IAIS

INTERNATIONAL ASSOCIATION OF INSURANCE SUPERVISORS

IAIS Capital-Related Stakeholder Meeting

IAIS Capital, Solvency and Field Testing Working Group

Singapore, 11 March 2016

Agenda (before lunch)

1. **Welcome and Introduction (30 minutes)**

2. **Market Adjusted Valuation (1.5 hours)**

3. **GAAP with Adjustments (45 minutes)**

Agenda (after lunch up to coffee break)

4. **Capital Resources (45 minutes)**

5. **MOCE (30 minutes)**

6. **Interest Rate Risk (30 minutes)**

Agenda (last session)

7. **Morbidity and Disability Risk (30 minutes)**

8. **Lapse and Expense Risks (30 minutes)**

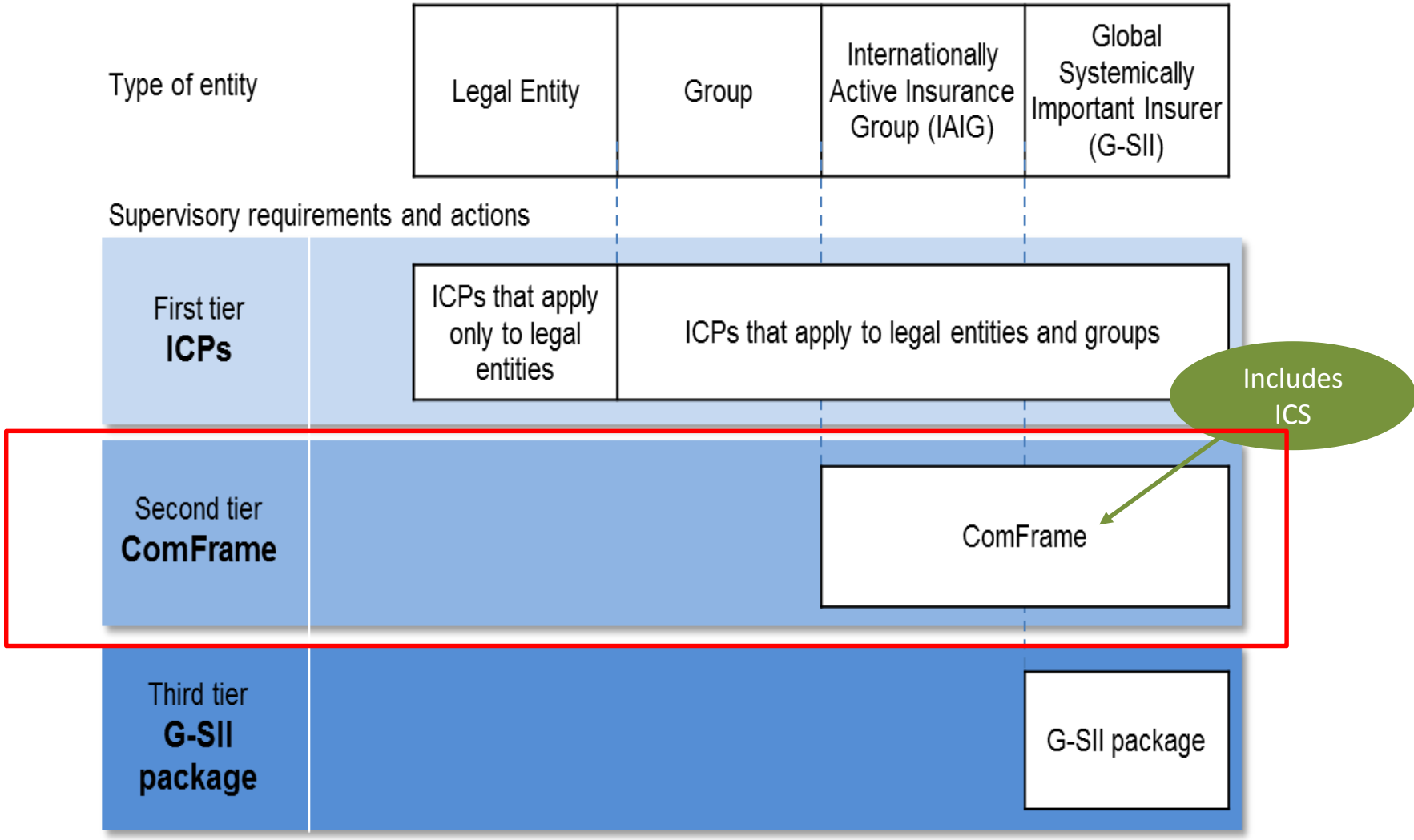
9. **Currency Risk (30 minutes)**

10. **Other Risks (15 minutes)**

11. **Wrap up, conclusion, next stakeholder events (15 minutes)**

1. WELCOME AND INTRODUCTION

Architecture of IAIS international supervisory requirements



ComFrame for IAIGs

- **Common Framework for the Supervision of IAIGs**

- **Rationale:**
  - Increasingly globalised insurance markets need a global solution

- **Objectives:**
  - Establish a comprehensive framework for group-wide supervision that builds upon ICPs
    - Capital requirements for IAIGs
    - Qualitative requirements for IAIGs
    - Scope of group-wide supervision
    - Requirements for supervisors
    - Crisis Management and Resolution

  - Foster global convergence of regulatory and supervisory requirements for insurance groups

ComFrame – Scope of application

ComFrame (including ICS) will apply to **all IAIGs including G-SIIs** ('Global Systemically Important Insurers')

IAIGs to be identified by supervisory colleges based on two criteria (both need to be satisfied):

1. International activity

- Premiums are written in three or more jurisdictions, and
- Percentage of gross premiums written outsider the home jurisdiction is at least 10% of the group's total gross written premium

2. Size (average on 3 years)

- Total assets are at least USD 50 billion or
- Gross written premiums are at least USD 10 billion

Supervisors have discretion in applying the criteria

ComFrame – Structure

Module 1 - Scope

- Identification of IAIGs
- Process of identifying IAIGs
- Scope of supervision
- Identification of GWS (group-wide supervisor)

Module 2 – the IAIG

- IAIG's legal and management structures
- Governance
- ERM
- ERM Policies
- Capital adequacy assessment: development of Insurance Capital Standard (ICS)

Module 3 – The Supervisor

- Group-wide supervisory process
- Supervisory colleges, cooperation and coordination
- Crisis management and resolution measures among supervisors

Insurance Capital Standard (ICS)

The ICS is being developed in the context of the IAIS Mission:

- maintain fair, safe and stable insurance markets
- for the benefit and **protection of policyholders**
- and to contribute to **financial stability**

- The ICS aims at **comparability of outcomes across jurisdictions**
  - increased mutual understanding
  - greater confidence in cross-border analysis of IAIGs among group-wide and host supervisors

ICS - key points

- The ICS is a **group-wide, consolidated insurance capital standard** applicable to IAIGs
- The ICS is part of ComFrame, which addresses qualitative AND quantitative requirements for IAIGs
- The ICS is not intended as a legal entity requirement
- Once finalised and agreed, the ICS will be a measure of capital adequacy for IAIGs
- The ICS will constitute the **minimum standard** to be achieved and one which the supervisors represented in the IAIS are expected to implement in their respective jurisdictions (implementation issues are still under discussion)
- Supervisors will be free to adopt additional arrangements that set higher standards or higher levels of minimum capital.
- Moreover, they are free to put in place supplementary measures of capital adequacy for the IAIGs in their jurisdiction

Goals for the ICS – version 1.0

Goal for ICS Version 1.0 (for confidential reporting): The goal for this milestone is the delivery of an ICS for confidential reporting purposes based on:

- the identified two valuation approaches
- a standard method for calculating the ICS capital requirement

Upon completion of ICS Version 1.0, there will also be a plan to consider other methods of calculation of the ICS capital requirement including:

- the use of internal models (partial or full)
- external models
- variations of the standard method.

To be adopted by May/June 2017 for confidential reporting

Goals for the ICS – version 2.0

Goal for ICS Version 2.0 (for adoption within ComFrame): The goal for this milestone is the delivery of an ICS that is fit for implementation by supervisors:

- that will achieve an improved level of comparability compared to ICS Version 1.0 but possibly not the level of comparability envisaged by the ultimate goal
- may still include the two valuation approaches but aspires to reduce differences in valuation
- may allow for both the standard method for calculating the ICS capital requirement and other methods of calculation including:
  - the use of internal models (partial or full)
  - external models
  - variations of the standard method.

To be consulted on beginning May/June 2018, and adopted (together with ComFrame) in 2019

Goals for the ICS – Ultimate Goal

The ICS Ultimate Goal
(no final date attached):

- A single ICS that includes a common methodology by which one ICS achieves comparable, i.e. substantially the same, outcomes across jurisdictions.
- Ongoing work is intended to lead to improved convergence over time on the key elements of the ICS towards the ultimate goal.
- Not prejudging the substance, the key elements include valuation, capital resources and capital requirements.

Insurance capital standard

- 3 Main components of ICS:
  - Valuation
  - Qualifying capital resources
  - ICS capital requirement

ICS Ratio = qualifying capital resources / ICS capital requirement

- ICS applies to all IAIGs including G-SIIs
  - Definition of 'IAIGs' and 'Group' to be taken from ComFrame

- First Consultation Document (Dec 2014 – Feb 2015) focused on Insurance activities
  - Treatment of Non-Insurance activities in ICS will be addressed in future consultation

2. MARKET ADJUSTED VALUATION

CHANGES TO MAV SPECIFICATIONS

Valuation of property held for own use

- 2015 Approach
  - Investment property → Fair Value
  - Property held for own use → GAAP Valuation (often at Cost)

- What is the issue?
  - In 2015 FT exercise, "(…) *real estate risk charge is based on stressing the market value of real estate exposures*" [Paragraph 478 of the Technical Specifications]
  - This created inconsistencies between the valuation used on the balance sheet and the one on the basis of which the capital charges were calculated. This meant that, Capital Requirements and Capital Resources were calculated on two different valuation bases.

- Proposal for 2016 Field Testing
  - All property to be valued at Fair Value

Valuation of financial instruments (liabilities)

- 2015 Approach
  - General adjustment of Financial Instruments, both assets and liabilities, to Fair Value

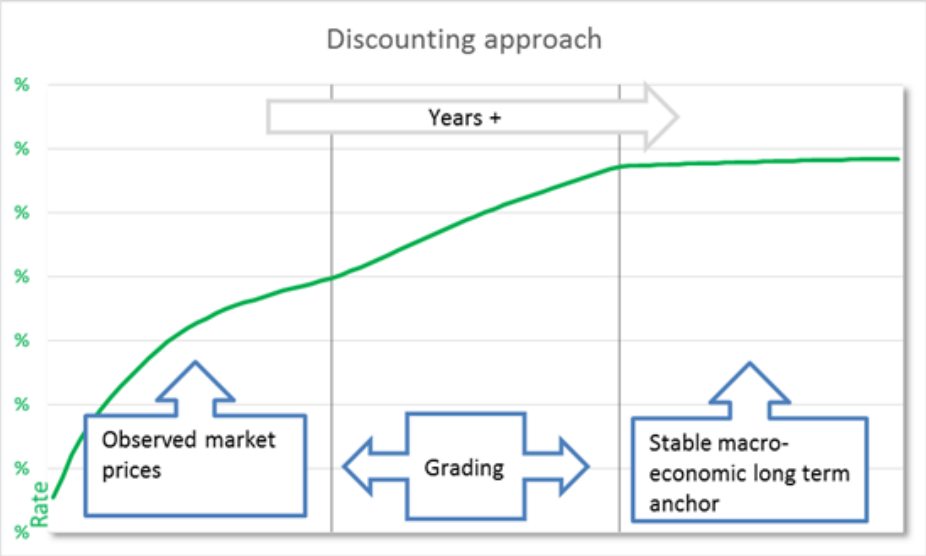
- What is the issue?
  - Confusion whether the application of the general adjustment principle was indeed required to all financial liabilities items
  - More specifically, the application of the adjustment to debt instruments issued by the IAIG (e.g. subordinated debt) would violate fundamental principles of MAV – that valuation should not be entity-specific and the own credit standing of the IAIG should not be reflected in the valuation of its liabilities.

- Proposal for 2016 Field Testing
  - Clarify that the adjustment to Fair Value does not apply to debt instruments issued by the IAIG (example was added)

BASE CURVE

Current status on base yield curve

- FT2015 introduced significant changes to the determination of the basis IAIS Curves used under the MAV valuation approach
  - 3 segment approach instead of the “flat after 30 years” assumption
  - Extrapolation methodology
  - Convergence to Long Term Forward Rate



- These changes were generally well received
- No changes proposed for 2016 field testing

ADJUSTMENT TO BASE CURVE

Conceptual framework for the adjustment

The adjustment should be consistent with the overall MAV construct, which means that:

- Under the MAV concept, the value of insurance liabilities should not be dependent on the characteristics of the insurer that holds them, such as its credit standing or investment options (to ensure the same degree of protection to all policyholders)

- It should, however,
  - recognise the long term nature of insurance business; and
  - strike a balance between reflecting changes in market conditions, where appropriate, and avoid reflecting changes that do not affect the solvency of the IAIG

- This means that, as part of credit spreads observed in the markets are due to short-term fluctuations and do not stem from expected or unexpected risks, this part should be accounted for in the valuation (and potentially mitigate inappropriate volatility in capital resources).

- It may be appropriate to link the degree of adjustment to the ability of the insurer to earn such spreads, by holding assets to maturity

Three main points under consideration

- The first three points require prompt resolution to streamline the number of options for 2016:

  1. **Approach to liability bucketing:** Should there be multiple buckets linked to the liability features? If yes, what methodology can be used to allocate liabilities to the different buckets?
  2. **Approach to portfolio selection (for spreads):** Should the spread adjustment be determined on the basis of a single reference portfolio, multiple reference portfolios or based on the IAIG-specific assets?
  3. **Approach to default allowance:** methodology for the spread adjustment for default and other risks.

- The set of options proposed for testing in FT2016 will result from a combination of the choices to be made under each of these three points.

- In addition, the identification/design of a "stress scenario" (e.g. 2008) is fundamental to assess the appropriateness of any of these options

Glossary

- **Option** – refers to the policy choices for testing (e.g. # of buckets, approach for allocation to buckets, method for spread adjustment, etc.)
- **Scenario** – refers to the combination of testing options and the particular economic scenario (e.g. end of 2015 scenario, 2008-type stressed scenario)
- **Single reference portfolio (SRP)** – refers to a single portfolio, per currency, for determining aggregate spreads, as was used in the 2014 field-testing
- **SRP linked to typical jurisdictional assets holdings** – refers to a reference portfolio of assets, per currency, that is selected to be representative of the aggregate asset holdings of insurers in that market
- **Weighted average of multiple portfolios (WAMP) linked to the assets held by the firm** – refers to multiple reference portfolios that are combined as a weighted average by firms, using their own asset composition as weights

Possible options for field testing

		Reference method Risk-free	Reference method 2015 methodology	Option 1: currency-specific	Option 2: firm-specific	Option 3: High buckets	Option 4: Low buckets	Option 5: Stress testing
Liability segmentation (buckets)		**N/A**	**1**	**1**	**1**	**3**	**3**	**Continuous**
Portfolio Composition		**N/A**	**Reference portfolio per jurisdiction**	**Represent-ative portfolio per currency**	**Weighted average based on firm's assets**	**Weighted average based on firm's assets**	**Weighted average based on firm's assets**	**Weighted average based on firm's assets**
Default Deduction		**N/A**	**Included in 60% deduction of spread**	**Defaults deducted**	**Defaults deducted**	**Defaults deducted**	**Defaults deducted**	**Defaults deducted**
Application ratio								
Liquidity buckets	1	**0%**	**100%**	**100%**	**100%**	**90%**	**60%**	**Liability liquidity assessed through stress testing**
	2					**70%**	**40%**	
	3					**50%**	**20%**	

For Options 1-5, the adjustment would be expressed as a parallel shift of the curve in bps, up to the entry point of extrapolation.

REFERENCE METHOD 1

Reference Method 1

This calculation is made applying **Discounting with no adjustment to the base curves** – this is necessary to isolate the effect of the different adjustments tested

- Under this calculation, no adjustment will be applied to the risk-free rate yield curve
- The results of this option will be used to isolate the effect of the different adjustments tested
- This will help the IAIS asses the effectiveness of the different options under consideration in order to make a decision after the 2016 Field Testing exercise

REFERENCE METHOD 2

Reference Method 2

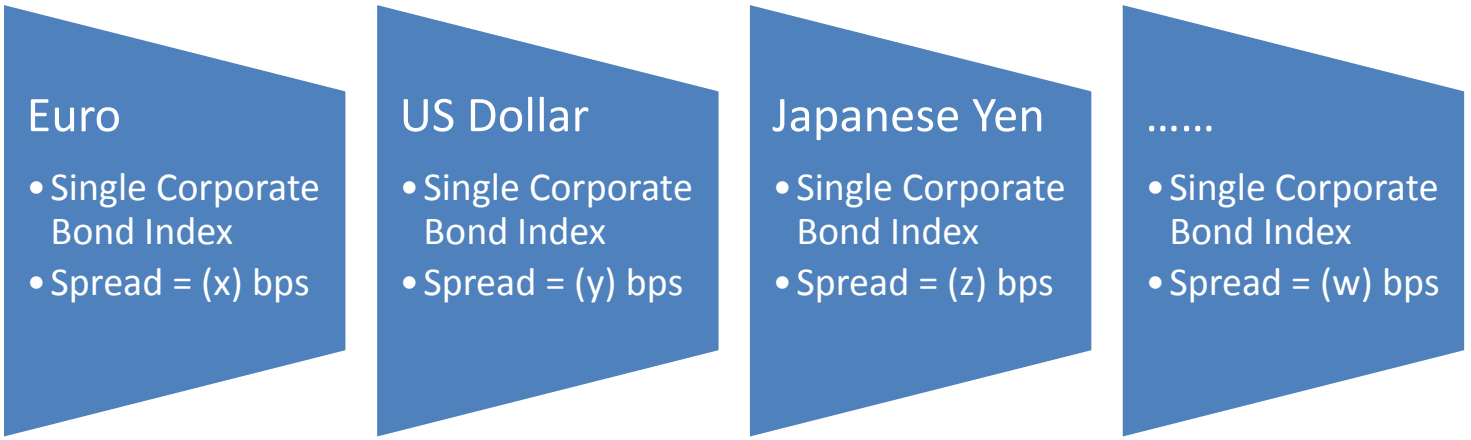
For this calculation, the adjustments to the basis yield curve are determined by **applying the 2014/15 field testing Approach** – this is useful to evaluate the incremental effectiveness of the options to be tested

- Under this option, the adjustment applicable to liabilities is determined following a similar methodology as used in FT2014 and FT2015 (i.e. 40% of a good quality corporate bond index)

- This approach would enable the IAIS to collect a third and fourth data point on the same basis (e.g. including the stress scenario) and assess the incremental effectiveness of the other options

Single Reference Portfolio – 2015 FT approach

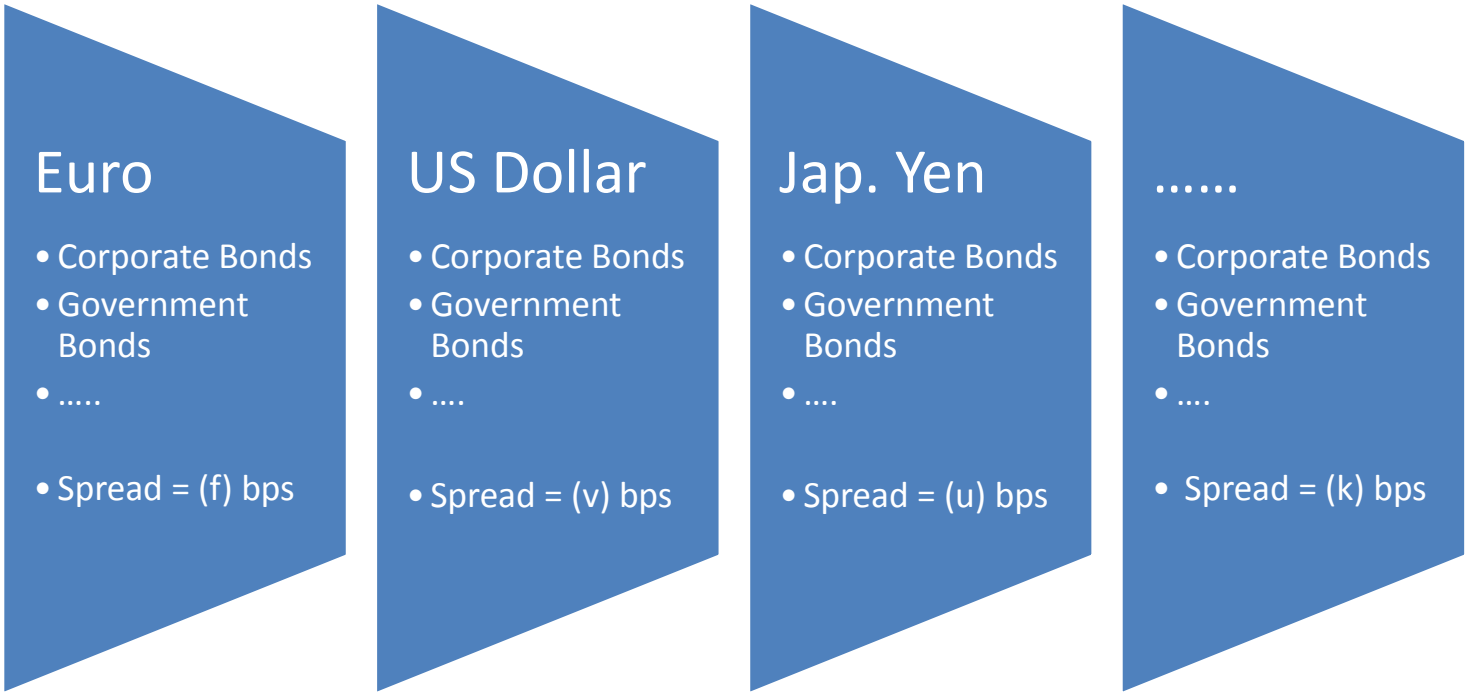
- The adjustment to the base curve is based on the spread calculated on a single reference portfolio by currency, irrespective of the current assets held by the firm



OPTION 1

SRP linked to typical jurisdictional asset holdings – Option 1

- The adjustment to the base curve is based on the spread calculated on a single reference portfolio by currency, designed to be representative of assets typically held by insurers in that jurisdiction.



OPTIONS 2, 3 AND 4

WAMP linked to the assets held by the firm - Options 2 to 5

- Under this approach, the adjustment per currency is based on a weighted average of reference portfolios (e.g. corporate bonds, govies, securitisations, etc.) per currency

- The weights attributed to each one of the reference portfolios differs by currency/jurisdictions. They are set up by the IAIS on the basis of the typical holdings of these assets categories by firms in that specific jurisdiction/currency

Currency A				
	First Dimension: Asset Class			
Second Dimension: Rating	x bps	y bps	z bps	n/a
	k bps	w bps	p bps	n/a
	[…]	[…]	[…]	[…]

+

Asset Holdings IAIG XXX				
	Asset Class			
Rating	x %	y %	z %	t %
	k %	w %	p %	j %
	[…]	[…]	[…]	[…]
	Σ = 100%			

Weighted Average = m bps

[Relevant spread for IAIG XXX for Currency A]

List of admissible assets for WAMP

Asset Class	Eligible
Cash and other liquid assets not for investment purposes	(Excluded from firm portfolio)
Investment income receivable / accrued	N
Fixed Interest Government Bonds	Y
Fixed interest Corporate Bonds	Y
Fixed Interest Municipal Bonds	Y
Variable Interest Government Bonds	Y
Variable interest Corporate Bonds	Y
Variable Interest Municipal Bonds	Y
Convertible notes	N
Residential Mortgage Loans	Y
Non-residential Mortgage Loans	Y
Other (non-mortgage) Loans	Y
Loans to policyholders	Y
Residential Mortgage Backed Securities	Y
Commercial Mortgage Backed Securities	Y
Insurance Linked Securities	N
Other structured securities	Y
Equities	N
Hedge Funds	N
Private equity	N
Real estate (for investment purposes)	N
Infrastructure	Y (if debt) N (if equity)
Other investment assets	N
Assets held in separate accounts	N

Testing 2 times 3 bucket option

Bucket	Mapping criteria	Option 3 Application Ratio	Option 4 Application ratio
Bucket 1	Life insurance and disability annuities in payment with no cash benefits on withdrawal	90%	60%
Bucket 2	Life insurance liabilities with cash benefits on withdrawal	70%	40%
Bucket 3	All other liabilities	50%	20%

OPTION 5

Stress testing approach

- Under this method, the adjustment applicable to different liability segments is determined following the application of a set of predefined stresses

- The outcome of the stresses (% change of insurance liabilities) will indicate the degree of predictability of liabilities

- Though potentially more accurate, this method would involve more work for the calculation of the stress results

Stress testing approach - calculation of Application Ratio

- Recognition of asset spread depends on Application Ratio (AR)

  Discounting Spread = AR * (Asset Spread – Cost of Default)

- Application Ratio reflects illiquidity of liabilities
  - AR = (1 – Scaling Factor * LSF), floored at 50%

    where LSF = Liability Sensitivity Factor (<= 100%)

    = Proxy for predictability of liabilities

    = U/W Capital Reqts / Abs(Current Est)

Higher LSF = More Liquid Liabilities
➔ AR is lower

Lower LSF = More Illiquid Liabilities (Min = 0%)
➔ AR is higher (Max at 100%)

Possible options for field testing

- Feedback received from IAIS Financial Stability and Technical Committee (FSTC) at its February meeting
- Feedback received from Volunteers at a workshop on 25 February
- CSFWG is assessing ways to streamline the options for MAV Discounting based on this feedback

APPROACH TO DEFAULT ALLOWANCE

Allowance for default

- The spreads provided by the IAIS should already be adjusted for credit risk and other risks

- The risk of default is derived from the annualized cumulative default experience for a hypothetical 15 years bond, computed on the basis of transition matrices. A fraction of the credit spread accounting for observed default is then added to compensate the aversion of risk (risk premium).

STRESSED SCENARIO

How will a stressed market scenario be simulated?

- The objective is to ask volunteers to assess **how the proposed measures would work under different asset market circumstances**, **given their current holdings** (end-2015 balance sheet)
- Volunteers **will not be asked to test the proposals on historical balance sheets** which they held at different reference dates
- The IAIS will specify the necessary information to allow the revaluation of assets and liabilities under the stressed market environment approximating to a 2008 credit stress event
- This is a fundamental component of the exercise, which will allow the IAIS to assess how the different proposed measures would behave and how effective would they be, under different economic conditions
- The intention is to test asset shocks, not changes in monetary policy (such as interest and currency exchange rates)

Indicators to simulate a stressed market scenario

Potential asset value adjustments for stressed scenario:

- Debt instruments: value adjusted on the basis of the spreads for 2008
- No adjustments to currency exchange / base interest rates

- IAIS to provide stressed spreads and corrections for credit risk and any other risk

- Calculations by volunteers are:
  - Re-valuation of debt instruments
  - Possibly re-valuation of insurance liability cash-flows (e.g. profit sharing)
  - Re-calculation of the average risk-corrected spread on the basis of the firm-specific representative portfolio based on the stressed spread information

3. GAAP WITH ADJUSTMENTS

Similarities and Differences: GAAP+ vs. MAV

Similarities:

1. Both start with jurisdictional GAAPs and make adjustments thereto
2. Both adjust technical provisions to current estimates
3. Both aim for a reasonable approach that would limit undue pro-cyclicality (the approach to do so may differ between the two valuation bases)
4. Both utilize the same definition/specifications for capital resources

Differences:

1. For all amounts and adjustments, GAAP+ relies on amounts, processes and/or systems that are subject to audit by independent auditors. That can also occur for MAV, but for MAV such reliance on audit is not an explicit principle.
2. Unlike MAV, GAAP+ adjustments to reported GAAPs may differ by jurisdiction (and in some cases, by firm) in order to maximize the use of balances or processes subjected to audit and to produce symmetrical valuation of assets and liabilities.
3. For some jurisdictions, certain GAAP+ figures are cost-based rather than market-based, and will react differently to stress, compared with stresses applied to MAV data.

GAAP+ nuances that impacted data analysis

1. Principles were developed to guide the development of a GAAP+ approach for a jurisdictional GAAP; specific guidance is in the specifications for five GAAPs.

2. Given multiple GAAPs in place across jurisdictions, the volunteer IAIGs were bucketed by jurisdictional GAAP starting points for analysis.

3. The field test template included a liability reconciliation to capture differences between GAAP and MAV, with explanatory information requested in the qualitative questionnaire.

4. Comparisons to MAV were made. For example, for insurance liabilities, unadjusted GAAP was compared to MAV; then GAAP + using GAAP discount rates was compared to MAV; finally GAAP+ using the IAIS discount rates was compared to MAV.

Analysis phase of 2015 field testing exercise completed

- Focused on each jurisdictional GAAP reported, rather than each jurisdiction; liability reconciliations; stresses of several risks (but not all)
- With some exceptions/outliers, convergence was generally seen as data migrated from GAAP => GAAP+ => GAAP+ at IAIS rates
- Compared with jurisdictional GAAPs, GAAP+ is much closer, and more consistently so, to MAV
- Non-Life - Current estimate liabilities are generally consistent with MAV across most firms
- Life – the clearest difference is the impact of using GAAP+ vs. IAIS discount rates in liability valuation
- Other differences in determining insurance liabilities (assumptions, contract boundaries) are not captured consistently by firms, but they are considerably less material in the aggregate than the impact of the GAAP+ vs. IAIS discount rates
- Other significant differences include Deferred Tax Liability adjustments driven by differences in liabilities between reported GAAP and GAAP +
- For stresses tested, differences were generally minor

Issues/focus of 2016 field testing

- Reducing outliers: not seen as a fundamental problem with the GAAP+ methodology; rather, is related to interpretations or data used by a few firms. Reinsurers may require separate analysis.
- Updating of specifications, template and questionnaire for the 2016 field test exercise: with few exceptions (discussed below) changes are relatively minor
- “AOCI adjustment” for GAAP+ for some jurisdictional GAAPs (e.g., U.S. GAAP) in order to avoid asymmetrical valuation of assets and liabilities
- In 2015, specs included GAAP+ examples for: Canadian GAAP; E.U. SII reporting basis; Japanese GAAP; U.S. GAAP; and U.S. SAP; 2016 specs aim to also include: IFRS/GAAPs in China; Hong Kong: Korea: Singapore: and Taiwan
- In the 2015 the following risks/stresses were tested for GAAP+: Non-Life insurance risks; Life insurance (Mortality); and Market (Interest rate; Market; Equity) risks. For 2016, aim to also test Catastrophe; life (morbidity/disability; longevity; expense; lapse); market risks (real estate; currency); asset concentration; credit; and operational risks
- Other issues to study this year (impact MAV as well): scope of group/consolidation; holistic review of tax treatment
- Evaluate differences with MAV as yield curve methodology evolves for the 2016 field test exercise

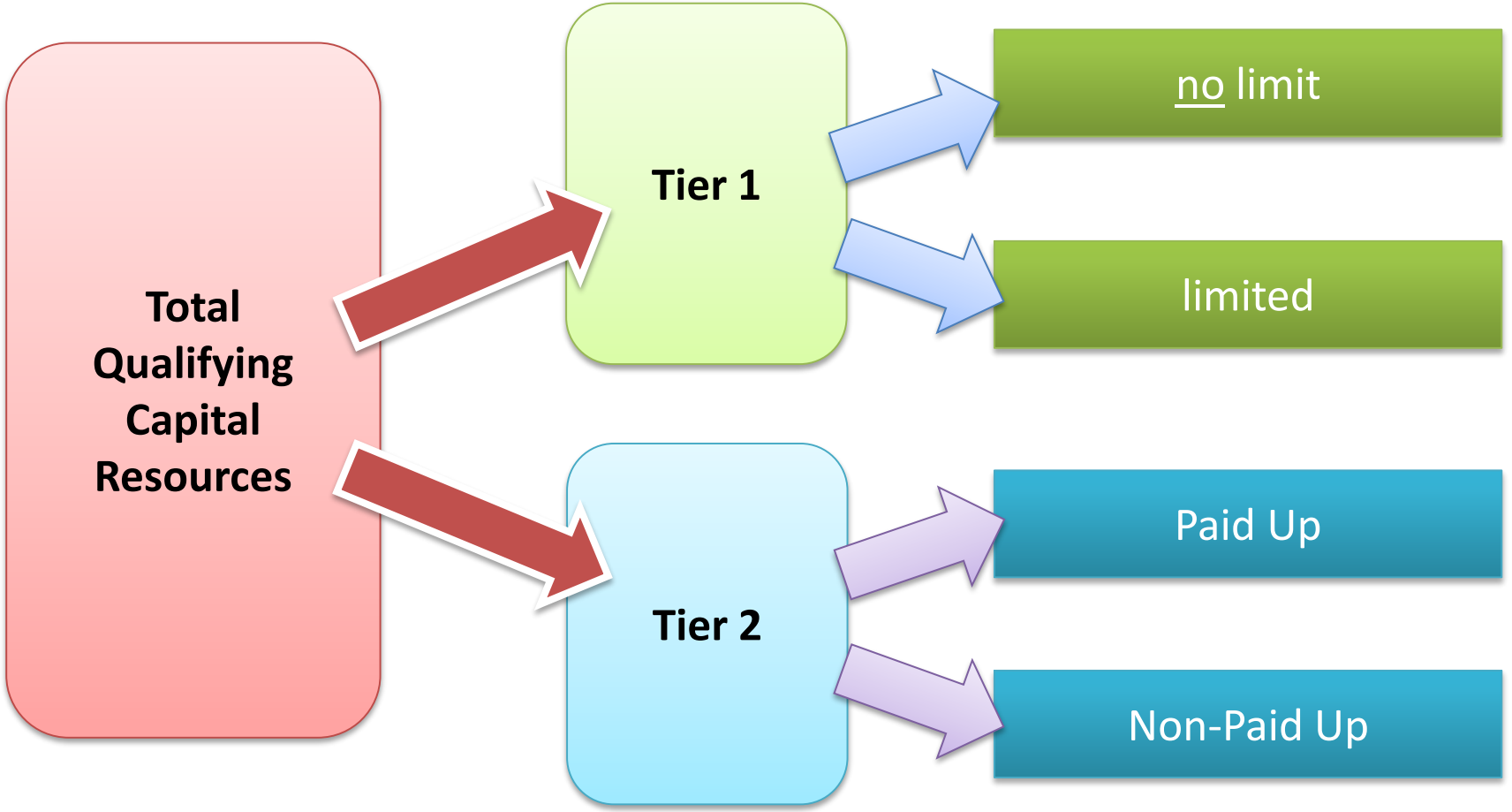
4. CAPITAL RESOURCES

Capital Resources - Overview

- Capital resources comprise both financial instruments and other capital elements (e.g. retained earnings, regulatory reserves, etc.)
- Qualifying capital resources are determined through an assessment of the nature, quality and suitability of all potential capital resources
- The assessment considers the absolute or relative degree of:
  - Subordination
  - Availability to absorb losses
  - Loss absorbing capacity
  - Permanence
  - Absence of encumbrances and mandatory servicing costs

Capital Resources

The tiering being considered:



Capital Resources: Tier 1 vs Tier 2

- Tier 1 capital resources comprise qualifying financial instruments and capital elements other than financial instruments that contribute to financial strength, absorb losses during going concern and winding-up and otherwise contribute to survival through periods when the IAIG is under stress.
- Tier 2 capital resources comprise qualifying financial instruments and capital elements other than those included in Tier 1 capital resources that absorb losses in winding-up and are subordinated to policyholders and non-subordinated creditors.

Capital Resources Overview: Tier 1 vs Tier 2

Instrument Criteria	Tier 1	Tier 2
Level of Subordination	Policyholders, other non-subordinated creditors and holders of Tier 2 capital instruments	Policyholders and other non-subordinated creditors
Availability to absorb losses	Fully paid-up	May include a portion of non-paid-up capital
Loss absorbing capacity	In going concern and winding-up	In winding-up only
Permanence	Perpetual – no incentives to redeem	Initial maturity of five years – may have incentives to redeem but first occurrence deemed to be 'effective maturity date'
Absence of encumbrances and/or mandatory servicing costs	IAIG has full discretion to cancel distributions (i.e. distributions are non-cumulative)	n/a

Capital Resources Overview: Tier 1 vs Tier 2

- Tier 1 capital resources other than financial instruments
  - Retained earnings
  - Share premium resulting from the issuance of Tier 1 instruments and other contributed surplus
  - Accumulated other comprehensive income (AOCI)
  - Unrestricted reserves
- Tier 2 capital resources other than financial instruments
  - Share premium resulting from the issuance of Tier 2 instruments
  - Restricted reserves
  - Add-backs of items deducted from Tier 1, including the realizable value of DTAs that rely on future profitability, realizable value of computer software intangibles, 50% of the net defined benefit pension plan asset

Financial instruments – outstanding issues

- Collect additional information on worksheet *Financial Instruments* to better assess characteristics of senior debt
  - Type of issuing company (holding company, insurance holding company, insurance company, wholly-owned subsidiary, partially-owned subsidiary, special purpose vehicle)
  - Is instrument subordination legal/contractual or structural?
  - For debt issued by a holding company, what amount has down-streamed into insurance subsidiaries?

- Treatment of mutual companies with respect to instrument criteria
  - Instruments currently issued mostly by mutual companies (Surplus Notes in the U.S. and Kikin in Japan) do not explicitly meet all of the criteria for inclusion in Tier 1 (Unlimited or Limited)
  - This topic will be further discussed with consideration of the characteristics of mutual companies.

Encumbered assets deduction

- Feedback was received that in some instances, the excess of the collateral over the liability would be returned to the insurer.
- More granular data will be collected, including the activity (e.g. centrally cleared derivatives, regulatory requirements, mortgage borrowing, reinsurance related collateral, etc.) and the type of asset pledged (e.g. cash, real estate, government securities, equity, etc.)
- Qualitative Questionnaire will ask for additional information:
  - What will happen to each Volunteer's pledged assets in the event of a default?
  - What losses have Volunteers incurred as a result of excess collateral not being returned?

Capital composition limits (1)

- Purpose of capital composition limits: to manage the quality of qualifying ICS capital resources by ensuring an adequate amount of high-quality capital is used to cover the ICS capital requirements

- Capital composition limits will be explicitly tested in 2016 field testing exercise

- For the ICS, there are three capital composition limits being considered:
  - A limit on Tier 1 Limited capital resources
  - A limit on total Tier 2 capital resources
  - A limit on Tier 2 non-paid-up capital resources

Capital composition limits (2)

- Tier 1 Limited capital resources: two possible limits will be tested
  1) Limit equal to 10% of the ICS capital requirement
  2) Limit equal to 20% of ICS Tier 1 capital resources

- ICS total Tier 2 capital resources is limited to 50% of the ICS capital requirement

- ICS Tier 2 non-paid-up capital resources is limited to 10% of the ICS capital requirement

- ***All limits serve as a starting point for field testing, but are not meant to be interpreted as a final proposal for limits. Different levels of the limits, and the bases on which they are applied, will be assessed following field testing.***

5. MOCE

Agenda - MOCE

- T MOCE: refinements being considered for the 2016 FT
  - Cost of capital
  - Projected capital requirement: treatment of market risks
  - Allocation of projected capital to patterns
  - Projections patterns (life)
  - Projections patterns (non-life)
- P MOCE: refinements being considered for the 2016 FT
  - Non-life unearned premium
- Other relevant issues
- Tax treatment
  - MOCE for Morbidity/disability liabilities
- Next steps (before 2016 FT launch)

Feedback from 2015 field testing

- General comments on both T-MOCE and P-MOCE
  - Rationale for MOCE needs to be better articulated
  - Tax effect needs to be recognised
  - Need to refine calibration

Feedback from 2015 field testing

- T MOCE
  - Most volunteers mentioned no problems with the calculation, but some mentioned problems with the projection pattern for life
  - General agreement that only non-hedgeable risks should be covered (esp. market risk, interest rate risk), but diverse views on which risks are hedgeable
  - Cost of capital rate criticized: too high, should vary by jurisdictions, change with market conditions and esp. interest rates, be based on IAIG's own funding costs
  - Requests to make explicit the purpose of the T MOCE
  - Discounting of capital costs for T MOCE should differentiate by currency
  - Non-life patterns need tweaking but roughly acceptable: some longer patterns should be included, patterns for Cat risks requested
  - Life pattern: cash outflows only are sometimes not available, some consider restricting to outflows not appropriate, several patterns requested (by risk, product)

Feedback from 2015 field testing

- P MOCE
  - Capital requirement should be reduced for any prudence margin to avoid double counting
  - Life
    - Different views of the % of standard deviation
    - The normal distribution inappropriate for lobs with financial guarantees, non-proportional business
  - Non-life
    - Different ways to approximate the expected amount of future profit

Transfer MOCE ("T MOCE") – Cost of capital

- 2015 FT approach and feedback:
  - A fixed 6% for all
  - Feedback received that it is too high

- Considerations for 2016 FT
  - Apply a revised fixed cost of capital (based on observed equity risk premium)
  - Collect volunteer individual cost of capital: to defined further

- Post 2016 FT
  - Investigate linking the cost of capital with the economic environment (e.g. interest rate level, spread level)
    - the data collected during the FT will allow IAIS to assess the impact

T MOCE – Treatment of market risk

- 2015 FT approach and feedback:
  - Interest rate was included as part of the projected capital
  - It is material for life firms, very material for some firms
  - Feedback received that it is (mostly) hedgeable

- Considerations for 2016 FT
  - Remove interest rate risk from the projected capital requirement
    - Interest rate risk is hedgeable for short maturities for which financial instruments are traded, less so for long maturities. It will not be practical to split between the part arguably hedgeable and the part arguably non-hedgeable.

T MOCE – Allocation of projected capital to the patterns

- 2015 FT approach and feedback:
  - Feedback received that allocation of projected capital should be based on the diversified amount
  - The entire amount of cat risk should not be allocated to non-life, only 50% of cat risk should be included in projected capital (similar as done for premium risk)

- Considerations for 2016 FT
  - Changes to the allocation process
    - Based on diversified amounts
    - More will be embedded in the template
    - Some allocation (e.g. cat) will be more accurate
  - The projected amount of cat risk will be unchanged
    - Occurrence of cat events could be instantaneous and the timing is unknown

T MOCE – Projection pattern - life

- 2015 FT approach and feedback:
  - Firm provided one projection pattern (for life)

- Considerations for 2016 FT
  - Allow volunteers to provide differentiated patterns for the different life risks and main currencies.
    - If considered too burdensome and/or not material, a volunteer could provide a single pattern
    - This will allow analysis of differences and better inform decision for ICS 1.0
    - **This will not prejudge the choice for ICS 1.0**

- Issues to be resolved before 2016 FT
  - How many currencies
  - How to group life risks

T MOCE – Projection pattern – non-life

- 2015 FT approach and feedback:
  - IAIS provided 3 projection patterns and allocated projected capital

- Considerations for 2016 FT
  - Revised (longer) patterns based on supervisory data

Prudence MOCE – refinements for 2016 FT

- 2015 FT approach and feedback:
  - Non-life: unearned premium reported for the MOCE purpose
  - Lessons from analysis: unearned premium seems in some cases inconsistent with pre-claim current estimate

- Considerations for the 2016 FT
  - Improve the specification/definition of unearned premium

MOCE – Other topics relevant for the 2016 FT

- Tax treatment
  - 2015 FT: no tax impact was reflected in the MOCE
  - For 2016 FT: consider tax impact consistently with the holistic approach to be decided

- Treatment of morbidity/disability
  - For 2016 FT: any changes in the design of the morbidity/disability component will be reflected in the MOCE

6. INTEREST RATE RISK

Issues being considered for IRR

Nothing to say definitively yet – these are the main issues being considered

1. Calibration
2. Length of historical data for calibration
3. Shock the long-term rate?
4. All 3 Scenarios or only up and down?

Negative yields and low yield prevalent

Sovereign Bond Yield Curves

Jan 29 2016

	1Y	2Y	3Y	4Y	5Y	6Y	7Y	8Y	9Y	10Y	11Y	12Y	13Y	14Y	15Y	20Y	30Y
Switzerland	-0.90	-1.00	-0.95	-0.85	-0.77	-0.65	-0.57	-0.45	-0.35	-0.29	-0.22	-0.16	-0.11	-0.06	-0.01	0.14	0.31
Japan	-0.07	-0.08	-0.07	-0.07	-0.07	-0.08	-0.05	-0.01	0.04	0.10	0.15	0.21	0.27	0.33	0.39	0.81	1.07
Germany	-0.46	-0.48	-0.45	-0.41	-0.30	-0.19	-0.07	0.05	0.21	0.34	0.38	0.43	0.47	0.52	0.56	0.81	1.05
Netherland	-0.45	-0.46	-0.42	-0.35	-0.26	-0.14	-0.02	0.14	0.28	0.45	0.49	0.53	0.57	0.61	0.65	1.05	1.20
Australia	-0.43	-0.44	-0.39	-0.30	-0.23	-0.10	0.10	0.24	0.41	0.58	0.61	0.64	0.68	0.71	0.74	1.23	1.42
Finland	-0.42	-0.42	-0.38	-0.32	-0.20	-0.14	0.05	0.17	0.35	0.60	0.70	0.80	0.90	1.01	1.11	1.16	1.26
Denmark	-0.28	-0.28	-0.18	-0.08	0.02	0.11	0.20	0.30	0.46	0.61	0.64	0.66	0.69	0.71	0.74	0.87	1.13
France	-0.41	-0.41	-0.34	-0.24	-0.13	-0.01	0.14	0.26	0.47	0.65	0.76	0.87	0.98	1.09	1.21	1.35	1.66
Belgium	-0.40	-0.41	-0.34	-0.28	-0.18	-0.04	0.11	0.43	0.62	0.78	0.87	0.97	1.06	1.15	1.25	1.35	1.64
Ireland		-0.35	-0.24	-0.08	0.03	0.24	0.43	0.68	0.76	0.85	0.87	0.89	0.92	0.94	0.96	1.09	1.35
Sweden	-0.56	-0.37	-0.21	-0.04	0.23	0.33	0.43	0.61	0.73	0.86	1.37	1.40	1.43	1.47	1.50	1.67	
Canada	0.43	0.39	0.41	0.46	0.63	0.65	0.81	0.95	1.06	1.17	1.25	1.33	1.41	1.48	1.56	1.96	1.99
Norway	0.54	0.58	0.58	0.58	0.73	0.88	1.01	1.14	1.22	1.32							
Italia	-0.07	-0.01	0.04	0.24	0.45	0.72	0.88	1.03	1.29	1.44	1.52	1.61	1.69	1.78	1.86	2.16	2.59
Spain	-0.08	-0.01	0.06	0.22	0.47	0.79	1.05	1.20	1.43	1.54	1.65	1.76	1.86	1.97	2.08	2.51	2.73
UK	0.35	0.34	0.51	0.67	0.91	1.04	1.23	1.37	1.49	1.58	1.65	1.72	1.79	1.86	1.94	2.16	2.35
US	0.43	0.78	0.99	1.17	1.35	1.52	1.69	1.77	1.85	1.93	1.97	2.01	2.05	2.09	2.13	2.34	2.74
Israel	0.07	0.25	0.33	0.59	0.75	1.22	1.34	1.47	1.70	1.96	2.01	2.06	2.12	2.17	2.22	2.48	3.00
Portugal	-0.01	0.38	0.86	1.29	1.58	2.12	2.49	2.68	2.78	2.88	2.96	3.05	3.13	3.22	3.30	3.66	3.83
Greece		12.95	12.21	11.46	11.12	10.78	10.43	10.09	9.75	9.40	9.35	9.30	9.25	9.20	9.15	8.95	

i < 0%
0%≦ i <0.5%
0.5%≦ i <1.0%
1.0%≦ i

(Source: Bloomberg)

Interest rate risk in 2015 FT

- FT 2015
  - Three shock scenarios: (1) up, (2) down, (3) flattening
    - 2 data points used for historical data to determine the shocks: 90 days and 30 years.
    - The length of historical data observation term depends on the availability of data for each currency
    - Up scenario: $r_i' = r_i + a_i\sqrt{\max(r_i, 0.5\%)} + b_i$
    - Down scenario: $r_i' = r_i - a_i\sqrt{\max(r_i, 0.5\%)} + b_i$
    - Flattening scenario: $r_i' = r_i + c_i\sqrt{\max(r_i, 0.5\%)} + d_i$
  - In each scenario, factor a and c (volatility), and b and d (adjustment to convert weekly data to annual), are predetermined based on historical data, listed in separate tables in Field Testing technical specifications

FT 2015 approach and negative and low rates

- This methodology created some anomalous stressed curves in 2015 field testing
- For 2016, the 0.5% floor and the square root formula cause issues with existing base yield curves as may of them are lower and/or negative
- Therefore looking at other calibration methodologies
- Definitely will have up scenario and down scenario
- Flattening scenario to be included if suitable calibration methodology can be developed
- Some changes/improvements being considered.
  - Increase the number of yield curve points on which the calibration is done (vs 2 last year)
  - Apply Principal Component Analysis for producing up/down scenario by using the 1st component
  - Proportional shift vs square root

7. MORBIDITY AND DISABILITY RISK

Morbidity and disability risk – 2015 field testing

- Design: combination of
  - a 30% increase in inception rates
  - a 20% decrease in recovery rates
  - a 5% increase in level of payments + over-inflation depending on the geographical area

- Field testing Results not comparable across Volunteers:
  - High heterogeneity of outcomes
  - No common / consistent risk basis available
  - Variety of understandings and implementations
  - Use of sometimes crude simplifications

➔ ***No consistent analysis of data possible***

Morbidity and disability risk – 2015 field testing

- Major concerns expressed by Volunteers:
  - Too complex
  - Calibration too high, and not technically justified

- 2015 design was very complex
- 2015 calibration may be appropriate for some risks / types of business, but not all of them

➔ ***Need to re-think the design and calibration of the formula***

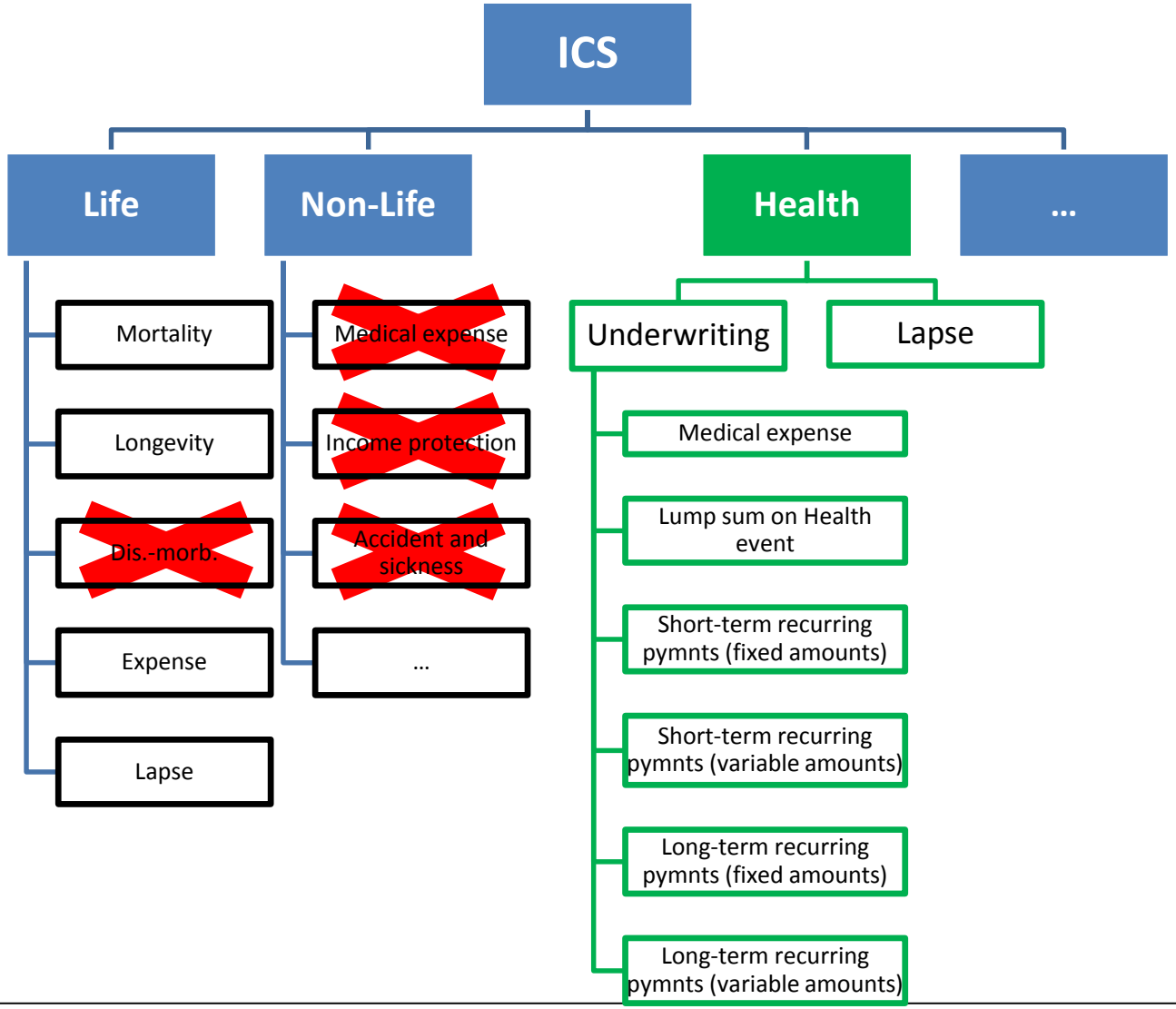
Morbidity and disability risk – 2016 field testing

- Two proposals are under consideration

- ***Proposal 1***: create a new health module, thereby removing the distinction between "similar to life" and "similar to non-life"
  - stress approach is employed, based on a segmentation by Health lines of business
  - proportional shock factor (by health line of business) would be specified and applied directly to the claim amounts and expenses

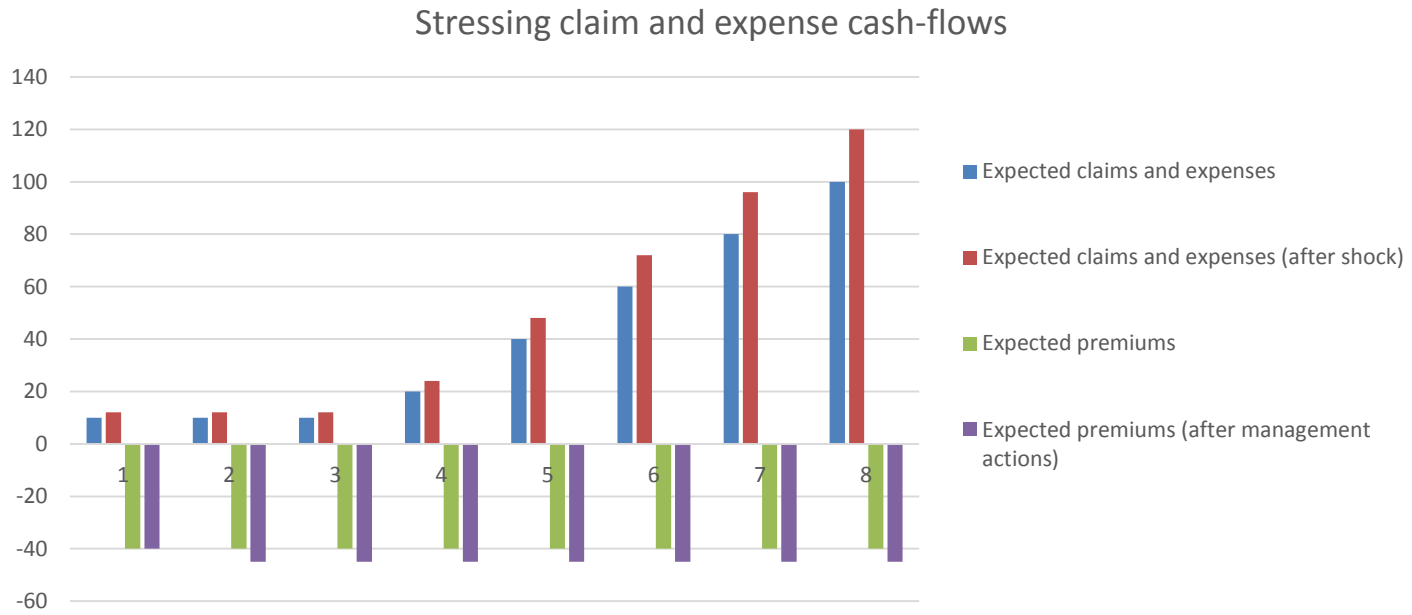
- ***Proposal 2***: addresses the key risk drivers of two very distinct classes of (similar to life) health products:
  - Products that provide medical treatment due to illness, accident, disability or infirmity or financial compensation that is directly linked to the cost of such treatment
  - Products that provide a financial compensation arising from illness, accident, disability or infirmity that is not directly linked to the cost of medical treatment

Morbidity and disability risk – proposal 1



Morbidity and disability risk – proposal 1

- For each Health risk group, specification of a proportional shock factor…
- … to be applied directly to claims and expenses in the CE calculation



- Example of how this could work in practice:
  - CE before shock = 330 – 320 = 10
  - CE after shock = 396 – 320 = 76 ➔ gross capital charge = 66
  - Allowance for management actions ➔ net capital charge = 31

Morbidity and disability risk – proposal 2

- Component 1: “Medical Treatment”
  - Subject to Medical Payments and Inflation stresses
- Component 2: “Financial Compensation”
  - Subject to Inception Rates and Recovery Rates stresses
  - To address issue of long term business, it is proposed to differentiate the calibration for longer time horizons (i.e. the inception rate stress will be lower after the first year)
  - [UNDER DISCUSSION] For further simplicity, the stress on Recovery Rates could be removed if it is deemed to be immaterial for the majority of products.

Morbidity and disability risk – proposal 2

The Life Morbidity/Disability risk is defined as the sum of two components (mutually exclusive in terms of scope):

- "Medical Treatment" insurance:
  - i. Claim payments increase:
    - a. For EEA and Switzerland, US and Canada, Japan and Other developed countries, an increase in the amount of medical payments of x% and an increase in the annual inflation of y%
    - b. For emerging markets, an increase in the amount of medical payments of a% and an increase in the annual inflation of b%
- "Financial Compensation" insurance:
  - i. An increase in the inception rate used to calculate the Current Estimate
  - ii. A decrease of the recovery rate

8. LAPSE AND EXPENSE RISKS

Lapse Risk – 2015 field testing

- Lapse risk stress is the higher of:
  (1) Level and Trend: ±40% (negative where product is lapse supported) and
  (2) Immediate Mass Lapse: 30% (retail), 50% (non-retail) for products with positive surrender strain

- General feedback - design appropriate, except for mass lapse

- Mass Lapse
  - Defined as loss of confidence in insurer
  - Feedback that policyholders would not surrender their products based on whether the product is lapse supported or lapse sensitive

Lapse risk – proposed changes for 2016 field testing

- Level and Trend
  - Design – No change
  - Level Component:

2015 FT	2016 Stress	2016 Sensitivity
+/- 40% to base lapse assumptions	+/- 40% to base lapse assumptions	+/- 50% to base lapse assumptions

Lapse risk – proposed changes for 2016 field testing

- Mass Lapse
  - Design – Do not differentiate between policies/products with positive or negative surrender strain. Continue to have different charges for retail and non-retail policies/products
  - Level Component:

2015 FT	2016 Stress	2016 Sensitivity
(a) 30% instant lapse for retail policies with +ve surrender strain (b) 50% instant lapse for non-retail policies with –ve surrender strain	(a) 30% instant lapse for retail policies (b) 50% instant lapse for non-retail policies	(a) 20% instant lapse for retail policies (b) 40% instant lapse for non-retail policies

Expense risk – 2015 field testing

- Stress is an increase of 6-8% in unit expense and 1-3% for inflation.
- General feedback that design is appropriate
- Some feedback that level of stresses is high

Expense risk – proposed changes for 2016 field testing

- Level and Trend
  - Design – No change
  - Level
    - No change to unit expense
    - Calibration of inflation expense is still under consideration

9. CURRENCY RISK

Calibration of currency risk

- 2015 Field Testing: currency stresses were split by developed (30%) and emerging (60%) market currencies

- More granular data shows that the emerging risk stress may be too high for some currencies

- 2016 Field Testing – possible way forward: calibrate individual currency pairs and then group into buckets with currency pairs of a similar calibration

Treatment of investments in foreign subs

- 2015 field testing
  - Currency stress was applied to the net open position defined as (Assets – Liabilities)
  - Data collected on a per currency basis for net insurance liabilities, net capital investments in foreign subs and local capital requirements
  - Many Volunteers did not provide data on net capital investment in foreign subs and local capital requirements

- 2016 field testing: possible way forward
  - Apply the currency stress to the net open position defined as (Assets – Liabilities) – a fixed percentage of the net insurance liabilities in that currency
  - Fixed percentage of liabilities is meant to serve as a proxy for the subsidiary's capital requirement

10. OTHER RISKS

Mortality and longevity risk – 2016 field testing

- Design - shock to both trend and level components
  - Trend shock first, then level shock; Volunteers will be asked to report the results of the trend shock and then the combined shock
  - Trend shock will be an additive shock to best estimate mortality improvement rates

Equity shock: volatility component

- 2 scenarios used for the 2015 FT
  - prices down / volatility up scenario
  - prices down / volatility down scenario

- Globally, small sensitivity to the volatility component among companies, except for a few ones (variables annuities, derivatives)

- Supervisors and volunteers generally agree that:
  - A simple multiplier (= one single volatility shock 210%/-80%) may not be an appropriate representation of the implied volatility term structure dynamics
  - The 210% shock is ok for short-term tenor but too high for long-term ones
  - This shock might be burdensome for volunteers not largely exposed to the volatility risk

- 2016 FT approach: continue to test the impact of some implied volatility shocks by developing and testing various implied volatility shocks for different tenors

Credit risk – policy issues under consideration

1. Credit for management actions
   - No credit for management actions permitted in field testing because methodology was designated as a “factor-based approach”.
   - Consider as “stress approach”, or else permit recognition of management actions under factor approaches

2. Credit protection sold
   - Consider treatment as an exposure to the underlying, not as an exposure to a derivatives counterparty

3. Recognition of additional rating agencies
   - Insurers submitted plausible cases for recognizing Morningstar, Egan Jones and TRC Taiwan. Also need to consider A.M Best ratings.
   - Investigate whether any Chinese agency can be recognized

Credit risk – policy issues under consideration

4. Commercial/ Residential mortgage factors
    - Considering more granular factors varying by e.g. loan to value, debt service coverage

5. Multilateral development banks / Supranational obligations / Sovereign exposures
    - Collecting data
    - No intention for 2016 Field Testing to apply credit risk factor to these exposures

11. WRAP UP, CONCLUSION, NEXT STAKEHOLDER EVENTS

Next Stakeholder Events

- 7 April 2016 in Basel (capital-related)
- 16 June 2016 in Budapest
- 20 June 2016 in New York (capital-related)