

## **SOA 2018 Annual Meeting - Session 91, Insurance Capital Standard: What's New, What's Upcoming and Why it all Matters**

This paper provides a high-level summary of the Insurance Capital Standard (ICS) as defined for the 2018 Field Testing exercise. It is not intended to be an exhaustive description of all ICS topics, but it is intended to provide general background information to those attending Session 91 of the 2018 SOA Annual Meeting.

### **Background**

The International Association of Insurance Supervisors (IAIS) began development of a risk-based Insurance Capital Standard (ICS) in 2013 in response to the Financial Stability Board's (FSB) request to enhance the financial stability for internationally active insurance groups (IAIG).

- IAIS is a standard-setting body with no legal power to mandate an ICS as a prescribed requirement within jurisdictions, but members of IAIS commit to:
  - Pursue the mission of the Association
  - Implement IAIS supervisory material, taking into account specific market circumstances
  - Undergo periodic self-assessments and peer reviews
- IAIG Definition:
  - Premiums received from three or more different global jurisdictions
  - Gross Written Premiums outside of the home jurisdiction are at least 10% of the group total
  - Total assets are at least USD 50B or Gross Written Premiums are at least USD 10B

Principles have been established for the ICS which continue to be reviewed for possible revision.

- ICS Principles
  - ICS is a group-wide standard with a globally comparable risk-based measure of capital adequacy for IAIGs and G-SIIs.
  - The main objective of the ICS are protection of policyholders and to contribute to financial stability.
  - One of the purposes of the ICS is the foundation for Higher Loss Absorbency (HLA) for G-SIIs.
  - The ICS reflects all material risks to which an IAIG is exposed.
  - The ICS aims at comparability of outcomes across jurisdictions and therefore provides increased mutual understanding and greater confidence in cross-border analysis of IAIGs among group-wide and host supervisors.
  - The ICS promotes sound risk management by IAIGs and G-SIIs.
  - The ICS promotes prudentially sound behavior while minimizing inappropriate pro-cyclical behavior by supervisors and IAIGs.
  - The ICS strikes an appropriate balance between risk sensitivity and simplicity.
  - The ICS is transparent, particularly with regard to the disclosure of final results.
  - The capital requirement in the ICS is based on appropriate target criteria which underlie the calibration.

Development of the ICS has been set in stages. ICS v1.0 was established early in the process and assessed through multiple voluntary field testing exercises and feedback from industry and global regulators. In 2017, the Kuala Lumpur (KL) Agreement established ICS v2.0 and a path to convergence of group capital standards with a plan to conduct ICS v2.0 in two phases.

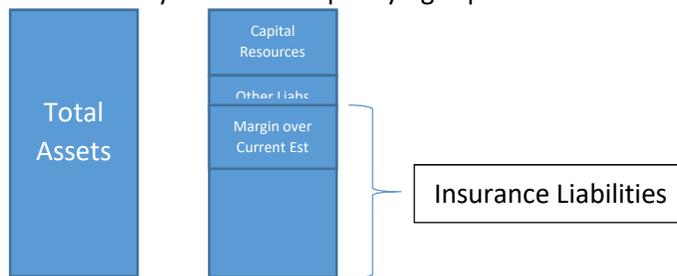
- ICS v2.0 Phases
  - Phase 1: 5-year monitoring period. ICS v2.0 will be used for confidential reporting to Group Wide Supervisors (GWS) and supervisory college discussions, but no supervisory action will be taken in this phase.
  - Phase 2: Implementation of ICS as a group-wide Prescribed Capital Requirement (PCR) for IAIGs (but not at the legal entity level). Includes mandatory reporting by all IAIGs on a reference ICS and additional reporting (at the option of the GWS) based on GAAP-Plus and/or other methods.
- ICS Goals
  - Goal for ICS v1.0
    - An ICS for extended field testing based on 2 valuation approaches (MAV and GAAP+) and a standard method
    - Plan for consideration of other methods (internal models, external models, variations of the standard method)
  - Goal for ICS v2.0
    - ICS fit for implementation by supervisors that
      - will improve comparability vs. v1.0 (but maybe not at ultimate goal level)
      - aspires to reduce valuation differences (though two approaches may still exist)
      - allows for standard and other methods
    - Implemented in 2 phases
  - Ultimate Goal
    - Single ICS that achieves comparable (substantially the same) outcomes across jurisdictions.

**Reference ICS**

A key principle of ICS is comparability. The reference ICS provides a common reference point to provide a basis for comparison across jurisdictions and to assess and conclude whether certain ICS aspects should be included (e.g. GAAP-Plus and/or other methods).

**Key Components of the Reference ICS**

- Market-Adjusted Valuation (MAV) - A total balance sheet approach including all assets and liabilities consistently reflected in qualifying capital resources and ICS



- Current estimates to value insurance liabilities
- Prescribed IAIS yield curve for projections and discounting
- Uses a single discounting approach
  - Risk-free yield curve with adjustment
  - The Adjustment (2018 Field Testing approach) uses a 3-bucket approach
    - Segment 1: observed market prices
    - Segment 2: grading between segments 1 and 3
    - Segment 3: stable macro-economic long-term anchor
- Fair Value used for valuation of financial instruments
- Qualifying Capital Resources
  - 5 principles:
    - Loss-absorbing capacity
    - Subordination
    - Availability to absorb losses
    - Permanence
    - Absence of both encumbrances and mandatory servicing costs
  - 2 Tiers of qualifying capital resources
- Margin Over Current Estimate (MOCE) – 2 methods currently being tested
  - Cost of capital MOCE (C-MOCE)
    - Practical way to achieve purpose to transfer insurance obligations to a willing third party on a going concern basis
    - $C - MOCE = Cost\ of\ capital * \sum_{t \geq 0} \frac{Capital\ requirements(t)}{(1 + discount\ rate)^t}$ 
      - Cost of capital parameter is additional rate, above the relevant risk-free rate, an investor requires to take on the risk associated with the insurance liabilities
      - Two approaches to COC for 2018 FT:
        - Fixed cost of capital at 5%
        - $COC = 3\% + 10\text{-year risk-free rate (max of 10\% and min of 3\%)}$
  - Margin for Prudence (P-MOCE)
    - Simple and comparable way to calculate a consistent margin to ensure policyholder protection
    - Life obligations: P-MOCE is calculated as a percentage of the standard deviation for the current estimate using a normal approximation
    - Non-life obligations: calculated separately for claim liabilities and premium liabilities with a floor of zero for both
- Standard Method for capital requirements (see details below)
  - 99.5% VaR over a 1-year time horizon
  - Combination of factor-based approach and stress approach
  - A prescribed correlation matrix is used to aggregate risks

#### Additional Reporting (at the option of the GWS)

- GAAP-Plus
  - Based on jurisdictional accounting rules
  - Continued development and field testing is needed for IFRS and US GAAP in 2020 and 2021 with a 3-year monitoring beginning 2022
- Other Methods
  - Must provide same level of protection as Standard Method, 99.5% VaR over 1 year

- Must meet ICS Principles
- Internal Models allowed at the discretion of the GWS
- Under IAIS consideration:
  - IAIG-specific factors
  - Dynamic hedging
  - Supervisory-owned and controlled credit assessment processes
- To participate, IAIGs must meet pre-requisites specific to the “other method”

**Standard Method for Capital Requirements**

Key Categories/Risks include Insurance, Market, Operational, and Credit

These risks are included in the Standard Method using a Factor-based approach (F), a Stress approach (S) or an Other approach (O). The table below shows the risk taxonomy used within the Standard Method and identifies the approach used to quantify each risk.

Insurance	Market	Operational (F)	Credit (F)
Mortality (S)	Interest rate (S)		
Longevity (S)	Non-default spread risk (S)		
Morbidity/Disability (S)	Equity (S)		
Lapse (S)	Real estate (S)		
Expense (S)	Currency (S)		
Premium risk (nonlife) (F)	Asset Concentration (F)		
Claim reserve (nonlife) (F)			
Catastrophe (O)			

- Stress Approach (S) – The difference in capital resources between a stressed event and a non-stressed event for each individual risk
- Factor-Based Approach (F) – Does not account for loss-absorbing effects of mechanisms such as risk mitigation and profit sharing
- Other Approach (O)
- Additional risks (i.e. Group Risk) should be covered in other parts of ComFrame, not in the requirement
  
- Risk Mitigation Techniques (e.g. Hedging for Market Risk). IAIS is considering allowing regular hedge renewals, as long as a program for renewals is in place and well documented. Cap of 80% effectiveness after costs.
  - Not renewable more often than quarterly
  - Currency and Equity risk mitigation can be replaced at most monthly
    - Sufficiently liquid instruments
    - Risk is not significantly more than those replaced less frequently
  - IAIS looking to get feedback on technique and calibration of risk mitigation approach
  - Reinsurance for non-life: goal is to match the reinsurance contracts with the direct business used to calculate the current estimate the risk of adverse change in the value of capital resources

- Dynamic Hedging – not recognized under the Standard Method. Only recognizes risk mitigations that mitigate risks at the reference date
  - Under consideration for ICS v2.0; IAIS is collecting information
- Management Action: reductions in liabilities for future bonuses or other discretionary benefits
  - Should be substantiated in order to be used
  - Documented and Supportable
  - Considering allowing for premium adjustments including COIs
- Mortality & Longevity Risks
  - The risks of adverse change in the value of capital resources due to unexpected changes in the level, trend or volatility of mortality rates.
  - Calibration:
    - Mortality: 12.5% increase in mortality rates
    - Longevity: 17.5% decrease in mortality rates
- Morbidity & Disability Risks
  - The risk of adverse change in the value of capital resources due to unexpected changes in the level, trend, or volatility of disability, sickness, and morbidity rates.
  - Includes changes in the level of claim payments and risk events caused by accident and/or sickness.
  - Calibration of Morbidity/Disability risks:
 

Benefit Category	Short Term Contract	Long Term Contract
Medical Expenses	20%	8%
Lump Sum	25%	20%
Short-term Recurring Payments	20%	12%
Long-term Recurring Payments	Inception rate shock = 25% Recovery rate shock = 20%	Inception rate shock = 20% Recovery rate shock = 20%
  - Geographic differences are not accounted for but could be in the future.
- Lapse Risk
  - The risk of adverse change in the value of capital resources due to unexpected changes in the level and trend of exercise rates of policyholder options.
  - Applicable only to Life business and ‘Similar to Life’ health business.
  - Risk Amount = Max(Level & Trend Risk, Mass Risk) by Region
    - Level & Trend Risk: +/- 40% of assumed take-up rates
    - Mass Lapse Risk is applied to homogenous risk groups and floored at 0:
      - 30% immediate surrender on retail policies
      - 50% immediate surrender on non-retail policies
- Expense Risk
  - Covers both unit expense risk (the risk of adverse change in the value of qualifying capital resources due to unexpected changes in the level of expenses incorporated within the insurance liabilities) and inflation risk (the risk of expenses inflating at a higher rate than assumed).
  - Applicable only to Life business and ‘Similar to Life’ health business.
  - Calibration:
    - Other developed markets: 2% expense inflation grading down to 1%
    - China and other emerging markets: 3% expense inflation grading down to 1%

- Premium and Claim Reserve Risks
  - Premium Risk – the risks associated with the timing, frequency and severity of future insured events.
  - Claim Reserve Risk - risks associated with expected future payments for claims or events that have already occurred (whether reported to the IAIG or not) and not yet fully settled.
  - Factor-based approach applied to net earned premiums and net current claims estimates by category (property-like, liability-like, motor-like, other, credit and mortgage) and region. Predefined correlations are applied to aggregate risks.
  - IAIS is considering IAIG Specific Factors (ISF) to be applied if certain conditions are met (quite a bit of information is available on this topic but not included here as the focus here is on Life Insurance risks).

- Catastrophe Risks
  - Losses over the next 12 months stemming from low frequency/high severity risks associated with claims events that have yet to occur, resources due to unexpected changes in the level or volatility of interest rates often arise from an aggregation of multiple claims originating from a single source.
  - Applied to both Life and Non-Life.
  - Natural catastrophes include hurricanes, earthquakes, winter-storms, and other material natural perils
  - Other catastrophe scenarios include terrorism, pandemics, and credit events.
  - List of perils is still under consideration.
  - Diversification of Catastrophe Risks

$$ICS_{Cat} = \sqrt{ICS_{NatCat}^2 + ICS_{Terror}^2 + ICS_{Pand}^2 + ICS_{Credit}^2}$$

- Interest Rate Risk
  - The risk of adverse change in the value of capital resources due to unexpected changes in the level or volatility of interest rates.
  - MAV Approach – 5 Scenarios tested
    - Scenario 1: Expected mean reversion over the next year
    - Scenario 2: Level up
    - Scenario 3: Level down
    - Scenario 4: Twist stress from up to down
    - Scenario 5: Twist stress from down to up
    - Total Charge = Gain or Loss under Scenario 1 +  $\sqrt{Max\ loss(level\ up, level\ down)^2 + Max\ loss(Twist\ up\ to\ down, Twist\ down\ to\ up)^2}$
    - IRR for each currency is calculated and aggregated using a 75% correlation between currencies
  - GAAP-Plus Approach
    - GAAP-Plus allows for recognition of local GAAP valuations (e.g. amortized cost vs. market values).
    - IRR is calculated regionally based on GAAP differences.
  - Management Actions – 2 step process
    - Calculate IRR without management actions
    - Calculate IRR with management actions
    - Impact = the difference
- Non-Default Spread Risk

- Unexpected changes in the level or volatility of spreads over the risk-free interest rate term structure, excluding the default component (which is captured in Credit Risk).
- MAV Approach
  - Spread changes are applied to the valuation of assets and liabilities.
  - Risk charge = max(up shock, down shock) subject to a floor of zero.
  - Calibration of up and down shocks uses a combination of absolute basis points and percentage shocks and is subject to expert judgment.
- GAAP Plus Approach
  - Dependent on the jurisdictional specifications of GAAP valuations
  - Risk charge is calculated using different GAAP specifications which could result in charges from an “up shock” in one jurisdiction and a “down shock” in another
  - Aggregation is the sum of the components, independent of shock direction
- Liquidity risk is assumed to be addressed outside of ICS through other supervisory tools
- Equity Risk
  - The risk of adverse changes in the value of capital resources due to unexpected changes in the level or volatility of market prices of equities.
  - Equity level shock is an instantaneous relative decrease in market prices:
    - 35% decrease in developed markets (as determined by FTSE Developed Index)
    - 48% decrease in emerging markets
    - 49% decrease in other equity
  - Shock for hybrid debt and preference shares is an instantaneous relative decrease in market prices by x%, dependent on credit rating

ICS Rating Category	X%
1-2	4%
3	6%
4	11%
5	21%
6-7	35%

- Volatility shocks are additive to current implied volatilities to reduce procyclicality

Maturity (months)	Shock
0-1	39%
3	27%
6	23%
12	20%
24	18%
36	17%
48	16%
60	16%
84	15%
120	14%
144	14%
180 and above	13%

- Equity Risk aggregation applies the following correlation matrix

Equity Segment	Developed	Emerging	Hybrid/ Preferred	Other

Developed	100%	75%	100%	75%
Emerging	75%	100%	75%	75%
Hybrid/Preferred	100%	75%	100%	75%
Other	75%	75%	75%	100%

- Real Estate Risk
  - The risk of adverse changes in the value of capital resources due to unexpected changes in the level or volatility of market prices of real estate or from the amount and timing of cash flows from investments in real estate.
  - 25% simultaneous decrease in the value of all direct or indirect property exposures.
  - Mortgages are excluded from Real Estate Risk and included in Credit Risk.
- Currency Risk
  - The risk of adverse changes in the value of capital resources due to unexpected changes in the level or volatility of currency exchange rates.
  - Shocks use a granular pairwise currency stress.
  - Investments in foreign subsidiaries are exempt from Currency Risk.
  - Correlation of 50%
- Asset Concentration Risk
  - The risk of adverse changes in the value of capital resources due to a lack of diversification in the asset portfolio.
  - Risk charges and thresholds in calculating Asset Concentration Risk

<b>Asset Concentration Risk Charge Category</b>	<b>Incremental Risk Charge Factor</b>	<b>Applicable Threshold (% of total insurance assets)</b>
<b>Counterparty Related (weighted average)</b>		
• In ICS ratings 1 & 2	15%	3%
• In ICS ratings 3 & 4	25%	3%
• In ICS ratings 5,6 & 7	50%	1.5%
<b>Property</b>	25%	3%

- Credit Risk
  - The risk of adverse changes in the value of capital resources due to unexpected changes in actual defaults, as well as in the deterioration of an obligor's creditworthiness short of default, including migration risk and spread risk due to defaults.
  - Credit risk exposures are categorized into seven asset classes: 1) public sector entities 2) corporate holdings 3) reinsurance 4) securitizations 5) resecuritizations 6) mortgage loans 7) miscellaneous assets
  - The Credit Risk charge is determined by applying specified stress factors relative to exposure class, rating category (external ratings are permitted) and maturity to the net exposure amounts.
  - Mortgage loan credit risk stress factors vary by loan-to-value and debt-service-coverage data.
  - Credit Risk on exposures to national governments is zero.
  - Credit Risk on collateralized reinsurance agreements is based on the credit risk factor of the collateral rather than the credit risk factor of the reinsurer.
- Operational Risk
  - The risk of adverse change in the value of capital resources due to operational events including inadequate or failed internal processes, people and systems, or from external events.

- Includes legal risk but excludes strategic and reputational risks.
- Operational Risk exposures and factors:

	Premium	Liabilities	Growth
<b>Risk from Non-Life Operations</b>			
Exposure	GWP most recent financial year	Gross current estimate	GWP most recent financial year exceeding the growth threshold of 20% compared to the prior year
Factor	2.75%	2.75%	2.75%
<b>Risk from Life Operations</b>			
Exposure	GWP most recent financial year	Gross current estimate	GWP most recent financial year exceeding the growth threshold of 20% compared to the prior year
Factor	4%	Life (Risk): 0.4% Life (Non-Risk): 0.45%	Life (Risk): 4%

- Aggregation

- A multi-step aggregation approach based on correlation matrices is used
- Total aggregation applies diversification between risks and within risks
- Correlation matrix for aggregation within market risk:

Market Risks	Interest Rate	Non-Default Spread Up	Non-Default Spread Dwn	Equity	Real Estate	Currency	Asset Conc.
IR	100%	25%	25%	25%	25%	25%	0%
NDS Up	25%	100%	100%	75%	50%	25%	0%
NDS Dwn	25%	100%	100%	0%	0%	25%	0%
Equity	25%	75%	0%	100%	50%	25%	0%
Real Estate	25%	50%	0%	50%	100%	25%	0%
Currency	25%	25%	25%	25%	25%	100%	0%
Asset Conc.	0%	0%	0%	0%	0%	0%	100%