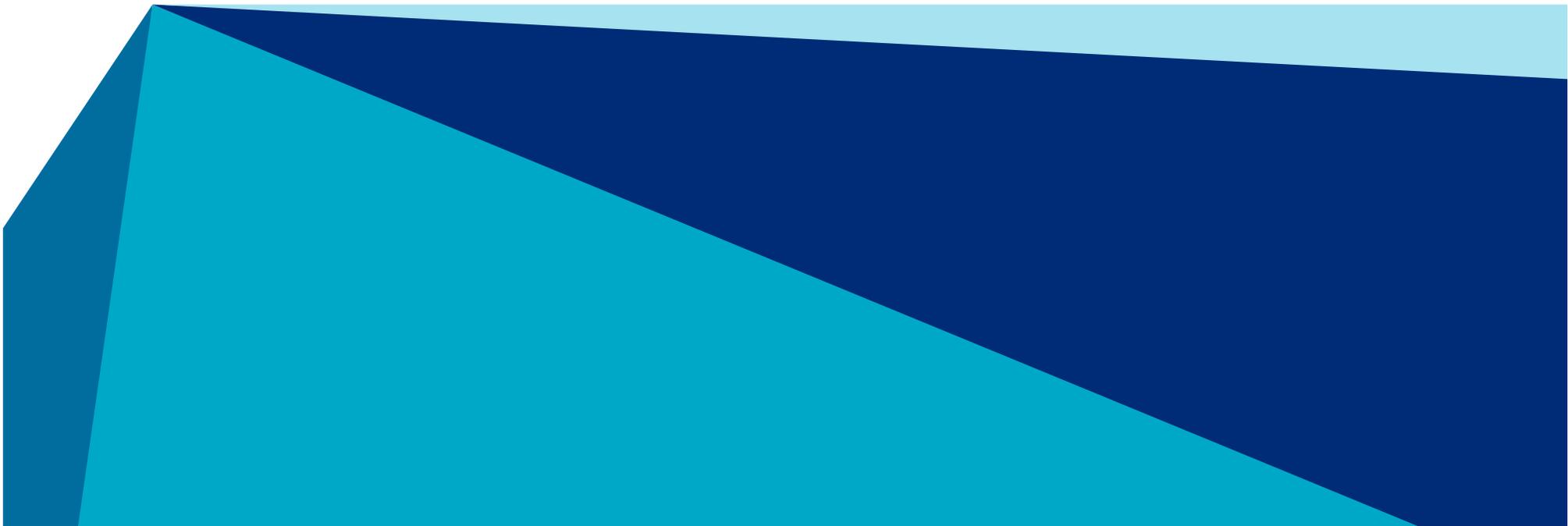




NAIC VA CAPTIVE STUDY PRELIMINARY FINDINGS AND CONCLUSIONS

SEPTEMBER 10 2015



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Agenda for today

1. Objective and motivation of the NAIC VA Capital Reform initiative
2. Process and role of Oliver Wyman
3. Overview of current use of and motivation for the use of captives
4. Recommended enhancements to the VA statutory framework for reserving and capital
5. Next steps toward a possible year-end vote on proposed changes by the NAIC

Context, motivation and objective of this initiative

Context and motivation

- The NAIC enacted its C3 Phase II (“C3P2”) standard for capital charges in 2006, followed by AG43 in 2009
- The interplay of these standards introduced unprecedented complexity into VA statutory capital management, prompting the use of captives
- Recognizing the above challenge, NAIC commissioners have pragmatically tried to accommodate these moves while upholding sound standards of prudential supervision
 - However, the individual nature of these arrangements, and the diversity of practices has led to a perception of the inconsistent application of standards across regulators

Objective

- The NAIC commissioned an initiative to identify changes to the statutory framework that will mitigate or remove the motivation for insurers to use captive reinsurance and provide an incentive to recapture exposures into the primary entities

This document summarizes the insurers’ motivations and their specific criticisms of the existing statutory framework and details a series of proposed changes and their rationale to address the motivations

Executive summary

-
- 1 Multiple framework concerns alone are sufficient to motivate captive use**
 - Several of the limitations of the statutory framework alone are sufficient to motivate captive use
 - Insurers noted many common issues, with somewhat varied prioritizations
 - Implies that multiple enhancements are needed to demotivate captive use

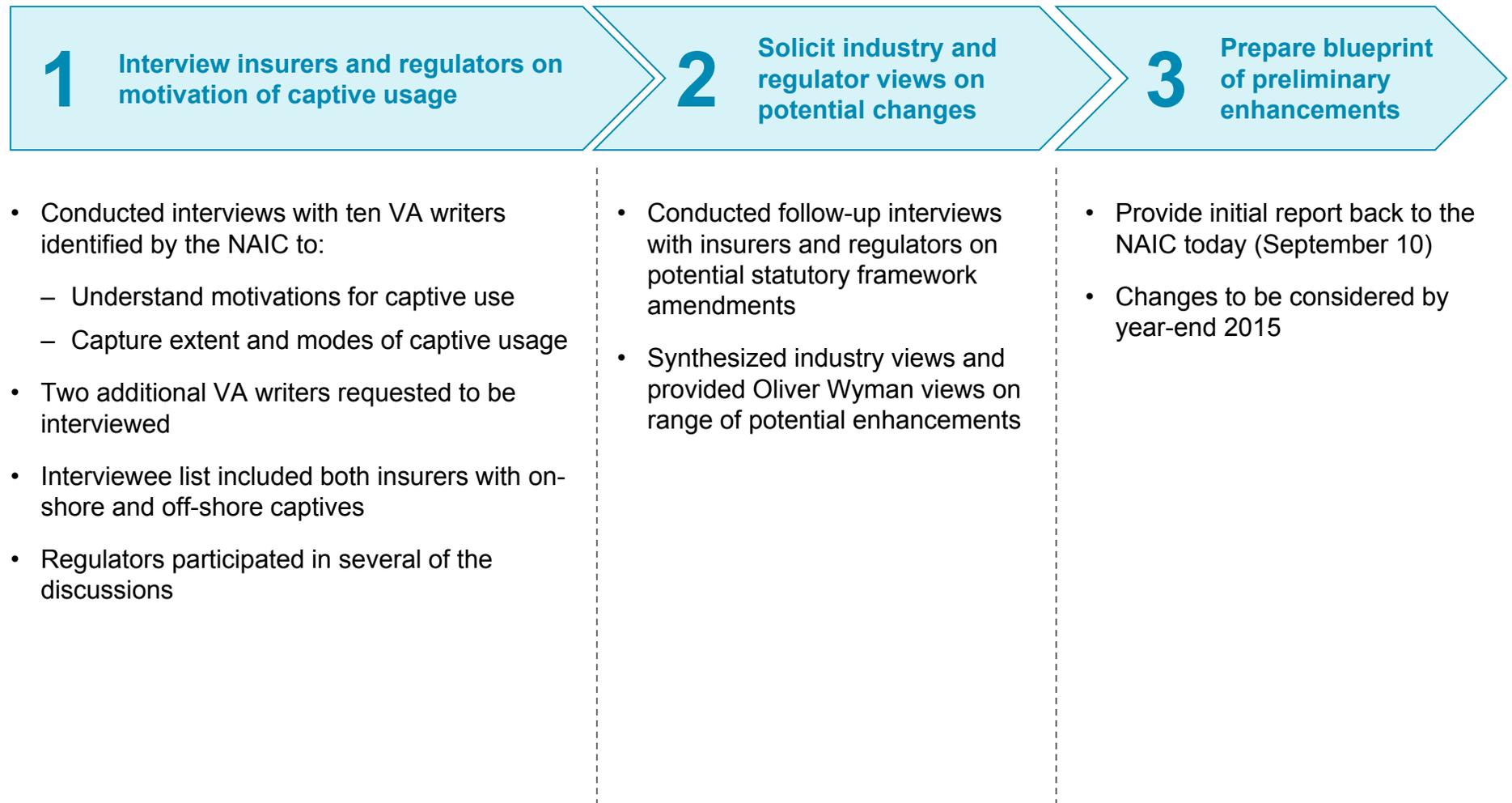
 - 2 Two motivations cannot be addressed with capital framework enhancements alone**
 - Two motivations that cannot be addressed include the desire to
 - Consolidate business from multiple entities (scale/diversification)
 - Limit the impact of counter-intuitive elements of the tax reserve
 - Few insurers noted these reasons alone would motivate captive use

 - 3 Current AG43 / C3 Phase II construct can be preserved while addressing the most material framework issues**
 - Targeted changes within the framework can mitigate the concerns of insurers on the most material of the addressable criticisms
 - Proposed changes retain the core elements of the existing framework (real world scenarios, surplus deficiency concept, cash accounting, standard scenarios, and others)

 - 4 Select recommended enhancements do not relate to captive use**
 - Additional changes unrelated to captives are advisable to standardize of calculations across insurers and a harmonize the level of conservatism across product types

 - 5 Quantitative Impact Study (QIS) is both advisable and feasible**
 - QIS would help garner support from the
 - Industry by demonstrating the efficacy of the changes and highlighting any further refinements necessary
 - Broader regulatory community by demonstrating that changes in capital requirements (pre- and post-stress) are robust

Process and role of Oliver Wyman



Section 1 | Insurer motivations for captive use

Participating insurers highlighted five principal motivations for captive use

Motivation	# of insurers
1 Mitigate non-economic volatility in statutory capital ratios	10+
2 Align market risk profiles of the funding requirements and the insurer target hedge program	9+
3 Mitigate funding requirement in downturn scenarios (net of the hedging strategy)	4+
4 Consolidate exposures from across legal entities	2+
5 DTA admissibility	2+

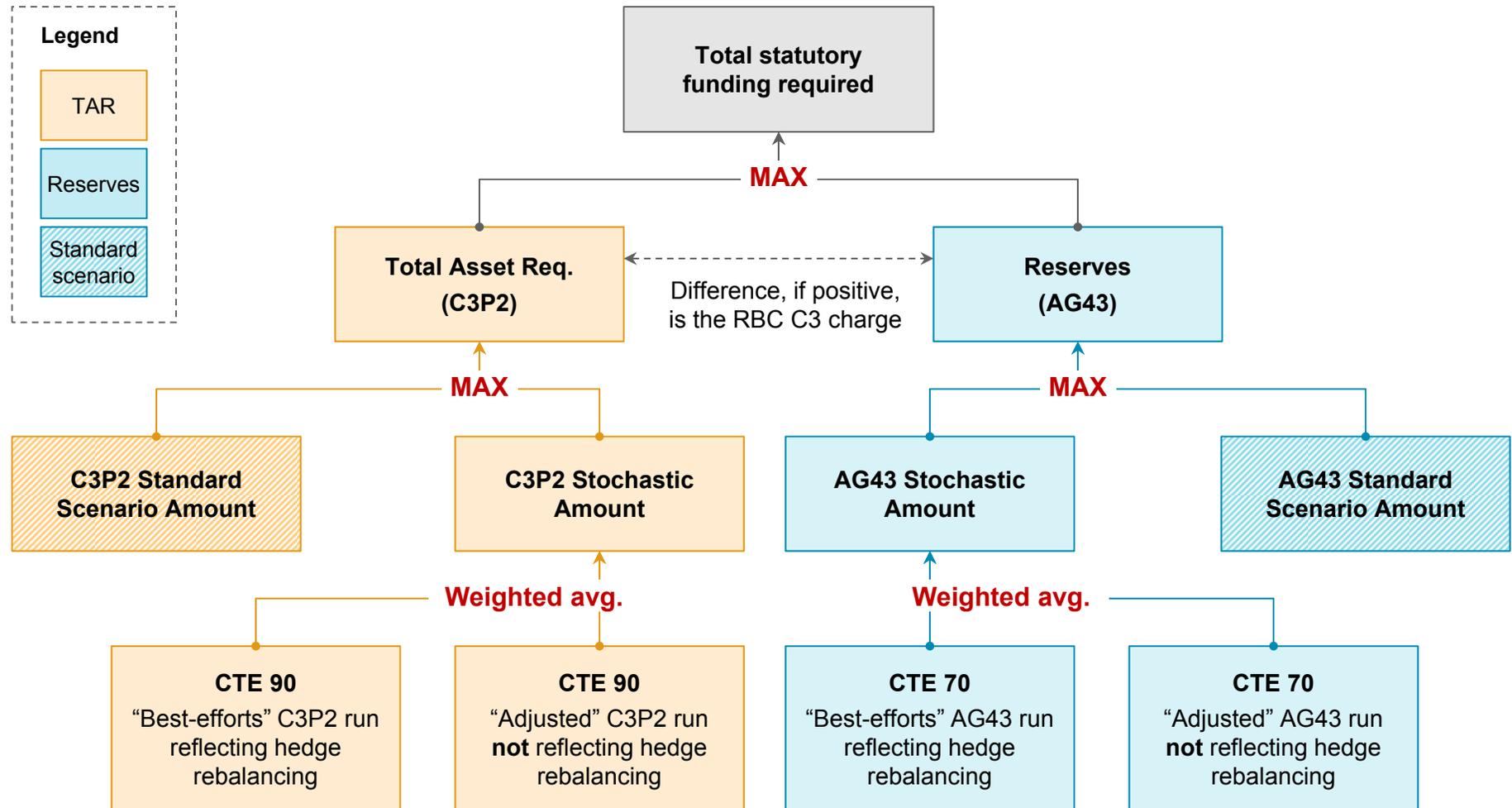
Additional observations

-
- 1** **Extent of captive usage differs across insurers**
 - Select insurers are reinsuring essentially their entire exposures into the captive
 - Also affords scale benefits in hedge operations facilitates risk reduction through diversification
 - Others are reinsuring a relatively small portion of their book to address specific statutory pain points
-
- 2** **LOC funding is not a dominant practice**
 - Many insurers are not using LOC structures at all
 - Others are using LOCs only as a contingent funding source for stability in the financial footprint post a market downturn
-
- 3** **Resulting accounting standards differ widely**
 - Once outside of the statutory framework, a multitude of reserving standards are applied that represent modifications of GAAP FAS/SOP, IFRS, or AG43
 - Captive reserves can be higher than the statutory amount ceded by the primary entity
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Section 2

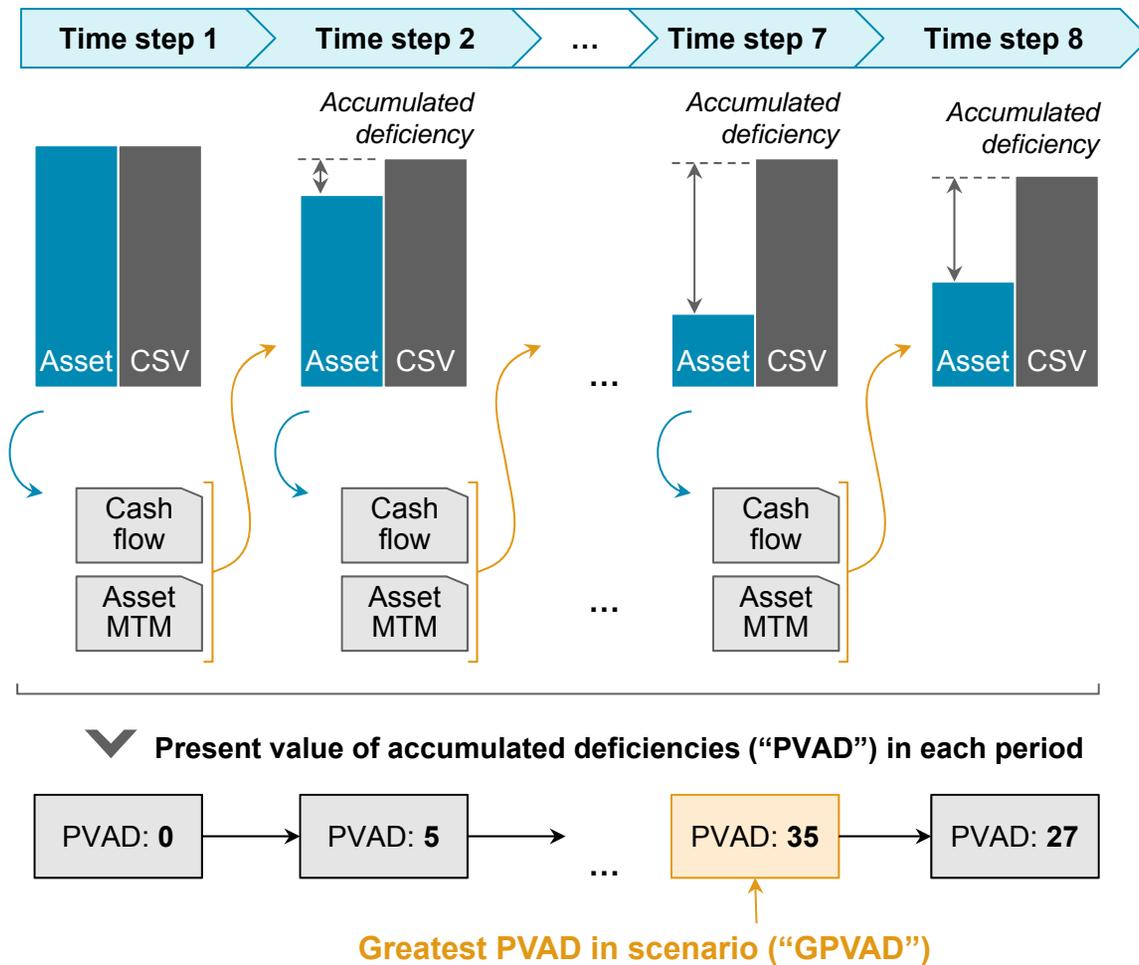
Recap of current framework and
identification of its limitations

The current statutory framework involves six separate calculations and requires many levels of aggregation, most of which are non-linear



The calculations involve a roll-forward of a VA balance sheet through time along specific scenario paths to determine accumulated deficiency

VA balance sheet roll-forward



- Statutory framework calculates the greatest present value of accumulated deficiency ("GPVAD") in each scenario
 - Represents the maximum asset shortfall, on a present value basis, experienced along the scenario
- AG43 and C3P2 stochastic amounts are determined via CTE measures applied to the scenario GPVADs
 - **CTE [X]** indicates the mean of the highest **X%** of scenario GPVADs
- The Standard Scenario calculation follows a similar approach – though only using one deterministic scenario

Key differences between the AG43 and C3P2 frameworks

Stochastic calculations

	AG43 Stochastic	C3P2 Stochastic
Tail measure	<ul style="list-style-type: none"> • CTE 70 	<ul style="list-style-type: none"> • CTE 90
Equity scenarios	<ul style="list-style-type: none"> • Either pre-packaged scenarios (e.g., from the AAA) or alternative real-world scenarios meeting specified calibration criteria 	
Interest rate scenarios	<ul style="list-style-type: none"> • No explicit rules – in particular, the long-term mean reversion parameter is unspecified 	
Reflection of hedging	<ul style="list-style-type: none"> • Weighted average (based on the “E factor”) of two separate runs: <ul style="list-style-type: none"> – “Best-effort”: reflects the company’s actual hedging practices, with rebalancing – “Adjusted”: currently-held hedges are run off, but no hedge rebalancing is permitted 	
“E factor”: reflection of hedging effectiveness	<ul style="list-style-type: none"> • 30% to 70% • 100% if hedging increases reserves 	<ul style="list-style-type: none"> • 30% to 90% • 100% if hedging increases TAR
Behavioral assumptions	<ul style="list-style-type: none"> • Prudent best-estimate behavioral assumptions 	
Revenue sharing reflection	<ul style="list-style-type: none"> • Revenue sharing reflected based on company expectations subject to limitations on non-guaranteed amounts 	
Diversification	<ul style="list-style-type: none"> • Allows for full in-force diversification 	
Tax treatment	<ul style="list-style-type: none"> • Pre-tax 	<ul style="list-style-type: none"> • Post-tax

Key differences between the AG43 and C3P2 frameworks Standard Scenario

	AG43 Standard Scenario	C3P2 Standard Scenario
Standard Scenario measure	<ul style="list-style-type: none"> Greatest present value of accumulated net revenue (“GPV ANR”) 	
Equity scenarios	<ul style="list-style-type: none"> Immediate 13.5% decline 0% returns for the first year 4% return from years 2-5 5.5% return from year 6 onward 	<ul style="list-style-type: none"> Immediate 20% decline 0% returns for the first year 3% return from year 2 onward
Interest rate scenarios	<ul style="list-style-type: none"> Locked-in rate specified by the SVL – constant throughout projection No consistency with CTE discount rates 	<ul style="list-style-type: none"> Specified as 10-year UST + 50 bps – constant throughout projection No consistency with CTE discount rates
Reflection of hedging	<ul style="list-style-type: none"> No hedge rebalancing permitted; all currently-held hedges are liquidated after one year 	
Behavioral assumptions	<ul style="list-style-type: none"> Prescribed, often unrealistic assumptions Some differ from C3P2 SS assumptions 	<ul style="list-style-type: none"> Prescribed, often unrealistic assumptions Some differ from AG43 SS assumptions
Revenue sharing reflection	<ul style="list-style-type: none"> Revenue sharing limited 	
Diversification	<ul style="list-style-type: none"> Conducted only on a seriatim basis 	<ul style="list-style-type: none"> Allows for full in-force diversification
Tax treatment	<ul style="list-style-type: none"> Pre-tax 	<ul style="list-style-type: none"> Post-tax

Section 3 | Recommended enhancements

Guiding principles for recommending framework enhancements

Principle	Application
1 Promote sound risk management	<ul style="list-style-type: none">• Additional risk mitigation should, in ordinary circumstances, reduce a given portfolio's<ul style="list-style-type: none">– Total funding requirements– Volatility in funding requirements (net of risk mitigation/hedging)
2 Ensure robustness of capital and reserve requirements	<ul style="list-style-type: none">• Capital and reserves required by the framework are robust in light of the portfolio risks
3 Promote comparability across products and insurers	<ul style="list-style-type: none">• Standardize assumptions where appropriate (e.g. capital markets assumptions)• Ensure comparable level of conservatism in framework provisions (e.g., standard scenario behavior prescriptions)
4 Preserve current statutory construct where feasible	<ul style="list-style-type: none">• Retain core constructs and principles of the current framework, where possible<ul style="list-style-type: none">– Adherence to principles-based reserving– Book value approach to statutory valuation– Time-to-worst cash based balance sheet projection– Use of “real world” risk scenarios– Standard scenario construct to govern assumptions
5 Maximize ease of implementation	<ul style="list-style-type: none">• Minimizes the implementation effort and educational efforts required to understand framework outputs

We have identified several sets of ideas for framework improvements that are immediately tied to VA captives

Idea	Description
1 Align economically-focused hedge assets with liability valuations	<p>A</p> <ul style="list-style-type: none"> • Clarify and endorse SSAP 86 applicability • Consider equivalent approaches for all VA hedge assets <p>B</p> <ul style="list-style-type: none"> • Remove or allow greater flexibility in reflecting run-off of currently-held hedge assets in the stochastic “adjusted” runs
2 Reform Standard Scenarios (AG43 and C3P2)	<p>A</p> <ul style="list-style-type: none"> • Specify a fuller set of capital markets risk factors informed by market conditions <p>B</p> <ul style="list-style-type: none"> • Tailor assumptions to guarantee designs to harmonize level of conservatism • Refresh prescribed behavior assumptions to incorporate emerging experience <p>C</p> <ul style="list-style-type: none"> • Calculate the Standard Scenario Amount on an aggregate, instead of seriatim, basis
3 Align TAR and reserves	<p>A</p> <ul style="list-style-type: none"> • Restructure the C3 charge calculation to use fewer and better-aligned calculations
4 Revise asset admissibility for derivatives and DTAs	<p>B</p> <ul style="list-style-type: none"> • Exempt designated VA hedge assets from derivative limit (or increase limit) <p>C</p> <ul style="list-style-type: none"> • Permit DTA partially as admitted asset based on a recoverability test
5 Standardize capital markets assumptions	<p>A</p> <ul style="list-style-type: none"> • Create market-informed calibration criteria for interest rate, FX, and volatility paths <p>B</p> <ul style="list-style-type: none"> • Commission work-stream to propose guidance on reflection of volatility-control funds

 *Directly related to captive motivation and to be analyzed during QIS*

 *Related to uniform standards and to be tested during QIS*

 *Related to uniform standards but not ready to be tested during QIS*

1 Align accounting for economically-focused hedges with liability valuation

Proposal A: adopt hedge accounting analogous to SSAP 86

Articulation of issue

- Hedge assets are carried at mark-to-market while liabilities and fixed income assets are carried at cash value / amortized cost with cash flow accrual
- This leads to diverging valuations and, in economically favorable scenarios, to large deficiencies
- Thus, hedging can drive up reserve requirements

Example(s)

- VA portfolio hedged with interest rate swaps
- Scenario projects one-time step-up in interest rates
- Interest rate swap experiences large loss during spike, triggering a large deficiency in early projection years
- Hedge loss would be offset by a less costly liability but this benefit emerges over time and so the GPV is driven off of the early asymmetry



Proposed treatment

- Clarify and expand eligibility standards for hedges to qualify for amortized cost treatment – similar to CF hedge accounting criteria
- Reflect qualifying hedge instruments at amortized cost, reflecting derivative cash flows as they are paid – i.e., similar to SSAP 86

Rationale

- Mismatch of market value of hedges and book value of liabilities is non-economic
- Precedent exists already in SSAP 86 for select interest rate hedges
- Retains book/ cash flow focus of statutory framework

1 Align accounting for economically-focused hedges with liability valuation

Application of treatment to a typical VA portfolio

Illustrative VA portfolio

Non-qualifying hedge assets

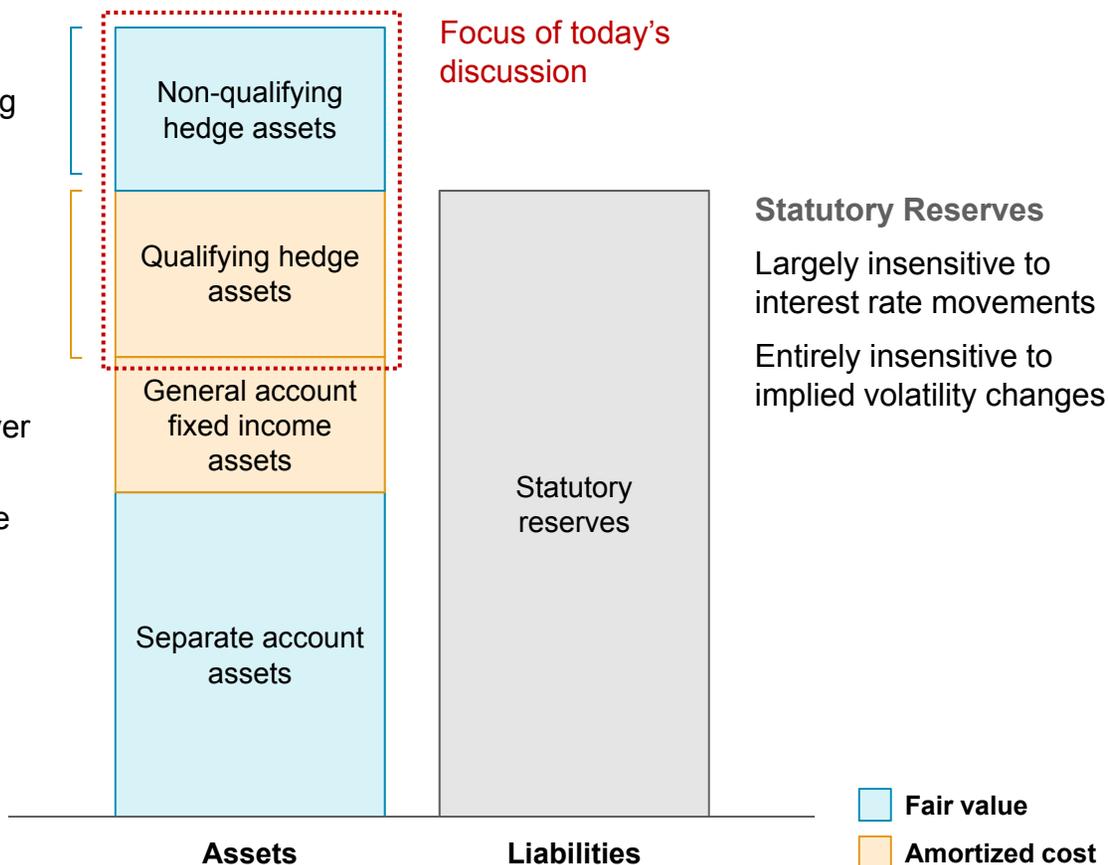
Hedge assets not qualifying for hedge accounting under SSAP 86 are carried at market value

Qualifying hedge assets

Hedge assets satisfying a set of defined criteria qualify for hedge accounting under SSAP 86

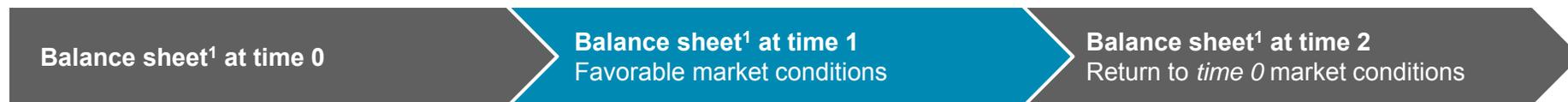
Under SSAP 86 hedge accounting:

- Recorded cost of hedge asset is amortized over the estimated duration of the liability
- Settlement cash flows are realized through the statutory income statement

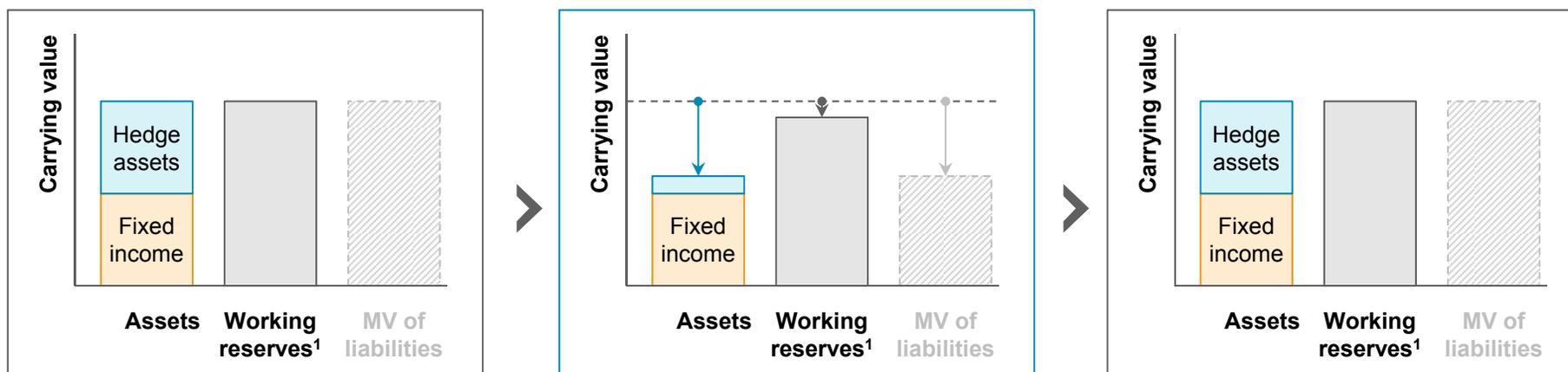


1 Align accounting for economically-focused hedges with liability valuation

Currently, hedge asset MTM changes are not offset by liability changes



Projected balance sheet under the existing framework



- Insurer hedges on an economic value basis; hence, hedge losses offset decrease in market value of liabilities
- Statutory reserves are less market-sensitive and respond more slowly
- The misalignment creates a large deficiency in market conditions favorable to the liability

- Carrying value of assets and liabilities return to levels close to time-0 values
- However, point of greatest accumulated deficiency may have already been reached by previous hedge cash flows

1. Effect and mechanics apply to both the projections within the CTE calculations as well as the actual balance sheet with actual reserves.

1 Align accounting for economically-focused hedges with liability valuation As a result, VA hedging may create counterintuitive statutory results

In some scenarios ...

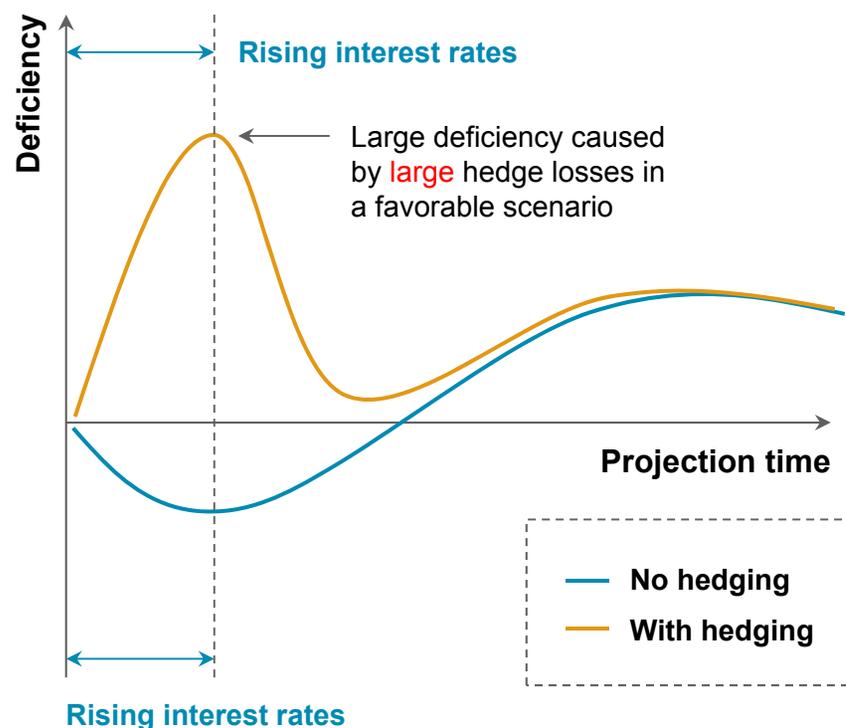
- Mark-to-market losses on hedge assets – not offset by reserve release – produce a large deficiency under favorable market conditions (prior slide)
- If the deficiency is large enough, these scenarios can often drive the magnitude of the overall CTE amount

As a result, two counterintuitive outcomes are sometimes experienced ...

- A Higher reserves with increased hedging**
After implementing a hedge program, reserves increase as scenarios with large hedge losses begin driving the stochastic CTE results
- B Statutory stress in economically favorable scenarios**
Economically favorable scenarios (e.g., rising interest rates) become *tail scenarios* for statutory calculations, as these scenarios lead to large losses on hedge assets

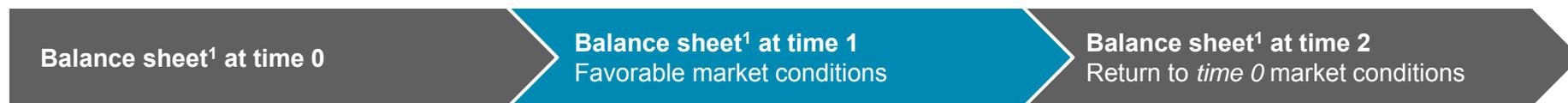
Deficiency projection in reserve calculation

Illustrative

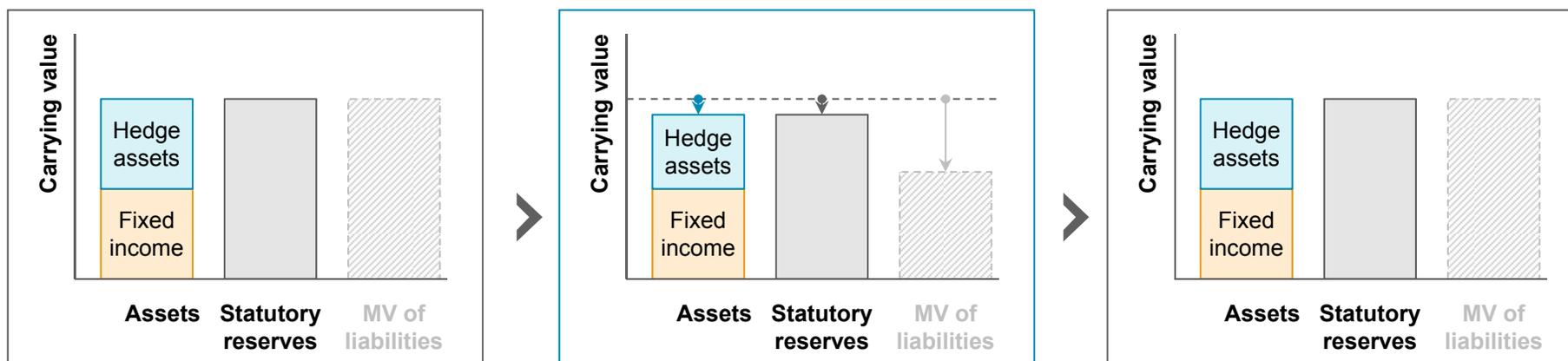


Asymmetrical accounting of hedge assets and statutory reserves can thus discourage hedging practices

1 Align accounting for economically-focused hedges with liability valuation
 An amortized cost-based treatment for qualifying hedge assets, similar to SSAP 86, would mitigate the mismatch



Projected balance sheet under the existing framework



- Insurer hedge assets are accounted for on an amortized cost basis
 - Cost amortized over liability duration
 - Settlement cash flows realized through the income statement
- Hence, the carrying value of the hedge assets is more stable in market conditions favorable to the liability
- Carrying value of assets and liabilities return to levels close to time-0 values
- Point of greatest accumulated deficiency has not yet been reached

1. Effect and mechanics apply to both the projections within the CTE calculations as well as the actual balance sheet with actual reserves.

1 Align accounting for economically-focused hedges with liability valuation

Proposal B: revise run-off calculation for currently-held hedges

Articulation of issue

- AG43 and C3P2 CTE calculations involve two runs:
 - “**Best-effort**”: reflects the company’s actual hedging practices – with rebalancing
 - “**Adjusted**”: currently-held hedge assets are run off, but no hedge rebalancing is permitted
- A weighted-average of the CTE amounts in the two runs is used, where the weight is referred to as the “E factor” – i.e.,

Reported CTE =

$$E \times \text{Best-effort CTE} + (1 - E) \times \text{Adjusted CTE}$$

- The hedge run-off projection in the “adjusted” run often creates open short positions, as companies cannot rebalance to fit evolving liability Greeks
- In particular, economically favorable scenarios can drive large deficiencies as hedge assets leave large open net short positions on the market



Proposed treatment

- Redefine the “adjusted” run to be unhedged – i.e., with no run-off of currently-held hedge assets
- Alternatively, allow greater flexibility in defining treatment of existing hedge assets as long as no additional hedge assets are originated
 - Companies can reflect a scaling down of the currently-held hedges or remove them entirely

Rationale

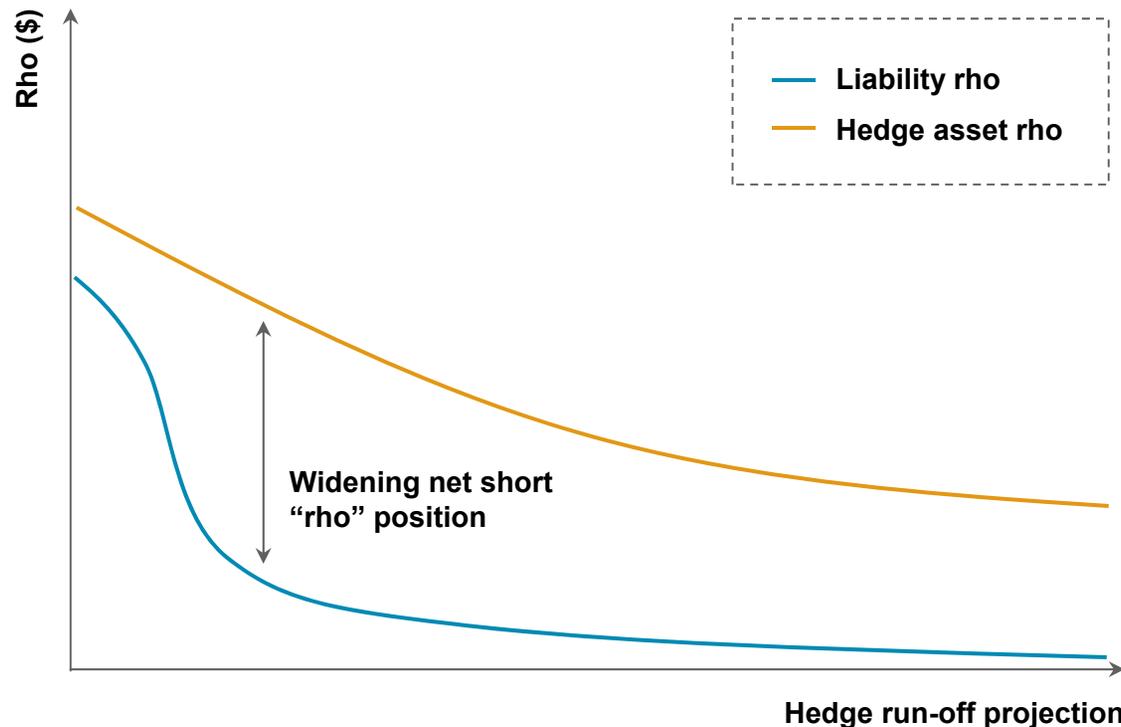
- Current treatment does not reflect actual risk management practices, as companies actively rebalance hedge positions with market movements
- Creates counterintuitive results where hedging leads to higher CTE requirements and where favorable scenarios become “tail scenarios”

1 Align accounting for economically-focused hedges with liability valuation

The run-off calculation leads to an unrealistic projection of hedging action biased against long-dated instruments

Sample asset and liability interest-sensitivity (“rho”) profile

In the hedge run-off projection of “adjusted” runs



Description of hedge asset projection in the “adjusted” run

- Currently-held assets are run-off until expiry, as rebalancing is not permitted
- As a result, the hedge portfolio Greeks can diverge from liability Greeks
 - In practice, insurers would rebalance to close or reduce net open positions
 - In the projection, open positions are left open and can further widen
- Long-tenor instruments are especially affected, as the open position can remain open for many years
- If the scenario moves against the open position, significant hedge losses occur and can drive the scenario GPVAD

1 Align accounting for economically-focused hedges with liability valuation

We suggest two options for reforming the hedge run-off calculation¹

Approach	Advantages	Disadvantages
1 Redefine the “adjusted” run to be unhedged – i.e., remove the run-off calculation altogether	<ul style="list-style-type: none">• Simple and straightforward to run• Transparent and easy to govern	<ul style="list-style-type: none">• Requires re-calibration of the hedge “effectiveness” or “error” factor and the overall harshness of the scenario
2 Allow flexibility to define treatment of existing hedge assets as long as no additional hedge assets are originated	<ul style="list-style-type: none">• Consistent with spirit of current “adjusted” calculation	<ul style="list-style-type: none">• More complex to govern

¹ Cash flow hedge accounting may reduce the effect of the no-rebalancing effect. We recommend independent investigation nonetheless

2 Reform the AG43 and C3P2 Standard Scenarios

Proposal A: specify a wider set of capital markets risk factors

Articulation of issue

- The current Standard Scenario guidance prescribes returns for three types of funds
 - Equity fund returns
 - Bond fund returns
 - Balanced fund returns
- However, Standard Scenario guidance does not define additional capital markets risk factors needed for liability projection – e.g.,
 - Interest rate paths
 - Volatility paths
 - Foreign exchange rates
- Additionally, the AG43 Standard Scenario uses a locked-in discount rate that differs from the market-sensitive C3P2 discount rate



Proposed treatment

- Specify a more comprehensive set of capital markets risk factors
- Use actual market conditions to inform the definition of Standard Scenario paths
- Apply capital markets evolution to both AG43 and C3P2 Standard Scenarios in a consistent manner

Rationale

- Certain risk factors are needed for fund return and liability projection – e.g.,
 - Volatility paths for volatility-control funds
 - FX rates for reinsured, non-US\$ business
- AG 43 interest rate stipulation drives counter intuitive interest rate sensitivity, exacerbating the pain from hedging rho

2 Reform the AG43 and C3P2 Standard Scenarios

Additional capital markets risk factors should include interest rate, volatility, and FX

Current risk factors

Interest rate path



Proposed revisions¹

- Use actual market conditions to inform the path definition

Equity fund returns



- None

Bond fund returns



- Ensure consistency with interest rate path

Balanced fund returns



- Ensure consistency with bond fund and equity fund returns

Fixed Fund rate



- Ensure consistency with interest rate path

Additional risk factors needed

Volatility path



Rationale for inclusion in Standard Scenario

- Determines returns of volatility-control funds that use implied volatility in equity allocation rebalancing algorithm

FX rate path



- Determines liability of foreign-denominated business reinsured into the US and subjected to US reserving practices

¹ Excludes potential changes as part of an overall recalibration post a QIS of the broader framework modifications contemplated in this presentation)

2 Reform the AG43 and C3P2 Standard Scenarios

Proposal B: tailor and refresh behavioral assumptions

Articulation of issue

- Behavioral assumptions within the current Standard Scenario calculations have insufficient granularity in product type differentiation
- As a result, products with different behavioral risk characteristics are grouped together and subjected to the same set of behavioral assumptions
- While prescribed behavioral assumptions are conservative for some products within each group, they can also be non-conservative for others
- Additionally, the current assumptions are implausibly unrealistic and do not reflect industry experience that has emerged since the framework was created



Proposed treatment

- Differentiate assumptions more finely by product and guarantee type
- Reflect recent industry experience in setting the new Standard Scenario assumptions

Rationale

- Finer breakdown of product types would better capture behavioral risk – i.e., ensures that assumptions are aligned with product features, and thus engenders a more uniform level of conservatism
- Calibration based on actual experience would prevent behavioral assumptions from becoming excessively punitive

2 Reform the AG43 and C3P2 Standard Scenarios

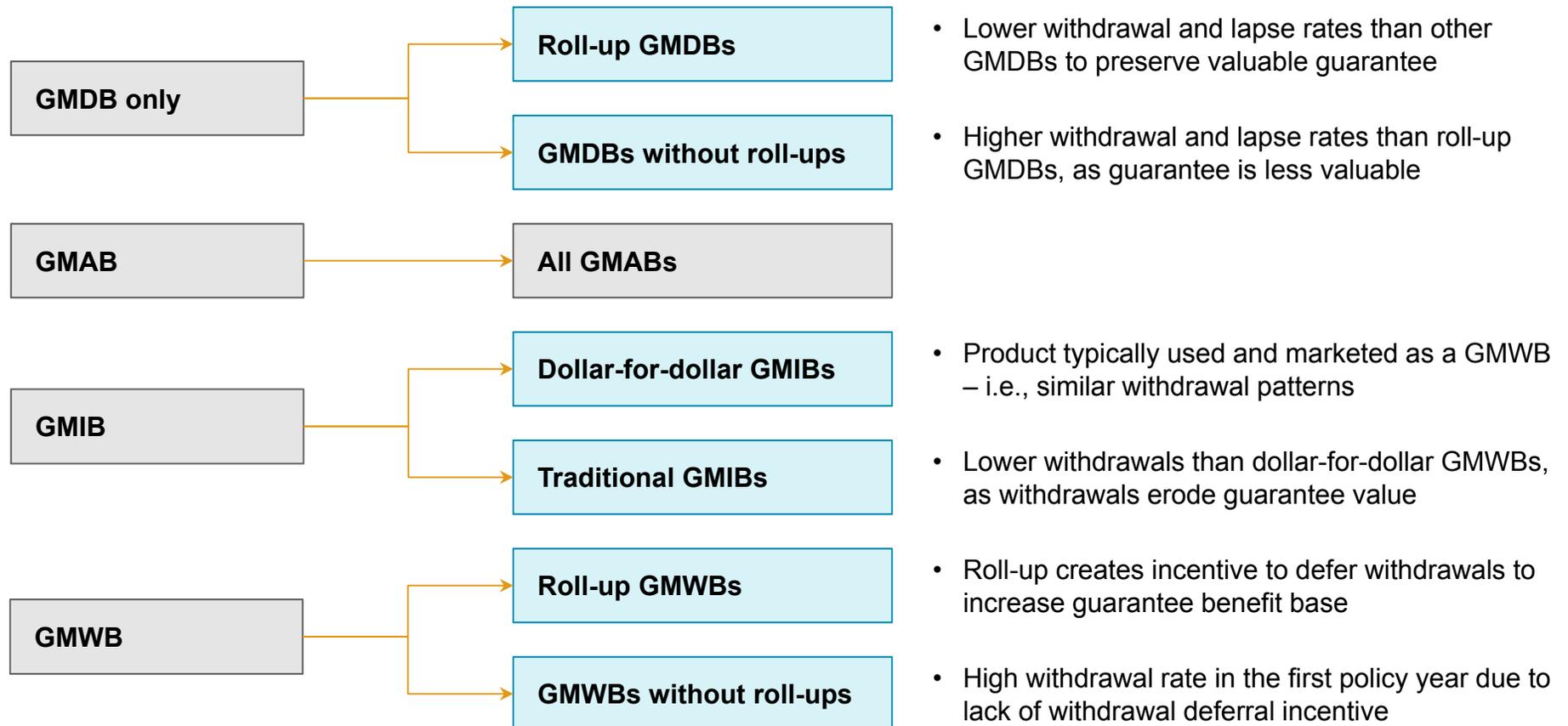
Behavioral assumptions should be tailored more finely by product and guarantee type

Current product breakdowns in Standard Scenarios

Potential alternative product type breakdowns

Typical behavioral patterns observed in industry data

Illustrative

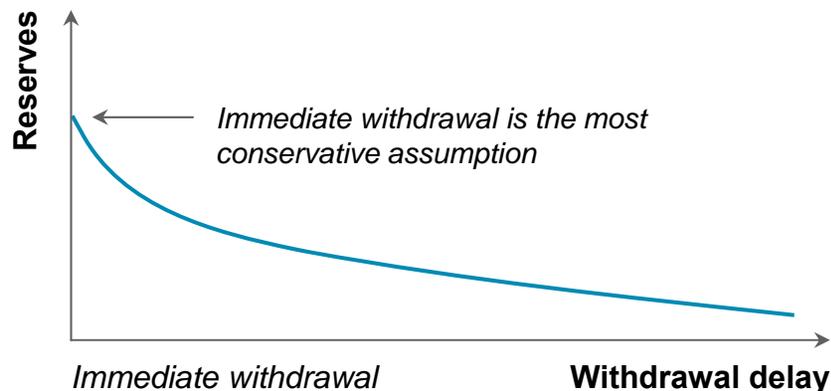


2 Reform the AG43 and C3P2 Standard Scenarios

Because of inadequate granularity, current assumptions are sometimes not conservative for their applicable products

GMWB without roll-up

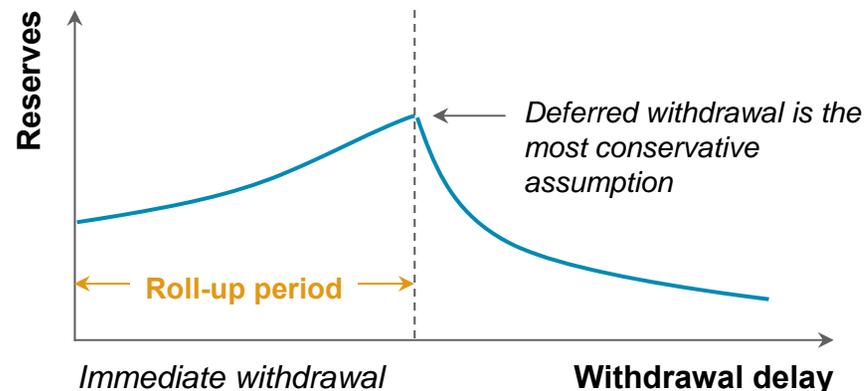
Reserves for a sample policy
By withdrawal delay



- The current Standard Scenario assumption for all GMWBs stipulates immediate withdrawal
- The benefit base for a GMWB product with no roll-up has little growth potential
- Hence, immediate withdrawal is the most conservative assumption, as it leads to earlier account depletion and therefore greater claims generation

GMWB with high roll-up rate

Reserves for a sample policy
By withdrawal delay



- A GMWB product with a high roll-up rate guarantees rapid growth in the benefit base
- As a result, deferred withdrawal is more conservative as an assumption than immediate withdrawal, as:
 - Immediate withdrawal leads to earlier depletion, **but**
 - A higher benefit base increases the magnitude of claims payments once depletion has been reached often offsetting the later depletion

2 Reform the AG43 and C3P2 Standard Scenarios

Proposal C: Run AG 43 Standard Scenario on an aggregated basis

Articulation of issue

- The current AG43 Standard Scenario quantifies seriatim GPV of accumulated net revenue that are subsequently added together
- Apart from leading to a larger Standard Scenario reserve, the seriatim basis for this calculation has little conceptual backing
 - Spirit of the GPV framework is identification of the maximum statutory surplus shortfall experienced throughout portfolio lifetime
 - A portfolio-wide view – which accounts for diversification across policies – is most consistent with such an assessment
 - Time diversification benefits accrue intrinsically without any future action on the part of the insurer



Proposed treatment

- Conduct both the AG43 and C3P2 Standard Scenario runs on an aggregated basis

Rationale

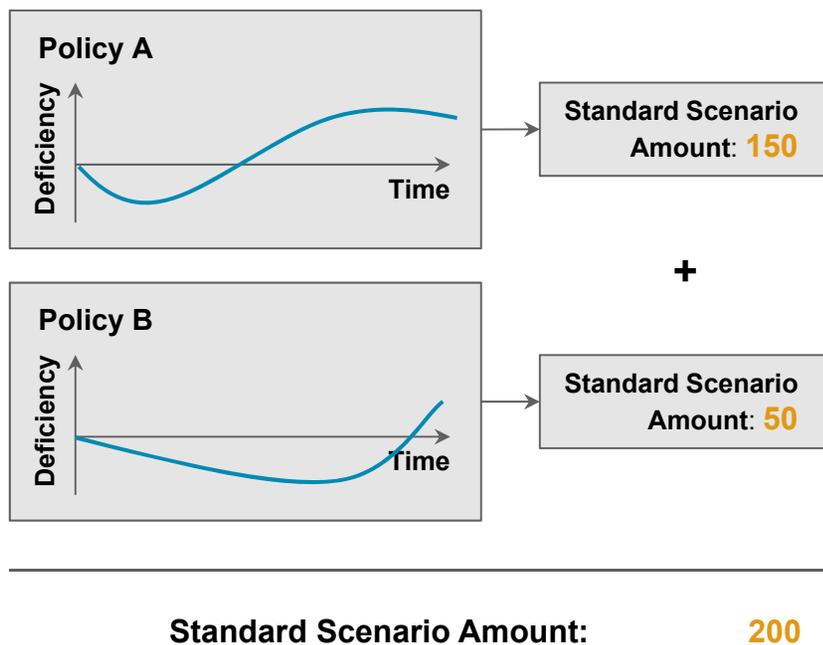
- Seriatim basis has little conceptual backing
- Aggregate basis is consistent with the spirit of GPV framework in assessing the maximum statutory shortfall during portfolio lifetime

2 Reform the AG43 and C3P2 Standard Scenarios

Projection on an aggregated basis accounts for time diversification of cash flow profiles across policies

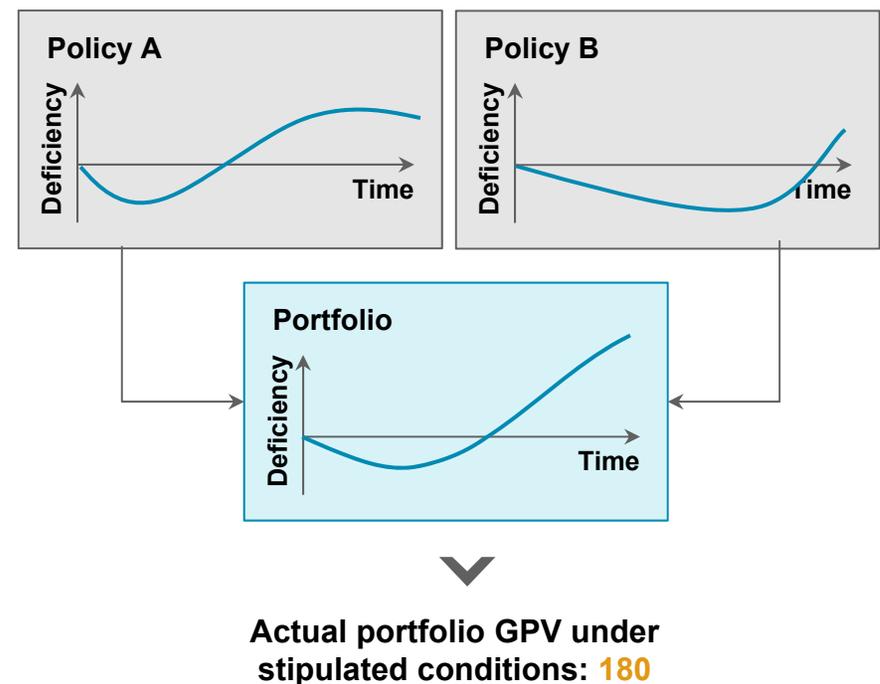
Seriatim basis

- Calculate the Standard Scenario Amount on a policy-by-policy basis for all in-force policies
- Sum across all policies to derive the portfolio Standard Scenario amount



Aggregate basis

- Project the cash flow profile of all policies on a policy-by-policy basis, then aggregate across all policies
- Calculate the portfolio Standard Scenario Amount as the GPV ANR of the aggregated cash flow profile



3 Align TAR and reserve calculations

Proposal A: restructure the C3 charge calculation

Articulation of issue

- Current regime does not produce a clear and stable **relationship** between reserves and required capital
 - TAR calculation **is meant to** dictate the minimum amount of assets to support the portfolio
 - A distinct set of calculations not aligned with the TAR calculation determines reserves
 - “Required capital” calculated indirectly as the excess of TAR over reserves
- Lack of the stable distinction drives volatility in the RBC and RBC ratio not aligned with actual risk including negative capital (floored at zero)



Proposed treatment

- Set C3 charge based on the difference between a “high” and “low” CTE from a single distribution
- “High” capital requirement set more conservatively than today (align with strong financial strength)
 - Anticipated to be CTE95 or greater
 - Subject to a standard scenario floor
- Apply factor to the resulting charge consistent with an RBC ratio for a healthy company to reflect that CTE 9X is not Company Action Level

Rationale

- Aligns C3 requirement with risk level – i.e., additional loss-absorbing ability beyond reserves
- Prevents thin capitalization requirements previously attainable through use of voluntary reserves

3 Align TAR and reserve calculations

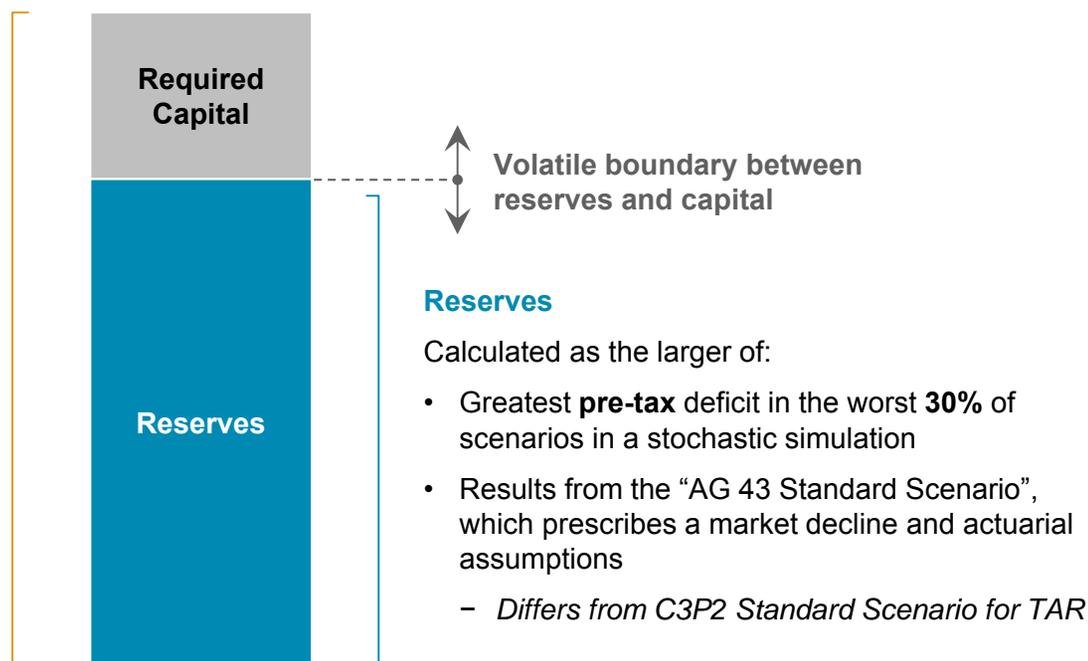
Current TAR lacks a stable relationship between reserves and capital

Illustrative VA portfolio

Total Asset Requirement (TAR)

Calculated as the larger of:

- Greatest **post-tax** deficit in the worst **10%** of scenarios in a stochastic simulation
- Results from the “C3P2 Standard Scenario”, which prescribes a market decline and actuarial assumptions
 - *Differs from AG 43 Standard Scenario*



“Required capital” is highly volatile but often has little alignment with actual risk; even if Total Asset Requirement is stable, the boundary between reserves and required capital can shift significantly

3 Align TAR and reserve calculations

A restructured C3 charge would align better with actual reserve risk and eliminate non-meaningful volatility and significantly reduce complexity

Current approach

$$\text{C3 charge} = \text{Max} \left[\begin{array}{l} \text{C3P2} \\ \text{CTE 90} \end{array}, \begin{array}{l} \text{C3P2} \\ \text{SSA} \end{array} \right] - \text{Max} \left[\begin{array}{l} \text{AG43} \\ \text{CTE 70} \end{array}, \begin{array}{l} \text{AG43} \\ \text{SSA} \end{array} \right]$$

Use of four different and non-aligned valuation frameworks

Proposed revision

$$\text{C3 charge} = \text{Factor} \times \left[\text{Max} \left[\begin{array}{l} \text{C3P2} \\ \text{CTE [9X]} \end{array}, \begin{array}{l} \text{C3P2} \\ \text{SSA} \end{array} \right] - \begin{array}{l} \text{C3P2} \\ \text{CTE [Y]} \end{array} \right]$$

Factor adjusts for greater conservatism of TAR

- Anticipation that the CTE [9X] will exceed CTE 90
- Factor will thus scale-down the C3 charge to be appropriate within an RBC multiple system
- **Example** – if CTE [9X] is set consistent with 400% RBC Ratio, then factor would be $\frac{1}{4}$

Two valuation frameworks used in calculation

- Unlike in the current C3P2 construct, the two CTE amounts in the proposed approach draw from the same distribution
- C3P2 Standard Scenario retained to govern behavioral assumptions used for required capital calculation

4 Revise asset admissibility for derivatives and DTAs

Proposal A: exempt designated VA hedge assets from limitation

Articulation of issue

- Some states limit derivatives as part of their definition of admitted assets – e.g., by capping the aggregate statement value that can be admitted
- These limitations become most critical during stressed market conditions when derivative hedges increase in value, offsetting the increase in liability funding requirements



Proposed treatment

- Exempt designated VA hedge assets from such derivative admissibility regulations
- Alternatively, standardize a sanctioning of higher derivative admissibility thresholds

Rationale

- Derivative usage is an integral part of VA hedging and risk management
- States have previously granted exemptions from their limitations, providing a precedent

4 Revise asset admissibility for derivatives and DTAs

Proposal B: admit DTAs partially based on a recoverability test

Articulation of issue

- SSAP No. 101 currently limits the amount of DTAs admissible to 15% of surplus
- Tax reserves for VAs are currently determined by the AG43 Standard Scenario
- Insurers with conservative assumptions in stochastic runs have to pay taxes as if they had less conservative assumptions while at the same time funding the additional reserves due to their conservatism
 - Stochastic run may greatly exceed AG43 Standard Scenario (tax reserve)
 - Insurer pays tax and books a DTA
 - However, DTA in excess of the 15% threshold would be non-admitted
- *Insurers may be penalized for using conservative market and behavioral assumptions that increase their CTE amount relative to the standard scenario*



Proposed treatment

- Admit DTAs related to VA portfolios based on a recoverability test
- Remove the 15% admissibility threshold for DTAs related to VA portfolios

Rationale

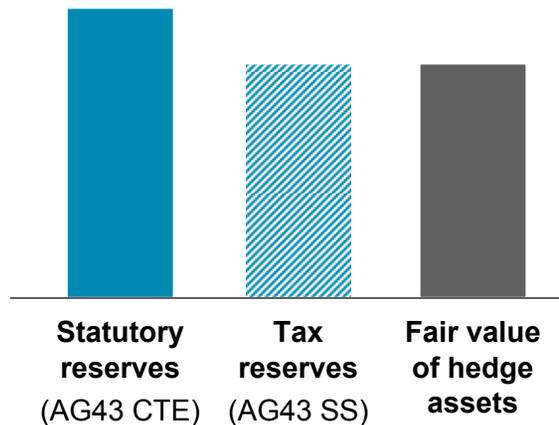
- DTAs related to VA portfolios arise when the statutory reserves exceed the tax reserve (AG43 Standard Scenario)
- A low DTA threshold would penalize insurers with conservative behavioral assumptions – which raise statutory reserves and consequently DTAs

4 Revise asset admissibility for derivatives and DTAs

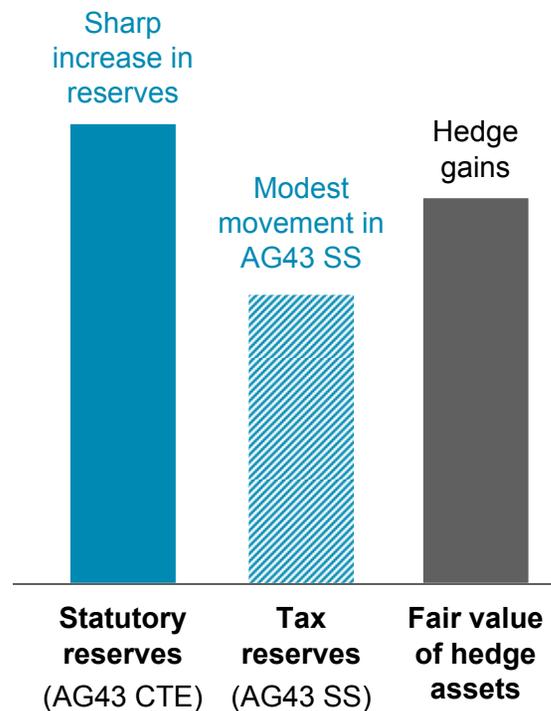
A recoverability test would address the challenge of funding pre-tax reserve increases in a stress scenario with post-tax dollars

Illustrative VA portfolio

Baseline scenario



Stressed scenario



- In the illustrative VA portfolio, a sharp market decline leads to:
 - Sharply rising statutory reserves
 - Moderately rising AG43 Standard Scenario – i.e., tax reserves
 - Large hedge gains significantly exceeding increase in tax reserves
- The insurer sees marked capital erosion due to rising statutory reserves
- However, the insurer is still taxed on the hedge gains in excess of the tax reserve increase
- DTAs would alleviate the balance sheet impact – but only up to the admissibility threshold

5 Standardize capital markets assumptions

Proposal A. Create market-informed calibration criteria for rate, FX, and volatility paths

Articulation of issue

- There are no calibration criteria for capital markets assumptions in the stochastic statutory calculations
- As a result, a wide range of practices are observed in the industry today
- **Example** – An Oliver Wyman survey of major US VA writers indicated the following range of long-term interest rate assumptions in the stochastic scenarios as of 12/31/2014:
 - 1 company uses $\leq 4.0\%$
 - 2 companies use 4.0-4.5%
 - 4 companies use 4.5-5.0%
 - 0 companies use 5.0-5.5%
 - 2 companies use $>5.5\%$
- All of the observations above are significant: For each of four selected choices above, the combined AUM of the respondents exceeds 50 BN



Proposed treatment

- Define a comprehensive set of capital markets risk factors for which calibration criteria should be set
 - Risk factors should be consistent with those defined for Standard Scenarios – see page 30
- Create market-informed calibration criteria for each capital markets risk factor, such that the sensitivities of the CTE and the modified Standard Scenario directionally align

Rationale

- Promotes greater consistency and comparability in the stochastic run results across companies
- Reflects prevailing market conditions (though details depend on the precise calibration criteria)
- Avoids discontinuities with the Standard Scenarios

We also recommend the NAIC perform a quantitative impact study of select enhancements to improve buy-in from both regulators and the industry

QIS objective	Details
Demonstrate efficacy of the changes to insurers	<ul style="list-style-type: none">• Allows insurers to evaluate the efficacy of the changes to address the motivations for captive use, and provide feedback as necessary to the NAIC
Demonstrate robustness of resultant capital requirements to regulators	<ul style="list-style-type: none">• Demonstrates to regulators that the changes do not undermine the level of prudence in the statutory framework• Audience would include the NAIC and, possibly, other interested regulatory bodies
Provide an opportunity to identify any necessary further refinements	<ul style="list-style-type: none">• Affords companies and regulators the opportunity to further refine the enhancements following their initial drafting
Support calibration of new framework parameters	<ul style="list-style-type: none">• Affords regulators the opportunity to evaluate “hard data” useful to calibrate the small set of new parameters embedded within the recommended enhancements so as to ensure the resulting funding requirements are at adequate levels

Even with a series of enhancements designed to simplify the framework, significant complexity remains that requires quantitative analysis to evaluate fully. Such analysis should be feasible in a modest timeframe

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