



2019 **ANNUAL
MEETING**
& EXHIBIT

October 27-30
Toronto, Canada

Session 129: Implications for Equity Based Annuities Under New U.S. Reporting Standards

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SESSION 129: IMPLICATIONS FOR EQUITY BASED ANNUITIES UNDER NEW US REPORTING STANDARDS

OCTOBER 29, 2019

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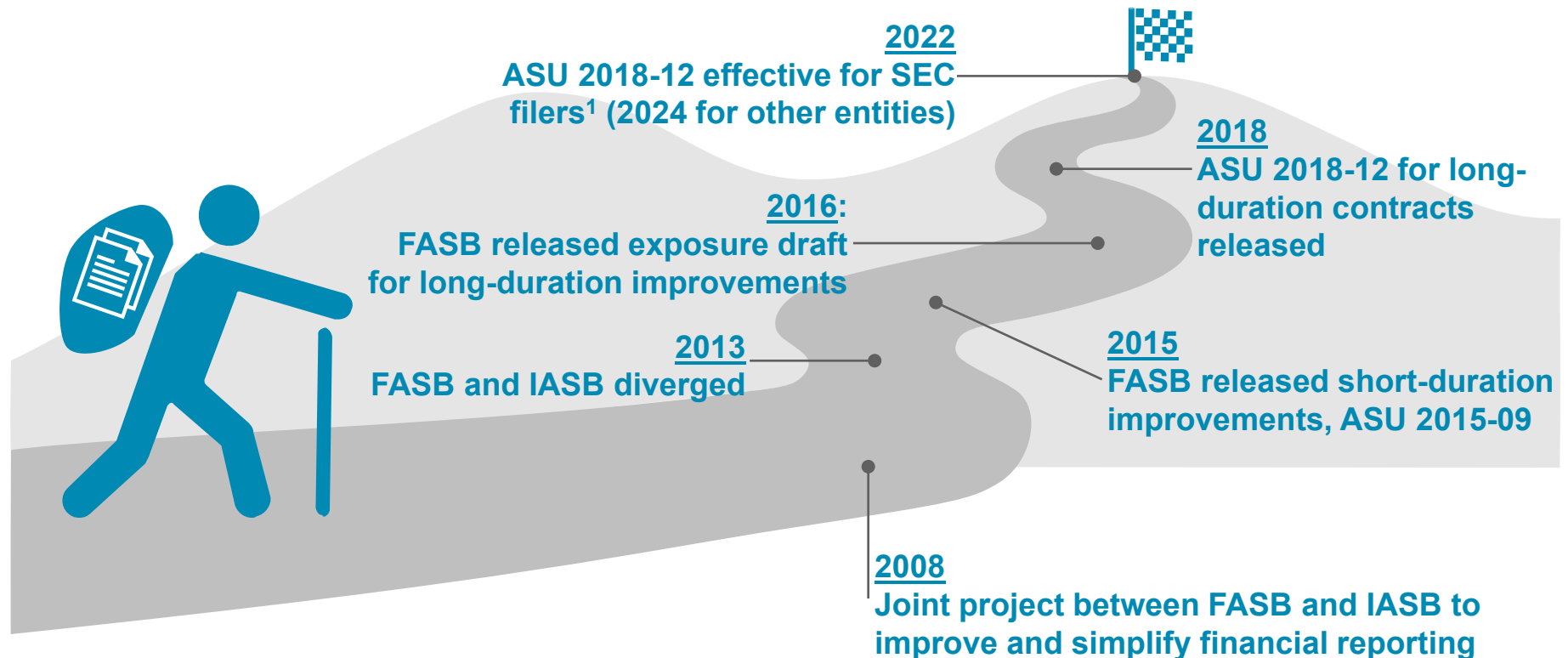
Agenda

- 1 MRB primer
- 2 VM-21 primer
- 3 ALM implications

Section 1 | MRB Primer

GAAP Long Duration Targeted Improvements background and timeline

FASB's LDTI represents the first major insurance GAAP accounting change in 30 years; changes are retrospective and effective January 2022



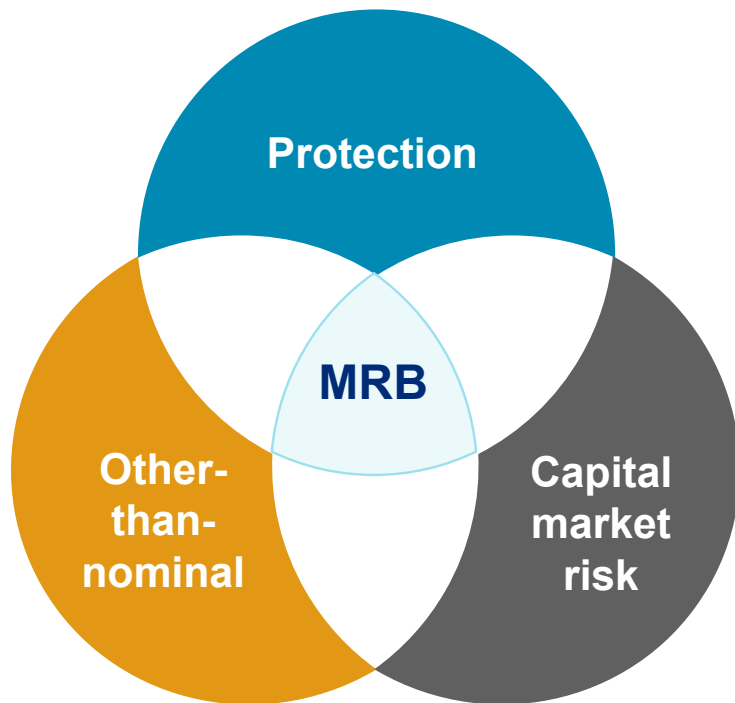
Early adoption is permitted but not expected to be common

1. Does not include Smaller Reporting Companies (SRC), generally defined by the SEC based on public float (less than \$250M) or annual revenue (less than \$100M)

Market risk benefit (MRB)

Definition and scope

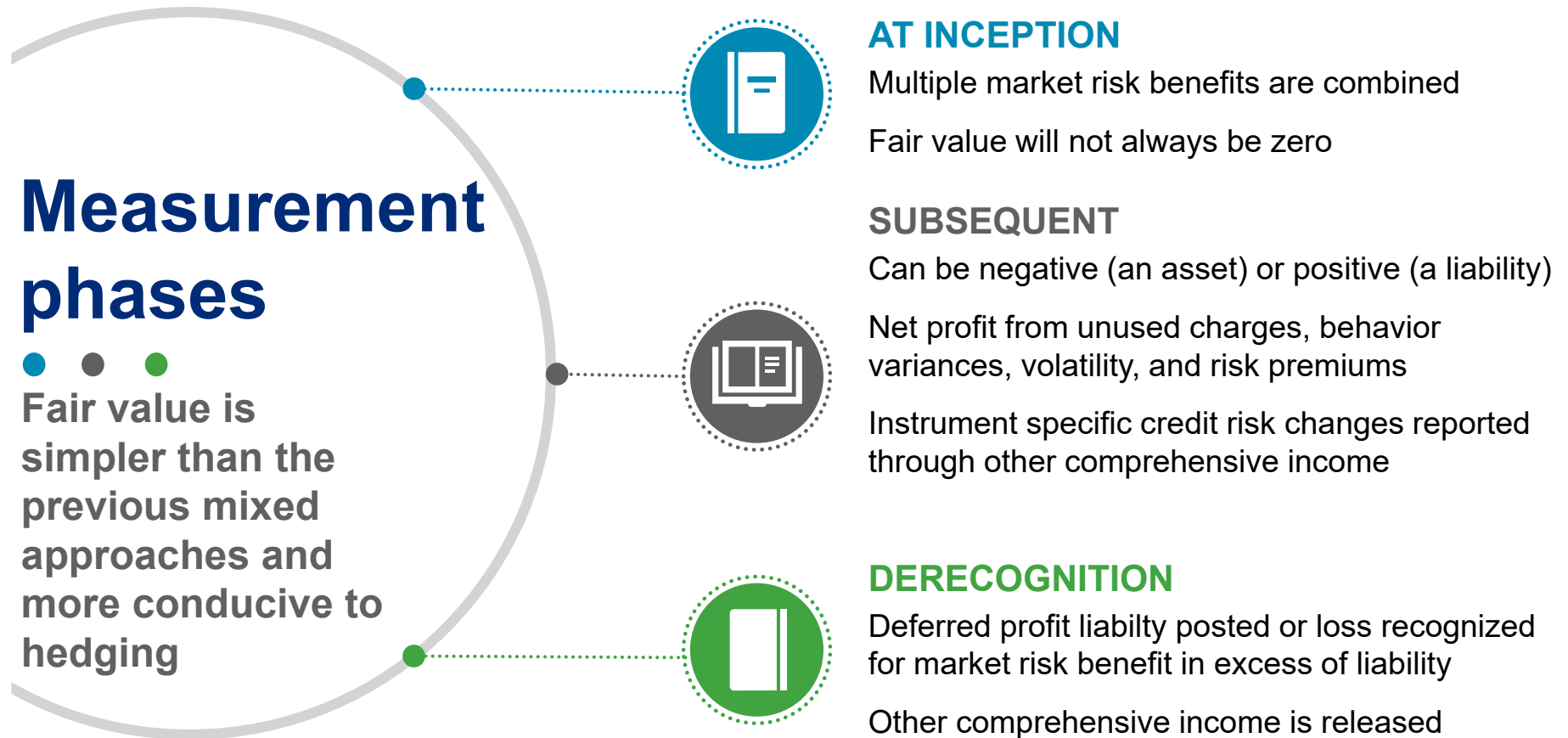
“A contract or contract feature that both provides **protection** to the contract holder from **other-than-nominal capital market risk** and exposes the insurance entity to other-than-nominal capital market risk”



- **Protection:** refers to the transfer of a loss in, or shortfall of the contract holder’s account balance from the contract holder to the insurance entity, with such transfer exposing the insurance entity to capital market risk that would otherwise have been borne by the contract holder
- **Nominal risk:** is a risk of insignificant amount or remote probability of occurring
- **Capital market risk:** includes equity, interest rate and foreign exchange risk
- **In scope:** GMxB’s on VA and FIA, annuity purchase guarantee ¹
- **Out of scope:** FIA indexed benefits, MGIR on general account, VUL DB, UL NLG

1. Assume other-than-nominal capital market risk. Analysis and conclusions reached will vary depending on contract features

Fair value of guarantee benefit lifecycle

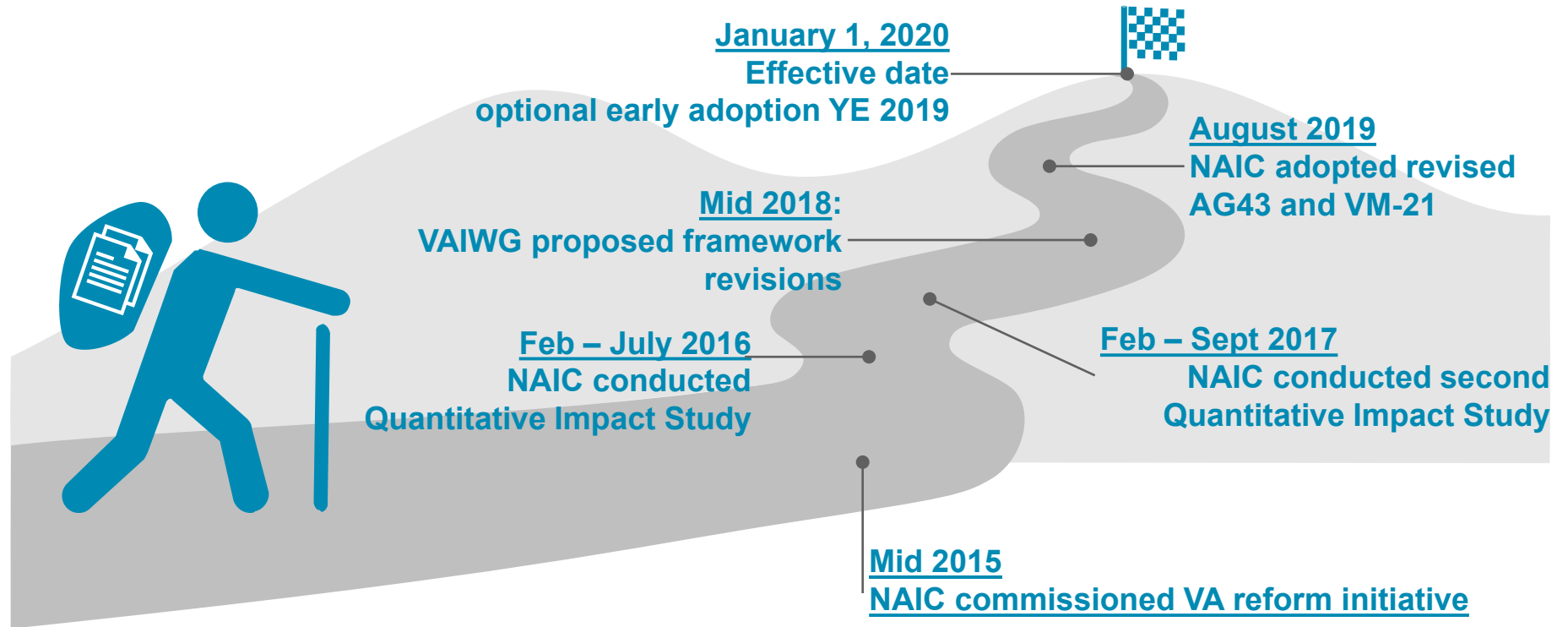


The new standards promote transparency and reduce conflicts between economic and GAAP priorities for ALM

Section 2 | VM-21 primer

VA statutory reform timeline

The reform is the result of a multi-year NAIC initiative to improve VA statutory accounting



The revised AG43 and VM-21 have been formally adopted at the 2019 NAIC Summer National Meeting

VA statutory reform

At a glance



Goals

- **Target properties:** ensure robustness of funding requirements for liabilities, promote sound risk management, promote comparability across insurers and products
- **Design choices:** preserve current statutory construct where feasible, minimize implementation complexity

Scope & timeline

- **Scope:** apply retrospectively to contracts issued after 1/1/1981, optionally for contracts issued prior to 1981
- **Effective date:** 1/1/2020, optional early adoption (YE 19)
- **Phase-in:** optional three-year phase-in period, can be up to 7-year with regulatory approval

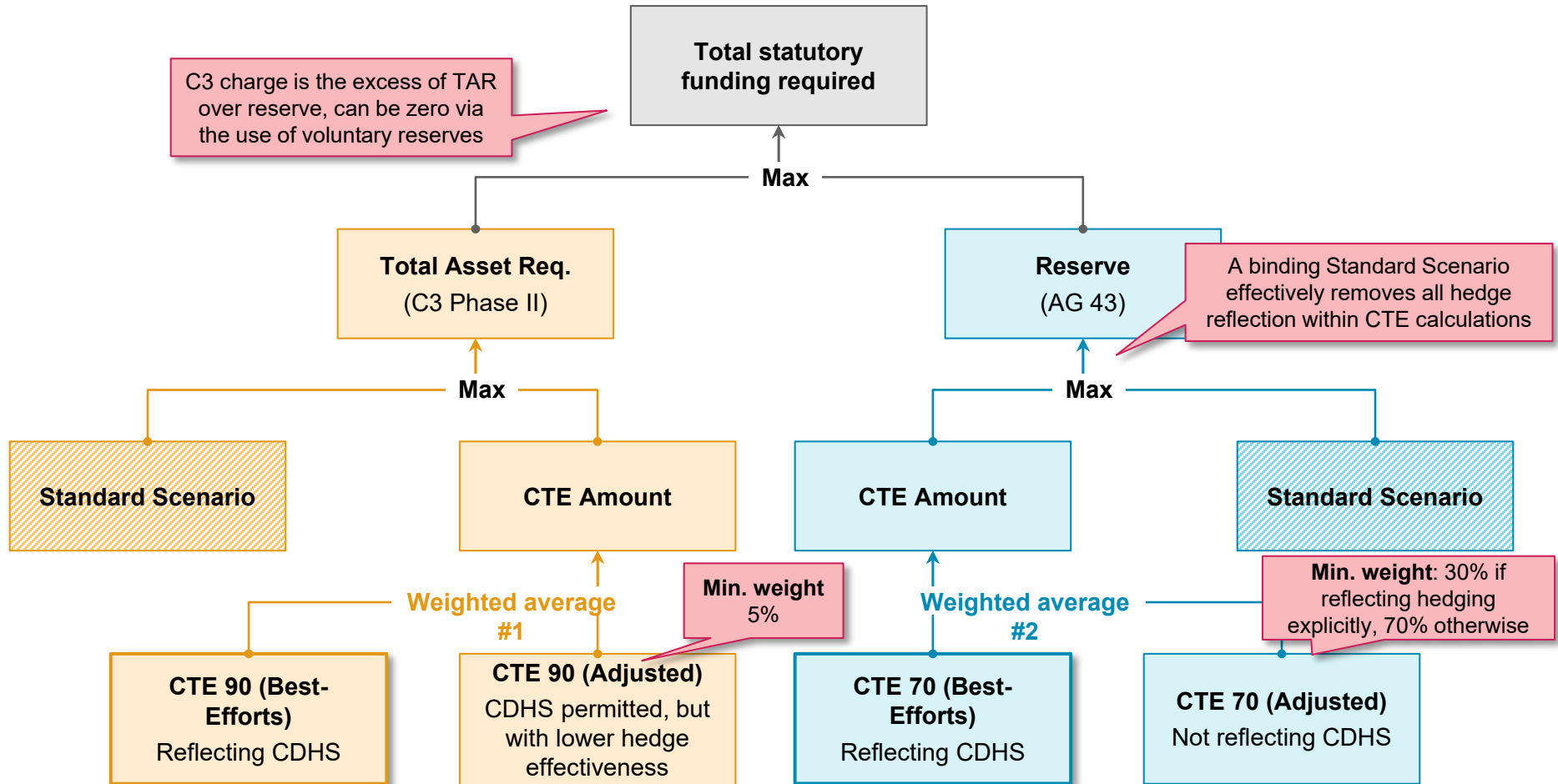
Key changes

- **Stochastic:** alignment of scenarios and asset projections with VM-20, methodology updates to remove non-economic volatility, and alignment of reserve and capital calculations
- **Standard Projection:** replacement of Standard Scenario with Standard Projection, requiring prudent assumption management



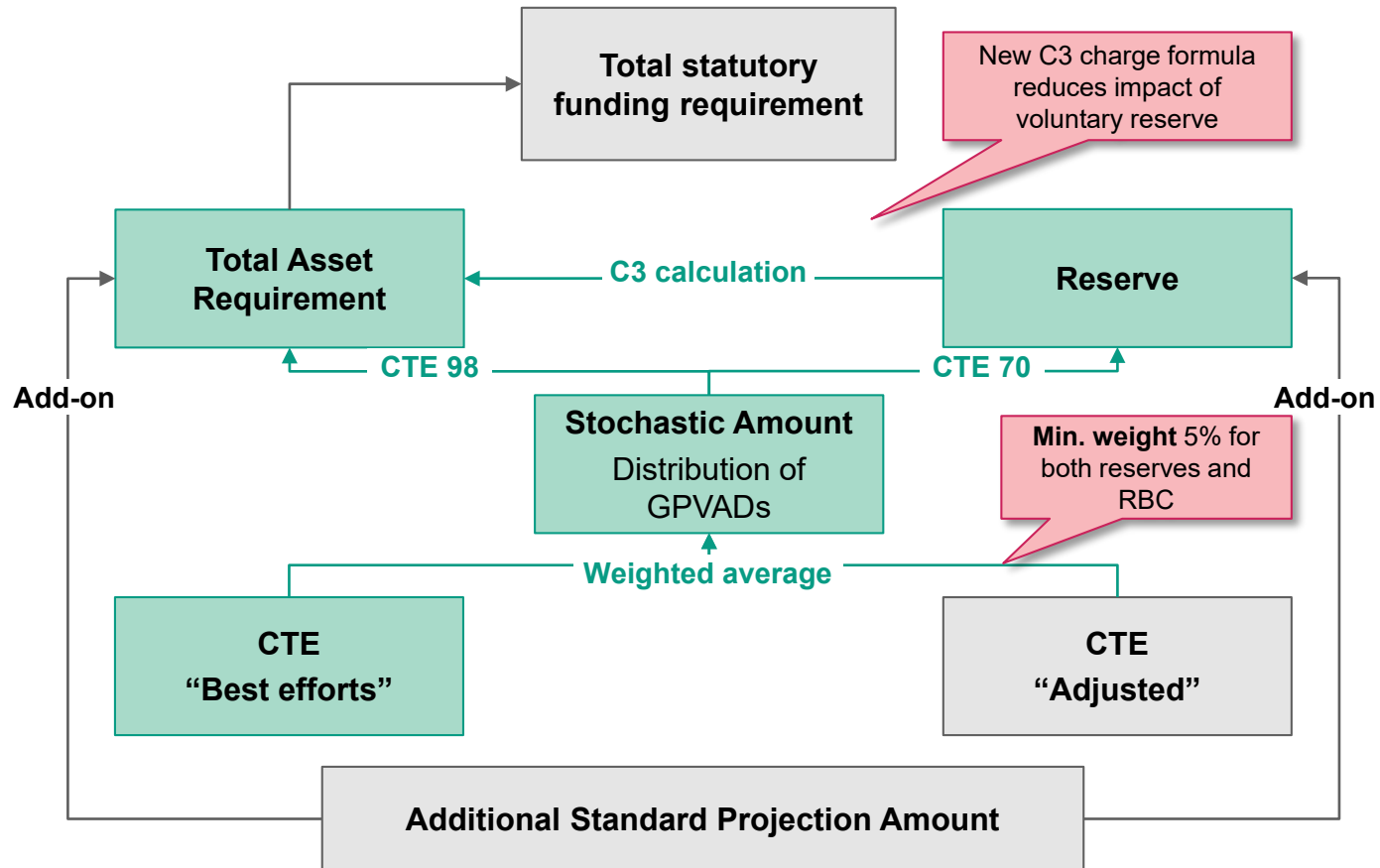
Current VA statutory framework

The stochastic and standard scenario, AG 43 and C3 Phase II are structurally misaligned and produce unintended results



Revised statutory framework

Standard projection is aligned with CTE adjusted; reserve and TAR follow the same stochastic distribution



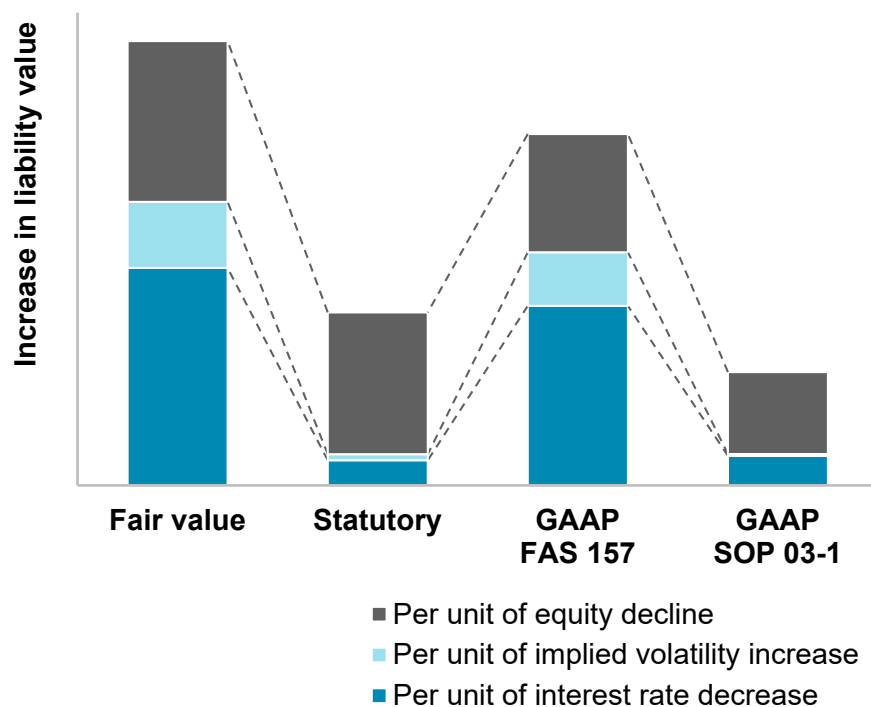
Revised framework reduces disincentive to hedging and lowers balance sheet volatility with better alignment between asset and liability

Section 3 | ALM implications

Existing accounting frameworks discourage comprehensive, fair value-based hedging – as a result of mismatched measurement bases

Typical VA market sensitivity, by valuation lens

Increase in liability value for different market shocks

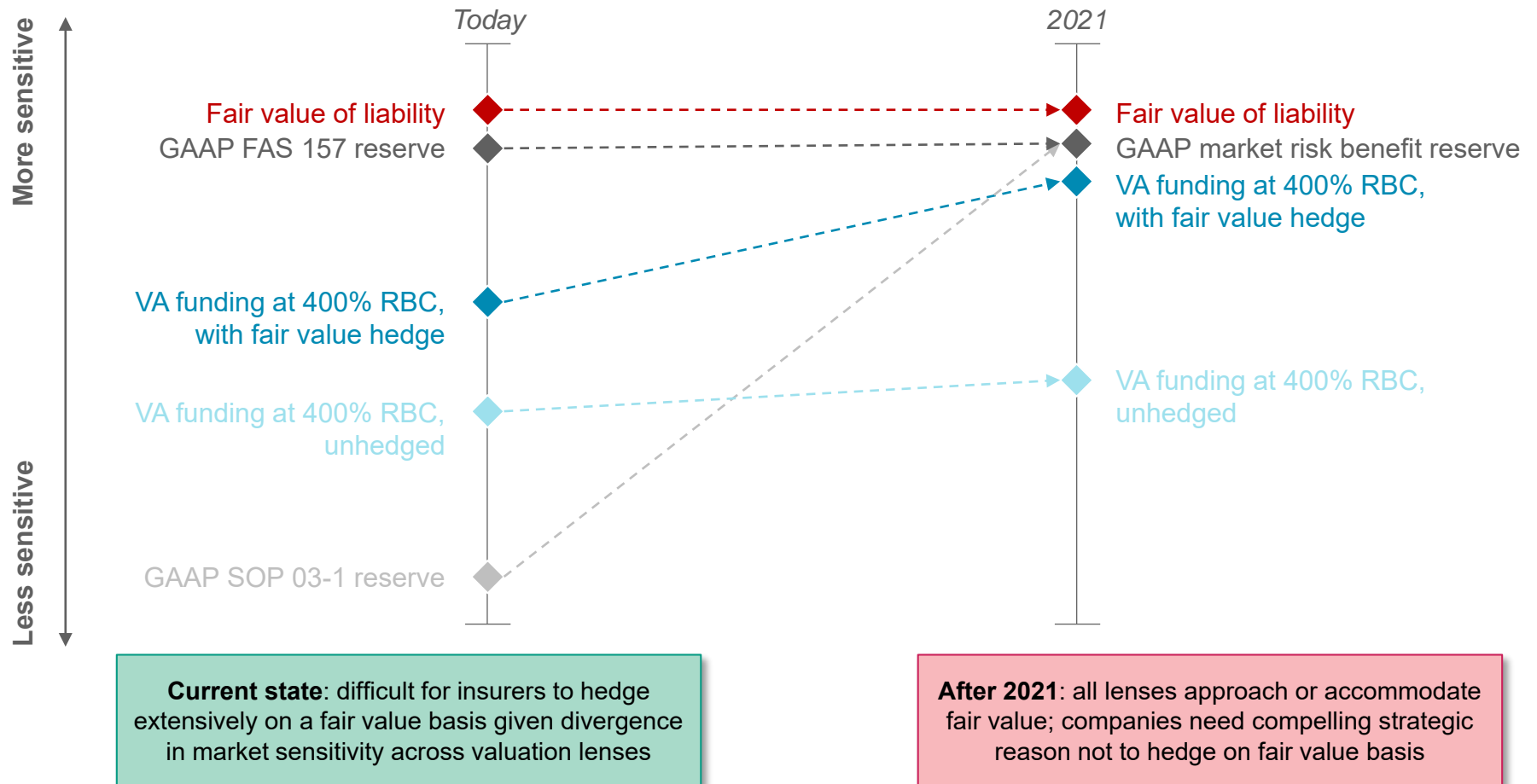


- Existing accounting frameworks treat derivatives – i.e., hedging instruments – in similar manners
- However, market sensitivity of the VA business differs markedly across valuation lenses
 - **Fair value**: reflects the greatest sensitivity
 - **GAAP FAS 157**: similar sensitivity as fair value
 - **Statutory**: generally less sensitivity, but exact levels change with guarantee in-the-moneyness
 - **GAAP SOP 03-1**: generally the least sensitive
- Even within an accounting framework, market sensitivity of the same liability may differ notably across companies
 - **Statutory**: no guidance for interest rates scenario generation, which drives interest rate sensitivity
 - **GAAP SOP 03-1**: divergent practices across industry in selecting equity mean reversion target and timeframe – which drives all market sensitivity

Under the current GAAP and statutory frameworks, insurers cannot hedge all valuation lenses effectively at the same time given their vastly different risk characteristics

The concurrent NAIC and FASB reforms will encourage public companies to adopt more comprehensive fair value-based hedging programs

Market sensitivity of liability valuation Across different valuation frameworks



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2019 SOA Annual Meeting

Session 129: Implications for Equity Based Annuities Under New U.S. Reporting Standards

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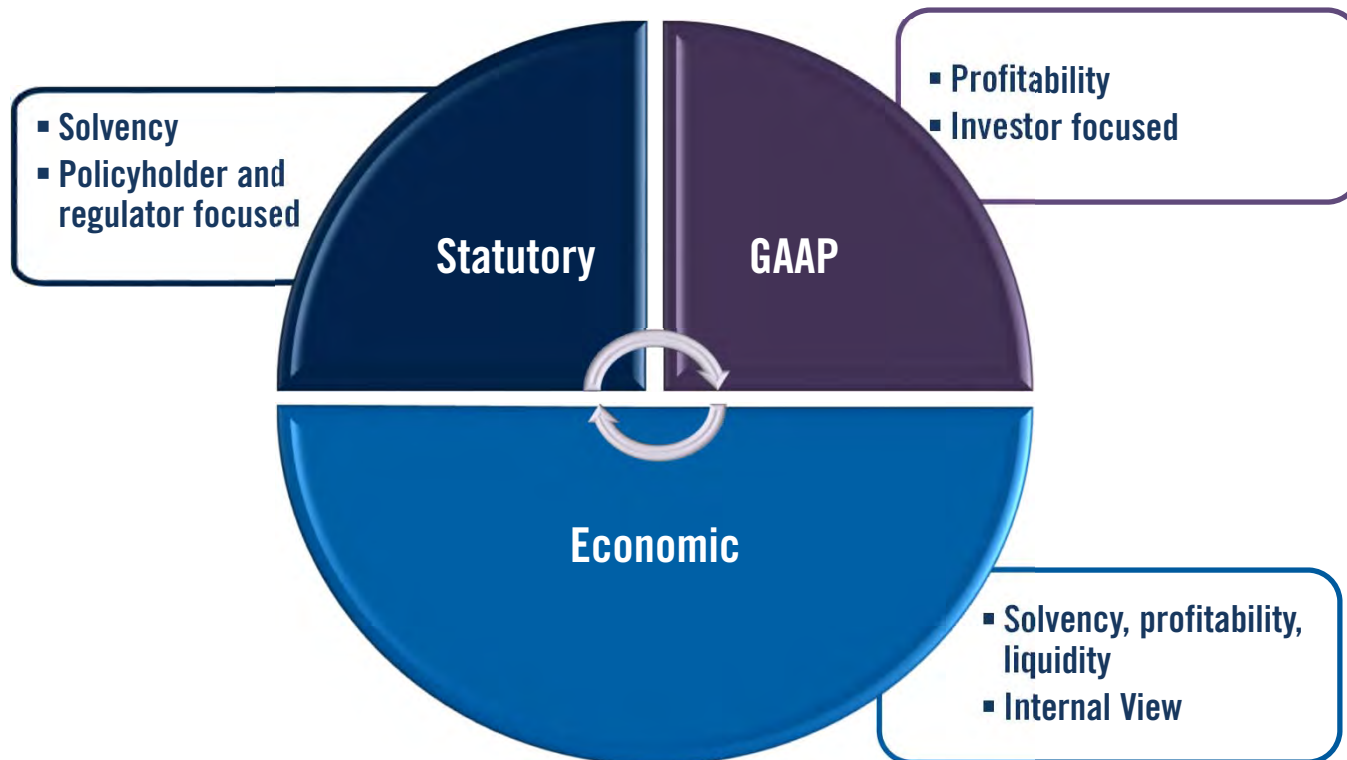
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Asset-Liability Management (ALM) Challenges for an Insurance Company

- Creating shareholder value by delivering investment results via risk efficient portfolios created to match policyholder liabilities given a set of tolerances and constraints defined by regulatory and accounting frameworks
- Performed by professionals knowledgeable of both assets and liabilities



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ALM Decision Making for an Insurance Company

Via stochastic and deterministic scenario testing methods, determine a ALM strategy by holistically investigating implications of portfolio construction on

- Statutory Capital
- GAAP Volatility
- Liquidity
- Profitability
- Economic Capital

Analyze the impact of portfolio strategies at the segment as well as at the enterprise level

Perform frequent sensitivity tests for both assets and liabilities to monitor and rebalance the portfolio to adjust for changes in capital market conditions as well as changes in inforce

Overview: Regulatory and Accounting Concepts

GAAP		STAT	
Matching Principle		Highlights Risks	
Assets	Liability	Assets	Liability
Book Value <ul style="list-style-type: none"> ▪ Held to Maturity 	Book Value <ul style="list-style-type: none"> ▪ Long Duration Contracts 	Book Value <ul style="list-style-type: none"> ▪ Traditional Assets 	Rules based
Market Value <ul style="list-style-type: none"> ▪ Held for Trading ▪ Available for Sale 	Market Value <ul style="list-style-type: none"> ▪ Embedded Derivatives 	Market Value <ul style="list-style-type: none"> ▪ Derivatives 	Cash Flow Testing
UPCOMING CHANGES			
Targeted Improvements		Principles Based Reserving	
		Variable Annuity Reform	

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GAAP - Long Duration Targeted Improvements (LDTI)

- As a result of FASB’s vision to make targeted improvements to the existing U.S. GAAP, below is a list of changes for Variable Annuity contracts that have ALM implications

Key Changes	Existing GAAP Accounting	Targeted Improvements
Market Risk Benefits	Certain life-contingent benefits measured under Accrual Method	All measured at Fair Value through Net Income
Non-performance Risk	Changes reported in Net Income	Changes recorded through AOCI
DAC Amortization	In proportion to profits	On a constant basis
Disclosures	Limited	Frequent with views on actual to expected

- The accounting changes will affect all in-force and new business
- Impacts to insurers will vary largely based on their existing business mix, ALM strategies and accounting practices

LDTI - Market Risk Benefits (MRB)

Major GMXB types and current ALM treatment

Product	Existing GAAP Accounting	Targeted Improvements
Guaranteed Minimum Accumulation Benefit (GMAB)	Embedded Derivative – Fully Hedgeable	MRB – Fully Hedgeable
Guaranteed Minimum Withdrawal Benefit (GMWB)		
Guaranteed Minimum Income Benefit (GMIB)	Accrual Method – Hard to hedge without creating Net Income volatility	
Guaranteed Minimum Death Benefit (GMDB)		
Guaranteed Minimum Withdrawal Benefit for Life (GMWBL)	Accrual Method and Embedded Derivative Bifurcation – Partially Hedgeable	
GMIB and GMWBL Hybrid		

Our preliminary expectations and ALM strategy concerns are as follows:

- There will be an increased Net Income volatility due to additional MRBs being fair valued
- Expected increase in demand for options and other derivatives to offset additional volatility
- Macro/capital hedges entered to address risks that arise from currently not-fair-valued riders can be rolled into Clearly Defined Hedging Strategy (CDHS) and help create RBC benefits

LDTI – MRB Treatment and Hedging Illustration

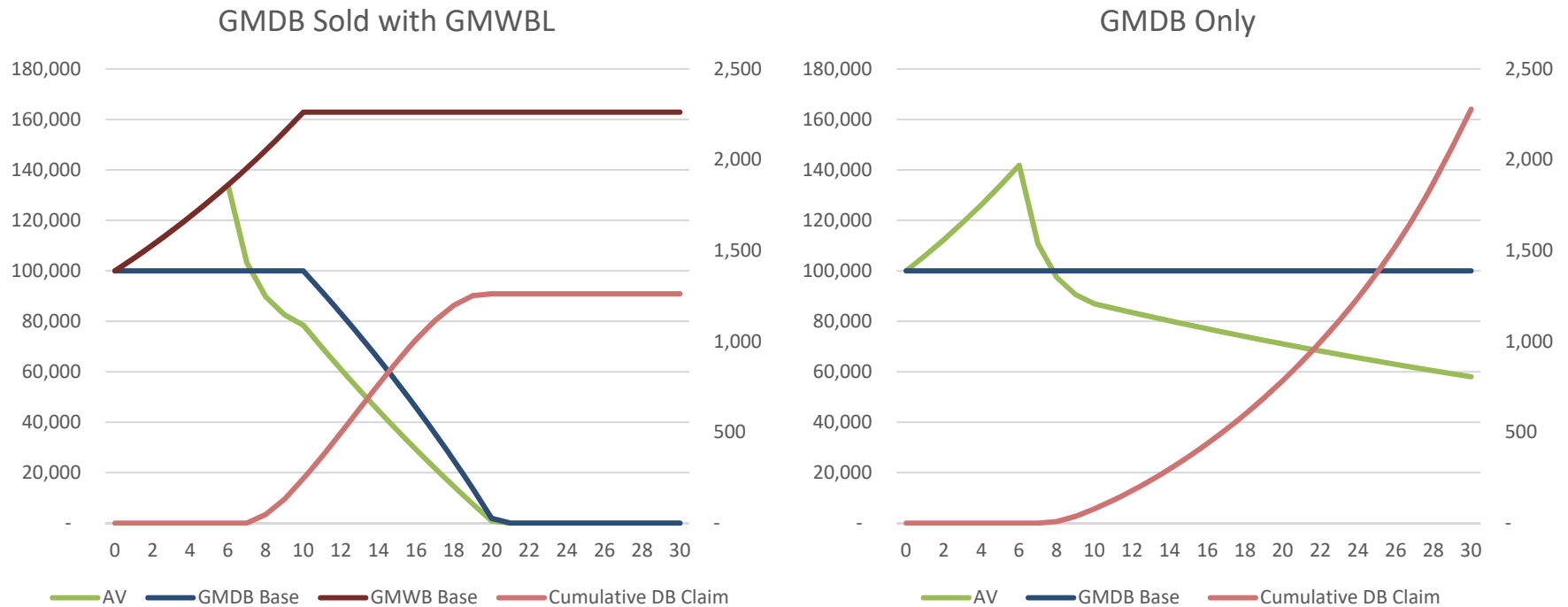
Let's take a company that sold both GMIB and GMWBL riders with equal risk exposures to capital markets when measured on a consistent marked-to-market basis. Company would like to hedge economic risk consistently for both riders

Pre-LDTI	Change in Liability	Change in Assets	Net PL
GMWBL – Embedded Derivative	-\$1,000	-\$1,000	\$0
GMIB – Accrual Method	-\$50	-\$1,000	-\$950
TOTAL	-\$1,050	-\$2,000	-\$950

Post-LDTI	Change in Liability	Change in Assets	Net PL
GMWBL – MRB	-\$1,000	-\$1,000	\$0
GMIB – MRB	-\$1,000	-\$1,000	\$0
TOTAL	-\$2,000	-\$2,000	\$0

Example provided for illustration purposes only. Not actual performance of any product.

LDTI – GMDB Illustration



Diagrams provided for illustration purposes only. Not actual performance of any product

While not a rich benefit, all VA business is sold with at least a minimum death benefit guarantee and should be evaluated for ALM purposes. As illustrated above, GMDBs sold with a GMWBL rider can be considered less risky in general

Based on a toy model investigation, we can expect GMDB to add 5-15% increase to hedged exposures (mostly in line with pricing of those guarantees), while the experience will be very dependent on actuarial assumptions, capital markets, and ITMness levels

LDTI - Non-Performance Risk (NPR) Geography

Depending on hedging view of the company, this may benefit or hurt Net Income volatility. Companies targeting pre-NPR type of reserve as hedged exposure should benefit in general

Pre-LDTI		Change in Liability	Change in Assets	Net PL
Net Income	Pre-NPR	-\$1,000	-\$1,000	\$0
	NPR	\$250	\$0	-\$250
	TOTAL – Post-NPR	-\$750	-\$1,000	-\$250
Other Comprehensive Income	TOTAL	\$0	\$0	\$0

Post-LDTI		Change in Liability	Change in Assets	Net PL
Net Income	Pre-NPR	-\$1,000	-\$1,000	\$0
	TOTAL – Pre-NPR	-\$1,000	-\$1,000	\$0
Other Comprehensive Income	TOTAL	\$250	\$0	-\$250

Example provided for illustration purposes only. Not actual performance of any product.

NPR changes may be beneficial in partially offsetting additional volatility that will be created in AOCI due to discount rate unlocks recorded for non-MRB type of liabilities

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LDTI - Conclusion

Impact to individual companies will largely vary based on their business mix and existing accounting practices

There may be higher GAAP Net Income volatility that will need to be fully or partially addressed due to:

- More products being designated as MRBs
- Relocation of non-performance risk measurement items to AOCI
- Changes in DAC amortization

ALM mismatches and geography issues will be more visible and can potentially lead to more questions from the analysts due to enhanced disclosure requirements

VA STAT Reform

Overall, VA Stat reform is expected to create better capital stability by promoting prudent ALM

Replacement of Standard Scenario with Standard Projection

Use of the same stochastic scenario set as best-efforts run and removal of the standard scenario floor ensures alignment between components of calculation and better reflection of hedging benefits

Increasing Maximum Hedge Effectiveness factor

CTE70 reserves now use the same blending method and E factor as C3P2 (E = 5%)

$$RSV@CTE70 = CTE70_{CDHS} + E * \max\{ 0, CTE70_{RUNOFF} - CTE70_{CDHS} \}$$

$$TAR@CTE98 = CTE98_{CDHS} + E * \max\{ 0, CTE98_{RUNOFF} - CTE98_{CDHS} \}$$

VA Hedge Accounting (SSAP No. 108)

This change has the following implications for ALM:

- Address certain, limited derivative transactions hedging variable annuity guarantees subject to fluctuations as a result of interest rate sensitivity
- Any fair value changes in designated hedge instruments that are above/below the changes in designated portion of reserve liability will be recognized as a deferred asset/liability and amortized into realized gains/losses

Operational Challenges

- Additional runs (or estimates) are required quarterly
 - Fair value gains/losses need to be measured for the entire contract as well as the hedged portion attributable to interest rate movements
 - Attribution of VM-21/AG43 liability gains/losses to interest rate movements
- Requires a new interest rate “macro-hedge” CDHS
 - Additional documentation
 - Initial and ongoing measurement/monitoring of hedge effectiveness
- Maintaining amortization bases for deferred assets/liabilities and operations around expiring/terminating trades
- Need to report results with and without this “special surplus” item for RBC purposes
- One can only implement if regulator approves the method in the first place and future changes also require further approvals



Equitable
Holdings

Session 129: Implications for Equity Based Annuities under New US Reporting Standard

October 29, 2019

Steve Tizzoni, Actuarial Regulatory & Methodology

Disclaimer: This presentation gives the author's views on the subject and are not endorsed by AXA Equitable Holdings or its affiliates

Agenda

1 Implications of new VA reserving standards on Hedging & Strategy

2 GAAP LDTI for VA's: Implementation Considerations

3 VA Stat Reform Implementation: Q&A

Key Change in VM-21/AG-43

Impact

Increase in maximum allowed hedge credit for CDHS program

- Companies can now reflect up to 95% hedge effectiveness (5% hedge error) when calculating reserves and capital.
- To the extent more hedging is beneficial, companies can capture reserve credit for broader, more comprehensive hedging programs.

Removal of uneconomic AG 43 standard scenario requirement

- Under current framework, the AG 43 standard scenario has minimal sensitivity to interest rates due to locked in SVL rates.
- Potential result of this feature is a statutory liability with significantly less interest rate sensitivity vs. underlying economics.
- This can create a large, difficult to manage asset-liability mismatch on the balance sheet if economics are fully hedged, which can discourage hedging under current framework.

Removal of working reserve

- Increases sensitivity of Stat reserves to economics and removes potential discontinuities in sensitivities.

Key Update

Additional Requirements for
NY Insurance Companies

Impact

- NY DFS has released 1-page summary of NY PBR proposal.
- Industry is expecting the release of draft NY PBR regulation at the end of October.
- NY DFS will require NY-specific reserve requirement, on top of NAIC's VM-21 requirement. This additional requirement will be bifurcated between inforce and business sold post-1/1/2020.

Inforce Business: AG 43 Standard Scenario with limited modifications. Key modification is linkage of discount rate to current market conditions, an improvement over the AG 43 SS for companies that significantly hedge.

New Business: NY Objective floor with significant conservatism added to policyholder behavior assumptions and mortality relative to VM-21, as well as conservative economic assumptions.

- Additional option value requirement as well

Bifurcated reserving model will result in an extremely complex model to analyze & govern.

Key Change in GAAP LDTI

Impact

GMDB's and GMIB's are now valued at fair market value

- Under current GAAP, full economic hedging is discouraged as GAAP liabilities typically exhibited lower sensitivity to market parameters than a fair value liability / hedge target.
 - Primarily due to SOP 03-1 insurance accounting for GMIB & GMDB that accrued for ultimate best estimate liabilities over time.
- Full economic hedging would result in a large mismatch between assets and GAAP liabilities, resulting in significant GAAP net income volatility.
- Under GAAP LDTI, GMxB's are classified as Market Risk Benefits and required to be held at fair value. Companies hedging to economics will be rewarded with lower GAAP Net Income volatility.

Alignment between frameworks

- GAAP LDTI and VA Stat reform each make the associated liability more economic.
- This increases the ability of insurers to manage results across multiple accounting frameworks.

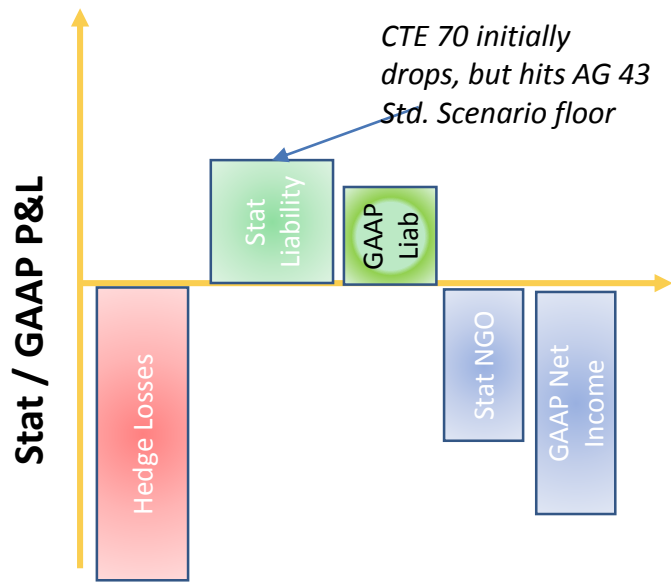
VA Reserve Updates Encourage Hedging: Practical Example

VM-21 & GAAP LDTI results in economic reserves:

- VA GAAP liabilities are held at fair value and are fully “economic”.
- VA Stat Reserve requirement responds proportionally to both interest rate increases and decreases and is no longer floored by uneconomic AG 43 standard scenario or smoothed voluntary reserves.

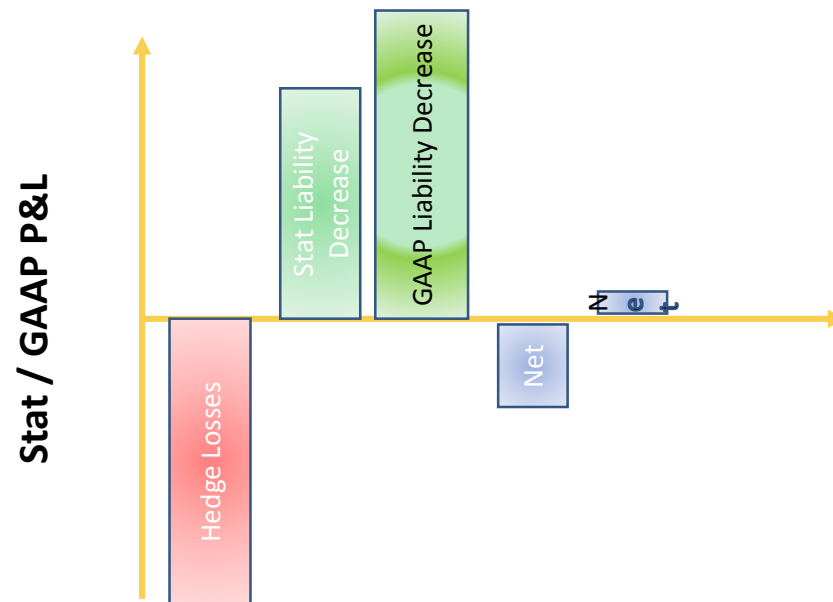
Economic stat reserve encourages more effective/economic first dollar hedging strategy

Old framework: 100bps interest rate increase



Economic Hedging results in over hedged rate position and large statutory & even larger GAAP Net Income losses.

New framework: 100bps interest rate increase



*More Economic liability => more rate sensitivity
=> better asset / liability match on the Stat & GAAP balance sheet if hedging to economics.*

VM-21 provides for two options to reflect the impact of hedges

Methodology Choice can have a significant impact on the liability financial profile & operational complexity

1) Explicit Hedge Methodology

- Explicitly model CDHS across each stochastic scenario
- Generally requires stochastic-on-stochastic projections – operationally intensive
- Adjustment for hedging error

2) Implicit Hedge Methodology

- Hedged GMxB riders are valued at fair value (generally consistent with GAAP ‘fair value’ sans adjustment for own credit risk, i.e. risk neutral)
 - This can allow even stronger alignment with GAAP LDTI liability
- Reflects “effectiveness” of hedge program relative to fair value
- Resulting liability should move in tandem with economic value with greater market sensitivity relative to explicit methodology
 - Potential for strong asset / liability match on the statutory balance sheet if hedging to the economic value

The Implicit Hedge Methodology was previously available in existing AG43, but can be more impactful now that non-economic portions of AG43/C3P2 are removed

=> Companies may want to re-consider methodology to model CDHS in VM-21

Strategic Considerations: VA offerings

Is the Company comfortable with its current hedging strategy and the resulting GAAP Income Statement / Balance Sheet volatility within the FASB LDTI framework?

Accounting Base(s) for Company Hedge Target

- Moving to VM-21 and FASB LDTI basis will likely increase sensitivity to interest rates for VA w/ GMxB products. Potential implications to hedging strategy or hedge targets.

Over/Under Hedged on FASB TI Basis & Shareholders / Management Desired position

- Some investors invest in the insurance sector for interest rate and / or equity exposure and may therefore prefer less than complete hedging.
- Stock prices tend to be sensitive to movements in GAAP Book Value.

Hedge Additional Economic Variables

- 100% of GMDB/GMIB/GMWB liabilities at fair value can create meaningful GAAP Net Income sensitivity to equity and interest implied volatility, which can be expensive to hedge.

Non-GAAP Operating Earnings Definition

- Non-GAAP Operating Earnings policy can potentially be used to focus on the underlying business drivers and trend for Non-GAAP Operating Earnings, but not GAAP Net Income.

VA product mix

- Consider desired VA product mix in light of GAAP LDTI treatment and VM-21 requirements.

Agenda

1 Implications of VA Stat Reform on Hedging & Strategy

2 GAAP LDTI for VA's: Implementation Considerations

3 VA Stat Reform Implementation: Q&A

Key Policy Item

MRB Methodology

- ## Considerations
- Swap-based / Attributed Fee methodology
 - Industry favorite methodology
 - Option-Based methodology:
 - Could potentially include full value of M&E fees, resulting in even higher liability equity sensitivity & potentially smaller impact to GAAP equity.
 - Could be interesting for a Company looking to partially hedge future SA fee revenue.
 - Regardless of MRB Methodology, **Full Retrospective** calculations are required.

Risk Free Reference Curve

- Regardless of MRB Methodology, **Full Retrospective** calculations are required.
- Assuming use of swap-based methodology, attributed fee calculations are needed for each product type / issue year cohort, requiring:
 - Risk Neutral Scenarios / Market Parameters
 - Need to determine use of long term realized volatility, if any
 - Need to determine risk free reference rate
 - Historically, LIBOR swap curve was a key reference rate for pricing. Going forward, LIBOR will be discontinued. SOFR and UST rates could be alternatives.
 - Strategic opportunity to align with interest rate hedging targets.
 - Pricing liability and hedge assets to same risk free reference curve can improve asset/liability matching and limit GAAP Net Income volatility.

2 Market Risk Benefits, cont'd

Key Policy Items

Development of
Attributed Fees

Considerations

- **Full Retrospective** calculations are required
- Attributed fee calculations needed for each product type / issue year cohort, requiring:
 - Best estimate assumptions at time of issue
 - Risk margins at time of issue. Should reflect the level of credibility of Company & industry data.
 - Adjustment for Non-Performance risk at point of issue.
 - Can take into account changes in company ownership over time which affect own credit risk.

Inforce File

- Pricing Cell Approach
 - Use representative cells instead of actual point-of-sale inforce file
- Ratio Approach
 - Leverages current attributed fees for GMIB/GMWBs to estimate compound MRBs (GMDB benefits)
- Back cast current inventory to "at issue" conditions

Assumptions

- Pricing documents are best source if available. Sensitivities tested could be useful in setting historic assumption risk margins (esp. pre-FAS 157 era)
- Consider using oldest available pricing assumptions for prior business without documentation

Scope

- Annuity purchase guarantees may have other than nominal capital market risk and hence be an MRB.
- Insurers have seen very low levels of historical utilization and may have used simplified modeling that would not be appropriate when valued as an MRB.
- ROP GMDB's: likely an MRB, but arguments could be made the risk is nominal. Keep hedging practices in mind (if hedged, MRB classification gives best asset / liability matching).

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3 VA Stat Reform: Implementation Considerations

Key Items

Standard Projection

Impact

- Alternate set of NAIC stipulated assumptions.
- Complex implementation **require significant 1st line and 2nd line reviews to ensure accuracy** – esp. withdrawal & GAPV calculations.
- Need to assess Company annual assumption updates relative to Standard Projection.
 - Increase gap vs. NAIC or decrease gap?

Methodology Decisions

- VM-21 contains several significant methodology decisions that companies will need elect:
 - Std. Projection Methodology (CSMP, CTEPA)
 - C3P2 tax methodology
 - Hedge Methodology (implicit, explicit)
 - GMLB claims: model cash or model payout annuity reserve (now VM-22)
 - Methodology for calculating GPVAD (scenario iteration etc.)
- Should assess methodology choices across various market conditions to fully understand impact to liability.
- Look out for Company's Strategy in finalizing selections: Use the opportunity to stabilize (reduce volatility in light of hedges) or optimize Company results where feasible
 - Example is use of CTEPA to minimize volatility of SP req.

Key Item

Impact

Early Adoption

Key reasons to consider early adoption:

- Better alignment of assets and liabilities on the balance sheet
- Potential favorable impact to Stat surplus / dividend capacity
- Instill confidence in market Company is ready for VA Reform

Early adopt certain aspects of VM-21?

Disclosures!

- Don't let required disclosures & sensitivities needed for VM-21 memo catch your implementation team by surprise.
- Consider overlap with LDTI type disclosure and movement analysis.

Governance

- Expect significant model and assumption governance requirements.
- Allow for ample time for documentation and review by governance team.

Modernization

- VM-21 increases the complexity of the model
 - Standard Projection, NY Specific, Scenario iteration
- Include VM-21 and LDTI in scope of Company actuarial modernization efforts. Solutions that are agnostic to accounting basis and can work for Stat, LDTI GAAP and economic etc. are best.