



ICS Valuation

Achieving a Single, Coherent Discounting Approach through Own Assets with Guard Rails ("OAG")

Contents

1. Executive Summary

One of the principal objectives of the global initiative to design a consolidated group capital standard for large, internationally active insurance groups is to find a thoughtful and broadly applicable standard for valuing insurance assets and liabilities. The design of the valuation basis is, in many respects, the most important first order decision point in developing a risk-sensitive enterprise-wide capital standard that is comparable and implementable across regulatory jurisdictions globally. Current jurisdictional capital regimes are appropriately tailored to, and grounded in, the widely varying valuation constructs applicable in such regimes.

The International Association of Insurance Supervisors (IAIS), in developing the Insurance Capital Standard (ICS), is seeking to bridge the current differences in jurisdictional valuation regimes by proposing a market-adjusted valuation (MAV) framework, which entails the revaluation of liabilities (and, if not already fair-valued, of assets) on economic best estimates, as the basis of its group-wide capital standard.

As a risk-sensitive construct, the ICS is based on what is essentially an "economic" balance sheet. The MAV requires insurers to revalue their liabilities on a "best estimate" basis, which corresponds to the probability-weighted average of the present values of the future cash flows associated with insurance liabilities using IAIS-specified yield curves. These economically-driven liability valuations are foundational components of the ICS, affecting both the determination of available capital resources as well as the underlying exposure measures for several aspects of the ICS calculations of required capital.

As an alternative to the MAV, and in a tentative effort to accommodate jurisdictions whose native accounting constructs do not currently require or permit "best estimate" reporting, the IAIS is also considering a "GAAP+" approach that would rely largely on existing GAAP/IFRS reporting but entail targeted revaluation of certain liabilities on a more economic basis.

The aim of this paper, endorsed and collectively proposed by a wide spectrum of global insurance groups based in each of the world's significant markets, is to propose *a single ICS methodology for discounting liabilities* that would be applicable for all insurers, at one stroke improving the MAV.

This promising, yet incremental and implementable, path forward would synthesize key features and benefits from both the current MAV and GAAP+ proposals into a single integrated approach. We call this the "Own Assets with Guardrails" or OAG, a key feature of which is that the liability discount rate is derived from the firm's own assets, valued at market. This approach is intentionally designed to link back directly to the other key architectural and design elements of the ICS in a productive and seamless fashion.

Aside from the discount rate method, the OAG approach is broadly similar in concept to MAV. At the same time, consistent with GAAP+, the discount rate would reflect own asset holdings, which would generally align better with company pricing and business models. Rather than seeking to align what, in the form of the current MAV and GAAP+ proposals, are two flawed discounting approaches, the IAIS could more effectively focus its efforts on the development of the OAG as a single discounting methodology – one that is tailored to insurer business and risk management practices and is instrumental to the desirable regulatory objective of implementing a risk-sensitive framework that both incentivizes prudent asset-liability management while mitigating pro-cyclicality. Finally, the approach is auditable, being sufficiently well defined that an auditor could express an opinion on an entity's compliance with the approach.

Fundamental objectives of ICS valuation

The following objectives are critical to achieving a viable approach to liability discounting and are therefore fundamental to the proposal in this paper. We believe that an effectively designed OAG is better equipped than both the MAV and GAAP+ to achieve these objectives.

- Incentivize and reinforce insurers' long-established discipline of matching liabilities with assets that have similar risk characteristics;
- Support an ICS ratio that provides appropriate risk signaling across market cycles, while engendering neither "fire sales" during a crisis, nor excessive risk taking during an expansionary period (and, in practice, supporting the potential market-stabilizing role of insurers to act as prudent buyers of creditworthy and fundamentally valuable assets facing episodic, liquidity-driven valuation pressures);
- Align with prudent insurance industry valuation and risk management practices, which in turn provides useful ICS risk information in managerial decision-making;
- Provide reasonable transparency and tractability, enabling both internal and external stakeholders to understand the drivers of, and changes in, an insurer's ICS ratio; and
- Support comparability in standards across internationally-active insurance groups ("IAIGs"), ensuring that carriers apply broadly consistent methodologies that are governed by both quantitative and qualitative "guard rails" that safeguard against unhealthy arbitrage and gaming of results.

Strengths and drawbacks of GAAP + and MAV

	GAAP +	MAV
Strengths	Generally more consistent with company's pricing and business models, which typically are based on own asset holdings	Provides high-level consistency and comparability in economic and risk assumptions that would otherwise require material judgment
	Leverages existing financial reporting process and controls, enabling valuation to be based on an audited reporting process (except for the liabilities subject to targeted revaluation)	The approaches using either a market index or a representative portfolio mitigate the risks of "yield chasing"
Drawbacks	Fundamental differences in many local jurisdictional GAAPs (i.e., not just US GAAP, but other local GAAP regimes) and IFRS valuation approaches impair comparability (n.b., the IASB and FASB have made proposals that will narrow the differences between US GAAP and IFRS but even if they are adopted, significant differences will remain)	Decouples the valuation of a company's liabilities from the assets used to support those liabilities

	GAAP +	MAV
Drawbacks ***(continued)***	Could incentivize regulatory arbitrage, in that companies can manage the AOCI adjustment by realizing gains or losses to produce better results, even in situations where the underlying economics are unchanged	Insufficient recognition of asset spreads in the discounting of liabilities could result in excess volatility in capital (even when long term expectations are unchanged), resulting in information that is more "noise" than "signal" and exacerbating the potential for "false negatives" and pro-cyclical behavior (e.g., asset sales in a distressed market environment)
	Inconsistencies in companies' valuations, due solely to differing management views of future economic conditions (e.g., variations in long term expectations and allowance for credit risk, future reinvestment return), can materially undermine the comparability of results across companies	MAV discount rates are overly conservative due to the low long term forward rate and minimal spread assumed for long term discount rates
	The interest rate risk charge for US GAAP+ may be understated, which masks the extent of potential asset / liability mismatches, dis-incentivizes prudent ALM and risk mitigation strategies, and reduces the informational value for supervisors (e.g., increased risk of "false positives")	Overly onerous valuation requirements could drive companies to withdraw certain socially-valuable, long-term saving products, a deprivation in consumer choice
		A reliance on indices for liability valuation could drive herding behavior and inadvertently incentivize insurers to invest in the chosen benchmark in order to manage the volatility of their capital ratios, an outcome that could distort market prices and ALM practices
		The requirement to value options and guarantees stochastically creates potential additional computational burden, with minimal prudential and informational benefit, given that required capital is calculated under stress assumptions (see section 4.4)

"Own assets with guard rails" is the optimal path forward for ICS valuation

As noted, the OAG is an important, but incremental, evolution in the current ICS proposal to determine liabilities on a "best estimate" approach that is sensitive to economic and financial factors.

Under the OAG, the discount rates are determined in a manner that is consistent with observed market values, as reported by an agreed internationally recognized data source (e.g. Bloomberg). These market rates are then adjusted based on standardized conventions, which would provide quantitative "guard rails" to eliminate management discretion and potential inconsistencies in approach between companies:

- Capping the adjusted spread of fixed income own assets at the adjusted BBB spread (varying by currency);
- Assigning a non-zero spread to equity investments and alternatives (e.g. capped at the BBB spread);
- IAIS-prescribed adjustments for credit risk, reflecting only expected default;
- IAIS reinvestment yield assumptions, reflecting an investment grade spread over risk free rates;
- Stochastic methods should be used where the time value of guarantees (TVOG) is material; where TVOG is immaterial, deterministic approaches could be used as a practical expedient;
- IAIS-principles on stochastic modeling scenarios.

In addition to these more prescriptive, largely quantitative "guard rails", the OAG would also benefit from a series of qualitative "guard rails" aimed at insurers' ALM, actuarial, risk management, and investment management processes. Group-level supervisors have an important role to play in assessing the rigor of an insurer's ALM practices, which is foundational to prudent implementation of an own assets approach to liability discounting.

Insurance companies are typically able to hold assets to maturity in order to back long-term fixed liability cash flows. Our proposed approach recognizes this fundamental attribute of insurance risk management and, in balancing risk-sensitivity with comparability, transparency and simplicity, provides a framework that:

- Incentivizes prudent assets and liability management;
- Promotes appropriate risk signaling across markets;
- Mitigates undue balance sheet volatility and pro-cyclicality (incentivizing neither "fire sales" during a crisis nor excess risk taking during an expansionary period).

2. Challenges in the Current GAAP+ Approach

The currently proposed GAAP+ approach, in the US context, would allow insurance companies to reflect the book value (amortized cost) of fixed income assets (i.e., by removing unrealized capital gains and losses reported in AOCI, or the so-called "AOCI adjustment") while using a firm-specific long-term earned rate to discount future liabilities. It appears that the motivation for this AOCI adjustment is to more closely align the asset valuation with the liability valuation, which for US GAAP is generally based on the book yield of the existing asset portfolio. As highlighted, the GAAP+ approach has several drawbacks:

Insensitivity to changes in interest rates

The insensitivity of surplus to interest rate changes, at least under US GAAP, is a concerning shortcoming in risk-sensitivity for the ICS, if GAAP+ were to form the basis of an insurer's ICS capital requirements. Asset values do not move when interest rates change, nor would liability values, unless the change in interest rates also triggers a change in management's long term expectations. In the case of a change in management expectations, the liability values could move substantially, with no corresponding movement in asset values – a volatile and equally problematic result. The 2016 ICS technical specifications do not address this issue.

Given that, in practice, insurers might be exposed to substantial asset / liability mismatches, it is important that surplus respond appropriately to changes in interest rates within an economic valuation approach. Additionally, when a company uses interest rate derivatives reported at market value to prudently and appropriately manage their economic risk exposure, the current ICS construct would likely generate unintended capital volatility as a result of such risk mitigating strategic actions. The following table, extracted from a recent study by Moody's, demonstrates the mismatch across countries.

Global Asset / Liability Mismatch

Risk to industry profitability	Country	Guaranteed products (in % of reserves)	Average guaranteed rate	Ability to reduce credit rates	Duration gap in years
Very high	Germany	> 80%	3-3.5%	low to medium	> 10
	Netherlands	60-80%	3.5-4%	low	5-8
	Norway	60-80%	3-3.5%	medium	> 10
	Taiwan	> 80%	4-5%	low	5-8
High	Japan	60-80%	2-3%	low to medium	2-5
	South Korea	> 80%	5-6%	low to medium	0-2
	Sweden	40-60%	3-3.5%	low to medium	> 10
	Switzerland	> 80%	1.5-2.5%	low	> 10
Moderate	Canada	60-80%	2-4%	medium	1-3
	France	> 80%	0-1%	medium to high	2-5
	Hong Kong	60-80%	2.5-3.5%	medium	N/A
	Italy	60-80%	2-3%	medium	0-2
	U.S.	60-80%	2-4%	low to medium	< 1
Low	China	> 80%	2-3%	high	N/A
	South Africa	60-80%	N/A	high	N/A
	Spain	>80%	3.5-4%	low	0-2
Very low	Australia	< 20%	0-1%	high	N/A
	Brazil	< 20%	N/A	NA	N/A
	Ireland	< 20%	1-2%	high	< 0
	Mexico	< 20%	N/A	NA	N/A
	U.K.	20-40%	0-1%	high	< 0

Source: Moody's Investors Service (2015)

Potential incentive for regulatory capital arbitrage through the AOCI adjustment

Under the current GAAP+ proposed construct, an insurer would be able to sell assets that have appreciated, realize the gain, and then repurchase similar assets. Such actions would convert unrealized gains – which are excluded from the capital base - into realized gains that would boost the reported capital and surplus level. This can have a knock-on effect, in that assets might be sold at points in time that are sub-optimal

from an investment perspective. If the AOCI exclusion were considered as a part of any future methodology, we would recommend introducing a mechanism similar to the Interest Maintenance Reserve ("IMR") used in US statutory accounting to prevent interest-related gains and losses from having an immediate impact on capital. With the IMR, those gains and losses are reflected in a manner that mimics what would have happened if the assets had not been sold in the first place. This treatment is also more consistent with the book value approach that underlies the US version of GAAP Plus (see Appendix).

Inconsistency and lack of comparability in GAAP/IFRS assumptions:

In several important areas, GAAP+ approach, as applied in a US context, could generate inconsistent results across companies:

- The long term expected yield on assets can differ significantly across companies. While US GAAP and IFRS are subject to audit by an independent third party, the differences across firms' assumptions, especially at durations where there is a lack of market-based information, can be significant. *A difference of 50-200 bps in those assumptions is not uncommon across the industry, which in turn can lead to differences of 5%-20% in the valuation of liabilities, or a 20%-80% difference in capital* (assuming a 25% leverage profile).

- Related to the foregoing are a number of technical issues that can also have a material impact on the divergence of final results, such as the speed and method of convergence to the long term assumption and the nature of the long term assumption (a UFR or a spot rate).

- The assumption for credit risk can also diverge across companies, given differences in source data and the role of expert judgment.

Potential disincentive for appropriate ALM and risk mitigation strategy:

Because of the limited sensitivity to interest rate changes, we believe that the current GAAP+ approach, in the absence of additional guard rails, will not appropriately distinguish between the relative qualities of companies' interest rate risk management.

Comparability across local GAAP/IFRS approach

While the above discussions focus on the US GAAP+ approach, the differences between US GAAP and the many other forms of local GAAP and IFRS are significant, thereby impairing comparability both within the GAAP+ approach (or approaches) as well as with MAV. For example:

- The US GAAP+ treatment of discounting rates and AOCI is very different from Canadian GAAP+;

- The difference between US Statutory (for US mutual companies) and US GAAP+ are also substantial, especially regarding the underlying liability valuations; and

- The US GAAP framework and Solvency II, which is the GAAP+ basis for EU insurers, are radically different and are unlikely to lead to comparable outcomes.

3. Challenges in the Current MAV Approach

The primary approach currently used for determining the MAV, i.e. Reference 2, also faces significant challenges.

As noted, this approach (i) decouples the liability valuation from the earnings rate assumptions used in managing the liabilities in a way that could introduce non-economic volatility (and concomitant pro-cyclicality), (ii) potentially impedes the provision and increases cost of socially-useful insurance product offerings over time; (iii) reduces informational value by increasing the risk of false positives and negatives for supervisors due to non-economic volatility (the "signal" versus "noise" problem); and (iv) could drive herding behavior into the assets and indices chosen by supervisors as the benchmark.

For other options being evaluated, the spread adjustments proposed for testing in the 2016 Field Test do not adequately address the issue of the disconnect between liability values and asset strategies. The consideration of whether and how to apply an Application Ratio across various forms of liabilities (depending on their liquidity profile and other characteristics) should consider that prudent ALM is designed to reflect an economic assessment of liability characteristics.

4. Own Assets with Guard Rails

4.1 What are We Trying to Accomplish?

To provide a potential way forward for global convergence, we propose an option that reflects key features and benefits from both the current MAV and GAAP+ approaches. Our aim is to identify a single integrated approach that balances transparency and simplicity with risk-sensitivity; is reasonably feasible to implement; and harnesses the advantages of each of the current proposed ICS valuation constructs:

MAV	GAAP+
• Provides consistency in economic and risk assumptions that would otherwise require material judgment • Mitigates the risks of "yield chasing" • Captures material TVOG through stochastic methods	• Aligns with company's existing internal approaches, which tend to be based on own assets • Relies on existing financial reporting process and controls • Relies on long-term earned rate assumptions and therefore is more stable

4.2 Methodology and Guard Rails

The liability discount rate starts from the firm's own assets, valued at market. Discount rates are determined consistent with observed market values as reported by an agreed internationally recognized agency (e.g. Bloomberg). These market rates are then adjusted based on a standardized approach ("guard rails") that constrains management discretion and therefore limits potential inconsistencies in approach across companies:

- Capping the adjusted spread of fixed income own assets at the adjusted BBB spread (varying by currency);

- IAIS-prescribed adjustments for credit risk, reflecting only expected default;
- Assigning a non-zero spread to equity investments and alternatives (e.g. capping at the BBB spread);
- IAIS reinvestment yield assumptions, reflecting an investment grade spread over risk free rates;
- Stochastic methods to be applied where the TVOG is material; where TVOG is immaterial, deterministic approaches could be used as a practical expedient;
- IAIS principles on stochastic modeling.

Identifying Assets Backing Particular Liabilities

In order to calculate the discount curve, our proposed approach requires as a first step identification of the assets that back the liabilities to be valued. We suggest that providing an option for IAIGs of basing this on the IAIG's established asset / liability management process at the level of the group is an appropriate method for doing this because this is the basis on which the IAIG manages its asset / liability position. This helps to avoid a disconnect between the IAIG's asset / liability management practices and the incentives created by the ICS. For example, for the life business, this could typically mean that assets are hypothecated to liabilities at no higher a level than legal entity, while maintaining the option for hypothecation at the group level. Below the legal entity level, there are likely to be different asset portfolios backing liabilities with different characteristics; for example unit linked liabilities, annuities in payment, guaranteed investment contracts, participating insurance with profit restrictions, etc. We feel strongly that it is appropriate that these distinctions can be maintained.

Reflecting Liability Attributes: Range of Potential Solutions

An important issue that some supervisors have raised is that the valuation construct should reflect the relative predictability and liquidity of insurance liabilities and the quality of an insurer's asset / liability management. More specifically, in determining the scope and degree of credit spread that insurers are permitted to recognize within the liability discount rate, there is a supervisory concern in some quarters that the expected return[1] on assets backing a particular set of liabilities would not be fully realized if the liability were to terminate earlier than anticipated (e.g., due to unexpected lapses). In this scenario of liabilities in practice being more liquid than expected, the insurer might need to liquidate the associated assets backing these liabilities, which in turn means that the expected return will not be realized and should therefore not be fully embedded in the initial discount rate assumptions. Certain products have design features or other attributes that largely obviate the risk of increased surrenders; other products without such features or other mitigating factors could have relatively higher exposure to surrender risk.

This potential for earlier-than-anticipated liability liquidation, and the concomitant impact on the liquidation of assets, seems related to supervisors' systemic risk concerns that policyholder behavior, such as increased surrenders, could drive insurers into situations of having to sell assets when prices are depressed. This risk of liability-driven "fire sales" of assets, particularly during periods of generalized market distress, is a significantly lower risk for insurance companies than for banks, which have a much greater reliance on short-term wholesale funding and other forms of demand liabilities.

[1] Often the concern is expressed in terms of the insurer not being able to "earn the spread". We note however that the spread is only one component of the return, which can be thought of as the rate on risk-free assets plus the credit spread. It is also a risk that risk free rates could rise, depressing asset prices at a time when the assets need to be sold because policyholders have decided to put their money in alternative investments promising a higher return, as actually occurred in the late 1970's and early 1980's. We therefore speak more generally in terms of the risk of not being able to earn the expected return rather than the spread component of that return.

As a general principle, the most effective and appropriate mitigant for this risk is the prudent and well-established discipline of asset / liability management that is foundational to insurance risk management. By selecting an asset portfolio with risk attributes that are geared to defeasing the insurer's actuarially-estimated obligations on its liabilities, insurers are able to significantly mitigate the potential for unexpected mismatches between the behavior and performance of its assets relative to liabilities. The reliability of this mitigation depends, in turn, on the quality, rigor, and consistency of an insurer's ALM methodologies and practices.

To address potential mismatches that occur as a result of unanticipated liability liquidation, which is an issue not only within the OAG but for any liability discounting approach based on asset attributes (including, for example, approaches based on reference portfolios), we believe that there are three potential solutions, each discussed in turn below.

Supervisory review and monitoring of insurer ALM practices

Group supervision would provide the most effective approach for ensuring that insurers' liability discount rate approaches, in particular the recognition of asset spreads, are reliable and based on credible assumptions about liability characteristics. More specifically, the ability to apply the OAG should be premised on an insurer having a foundation of well-controlled actuarial processes; an asset investment and allocation approach that explicitly and comprehensively focuses on the characteristics of the corresponding liabilities that need to be defeased; and an enterprise-wide asset and liability management program based on a thorough assessment of asset and liability attributes, sophisticated cash flow modelling, and thoughtful scenario analysis.

Application ratios differentiate the relative characteristics (e.g., liquidity) of various types of liabilities

An explicit, although potentially crude, approach to reflecting the relative liquidity attributes of various types of liabilities is the concept of an Application Ratio. For Application Ratios to provide an appropriately sensitive measure of the relative attributes across products, it is essential to calibrate their values based on credible empirical data, including experience studies of surrender activity. Additionally, reliance on an Application Ratio would not expressly provide insight into, nor incentives to enhance, insurance ALM practices.

Given the technical challenge in precisely quantifying the Application Ratios in this manner, and at this relatively early stage of the ICS process, we would suggest a narrower range of Application Ratios than is currently contemplated within the ICS, in order to avoid unintended consequences and business impact. Additionally, this narrower range should include a category for a 100% Application Ratio, for products with meaningful, demonstrable mitigants for surrender. The Application Ratio, in its implementation, should also apply to the longer-term discount rate assumptions for long-duration products. We would also suggest separating the non-life annuity-like business (e.g. annuity-like provisions such as Workers Compensation policies) into distinct buckets under the Application Ratio exercises, given their unique characteristics.

Required capital charges to address potential (though remote) "fire sale" risks for insurers

Although we believe that the demonstrably low liquidity of most insurance liabilities would largely obviate the risk of a potential "fire sale" for an insurer, an alternative approach to address this risk would be to develop an appropriately calibrated explicit required capital charge, based on a combination of a lapse and adverse market risk scenario. The adverse market risk scenario could cater for the depressed prices whether due to increased risk-free rates, spreads on fixed income assets, or equity prices. If the IAIS were to reflect this risk explicitly within required capital, then asset spreads should be fully reflected in the discounting rate, in order to avoid double-counting of this risk. We feel this could be an area for further investigation in the future, subject to appropriate calibration and impact testing.

Contract Boundaries

The valuation approach should incorporate a more economic view of contract boundaries than the current approach, to be grounded in best estimate assumptions and observable experience data. An economic approach to contract boundaries would enable stronger alignment with companies' own internal pricing, reserving, ALM and risk management practices. It would also align more positively with the current exposure draft for IFRS 17, which is based on a generally economic approach.

Guard Rails: Asset return caps to mitigate the chances of "chasing yield"

One of the key prudential concerns of relying on a company's own asset portfolio as the basis for liability valuation is that a company that chases yield by investing in lower quality instruments could, perversely, benefit from lower liability valuations and higher resulting surplus. We suggest that an appropriate "guard rail" is to cap the spread of fixed income assets at the BBB spread, which could be applied at each currency based on an appropriate spread. We also recommend the application of a non-zero spread (e.g., BBB) for equity investments and alternatives to ensure that these types of assets remain viable and appropriately attractive as part of a well-managed ALM framework, especially for the liability cash flows beyond the normal investment horizon. Such investments already incur a sizable risk charge and would, inadvertently, face a "double penalty" under an assumption of earning only the risk free rate within the liability valuation.

Guard Rails: Consistent assumptions

Currently, firms are able to apply a wide spectrum of key assumptions, especially long-term assumptions, within US GAAP/IFRS valuations. To enhance comparability across firms, we suggest introducing another "guard rail" of the IAIS prescribing assumptions in areas where (i) there is limited market-based data or (ii) management has significant flexibility to apply judgment under current accounting standards.[2]

- *Long term interest rates beyond the point at which there is a deep and liquid market*: We suggest the application of an Ultimate Forward Rate ("UFR"), similar to the current version of MAV. The level as well as the path (mean reversion horizon and speed) to the UFR should be prescribed;
- *Credit default assumptions*, which can be prescribed based on rating agency studies;
- *Reinvestment assumptions*, which can be prescribed by the IAIS that are inclusive of an investment grade spread over risk free rates; and
- *Stochastic Scenarios:* Creating principles for risk-neutral stochastic scenario generation would help to narrow the range of practice around key assumptions, thereby helping to improve consistency and comparability.

Guard Rails: Operational Requirements

An operational issue that could arise is how to calculate the market yield of the current portfolio. The current financial reporting process often includes steps supporting the quantification and controls around market yield of current portfolio, which can be leveraged for this purpose. Market yields should be calculated by starting from the market value of assets as reported in the audited balance sheets (or supplementary disclosures) and then equating the present value of the projected asset cash flows with that market value.

[2] Consideration might also be necessary for certain non-economic assumptions where there is (1) no statistically significant industry data and (2) significant variation in industry practice.

These operational requirements should also focus on existing qualitative processes such as ALM, investment management and allocation, actuarial, and ORSA processes to ensure that the information used for liability revaluation is aligned with business practices.

4.3 Alignment of GAAP Plus and MAV through OAG

The suggested approach is intended to harmonize the current GAAP+ and MAV approaches, by drawing from the most useful, pertinent, and translatable attributes from each.

Comparison of MAV, GAAP Plus and OAG

Objective		MAV	GAAP Plus	OAG
Reflect business reality and minimize impacts on the price of insurance product offerings	Reflect company's current asset mix	mixed	yes	yes
	Contract Boundaries	mixed	yes	yes
Consistency and Comparability	Reinvestment earned rate assumption	yes	no	yes
	Consistent scenario assumptions such as Ultimate Forward Rate, interest rate and equity volatilities	yes	no	yes
	Credit Risk Adjustment	yes	no	yes
Dis-incentivize regulatory arbitrage and herding behavior	Promote appropriate ALM	mixed	no	yes
	Incentivize prudent risk management and mitigation	yes	no	yes
	Minimize capital arbitrage opportunities through realizing short-term gains	yes	no	yes
	Create herding behavior	yes	no	no
Address volatility issues	Interest Rate Volatility	yes	not an issue	yes
	Credit Spread Volatility	mixed	not an issue	yes
Tractability	Requirement to value TVOG	yes	mixed	yes

Interplay with Other ICS Methodology Design Choices

TVOG and Market Risk

While we understand the importance for the valuation of insurance contracts that include embedded options and guarantees to contain a provision for the time value of options and guarantees (TVOG), we propose that the approach used for the TVOG calculation should apply the principle of proportionality.

Specifically, the TVOG calculation typically requires the use of complex stochastic models, and we propose that the use of these stochastic models only be required where the TVOG is a material portion of the total balance sheet, for example with Variable Annuity business. For other business where the TVOG is less material, we propose that simpler approaches could be used to calculate the TVOG.

The field testing specifications recognize this proportionality in paragraph 79, with deterministic approaches allowed subject to a materiality test. We support this view and endorse extending it into the full version 1.0 implementation of ICS.

When assessing less material options (typically other than Variable Annuities), a simpler deterministic approach is adequate to value the TVOG both in the base balance sheet and post stress to determine required capital. A stochastic approach is most useful to calculate the TVOG when the payout of the option is less certain (i.e. for out-of-the money options). Since required capital reflects a one-in-200 stress event that will bring nearly all options or guarantees into the money[3], the time value of options and guarantees that are not in the money after the shock will therefore be very small. In this situation, we would not expect stochastic modeling of the TVOG to contribute a material difference relative to a deterministic approach.

Finally, where the TVOG is calculated using stochastic models, we propose that the OAG valuation also provide quantitative "guard rails" to eliminate potential inconsistencies between companies in the assumptions needed for these stochastic models (e.g., the use of implied volatility in deep and liquid markets).

[3] So that the time value of options and guarantees under stress is not relevant compared to the intrinsic value (which derives from the option being "in-the-money").

5. APPENDIX

5.1 AOCI Adjustment: Need for Interest Maintenance Reserve Mechanism

In US Statutory accounting for Life insurance, besides policy reserves, insurers are required to establish two statutory reserves to absorb gains and losses in their invested assets.

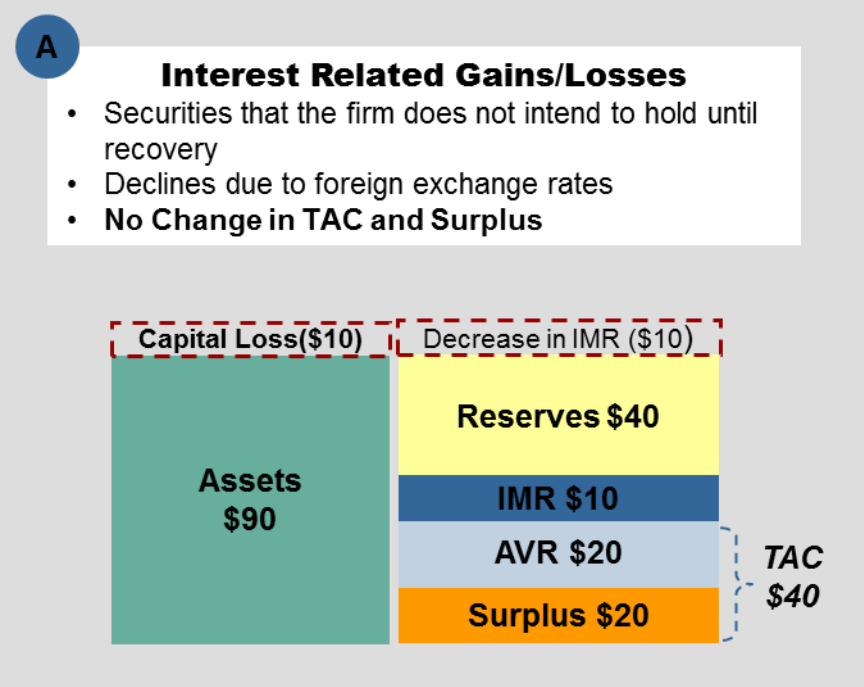
- **Asset Valuation Reserve (AVR)** is set up for capital gains and losses which result from changes in asset creditworthiness. The change in AVR does not flow into the Gain from Operations; rather, the change in the AVR is reported in the **surplus account**.

- **Interest Maintenance Reserve (IMR)** is set up for realized capital gains and losses that arise because of changes in the level of interest rates. The IMR prevents interest-related gains and losses from having an immediate impact on surplus and allows insurance companies to amortize these gains into the **Gain from Operations** in a manner which reflects the runoff in future yields as closely as possible.

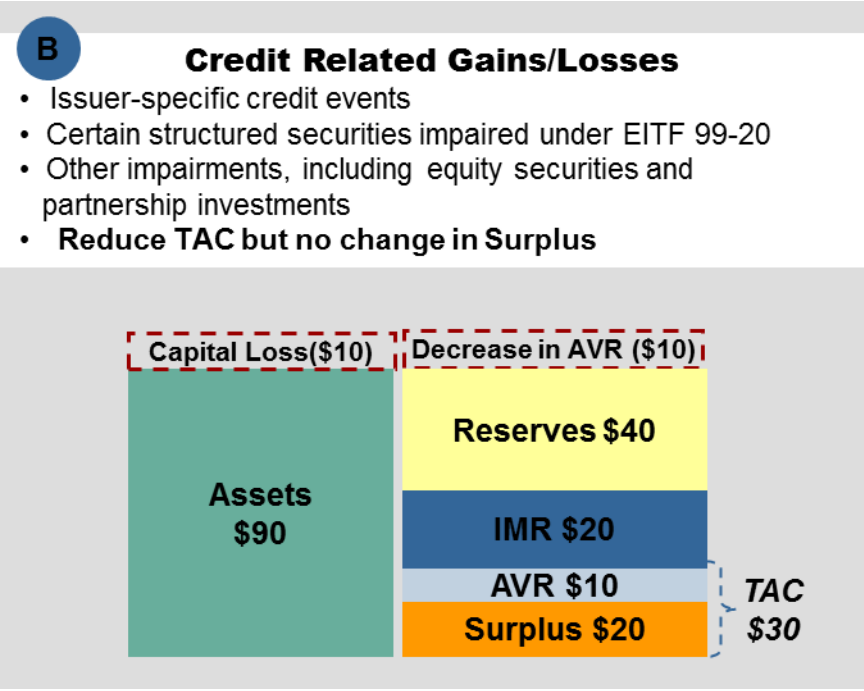
Life company statutory capital (US RBC) adjusted for asset valuation reserve (AVR).

- AVR is a formula-based reserve broken out of surplus to absorb investment losses.
- TAC = Surplus + AVR + 50% * scheduled dividend (for par type product)
- RBC ratio based on total adjusted capital (TAC)

In normal cases in which the realized interest-related gains and losses are smaller than IMR, Statutory Surplus is generally immune to any <u>immediate</u> impact due to realized gains and losses, and OTTI, which can be wholly or partially offset by deferrals to IMR. Interest-related capital gains and losses net of taxes will be gradually recognized in Stat Surplus based on the amortization schedule elected by the company over the remaining years to expected maturity of the assets sold. The purpose of the IMR is to maintain the original matching between assets and liabilities that might be weakened by the sale of an asset.



In contrast, the credit impairment related gains and losses would have immediately impacted statutory capital.



In essence, IMR is trying to address the question around "the adequacy of assets that back interest rate sensitive liabilities, if capital gains are taken when interest rate have declined." Investment activity that enhances return can still be expected to add to net worth. Under the IMR, this addition to net worth is smoothed over time in a way consistent with insurance liabilities.