

PBR: Reserve Credits for YRT Reinsurance
The Range of Interpretations of Three Amendment Proposal Forms (APFs),
A Survey of Companies

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A Report to Jason Kehrberg, Chairperson
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American Academy of Actuaries

by
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With the implementation of the National Association of Insurance Commissioners' (NAIC) principle-based reserving (PBR), insurers will be required to hold the higher of (a) formulaic reserves based on prescribed factors and (b) modeled reserves based on cashflow projections that consider a wide range of future economic conditions and use assumptions that depend on experience and credibility specific to an insurer, such as mortality, policyholder behavior, and expenses. As PBR is implemented, the NAIC is monitoring the PBR Actuarial Reports filed by insurers for evidence of problems that might require changes to the Valuation Manual.

In its 2017 reviews of Life PBR Actuarial Reports, the NAIC's Valuation Analysis (E) Working Group (VAWG) found that modeling of yearly renewable term (YRT) reinsurance premiums varied significantly across companies. These differences in modeling yielded material differences in the reinsurance reserve credits claimed by companies. As a result, several alternative Amendment Proposal Forms (APFs) have been proposed for additional consistency in this area. The NAIC's Life Actuarial (A) Task Force (LATF) would like to see results of a field test of these APFs to support its decision of which, if any, of the APFs to adopt.

The American Academy of Actuaries is currently administering a field test, in which it has asked participating companies to model reserves and reinsurance credits for the formulaic interim solution adopted by the NAIC earlier this year and for all of the proposed APFs currently under consideration by LATF at the NAIC. The specific instructions for the field test were developed by the Life Valuation Committee jointly with representatives of the staff and regulators from the NAIC, as well as staff and representatives of the American Council of Life Insurers (ACLI). The field test is being conducted by Oliver Wyman under an agreement with the Academy, which is also doing analytical work to complement the field test results under agreements with the NAIC and the ACLI.

In August 2019, 187 companies (for the purposes of this report, "companies" refer to legal entities unless otherwise specified), identified by NAIC staff as those likely to be subject to PBR when it becomes mandatory, were invited to join a field test of three APFs: 2019-40, 2019-41 and 2019-42. Some companies responded that they did not believe they would be subject to PBR either because they had ceased selling new policies or because they met the conditions of one of the exemptions available for PBR. Many indicated that they could not participate due to lack of time and resources. Sixteen companies indicated that they would participate. Within the universe of entities subject to PBR, the participants include both smaller and larger companies; all are direct issuers, none are reinsurers.

Results from the participating companies, combined with the analytical work done by Oliver Wyman, should provide LATF with a good deal of information with which to assess the three APFs. In order to supplement this information further, and to help refine the work of Oliver Wyman, the Life Valuation Committee decided to do an additional survey on the methods and assumptions that companies expected to rely upon in modeling reserves under these APFs. This survey was sent both to the participating companies and to those that had declined to participate unless they indicated that they did not expect to be subject to PBR.

The distribution of this survey was further restricted so that any person who was responsible for reporting results for more than one company only received the survey for one of the companies. This was designed to limit the imposition on respondents. In all, the survey went to 116 entities. Thirty-six of those responded. For those that responded, we asked how many legal entities their response reflected; the 36 respondents indicated that their responses covered 51 of the original 187 companies.

The survey instrument is attached to this report as Appendix 1. The instructions requested that respondents “complete a separate survey form for each group of treaties and/or policies for which your company would vary its approach to project changes in YRT rates. The survey form asks for your interpretation/intended modelling approach under the same three proposals being evaluated by the industry field test.”

The survey requested responses to three questions, with some questions involving multiple responses. The first question, summarized in the attached tables and labeled “Rationale”, asks: “Which of the following best describes your rationale for having a separate approach to projecting changes to YRT rates for this group of treaties?” The second question asks respondents to “complete the following tables for this group of reinsurance arrangements, based on how your company would project changes to YRT rates and on the requirements presented in each proposal [APF].” For each APF, there were six possible responses:

-
- No change: Maintain current scale throughout the projection
-
- Increase by [A]% of prescribed mortality margin after [B] and every [C] thereafter; where prescribed margin includes all VM-20 mortality margins including no future mortality improvement
-
- Increase by [A]% of prescribed mortality margin after [B] and every [C] thereafter; where prescribed margin includes all VM-20 mortality margins except for no future mortality improvement
-
- Increase by [A]% of prescribed mortality margin after [B] and every [C] thereafter; where prescribed margin includes all VM-20 margins, modified to allow [D] years of future mortality improvement
-
- Increase by [A]% of difference between current scale and prudent estimate (i.e. PBR) mortality after [B] and every [C] thereafter
-
- None of the approaches above (please provide a description in the comment section at the end of the survey form)
-

These responses are reported in the accompanying tables and labeled “APF Interpretation.” Counts indicated in all tables reflect the number of entities covered by a particular response.

Finally, the third question asks for more details on the method of projecting changes in YRT rates indicated in the answer to the second question: “Complete the following table for this YRT modeling approach with the values used for items [A], [B], [C] and [D] from the description of

the projected change to YRT rates in the prior table.” The responses to this question are presented on the tables labeled “A,B,C,D Statistics.”

These results are presented in three sets of tables: one for all respondents, whether they are direct issuers or reinsurers; the second for direct issuers; and the third for reinsurers.

**YRT Projected Reserves
Range of Interpretations
All Companies
Rationale**

Number of Companies Responding: 36
Number of Companies Covered: 51

Summary	Tested proposals allow for rate changes in excess of those allowed based on guaranteed maximum rates	The current scale of YRT rates is guaranteed for a period of time (Please specify length of guarantee in comment box at the end of this question)	Reinsurance treaties specify conditions around rate changes that are not captured in tested proposals	Relationship with counterparty would influence decisions on changes to YRT rates	Other (Please provide rationale in comment box at the end of this question)	N/A: We have a single approach to project changes to YRT rates that applies to all of our YRT reinsurance agreements
Proportion	0.00%	0.98%	1.96%	4.90%	3.92%	88.24%
Count	0	0.5	1	2.5	2	45

**YRT Projected Reserves
Range of Interpretations
All Companies
APF Interpretation**

Number of Companies Responding: 36
Number of Companies Covered: 51

Option	Projected change to YRT rates	APF 2019-40		APF 2019-41		APF 2019-42	
		Count	Proportion	Count	Proportion	Count	Proportion
1	No change: Maintain current scale throughout the projection	9.5	18.63%	28	54.90%	0.5	0.98%
2	Increase by [A]% of prescribed mortality margin after [B] and every [C] thereafter; where prescribed margin includes all VM-20 mortality margins including no future mortality improvement	13.5	26.47%	7	13.73%	7.5	14.71%
3	Increase by [A]% of prescribed mortality margin after [B] and every [C] thereafter; where prescribed margin includes all VM-20 mortality margins except for no future mortality improvement	5	9.80%	0	0.00%	2	3.92%
4	Increase by [A]% of prescribed mortality margin after [B] and every [C] thereafter; where prescribed margin includes all VM-20 margins, modified to allow [D] years of future mortality improvement	2	3.92%	2	3.92%	23	45.10%
5	Increase by [A]% of difference between current scale and prudent estimate (i.e. PBR) mortality after [B] and every [C] thereafter	13	25.49%	9	17.65%	15	29.41%
6	None of the approaches above (please provide a description in the comment section at the end of the survey form)	8	15.69%	5	9.80%	3	5.88%

YRT Projected Reserves Number of Companies Responding: 36
Range of Interpretations Number of Companies Covered: 51
All Companies
A, B, C, D Statistics
(B, C and D measured in Years)

APF	A,B,C, or D?	Summary	Options			
			2	3	4	5
2019-40	A	25th Percentile	100%	100%	0	100%
2019-40	A	75th Percentile	100%	100%	0	100%
2019-40	A	Median	100%	100%	0	100%
2019-40	B	25th Percentile	1	2.5	0	0.75
2019-40	B	75th Percentile	10	8.5	0	1
2019-40	B	Median	5	3	0	1
2019-40	C	25th Percentile	1	1	0	1
2019-40	C	75th Percentile	1	1	0	1
2019-40	C	Median	1	1	0	1
2019-40	D	25th Percentile	N/A	N/A	0	N/A
2019-40	D	75th Percentile	N/A	N/A	0	N/A
2019-40	D	Median	N/A	N/A	0	N/A
2019-41	A	25th Percentile	100%	0	100%	100%
2019-41	A	75th Percentile	100%	0	100%	100%
2019-41	A	Median	100%	0	100%	100%
2019-41	B	25th Percentile	1	0	0	1
2019-41	B	75th Percentile	2	0	0	1
2019-41	B	Median	1	0	0	1
2019-41	C	25th Percentile	1	0	1	1
2019-41	C	75th Percentile	1	0	1	1
2019-41	C	Median	1	0	1	1
2019-41	D	25th Percentile	N/A	N/A	10	N/A
2019-41	D	75th Percentile	N/A	N/A	10	N/A
2019-41	D	Median	N/A	N/A	10	N/A
2019-42	A	25th Percentile	100%	0	100%	100%
2019-42	A	75th Percentile	100%	0	100%	100%
2019-42	A	Median	100%	0	100%	100%
2019-42	B	25th Percentile	0	0	0	1
2019-42	B	75th Percentile	1.5	0	1	1
2019-42	B	Median	0.25	0	1	1
2019-42	C	25th Percentile	1	0	1	1
2019-42	C	75th Percentile	1	0	1	1
2019-42	C	Median	1	0	1	1
2019-42	D	25th Percentile	N/A	N/A	6.25	N/A
2019-42	D	75th Percentile	N/A	N/A	10	N/A
2019-42	D	Median	N/A	N/A	10	N/A

**YRT Projected Reserves
Range of Interpretations
Direct Issuers
Rationale**

Number of Companies Responding: 31
Number of Companies Covered: 46

Summary	Tested proposals allow for rate changes in excess of those allowed based on guaranteed maximum rates	The current scale of YRT rates is guaranteed for a period of time (Please specify length of guarantee in comment box at the end of this question)	Reinsurance treaties specify conditions around rate changes that are not captured in tested proposals	Relationship with counterparty would influence decisions on changes to YRT rates	Other (Please provide rationale in comment box at the end of this question)	N/A: We have a single approach to project changes to YRT rates that applies to all of our YRT reinsurance agreements
Proportion	0.00%	1.09%	2.17%	3.26%	2.17%	91.30%
Count	0	0.5	1	1.5	1	42

**YRT Projected Reserves
Range of Interpretations
Direct Issuers
APF Interpretation**

Number of Companies Responding: 31
Number of Companies Covered: 46

Option	Projected change to YRT rates	APF 2019-40		APF 2019-41		APF 2019-42	
		Count	Proportion	Count	Proportion	Count	Proportion
1	No change: Maintain current scale throughout the projection	8.5	18.48%	27	58.70%	0.5	1.09%
2	Increase by [A]% of prescribed mortality margin after [B] and every [C] thereafter; where prescribed margin includes all VM-20 mortality margins including no future mortality improvement	12.5	27.17%	7	15.22%	6.5	14.13%
3	Increase by [A]% of prescribed mortality margin after [B] and every [C] thereafter; where prescribed margin includes all VM-20 mortality margins except for no future mortality improvement	5	10.87%	0	0.00%	2	4.35%
4	Increase by [A]% of prescribed mortality margin after [B] and every [C] thereafter; where prescribed margin includes all VM-20 margins, modified to allow [D] years of future mortality improvement	2	4.35%	2	4.35%	21	45.65%
5	Increase by [A]% of difference between current scale and prudent estimate (i.e. PBR) mortality after [B] and every [C] thereafter	10	21.74%	7	15.22%	13	28.26%
6	None of the approaches above (please provide a description in the comment section at the end of the survey form	8	17.39%	3	6.52%	3	6.52%

YRT Projected Reserves Number of Companies Responding: 31
Range of Interpretations Number of Companies Covered: 46
Direct Issuers
A, B, C, D Statistics
(B, C and D measured in Years)

APF	A,B,C, or D?	Summary	Options			
			2	3	4	5
2019-40	A	25th Percentile	100%	100%	0	100%
2019-40	A	75th Percentile	100%	100%	0	100%
2019-40	A	Median	100%	100%	0	100%
2019-40	B	25th Percentile	1	2.5	0	0
2019-40	B	75th Percentile	6.25	8.5	0	1
2019-40	B	Median	5	3	0	1
2019-40	C	25th Percentile	1	1	0	1
2019-40	C	75th Percentile	1	1	0	1
2019-40	C	Median	1	1	0	1
2019-40	D	25th Percentile	N/A	N/A	0	N/A
2019-40	D	75th Percentile	N/A	N/A	0	N/A
2019-40	D	Median	N/A	N/A	0	N/A
2019-41	A	25th Percentile	100%	0	55%	55%
2019-41	A	75th Percentile	100%	0	100%	100%
2019-41	A	Median	100%	0	100%	100%
2019-41	B	25th Percentile	0.5	0	0	0.5
2019-41	B	75th Percentile	1.5	0	0	3
2019-41	B	Median	1	0	0	1
2019-41	C	25th Percentile	0.5	0	1	1
2019-41	C	75th Percentile	1	0	1	1
2019-41	C	Median	1	0	1	1
2019-41	D	25th Percentile	N/A	N/A	10	N/A
2019-41	D	75th Percentile	N/A	N/A	10	N/A
2019-41	D	Median	N/A	N/A	10	N/A
2019-42	A	25th Percentile	100%	0	100%	100%
2019-42	A	75th Percentile	100%	0	100%	100%
2019-42	A	Median	100%	0	100%	100%
2019-42	B	25th Percentile	0	0	0	1
2019-42	B	75th Percentile	2	0	1	1
2019-42	B	Median	0.5	0	1	1
2019-42	C	25th Percentile	1	0	1	1
2019-42	C	75th Percentile	1	0	1	1
2019-42	C	Median	1	0	1	1
2019-42	D	25th Percentile	N/A	N/A	5	N/A
2019-42	D	75th Percentile	N/A	N/A	10	N/A
2019-42	D	Median	N/A	N/A	10	N/A

**YRT Projected Reserves
Range of Interpretations
Reinsurers
Rationale**

Number of Companies Responding: 5
Number of Companies Covered: 5

Summary	Tested proposals allow for rate changes in excess of those allowed based on guaranteed maximum rates	The current scale of YRT rates is guaranteed for a period of time (Please specify length of guarantee in comment box at the end of this question)	Reinsurance treaties specify conditions around rate changes that are not captured in tested proposals	Relationship with counterparty would influence decisions on changes to YRT rates	Other (Please provide rationale in comment box at the end of this question)	N/A: We have a single approach to project changes to YRT rates that applies to all of our YRT reinsurance agreements
Proportion	0.00%	0.00%	0.00%	20.00%	20.00%	60.00%
Count	0	0	0	1	1	3

**YRT Projected Reserves
Range of Interpretations
Reinsurers
APF Interpretation**

Number of Companies Responding: 5
Number of Companies Covered: 5

Option	Projected change to YRT rates	APF 2019-40		APF 2019-41		APF 2019-42	
		Count	Proportion	Count	Proportion	Count	Proportion
1	No change: Maintain current scale throughout the projection	1	20.00%	1	20.00%	0	0.00%
2	Increase by [A]% of prescribed mortality margin after [B] and every [C] thereafter; where prescribed margin includes all VM-20 mortality margins including no future mortality improvement	1	20.00%	0	0.00%	1	20.00%
3	Increase by [A]% of prescribed mortality margin after [B] and every [C] thereafter; where prescribed margin includes all VM-20 mortality margins except for no future mortality improvement	0	0.00%	0	0.00%	0	0.00%
4	Increase by [A]% of prescribed mortality margin after [B] and every [C] thereafter; where prescribed margin includes all VM-20 margins, modified to allow [D] years of future mortality improvement	0	0.00%	0	0.00%	2	40.00%
5	Increase by [A]% of difference between current scale and prudent estimate (i.e. PBR) mortality after [B] and every [C] thereafter	3	60.00%	2	40.00%	2	40.00%
6	None of the approaches above (please provide a description in the comment section at the end of the survey form	0	0.00%	2	40.00%	0	0.00%

YRT Projected Reserves Number of Companies Responding: 5
Range of Interpretations Number of Companies Covered: 5
Reinsurers
A, B, C, D Statistics
(B, C and D measured in Years)

			Options			
APF	A,B,C, or D?	Summary	2	3	4	5
2019-40	A	25th Percentile	N/A	N/A	N/A	100.00%
2019-40	A	75th Percentile	N/A	N/A	N/A	100.00%
2019-40	A	Median	N/A	N/A	N/A	100.00%
2019-40	B	25th Percentile	N/A	N/A	N/A	1
2019-40	B	75th Percentile	N/A	N/A	N/A	12
2019-40	B	Median	N/A	N/A	N/A	1
2019-40	C	25th Percentile	N/A	N/A	N/A	1
2019-40	C	75th Percentile	N/A	N/A	N/A	1
2019-40	C	Median	N/A	N/A	N/A	1
2019-40	D	25th Percentile	N/A	N/A	N/A	N/A
2019-40	D	75th Percentile	N/A	N/A	N/A	N/A
2019-40	D	Median	N/A	N/A	N/A	N/A
2019-41	A	25th Percentile	N/A	N/A	N/A	100.00%
2019-41	A	75th Percentile	N/A	N/A	N/A	100.00%
2019-41	A	Median	N/A	N/A	N/A	100.00%
2019-41	B	25th Percentile	N/A	N/A	N/A	1
2019-41	B	75th Percentile	N/A	N/A	N/A	1
2019-41	B	Median	N/A	N/A	N/A	1
2019-41	C	25th Percentile	N/A	N/A	N/A	1
2019-41	C	75th Percentile	N/A	N/A	N/A	1
2019-41	C	Median	N/A	N/A	N/A	1
2019-41	D	25th Percentile	N/A	N/A	N/A	N/A
2019-41	D	75th Percentile	N/A	N/A	N/A	N/A
2019-41	D	Median	N/A	N/A	N/A	N/A
2019-42	A	25th Percentile	N/A	N/A	N/A	100.00%
2019-42	A	75th Percentile	N/A	N/A	N/A	100.00%
2019-42	A	Median	N/A	N/A	N/A	100.00%
2019-42	B	25th Percentile	N/A	N/A	N/A	1
2019-42	B	75th Percentile	N/A	N/A	N/A	1
2019-42	B	Median	N/A	N/A	N/A	1
2019-42	C	25th Percentile	N/A	N/A	N/A	1
2019-42	C	75th Percentile	N/A	N/A	N/A	1
2019-42	C	Median	N/A	N/A	N/A	1
2019-42	D	25th Percentile	N/A	N/A	N/A	N/A
2019-42	D	75th Percentile	N/A	N/A	N/A	N/A
2019-42	D	Median	N/A	N/A	N/A	N/A




General

Complete a separate survey form for each group of treaties and/or policies for which your company would vary its approach to project changes in YRT rates. Please submit one form per treaty group.

If your company has multiple reporting entities that are subject to PBR, please complete a separate survey form for each entity.

Scope

The survey form asks for your interpretation/intended modeling approach under the same three proposals being evaluated by the industry field test. These proposals are further described in the following table.

Proposal	High level summary	Proposal
APF 2019-40	<ul style="list-style-type: none"> Actuarial judgment with clarified modeling principles/guidance 	 APF 2019-40 - Field Testing
APF 2019-41	<ul style="list-style-type: none"> Maintain the relationship (i.e. relative difference) between best estimate mortality and the current scale of YRT rates 	 APF 2019-41 - Field Testing
APF 2019-42	<ul style="list-style-type: none"> Increase reinsurance rates by prescribed reinsurance premium margin; where the reinsurance premium margin is equal to the difference between best estimate mortality and PBR mortality (testing different levels of adjustment to the VM-20 limitation on future mortality improvement); judgment modifications are allowed (if these are less conservative, other than recapture, then they require commissioner approval) 	 APF 2019-42 - Field Testing

Additional guidance

The standard options in the survey form for projected changes to YRT rates are intended to be general enough so that they could be related to multiple modeling approaches. Please select the option that would best represent your modeling approach and the impact on reinsurance cashflows.

For example, while ceding company recapture is not explicitly listed in the available options, this could be represented by selecting Option 5, with the corresponding values of [A], [B], and [C] such that the YRT reinsurance premium is increased by 100% of the difference between the current YRT scale and the company's prudent estimate mortality assumption after assumed recapture (i.e. [A] = 100%, [B] = recapture year, and, [C] = 1 year).

Participant information

Contact information

Name:

E-mail:

Company name(s):

Consent

Do you consent to publication of the name of your company as a participant in this field study?

(a) YES

(b) NO

Number of survey forms

Per the general instructions from the previous page, how many survey forms are included in your submission?

Survey form

General

1. Statutory entity name:

2. Which of the following best describes your rationale for having a separate approach to projecting changes to YRT rates for this group of treaties?

- ☐ Tested proposals allow for rate changes in excess of those allowed based on guaranteed maximum rates
- ☐ The current scale of YRT rates is guaranteed for a period of time (Please specify length of guarantee in comment box at the end of this question)
- ☐ Reinsurance treaties specify conditions around rate changes that are not captured in tested proposals
- ☐ Relationship with counterparty would influence decisions on changes to YRT rates
- ☐ Other (Please provide rationale in comment box at the end of this question)
- ☐ N/A: We have a single approach to project changes to YRT rates that applies to all of our YRT reinsurance agreements

Comments:

Interpretation of proposals

Complete the following tables for this group of reinsurance arrangements, based on how your company would project changes to YRT rates and on the requirements presented in each proposal. For each proposal, mark an "X" for the option that most closely matches your interpretation.

Option	Projected change to YRT rates	APF 2019-40	APF 2019-41	APF 2019-42
1	<ul style="list-style-type: none">No change: Maintain current scale throughout the projection			
2	<ul style="list-style-type: none">Increase by [A]% of prescribed mortality margin after [B] and every [C] thereafter; where prescribed margin includes all VM-20 mortality margins including no future mortality improvement			
3	<ul style="list-style-type: none">Increase by [A]% of prescribed mortality margin after [B] and every [C] thereafter; where prescribed margin includes all VM-20 mortality margins <u>except for</u> no future mortality improvement			

Option	Projected change to YRT rates	APF 2019-40	APF 2019-41	APF 2019-42
4	<ul style="list-style-type: none"> Increase by [A]% of prescribed mortality margin after [B] and every [C] thereafter; where prescribed margin includes all VM-20 margins, modified to allow [D] years of future mortality improvement 			
5	<ul style="list-style-type: none"> Increase by [A]% of difference between current scale and prudent estimate (i.e. PBR) mortality after [B] and every [C] thereafter 			
6	<ul style="list-style-type: none"> None of the approaches above (please provide a description in the comment section at the end of the survey form 			

Complete the following table for this YRT modeling approach with the values used for items [A], [B], [C] and [D] from the description of the projected change to YRT rates in the prior table.

Option	APF 2019-40	APF 2019-41	APF 2019-42
1			
2	[A] %: [B]: [C]:	[A] %: [B]: [C]:	[A] %: [B]: [C]:
3	[A] %: [B]: [C]:	[A] %: [B]: [C]:	[A] %: [B]: [C]:
4	[A] %: [B]: [C]: [D] years:	[A] %: [B]: [C]: [D] years:	[A] %: [B]: [C]: [D] years:
5	[A] %: [B]: [C]:	[A] %: [B]: [C]:	[A] %: [B]: [C]:
6			

Comments: (Please complete if option 6 was chosen for any of the proposals tested. Also, please provide any additional commentary that would be necessary or useful to interpret your response)