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MARKET RISK BENEFITS
Actuaries Club of the Southwest
June 18, 2021

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Numerical examples illustrated within this presentation, are only theoretical examples, and do not reflect not real life and/or actual scenarios, approved methods or accounting advice.

Why was Market Risk Benefit (“MRB”) introduced?

FASB had received feedback over a series of years from investors and other insurance stakeholders alluding to problems that existed with the current GAAP accounting model. Specifically:

Disclosures

Provide limited useful information to end-user

Measurement of Market Benefits

Market-based options or guarantees associated with account value share common characteristics that expose entity to capital market risk. However, two measurement models exist (fair value + insurance accrual model)

Measurement – Future Policyholder Benefits

Original assumptions remained locked-in. Discount rates were based on the insurer’s expected investment yield and could vary significantly across insurance companies.

Deferred Acquisition Costs

Multiple amortization methods exist, some of which are very complex and difficult to understand

ASU 2018-12 a.k.a. for Long Duration Targeted Improvements (“LTDI”) creates improvements that address the above concerns by:

- Simplifying and improving accounting for market risk benefits through the utilization of one measurement model (“fair value”).
- Improving effectiveness of required disclosures through provision of additional relevant information.
- Allowing for regular unlock of assumptions to recognize timely changes to liability for future benefits and modifying the rate used to discount future cashflows.
- Simplifying the amortization of deferred acquisition costs.

What are “market risk benefits”?

A contract feature that provides BOTH of the following is a market risk benefit

1

Protection to the contract holder from other-than nominal capital market risk

2

Exposes the insurance entity to other-than-nominal capital market risk

Criteria for determination of a market risk benefit (ASC 944-40-25-25D):

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 the transfer exposing the entity to capital market risk*

Protection does not include the death benefit component. This should not be analogized to an annuity or investment contract.

A **nominal risk** is a risk of insignificant amount that has a remote probability of occurring. The risk must be **other-than-nominal**.

Without clear, prescriptive guidance on what contract features are in or out of scope, this change is expected to be a **significant challenge** to entities with non-traditional products.

Protection with regards to Account Value Shortfall

The insurance entity is obligated to provide funding to support the amount by which the guaranteed benefit exceeds the account value when the insurance entity is exposed to capital market risk. Common guarantees:

GMDB

- Guarantees that policyholder's account balance at death will not be lower than a certain amount. Examples include:
 - Return of Premium
 - Max of Account Value & Premium

GMIB

- Guarantees that policyholder's account balance at annuitization will be sufficient to meet a certain level of periodic payments under a standard payout annuity contract.

GMAB

- Guarantees that the policyholder's account balance will accrue at a minimum guaranteed rate of return.

GMWB

- Guarantees that the policy will continue to remain in-force even if policyholder's account balance drops to \$0, if withdrawals are less than a permitted % of initial premium.

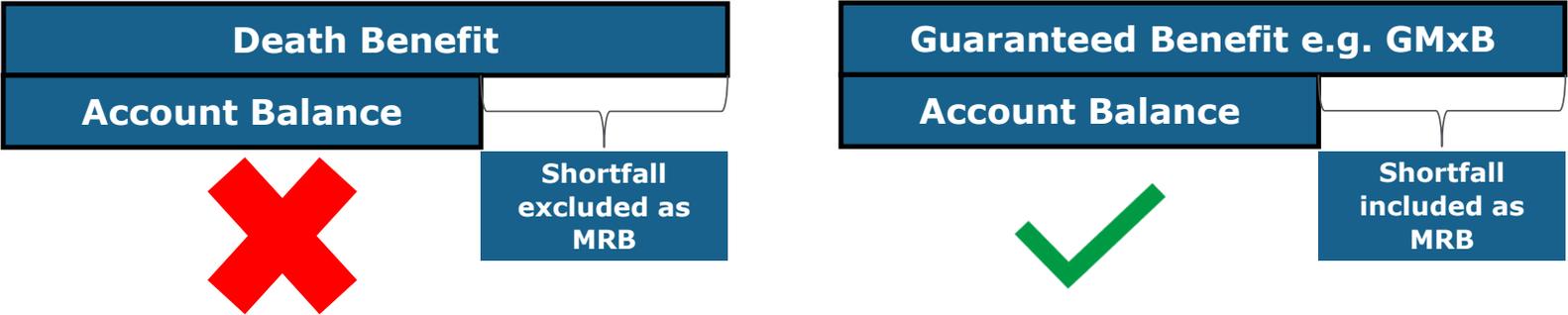
GLWB

- Popular version of GMWB. Guarantees that the policyholder can continue taking out withdrawals less than a permitted % of initial premium as long as covered insured is alive.

Aligning all of the minimum guaranteed benefits under the Market Risk Benefit banner provides a common accounting standard across product design innovation.

Protection with regards to Death Benefit

The death benefit component of a life insurance contract does not meet the classifications of a market risk benefit:



The shortfall of guaranteed benefit in excess of account value, however, meets the definitions of a market risk benefit.

Nominal Risk further defined

Defined as a risk that has an insignificant, or remote probability of occurring.

Scenario

- Policy is in 3rd year of issue. There is significant market volatility in the capital markets in this year.
 - Benefit A moves by a **significant amount ~ 30%** as a result.
 - Benefit B moves by an **insignificant amount ~0.2%** as a result.

A product or product feature is noted to have **other-than nominal capital market risk**, if the underlying benefit **varies by more than an insignificant amount**, in response to the experienced capital market volatility.

Outcome of Nominal Risk Assessment

- **Benefit A is exposed** to other-than nominal capital market risk. 
- **Benefit B is not exposed** to other-than nominal capital market risk. 

Note too that the analysis above does not include the valuation incidence rate associated with a benefit but is, a pure analysis of the magnitude of market changes at inception of the contract.

Exposure to Market Risk

The insurance entity is exposed to market risk in many ways. Not all of these exposures are clear and present guarantees above and beyond the core or based benefits. Some common guarantees currently considered under the MRB guidance:

Purchased Rates

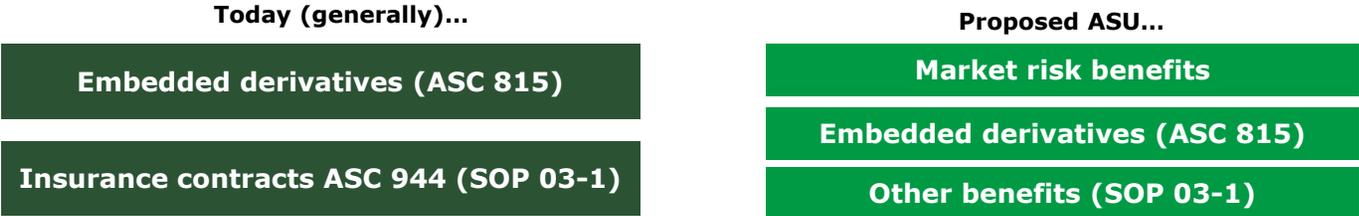
- Guarantees that provide for policyholder's account balance or death benefits to be paid as an annuitization benefit or as a supplemental contract based on embedded guaranteed interest rates in a contract may be MRBs.

MGDB for VUL

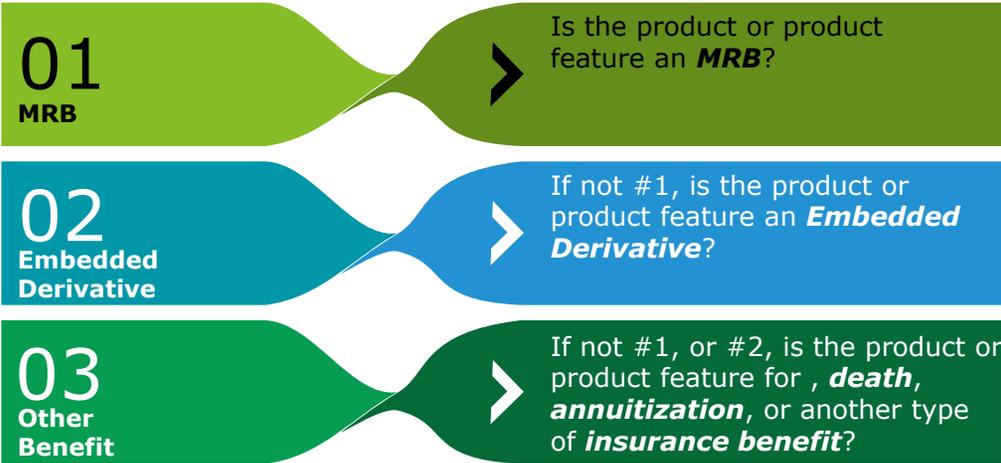
- Death benefit guarantees on life insurance contracts above and beyond the existing face amounts may also be MRBs. Clarification of some of the product classification language is in progress (specifically the exclusion of the death benefit component of a life insurance contract).

In addition to exposure to market risk, the market risk must be "other-than-nominal". This evaluation is part of product classification and is completed at inception of the contract.

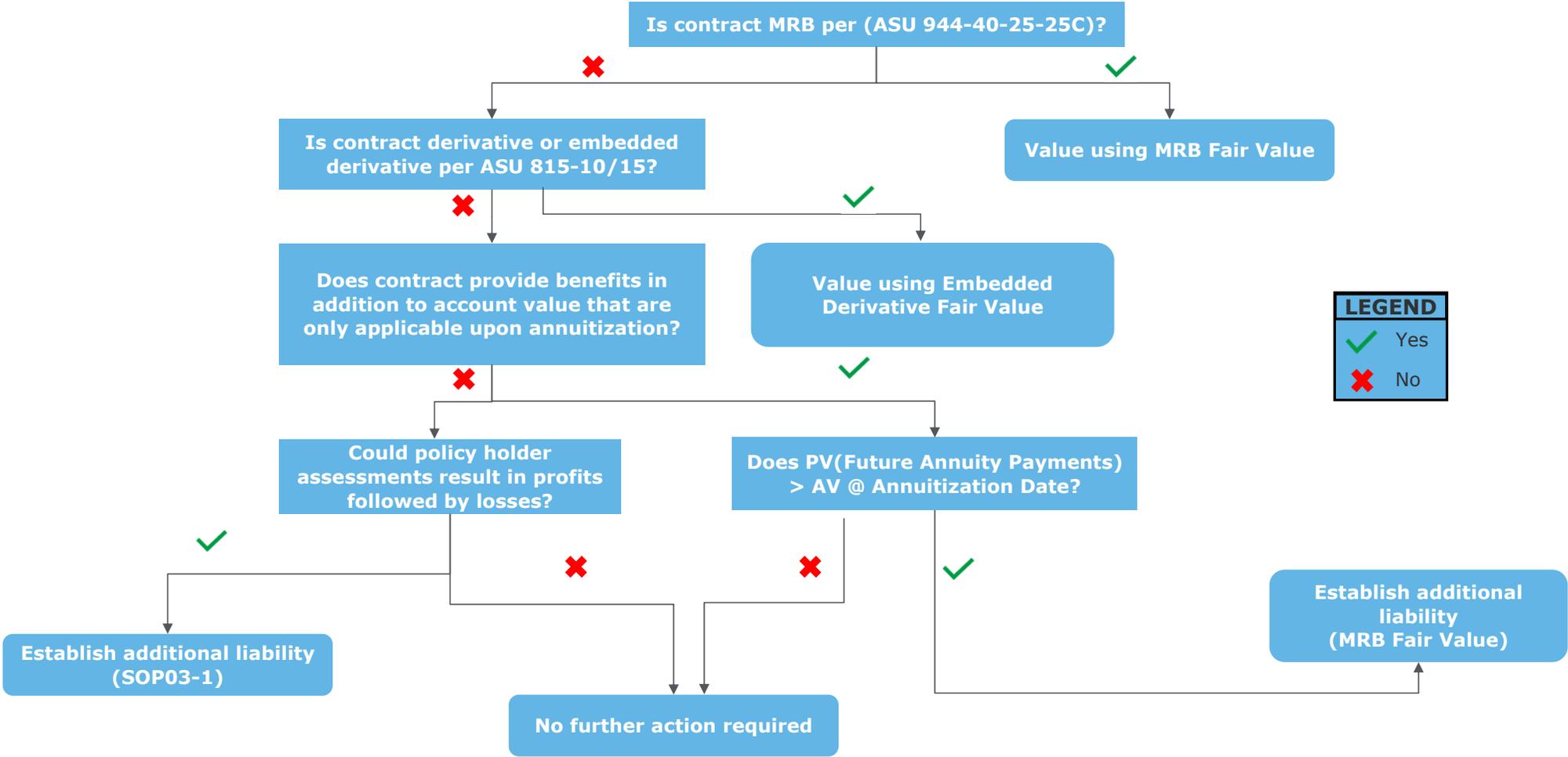
Market risk benefits changes the valuation of the contract provisions



Under ASU insurance entities will now need to determine the appropriate accounting treatment at **issuance**, for product or product features relative to **benefits in addition to account balance**, in the following order:



Considerations for product or product feature classification



LEGEND	
✓	Yes
✗	No

Changes to product feature classifications under ASU 2018-12

Benefit	Classification Pre-LDTI	Classification Under-LDTI
GMDB/GMIB on Variable Annuity	Other Insurance Benefit	MRB
GMWB/GLWB on Variable Annuity	Embedded Derivative or Other Insurance Benefit	MRB
Index Credit – Equity Index Annuity	Embedded Derivative	Embedded Derivative
Secondary Guarantee – UL (ULSGs)	Other Insurance Benefit	Other Insurance Benefit
Guaranteed Payout Annuitization Rate for Deferred Annuity (Upon Conversion)	Other Insurance Benefit	MRB
Credited Interest	Other Insurance Benefit	Other Insurance Benefit
Stable Value features	Embedded Derivative or Other Insurance Benefit	MRB (standalone derivatives excluded)

Under ASU 2018-12, market risk benefits are to be measured at fair value and may be an asset or a liability. If a single contract contains multiple MRBs, they should be bundled together and valued as one.

An entity should **separately** present:

- (1) the carrying amount of market risk benefits in the statement of financial position,
- (2) the change in fair value related to market risk benefits in net income, and
- (3) the change in instrument-specific credit risk in OCI (for MRB's in a liability position).

Pre-LDTI accounting models consisted of either 1) fair value or 2) accrual models. With exception of ULSGs, ASU2018-12 will allow for **one** accounting model (fair value), with a split of net income vs. change in own credit.

Market Risk Benefits

Transitions to LDTI

MRB fair value requires retrospective application of certain calculation mechanics to contract issuance leveraging the benefits of hindsight.

The insurance entity should maximize the use of relevant observable information as of the contract inception and minimize the use of unobservable information in determining the MRB balance at inception.

1. For Transition, the new **fair value** less the **carrying value** of the liability (without change in non-performance risk), is an adjustment to opening balance of retained earnings, as of the transition date (**944-40-65-2** f(2)).
2. Cumulative effects of changes in the instrument specific credit risk between contract inception date and transition date should be recognized in the opening balance of accumulated other comprehensive income (AOCI) as of the transition date (**944-40-65-2** f(1)).

In transitioning **market risk benefits**, hindsight can be used by **considering actual experience**, in instances where assumptions for historical periods are unobservable, or unavailable and unable to be independently corroborated.

Market Risk Benefits

What are the known differences between Insurance Accrual Model & Fair Value under ASU 2018-12?

Historical and current methods for MRB do have considerable differences that are worthwhile to note.

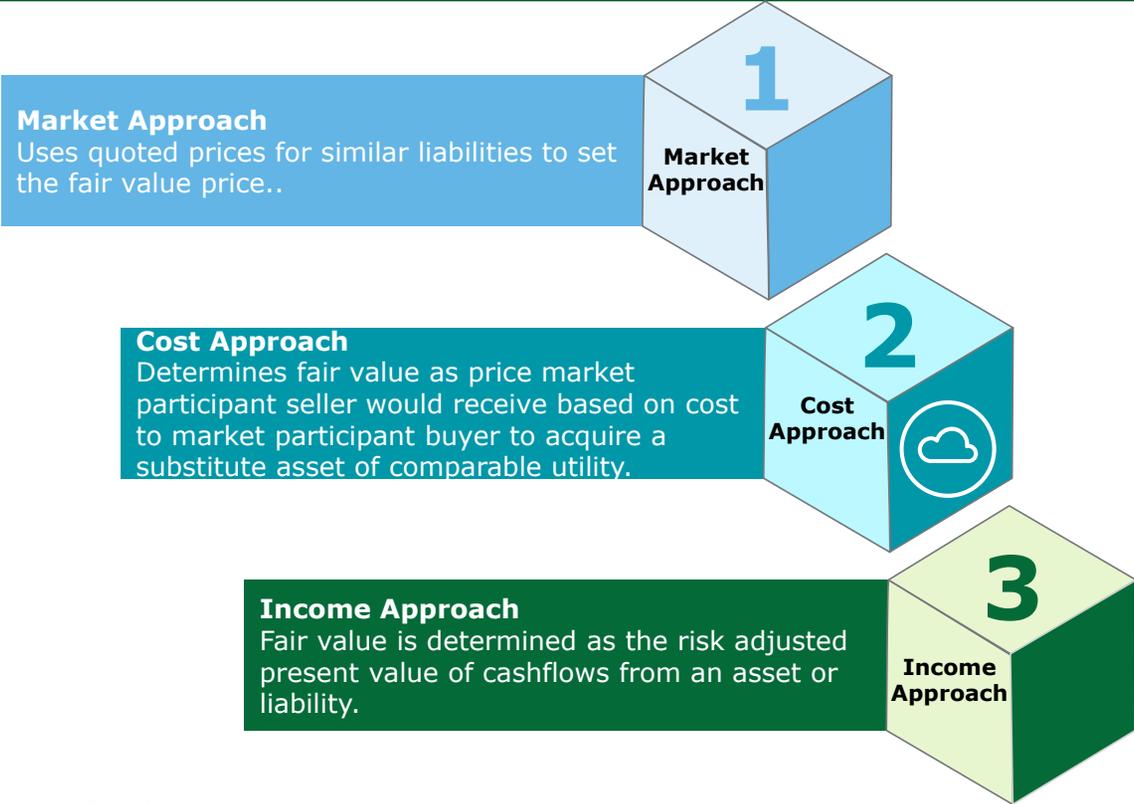
Item	Insurance Accrual Model	Fair Value
Funding	Revenues under FAS 97	Fees Collected
Calculation Method	Retrospective. Benefit Ratio subject to unlock	Prospective. Attributed Fee Ratio remains locked in.
Benefits Considered	Benefits in addition to Fund Value	Benefits in addition to Fund Value
Economic Assumptions	Real World Scenario	Risk Neutral Scenarios
Calculation Granularity	Cohort grouping	Run as seriatim (issue month, issue quarter)
Insurance Assumptions	Best Estimate	Best Estimate with Risk Margin considerations
Discount Rates	Consistent with DAC	Risk free + Own Credit

Insurance entities which have not historically performed any Fair Value valuation, may find it more challenging to adopt the new guidance.

Market Risk Benefits

Fair Value Approaches

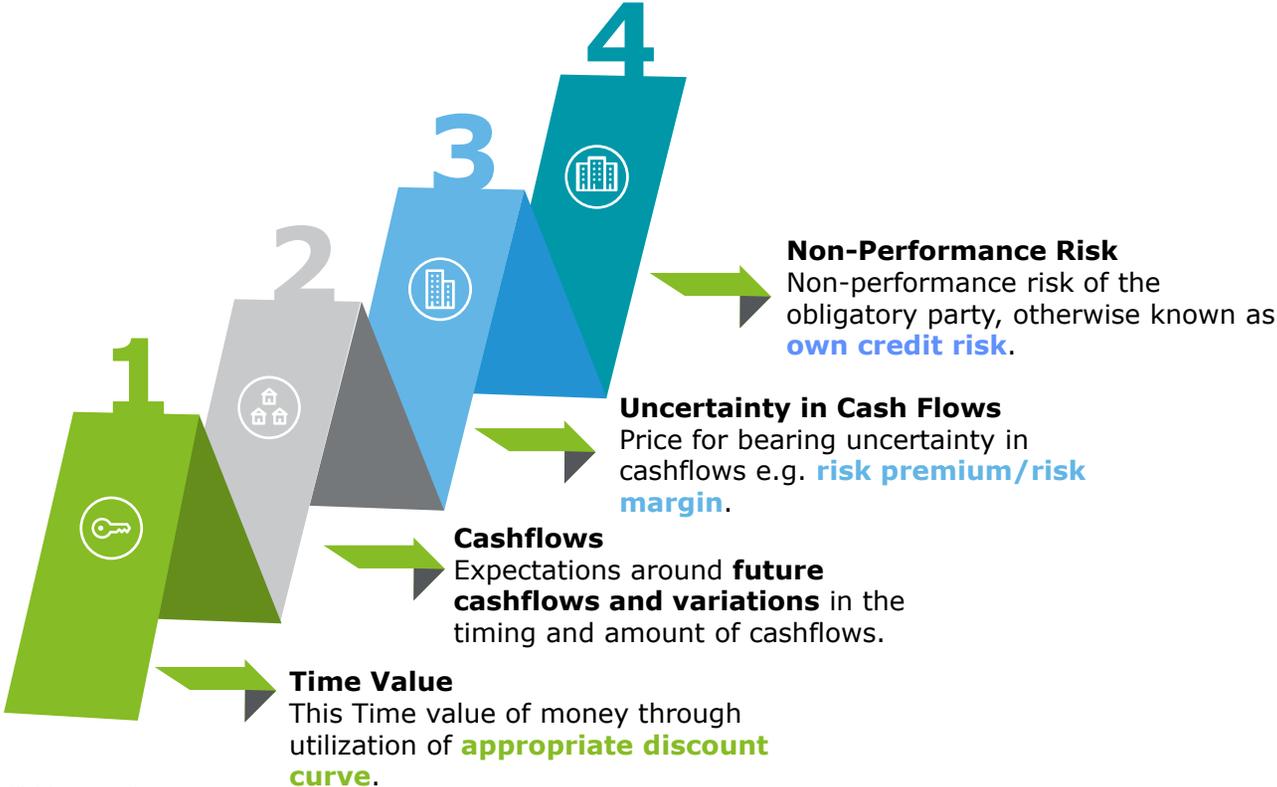
ASC 820 specifies three methods that can be used to calculate Fair Value. The income approach is the most prevalent within the insurance industry and will be expanded upon in more detail in slides that follow.



Market Risk Benefits

Fair Value Approaches

The income approach makes considerations for the following:



Market Risk Benefits

Valuation of MRBs

ASU 2018-12 specifies that MRBs can be valued using an **option** or **non-option** approach.

Option Approach

- Primarily utilizes deterministic scenario.
- Index credits are based directly on the option budget.
 - Open segment is marked to market as of expiry date. Subsequent segments modeled using option budgets. All are accumulated with risk free rates.
- The terms of the market risk benefit should not be adjusted to result in a fair value of \$0, at the inception of the contract.
- Host = Initial Premium – VED - MRB
- Fair Value = PV (Future Excess Claims)

Non-Option (Attributed – Fee) Approach

- Utilizes stochastic scenarios.
- Index credits projected using stochastic equity returns
 - Cap, participation rates, and spreads determined at reset periods based on projected return rates & market parameters.
- The terms of the market risk benefit should be determined in a manner that results in a fair value of \$0, at the inception of the contract.
- Host Contract = Combined Hybrid value
- Fair Value = PV (Future Excess Claims / less Attributed Fees)
- Attributed fee cannot exceed total contractual fees & assessments collectible from the policyholder.
 - Once set at issuance, attributed fee remains locked in through life of contract.

Market Risk Benefits

Valuation of MRBs

Companies are considering whether to apply singular valuation embedded derivatives and MRBs. These considerations can vary depending on product. Listed below are some considerations:

Indexed Annuity

- Option 1
 - Embedded derivative calculation should utilize risk-neutral valuation typically used for VA MRBs.
 - Determine separate values of ED + MRB
 - Utilize appropriate allocation of own credit between ED + MRB
 - Valuation of MRBs using budget method may not be appropriate.
 - Insurers are unlikely to have control over the total payout and may not have the appropriate levers to set an appropriate option budget for GMxBs.
- Option 2
 - Value ED + MRB separately
 - Continue to use approach utilized for ED as ED is not affected under guidance.
 - MRB to use valuation method deemed appropriate by company.

Variable Annuity

- If fees for variable annuity benefit are received over time, causing the MRB can appear like a swap, it would be more appropriate to use non-option approach.
- If fees for benefit are received upfront, and/or if contract has no explicit fees, benefit is most likely to be valued via the option-based approach.
- Host adjustment cannot be applied to a separate account. As such, variable annuity is most likely to use non-option based approach, as opposed option-based approach – which may not be available.

Market Risk Benefits

Required Disclosures

Under ASU2018-12, disclosures are improved to provide more relevant useful information to the end-user.

Disclosure Format

- An entity should produce this disclosure in a disaggregated tabular rollforward of the opening to closing balance and other quantitative and qualitative disclosures to meet requirements of **944-40-50-7B**

Supplemental Disclosures to Include

- In addition to providing disaggregated tabular rollforwards by type of market risk benefit, an insurer should disclose the qualitative and quantitative information about the guaranteed benefit amounts in excess of current account balances, significant inputs, judgments, and assumptions used to measure the market risk benefits (**944-40-65-2** h(1) & h(2))
- The insurer should also reconcile the disaggregated rollforwards to the aggregate ending carrying amount, disaggregated between asset and liability positions (**944-40-50-7B** (c)).

What does "disaggregated" mean?

An insurer would aggregate or disaggregate the disclosures, **"so that useful information is not obscured by either the inclusion of a large amount of insignificant detail or the aggregation of items that have significantly different characteristics"**

This expansion of the disclosure will require entities to track, maintain, and report reserve detail at a level not previously maintained for financial reporting purposes.

Market Risk Benefits

Required Disclosures (continued)

The table below illustrates disclosure of balances and changes in guaranteed minimum withdrawal benefits associated with **variable annuities** and **indexed annuities**.

	December 31,			
	20x2		20x1	
	VA AAA	EIA BBB	VA XXX	EIA XXX
Balance, beginning of year				
Balance, beginning of year, before effect of changes in instrument-specific credit risk	XXX	XXX	XXX	XXX
Issuances	XXX	XXX	XXX	XXX
Interest accruals	XXX	XXX	XXX	XXX
Attributed fees collected	XXX	XXX	XXX	XXX
Benefit payments	(XXX)	(XXX)	(XXX)	(XXX)
Effect of changes in interest rates	XXX	XXX	XXX	XXX
Effect of changes in equity markets	XXX	XXX	XXX	XXX
Effect of changes in equity index volatility	XXX	XXX	XXX	XXX
Actual policy behavior different from expected behavior	XXX	XXX	XXX	XXX
Effects of changes in future expected policyholder behavior	XXX	XXX	XXX	XXX
Effect of changes in other future expected assumptions	XXX	XXX	XXX	XXX
Balance, end of year, before effect of changes in the instrument-specific credit risk	XXX	XXX	XXX	XXX
Effect of changes in the instrument-specific credit risk	XXX	XXX	XXX	XXX
Balance, end of year	DDD	EEE	AAA	BBB
Reinsurance recoverable, end of year	XXX	XXX	XXX	XXX
Balance, end of year, net of reinsurance	XXX	XXX	XXX	XXX

Legend	
VA	Variable Annuity
EIA	Equity Indexed Annuity

In addition to providing disaggregated tabular rollforwards, an insurer will disclose "the guaranteed benefit amounts in excess of the current account balances" and the "weighted-average attained age of contract holders."



Market Risk Benefits

Required Disclosures (continued)

In addition to the disaggregated rollforward, a reconciliation must be prepared to reconcile to the newly-disclosed balance on the statement of financial position. To the extent that separate asset and liability positions exist, the reconciliations will disaggregate asset and liability positions.

	December 31,					
	20X2			20X1		
	Asset	Liability	Net	Asset	Liability	Net
Variable Annuities	XXX	XXX	XXX	XXX	XXX	XXX
Indexed Annuities	XXX	XXX	XXX	XXX	XXX	XXX
Total	XXX	XXX	XXX	XXX	XXX	XXX



For annual periods, and as may be required by general interim reporting guidance, an insurer will provide information about (1) significant inputs, judgments, assumptions, and methods used to measure the market risk benefits and (2) changes therein and the effects of such changes on the measurement of market risk benefits. Such requirements could require an enhancement to how data is maintained and communicated.

APPENDIX

Market Risk Benefits

Valuation of MRB (Theoretical Example)

The following scenario is for an MRB to be valued under ASU 2018-12 guidance.

Background

- Insurance Company A writes Single Premium Fixed Deferred Annuity.
- Policy is currently in Year 5. ASU 2018-12 adoption occurred in Year 4.
- Product has index crediting and fixed account crediting options.
- GMxBs offered through product are GMAB, GMWB, and GMDB.
- GMxBs meet definition of MRB under ASU 2018-12 guidance and are valued as compound MRB.
- MRBs were previously valued under SOP03-1.
- Insurance Company A able to retroactively project Excess Claims + Rider Fees through to policy inception.

Discount Rate Assumptions

Period	Total Discount	Risk Free Rate	OCRA
@Issue	6.00%	5.50%	0.50%
@Transition	7.00%	6.00%	1.00%
@Current Period	7.25%	6.00%	1.25%

General Assumptions

Initial Premium	\$1M
Benefit Base	\$1M
Surrender Charge Period	10 Years
Maturity Period	10 Years
Waiting Period	0 Years
Fixed Account Allocation	25%
Indexed Account Allocation	75%
Rider Fee %	2%

Market Risk Benefits

Non-Option (Attributed Fee) approach

The following scenario is for an MRB to be valued under ASU 2018-12 guidance.

Year	Excess Claims	Fees Collected
0		
1	7,974.95	20,000.00
2	8,271.75	20,000.00
3	295.83	20,000.00
4	619.89	20,000.00
5	710.21	20,000.00
6	822.73	20,000.00
7	933.04	20,000.00
8	958.44	20,000.00
9	1,056.00	20,000.00
10	116,456.14	20,000.00

MRB Liability @ Issue		
PV (Excess Claims)	\$83,610.87	A
PV (Fees Collected)	\$147,201.74	B
Attributed Fee Ratio	56.80%	C
MRB Liability	\$0.00	$D = A - B * C$

- Insurance Company A able to retroactively project Excess Claims + Rider Fees through to policy inception.
- The initial discount rate of 6% is used to determine the MRB Liability at inception.
- Attributed fee ratio of 56.80% will remain locked in for the contract lifetime. MRB Liability = \$0 at inception.
- Stochastic Index Return scenarios are utilized to project the index returns.
- In this modeling approach due to compound MRB, consideration is provided for interplay/correlation of assumptions between individual MRBs.

Market Risk Benefits

Non-Option (Attributed Fee) approach

Projected Liabilities for the duration of the contract are illustrated below.

Year	MRB	Host Contract	Fixed Account	Total GAAP Reserves
0	\$ -	\$ 750,000.00	\$ 250,000.00	\$ 1,000,000.00
1	\$ 9,170.39	\$ 795,988.92	\$ 248,532.64	\$ 1,053,691.95
2	\$ 18,483.68	\$ 838,728.85	\$ 261,189.83	\$ 1,118,402.36
3	\$ 37,187.80	\$ 730,234.57	\$ 223,775.27	\$ 991,197.63
4	\$ 54,116.51	\$ 615,319.10	\$ 180,255.43	\$ 849,691.04
5	\$ 68,982.15	\$ 495,177.66	\$ 139,187.46	\$ 703,347.27
6	\$ 81,810.20	\$ 370,026.34	\$ 101,202.44	\$ 553,038.97
7	\$ 92,695.30	\$ 241,968.12	\$ 67,993.95	\$ 402,657.36
8	\$ 101,936.02	\$ 117,708.29	\$ 35,755.87	\$ 255,400.18
9	\$ 109,432.10	\$ (0.00)	\$ 6,732.94	\$ 116,165.04
10	\$ 109,432.10	\$ (0.00)	\$ -	\$ 109,432.10

- Host Contract = Value of combined Hybrid Contract.
 - This is different from the option approach, where the Host Contract = Gross Consideration less VED less MRB at inception.

Market Risk Benefits

Option approach

The following scenario illustrates valuation under the option method for an MRB to be valued under ASU 2018-12 guidance.

Year	Excess Claims
0	-
1	7,974.95
2	8,298.63
3	540.91
4	952.43
5	882.03
6	827.05
7	792.02
8	782.06
9	802.81
10	89,443.86

MRB Liability @ Issue	
MRB = PV (Excess Claims) @ 6% Issue Rate	\$68,797.59

MRB Liability @Issue = **PV (Excess Claim) @ 6%**

Option Budget Determination		
Book Yield	6.50%	A
Profit Spread	2.00%	B
Option Budget	4.50%	C = A - B

- Black Scholes Projection is used to determine the open segment index growth rate, from valuation date through policy year expiry.
- Future policy year index growth rates leverage the option budget approach.
- Single deterministic scenario is used to measure liabilities.
- Option budget is determined using **book yield expectation** less **profit spread** for Company A.
- Assumptions utilized to value the MRB are consistent with that of the assumptions used to value the Embedded Derivative that supports the index-crediting feature of the base contract.
- Consideration is provided for interplay/correlation of assumptions between individual MRBs in this compound MRB.

Market Risk Benefits

Recording of Balances at Transition

Insurance Company A adopts ASU 2018-12 in Year 4. MRB Liability is calculated on a prospective basis. Aggregate balance for MRBs under prior SOP03-1 + Fair Value model = 20,000. Calculations below leverage **attributed fee approach**.

Discount Rate Assumptions

Period	Total Discount	Risk Free Rate	OCRA
@Issue	6.00%	5.50%	0.50%
@Transition	7.00%	6.00%	1.00%
@Current Period	7.25%	6.00%	1.25%

- To determine AOCI impact (at transition)
1. Calculate MRB Liability @ Transition Discount Rate.
 2. Recalculate MRB Liability @ Transition OCI rate (Transition RFR rate + Original OCRA)
 3. Take difference to isolate OCI impact.

Year	Excess Claims	Fees Collected
4		
5	710.21	14,298.61
6	822.73	11,031.52
7	933.04	8,013.44
8	958.44	5,378.35
9	1,056.00	2,825.09
10	116,456.14	531.31

MRB Liability @ Transition		
PV (Excess Claims)	\$81,227.73	A
PV (Fees Collected)	\$36,011.30	B
Attributed Fee Ratio	56.80%	C
MRB Liability	\$60,773.24	D= A - B*C
MRB Liability for OCI	\$62,820.65	E
OCI Impact	\$2,047.41	F = E-F

New Fair Value (\$62.8K) less Old Carrying value (20K) applies to Retained Earnings.

OCI Impact (\$2K) is calculated as MRB Liability with OCI rate (\$62.8K) less MRB calculated at Transition total discount rate (\$60.8K).

Market Risk Benefits

Option approach

Projected Liabilities for the duration of the contract are illustrated below.

Year	MRB	VED	Host Contract	Fixed Account	Total GAAP Reserves
0	\$ 68,797.59	\$ 306,840.79	\$ 374,361.62	\$ 250,000.00	\$ 1,000,000.00
1	\$ 64,950.49	\$ 320,592.64	\$ 414,889.16	\$ 252,661.77	\$ 1,053,094.05
2	\$ 60,548.88	\$ 333,711.67	\$ 454,871.92	\$ 252,414.03	\$ 1,101,546.50
3	\$ 63,640.91	\$ 326,309.27	\$ 368,482.54	\$ 212,950.36	\$ 971,383.08
4	\$ 66,506.93	\$ 313,443.36	\$ 279,760.41	\$ 175,170.96	\$ 834,881.67
5	\$ 69,615.32	\$ 293,154.99	\$ 190,240.29	\$ 139,071.24	\$ 692,081.84
6	\$ 72,965.20	\$ 261,835.74	\$ 103,703.08	\$ 104,651.21	\$ 543,155.22
7	\$ 76,551.08	\$ 211,582.23	\$ 29,830.44	\$ 71,915.52	\$ 389,879.27
8	\$ 80,362.09	\$ 118,347.07	\$ (0.00)	\$ 40,873.47	\$ 239,582.63
9	\$ 84,381.00	\$ -	\$ (0.00)	\$ 11,776.99	\$ 96,158.00
10	\$ -	\$ -	\$ (0.00)	\$ -	\$ (0.00)

- Host Contract = **Gross Consideration** less **VED** less **MRB** at policy inception.
- For this example, VED and MRB are valued separately, though there is thought within the industry that VED + MRB could be valued together with an appropriate split for Own Credit. In this example:
 - VED continues to leverage existing ASC 820 guidance.
 - MRB leverages consistent assumptions but is now valued using Fair Value.
 - MRB + VED use the same option budget & margins because a single valuation was utilized for the calculation of both liabilities.

Market Risk Benefits

Recording of MRB Impacts (current period)

Policy is currently in year 5 after a full year of ASU2018-12 adoption. Changes in Fair Value are recorded in Net Income. Changes due to Own Credit Risk are recorded in AOCI. The calculations shown below continue to leverage the **attributed fee approach**.

Discount Rate Assumptions

Period	Total Discount	Risk Free Rate	OCRA
@Issue	6.00%	5.50%	0.50%
@Transition	7.00%	6.00%	1.00%
@Current Period	7.25%	6.00%	1.25%

Year	Excess Claims	Fees Collected
5		
6	822.73	11,031.52
7	933.04	8,013.44
8	958.44	5,378.35
9	1,056.00	2,825.09
10	116,456.14	531.31



MRB Liability @ Current Period (EOY 5)	
MRB Liability (EOY 5)	\$71,520.46
MRB Liability (EOY 4)	\$60,773.24
Change in Liability	\$10,747.22 = \$71,520.46 less \$60,773.24
MRB Liability (EOY 5) OCI	\$74,315.42
AOCI Impact (from Issue)	\$2,794.96 = \$74,315.42 less \$71,520.46



- To determine AOCI impact (from issue)
1. Calculate MRB Liability @ Current Discount Rate.
 2. Recalculate MRB Liability @ Current OCI rate (Current RFR rate + Original OCRA)
 3. Take difference to isolate OCI impact.

OCI exists for the MRB but will not be applicable to the VED.

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