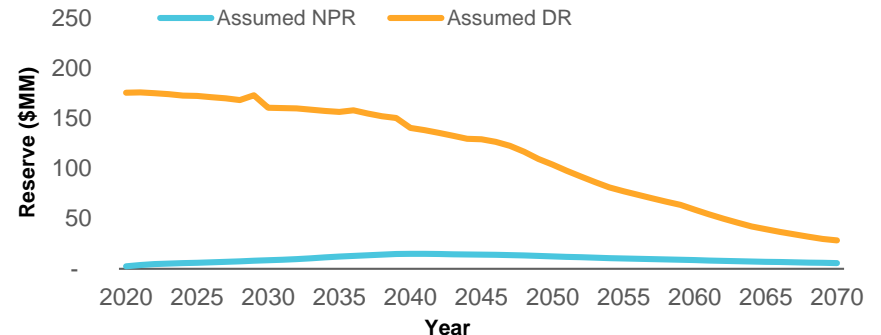
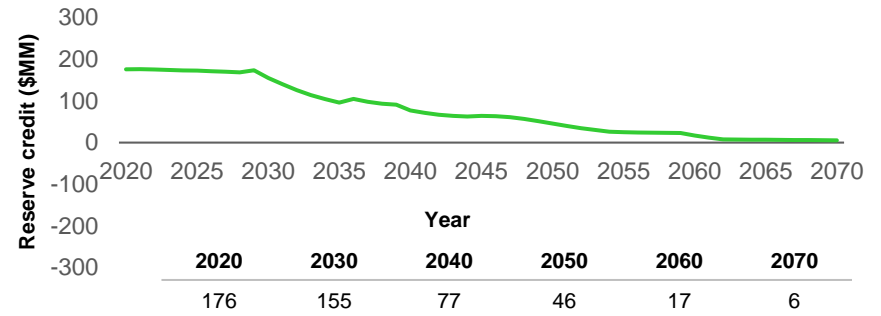


Chart 4 - Assumed reserve – PBR reserve



Differences in the projected reserve credits from the direct writer are larger than the reserve assumed by reinsurer

1. Supplementary results can be found in Appendix A

Supplementary projections (2 of 2)

Projected ceded and assumed reserves where YRT rates are modeled as the current scale plus 105% of the increase in mortality under PBR

Projected reserves¹

Direct company (70% credibility, 10-years sufficient data)

Chart 5 - Ceded reserves

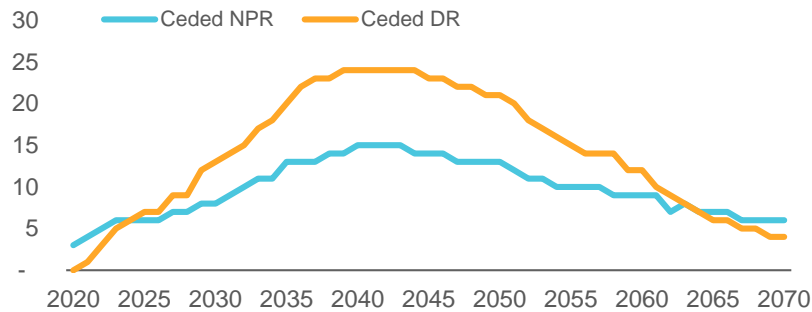
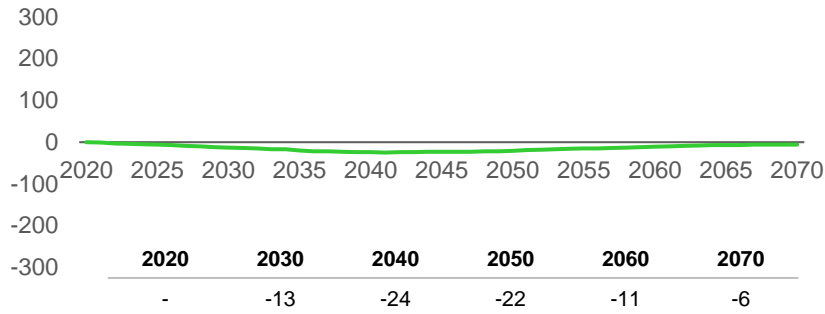


Chart 7 - Reinsurance credit – PBR reserve



Projected reserves

Assuming reinsurer (100% credibility, 15-years sufficient data)

Chart 6 - Assumed reserves

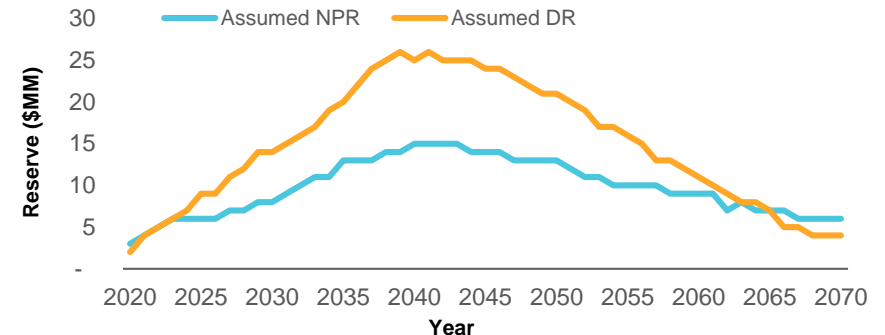
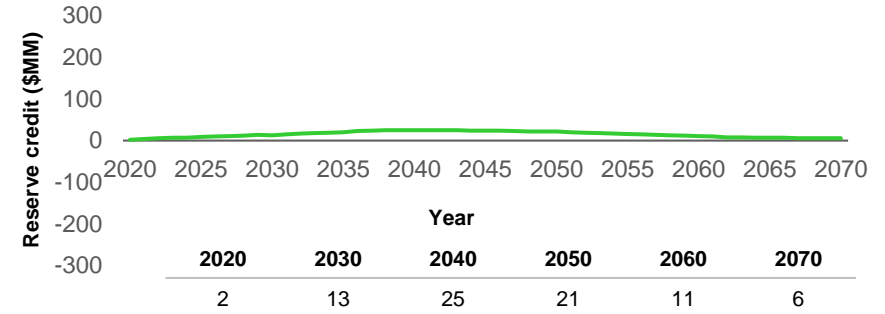


Chart 8 - Assumed reserve – PBR reserve



Using an adjustment to YRT reinsurance premiums reflective of a reinsurer’s perspective reduces the differences between reserve credit and assumed reserves

1. Supplementary results can be found in Appendix A

2 | Key takeaway

Key takeaway

Takeaway	Justification
1 Differences in reserve credits and assumed reserves under PBR are likely to occur for multiple reasons	<ul style="list-style-type: none">• Reserves between direct writers and reinsurers will not be mirrored, primarily due to differences in valuation assumptions (including changes to non guaranteed YRT premiums)• Other drivers include the mechanics of computing final PBR reserves, and reinsurers aggregating results across multiple treaties and multiple cedants• Differences between ceded and assumed reserves are reduced when adjustments to YRT premiums are based on the level of mortality margin specific to each party

Appendix A | Supplementary results

Reinsurer's perspective – supplementary results

The below tables provide the gross vs. net values driving the reinsurance credit vs the assumed reserve

Table 1 – Calculation of PBR reinsurance credit

Direct company with YRT premiums equal to current scale

	2020	2030	2040	2050	2060	2070
Gross DR (1)	490	1046	1101	828	522	265
Net DR (2)	278	852	934	705	452	235
Gross NPR (3)	108	871	1022	784	508	275
Net NPR (4)	105	863	1007	771	499	269
PBR reinsurance credit -[Max(1,3) – Max(2,4)]	-212	-183	-94	-56	-22	-6

Table 3 – Calculation of PBR reinsurance credit

Direct company with YRT premiums increased to 105% of difference between current scale and PBR mortality

	2020	2030	2040	2050	2060	2070
Gross DR (1)	490	1046	1101	828	522	265
Net DR (2)	490	1033	1077	807	510	261
Gross NPR (3)	108	871	1022	784	508	275
Net NPR (4)	105	863	1007	771	499	269
PBR reinsurance credit -[Max(1,3) – Max(2,4)]	0	-13	-24	-21	-11	-6

Table 2 – Calculation of PBR assumed reserve

Reinsurer with YRT premiums equal to current scale

	2020	2030	2040	2050	2060	2070
Gross DR (1)	451	1018	1084	817	516	264
Net DR (2)	275	857	943	713	457	235
Gross NPR (3)	108	871	1022	784	508	275
Net NPR (4)	105	863	1007	771	499	269
PBR reserve Max(1,3) – Max(2,4)	176	155	77	46	17	6

Table 4 – Calculation of PBR assumed reserve

Reinsurer with YRT premiums increased to 105% of difference between current scale and PBR mortality

	2020	2030	2040	2050	2060	2070
Gross DR (1)	451	1018	1084	817	516	264
Net DR (2)	449	1004	1059	796	505	260
Gross NPR (3)	108	871	1022	784	508	275
Net NPR (4)	105	863	1007	771	499	269
PBR reserve Max(1,3) – Max(2,4)	2	13	25	22	11	6

Reinsurer's perspective – supplementary results

The below tables provide a comparison of key components of the charts from slides 6 & 7

*Table 5 – Assumed vs Ceded components of Charts 1-4
YRT premiums equal to current scale*

	2020	2030	2040	2050	2060	2070
Reinsurer assumed reserve	176	155	77	46	17	6
Reinsurer assumed NPR	3	9	15	12	9	6
Cedant reserve credit	212	183	94	56	22	6
½ Cx	3	9	15	12	9	6

*Table 6 – Assumed vs Ceded components of Charts 5-8
YRT premiums increased to 105% of difference between current scale and PBR mortality*

	2020	2030	2040	2050	2060	2070
Reinsurer assumed reserve	2	13	25	22	11	6
Reinsurer assumed NPR	3	9	15	12	9	6
Cedant reserve credit	0	13	24	21	11	6
½ Cx	3	9	15	12	9	6

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