PBR Update
A principled approach

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Munich RE

PBR 101
The basics revisited

The VM-20 Life Reserve is the maximum of the three following building blocks:

Net Premium Reserve (NPR)

- Formulaic reserve introduced to ensure that a “minimum reserve” existed.

Deterministic Reserve (DR)

- Modeled reserve calculated as the present value of product cash flows
- “Prudent estimate” assumptions underlying cash flows based on own company experience where relevant and credible, plus margin for uncertainty

Stochastic Reserve (SR)

- Modeled reserve calculated as the CTE(70) of results generated using up to 10,000 stochastic interest rate and equity scenarios
- Stochastic Exclusion Test identifies interest-insensitive products that do not require an SR

PBR Update
What's happened since the last meeting

Forty-six states have adopted PBR as Standard Valuation Law effective 1/1/2017

- NAIC concluded that new SVL terms and provisions are "substantially similar" by state

Substantive amendments to VM-20 in 2016

- Minimum reserves must be calculated on a standalone basis for Term and ULSG
  - No benefits from aggregation
- Deterministic Reserve exclusion test cannot be used for Term products
- Elimination of post-LTP profits in the deterministic reserve calculation

In July, the New York DFS shifted its position and stated its plans to adopt PBR in 2018

- "The department will seek input on establishing appropriate safeguards."

15 out of 72 companies surveyed will implement PBR in 2017

NAIC Summer Meeting

Munich RE

Do all life insurance companies share the same risk profile?

MetLife

SYMETRA
RETIREMENT | BENEFITS | LIFE

NEW YORK LIFE

Amica
AUTO HOME LIFE

MINNESOTA LIFE
A Securian Company

ONEAMERICA

THE CINCINNATI
LIFE INSURANCE COMPANY

KANSAS CITY LIFE

THE HARTFORD

Standard Life

Prudential

PRIMERICA

Principal Financial Group

Lincoln
Financial Group

AIG

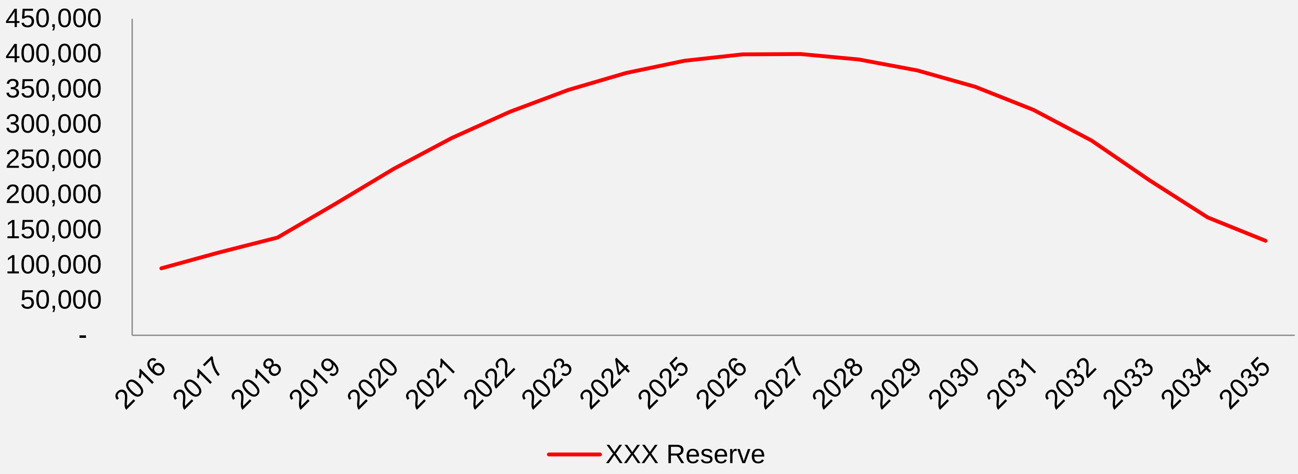
PACIFIC LIFE

AXA

Illustrative example – 20YT

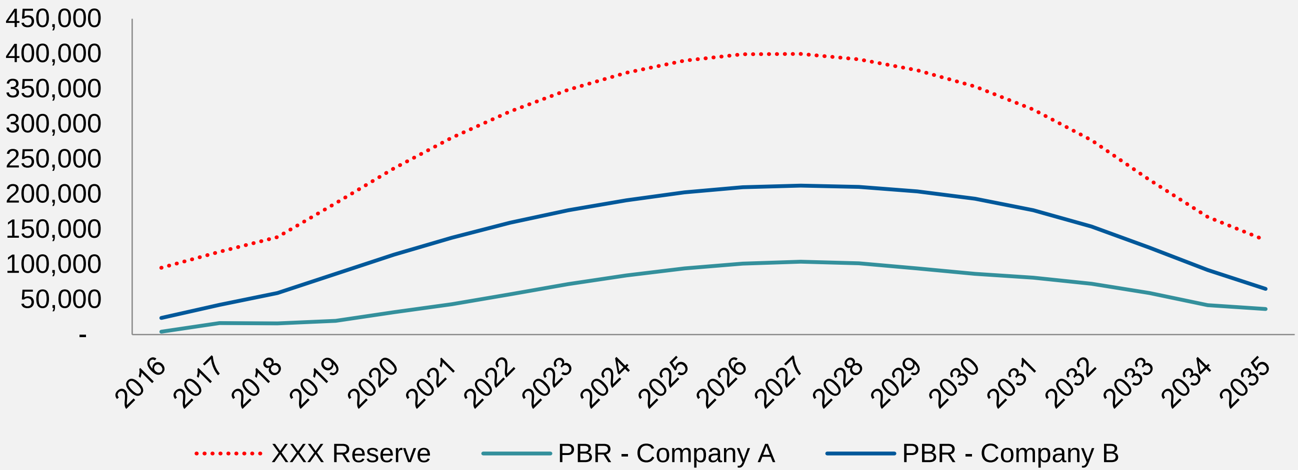
Reserve comparison: Company A vs Company B

Formulaic reserve (XXX)



Illustrative example – 20YT

Reserve comparison: Company A vs Company B
Principle-based reserve

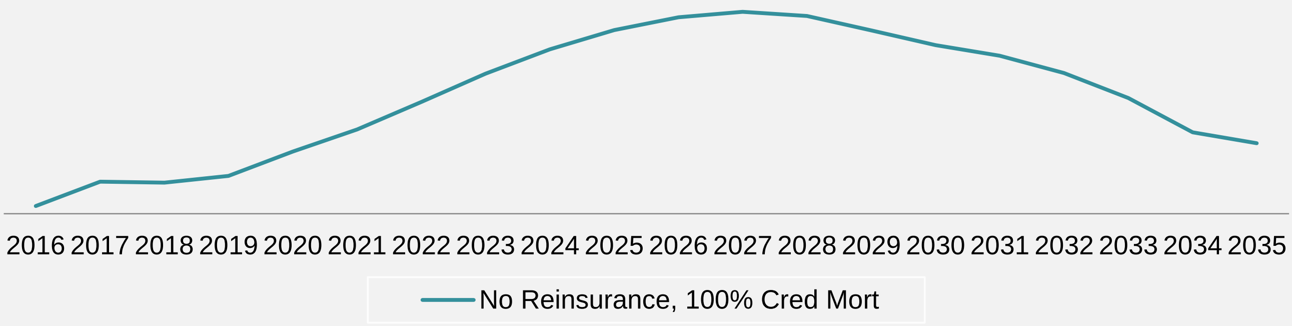


To the extent the existing regime was thought to be overly conservative, most companies anticipate a reductive in their gross reserves under the new principle-based framework

Illustrative example – 20YT

PBR reserve comparison

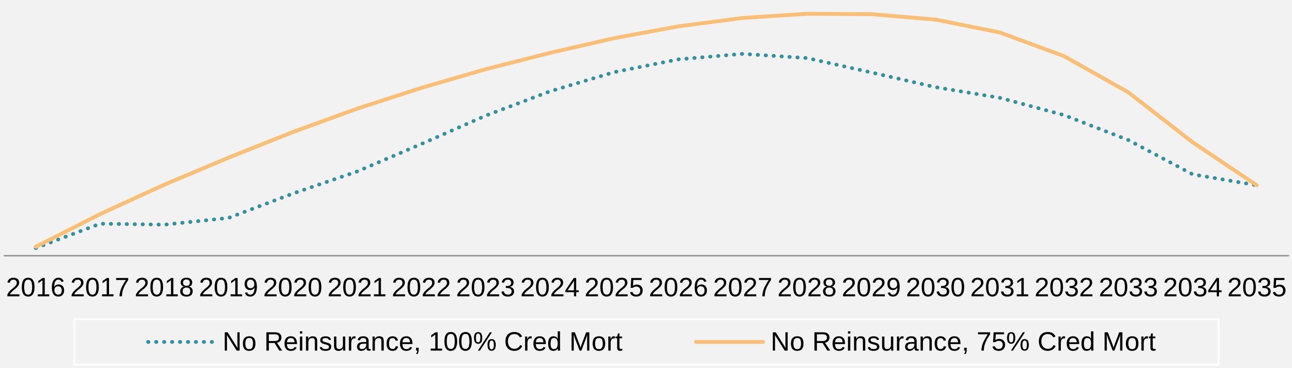
Impact of increasing uncertainty (100% credibility)



Illustrative example – 20YT

PBR reserve comparison

Impact of increasing uncertainty (75% credibility)

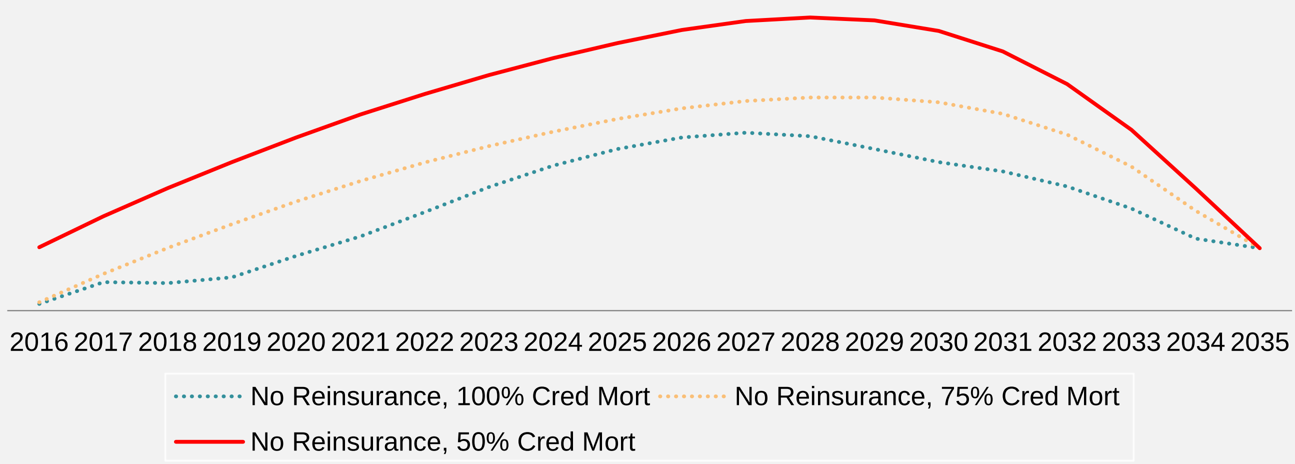


Increased uncertainty in the company's own experience results in heavier margins for adverse deviation, leading to higher reserves

Illustrative example – 20YT

PBR reserve comparison

Impact of increasing uncertainty (50% credibility)

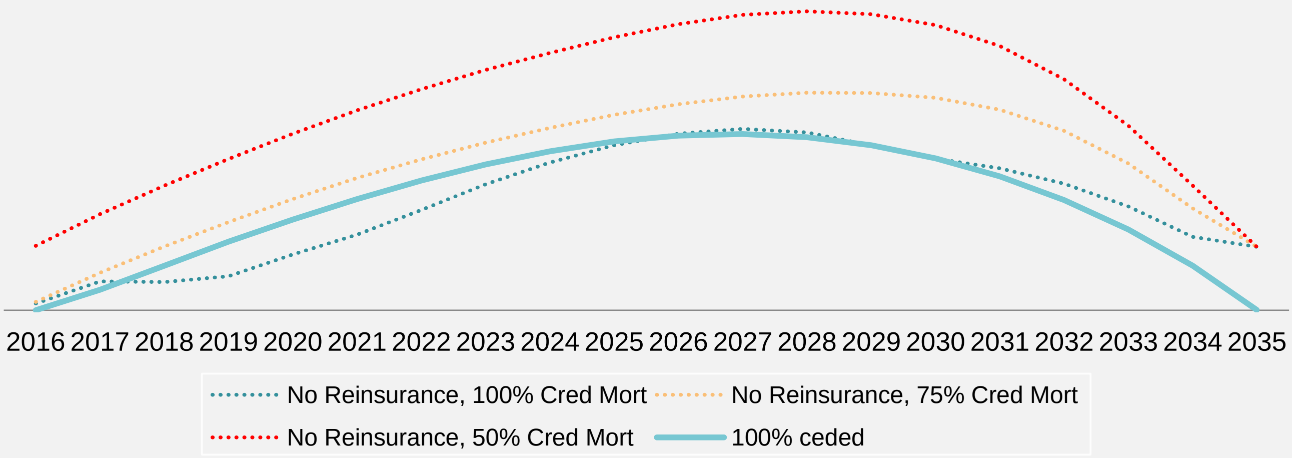


As credibility continues to drop, the reserve increase becomes more pronounced.

Illustrative example – 20YT

PBR reserve comparison

Reinsurance reserve credit is also principle-based



Through reinsurance, a company replaces “expected” claims with reinsurance costs – the value of reinsurance increases in proportion to the amount of uncertainty it removes

Reinsurance reserves are also principle-based

No need to mirror client reserves!

What does this mean?

- A reinsurer's view of the incremental risk posed by a block of business can be different than the direct company's view of that same block
- A reduction in a ceding company's liability does not have to be matched with an equal increase on our books
- Section 8.C.1 of VM-20:

  "The company shall use assumptions and margins that are appropriate for each company pursuant to a reinsurance agreement. In such instance, **the ceding and assuming companies are not required to use the same assumptions and margins for the reinsured policies**"

Actuarial Judgement & PBR

Case Study #1: YRT reinsurance

Question[1]

To what extent, if any, should increases in the non-guaranteed YRT premium rate scale due to higher than expected mortality in the prudent assumption be reflected in the deterministic and stochastic projections?

Options:

1) Use current scale throughout
2) Adjust current scale immediately to:
   a. Achieve breakeven
   b. Maintain profit margin
3) Adjust current scale after a few years

[1] Actual question under discussion by the AAA's Life Reinsurance Working Group

Illustrative example

Actuarial Judgement & PBR

Case Study #2: Predictive modeling results

Summarized Result

NET MORTALITY IMPACT

(5 Yr. Duration)

MN	MT	FN	FT
14.8%	16.1%	17.9%	17.0%

Issue Age Distribution				
25	35	45	55	65
20%	20%	20%	20%	20%

Detailed Result

Durations 1 to 5				
IA	MN	MT	FN	FT
25	11.3%	12.2%	11.9%	12.1%
35	12.3%	13.1%	12.7%	12.7%
45	16.6%	17.3%	24.0%	22.2%
55	16.7%	17.9%	23.3%	19.7%
65	17.2%	19.8%	17.3%	18.3%


Flexible
UW Expertise
Solid
Capacity
Creative
Stable
Value
Large
Established
Relationship focused
Traditional
Knowledgeable
Efficient
Comprehensive
Rigid
Global
Strategic
Variety
Outstanding people
Competitive
Top
Helpful
Innovative
Engaged
Financial stability
Growing
great service
Easy
R&D
Customer centric
Expertise
Communicative
Emerging
Partnership
Enthusiatic
Capable
Strong
Conservative
Services
Hard working
Research
Data driven