INTERNATIONAL ASSOCIATION OF INSURANCE SUPERVISORS

Public

Risk-based Global Insurance Capital Standard Version 1.0

Public Consultation Document

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Comments due by 19 October 2016

About the IAIS

The International Association of Insurance Supervisors (IAIS) is a voluntary membership organisation of insurance supervisors and regulators from more than 200 jurisdictions in nearly 140 countries. The mission of the IAIS is to promote effective and globally consistent supervision of the insurance industry in order to develop and maintain fair, safe and stable insurance markets for the benefit and protection of policyholders and to contribute to global financial stability.

Established in 1994, the IAIS is the international standard setting body responsible for developing principles, standards and other supporting material for the supervision of the insurance sector and assisting in their implementation. The IAIS also provides a forum for Members to share their experiences and understanding of insurance supervision and insurance markets.

The IAIS coordinates its work with other international financial policymakers and associations of supervisors or regulators, and assists in shaping financial systems globally. In particular, the IAIS is a member of the Financial Stability Board (FSB), member of the Standards Advisory Council of the International Accounting Standards Board (IASB) and partner in the Access to Insurance Initiative (A2ii). In recognition of its collective expertise, the IAIS also is routinely called upon by the G20 leaders and other international standard setting bodies for input on insurance issues as well as on issues related to the regulation and supervision of the global financial sector.

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Contents

List of Tables and Figures

1 Introduction

1. On 9 October 2013, the IAIS announced its plan to develop a risk-based global insurance capital standard (ICS) by 2016. This was in response to the request by the Financial Stability Board (FSB) that the IAIS produce a work plan to create "a comprehensive group-wide supervisory and regulatory framework for Internationally Active Insurance Groups."[1] In its statement of 18 July 2013 the FSB stated that "a sound capital and supervisory framework for the insurance sector more broadly is essential for supporting financial stability." The FSB further reinforced its support for the development of the ICS in its statement of 6 November 2014.[2]

2. Since its announcement in October 2013, the IAIS has been undertaking a multi-year quantitative Field Testing process with Volunteer insurance groups (Volunteer IAIGs) that are potential Internationally Active Insurance Groups (IAIGs) and current Global Systemically Important Insurers (G-SIIs). The first quantitative Field Testing focusing on development of the ICS occurred in 2015. The analysis by the IAIS of the submitted data as well as additional feedback and comments provided by Volunteer IAIGs as part of their submission or during dedicated workshops informed the development of the second quantitative ICS Field Testing occurring in 2016.

3. In addition to the Field Testing process, the IAIS has reached out to the broader group of stakeholders during dedicated physical stakeholder meetings and by engaging in public consultation on ICS matters.

4. This Consultation Document (CD) is the second consultation document on the ICS. The first consultation document was issued on 17 December 2014 (2014 ICS CD) with responses due on 16 February 2015. The volume of the response to the 2014 ICS CD was unprecedented in IAIS history and over the course of a year, the IAIS diligently worked through the valuable comments received. The IAIS' responses to the comments received were published in four tranches beginning in June 2015 and ending in March 2016. The IAIS' responses to the comments received are available on the IAIS website.[3] The summary of comments received and the responses to them are referenced throughout this CD but are not repeated in detail.

5. The purpose of this CD is to solicit feedback from stakeholders on the proposed ICS ahead of the completion of ICS Version 1.0 for confidential reporting, due to be completed by mid-2017. This includes feedback on valuation, qualifying capital resources, a standard method for determining the ICS capital requirement – the three key components for ICS Version 1.0. This CD sets out the approach taken for 2016 Field Testing. All approaches set out in 2016 Field Testing should be considered as possible approaches for ICS Version 1.0 and stakeholders should comment accordingly.

6. The IAIS' aspiration is to narrow the approaches on various components of the ICS in preparation for ICS Version 1.0 for confidential reporting purposes. For example, in addition to the two valuation approaches there are other aspects of the ICS where different approaches

[1] http://www.financialstabilityboard.org/publications/r_130718.pdf
[2] http://www.financialstabilityboard.org/wp-content/uploads/pr_141106a.pdf
[3] http://www.iaisweb.org/page/supervisory-material/insurance-capital-standard

are being tested, eg with regard to the Health risk charge in the ICS capital requirement there are two alternative approaches being tested in 2016 Field Testing with one chosen as the default. One certainty is that the two valuation approaches will be in ICS Version 1.0. Version 1.0 is likely to contain default approaches but in preparation for the development of ICS Version 2.0 for adoption in 2019, the IAIS is also likely to continue testing in parallel some alternative approaches to some components of the ICS. Through Field Testing, the IAIS is evaluating various alternatives to determine their appropriateness across Volunteer IAIGs, and to inform future decisions about the ICS.

7. Alternative approaches are covered in Field Testing and in this ICS CD. This enables the IAIS to collect data and receive feedback to resolve issues where both IAIS Members and stakeholders may have different views. Field Testing can provide information about the differences among alternative approaches, practical implementation considerations and comparisons to existing practices. Seeking views in this ICS CD on these same issues as explored in Field Testing enables the IAIS to obtain information from a wider stakeholder community.

8. This CD does not address matters which will be dealt with in the development of ICS Version 2.0, including but not limited to, the possible consideration of the use of partial or full internal models, and variations on the standard method. In particular, there are ongoing discussions within the IAIS about the future process of implementation of ICS Version 2.0. These discussions need to reach sufficient maturity to be able to frame the issues for a future consultation. Therefore, the IAIS is not seeking feedback on implementation issues and would encourage stakeholders to focus their consultation comments on the technical content of this paper.

9. ICS development will include consideration of both costs and benefits. Future Field Testing exercises will collect data on the potential incremental costs to Volunteer IAIGs and supervisors associated with the implementation of the ICS.

10. Taking into consideration comments received on the 2014 ICS CD, the IAIS determined that the ICS should be implemented as a Prescribed Capital Requirement (PCR). Insurance Core Principle (ICP) 17.4 defines a PCR as a solvency control level above which the supervisor does not intervene on capital adequacy grounds. The PCR treatment provides the most flexibility as supervisors are able to initiate discussions with the IAIG in order to restore its PCR without invoking their strongest consequences.

11. Given that the ICS is a group-wide, consolidated insurance capital standard applicable to IAIGs and G-SIIs, the domestic context of the jurisdiction in which the IAIG or G-SII is located or domiciled is much less relevant. All IAIGs and G-SIIs will be shaped by the jurisdiction in which they are headquartered but by their very nature they are multi-national entities with stakeholders outside of the domestic location or domicile context.

12. By virtue of the fact that the ICS is a group-wide, consolidated insurance capital standard, it is not intended as a legal entity requirement nor to affect or replace existing arrangements or capital standards for legal entity supervision in any jurisdiction. Any jurisdiction choosing to reference the ICS in the development of its domestic solvency framework for insurance legal entities does so at its sole discretion.

13. Once finalised, the ICS will be a measure of capital adequacy for IAIGs and G-SIIs. It will constitute the minimum standard to be achieved and one which the supervisors represented in the IAIS will implement or propose to implement taking into account specific market circumstances in their respective jurisdictions. The ICS would not be a legal entity PCR, but would serve as a minimum standard for a group PCR.

1.1 Issues covered in this consultation

14. This CD covers the technical aspects of the construction of the ICS focusing on the development of ICS Version 1.0. Therefore, the key components of this consultation relate to:

a) ICS valuation covering the two valuation approaches, ie Market-Adjusted Valuation (MAV) and GAAP (Generally Accepted Accounting Principles) with Adjustments (GAAP Plus);

b) ICS capital resources;

c) ICS capital requirement based on the standard method; and

d) Scope of the group: perimeter of the calculation of the ICS.

1.2 Issues not covered in this consultation

15. The IAIS is aware that stakeholders have a number of questions related to the implementation of the ICS and its long-term development. The current IAIS focus is on delivery of ICS Version 1.0. The IAIS cannot deal with all ICS related issues simultaneously and further technical development will help frame many of the implementation questions. Stakeholders have expressed an interest in addressing the following points, but for the reasons mentioned above, they are not the subject of this ICS CD:

a) **If internal models will be considered in the development of the ICS**. This matter will be considered in the progression from ICS Version 1.0 to ICS Version 2.0.

b) **The way in which the ICS will be used in the supervisory process within the Common Framework for the Supervision of Internationally Active Insurance Groups (ComFrame), and ultimately in practice by supervisors.** This will be the subject of a consultation in November 2016 on the supervisory process and supervisory cooperation and coordination elements of ComFrame. However, it is important to note that the ICS will not be the sole supervisory tool used as a basis of making decisions on supervisory activities to undertake, or supervisory actions to impose on IAIGs. There are many inputs that will be taken into account, including the IAIG's Own Risk and Solvency Assessment (ORSA), assessment of governance and Enterprise Risk Management (ERM) against the requirements of ComFrame.

c) **Transitional arrangements from existing supervisory regimes to the implementation of the ICS.** This is a matter that must be dealt with before ICS Version 2.0 for adoption by the IAIS. The IAIS acknowledges a need for transition of existing arrangements. The IAIS will set out a framework for transition for the adoption of ICS Version 2.0.

d) **The manner in which comparability of the ICS will be assessed in practice.** The ultimate goal of the ICS, which is repeated in this ICS CD, sets out the views of the IAIS on comparability. Once the ICS is more fully developed and the degree of judgement, discretion and optionality embedded in its design is known, then comparability assessments can be designed. This includes how the ICS as a minimum standard will affect the jurisdictional implementation of the ICS. To be clear, the ultimate goal level of comparability, ie substantially the same outcomes across jurisdictions, is not expected to be achieved by ICS Version 2.0 which will be fully specified for implementation. However, that level of comparability remains the aspiration for the work being undertaken in the development of the ICS.

e) **The possibility of the ICS being part of the International Monetary Fund (IMF) Financial Sector Assessment Program (FSAP).** The IMF is responsible for its FSAP and the IAIS will liaise with the IMF on this issue.

f) **The manner in which ICS Version 2.0 will be communicated to the public including consumer and investor education.** The IAIS is currently focused on the development of the ICS and, as the design becomes more settled, it will be able to turn its focus to the adoption, communication and implementation of the ICS towards the end of 2019.

g) **The interaction between local legal entity capital requirements and the ICS as a consolidated group-wide capital requirement.** This is a matter that can only be assessed as the ICS develops technically and through the Field Testing process, Volunteer IAIGs will have the opportunity to share their views on this matter with the IAIS. As part of 2016 Field Testing, the IAIS is seeking data about legal entity capital requirements.

h) **The manner in which fungibility of capital will be taken into account.** As stated above, the IAIS is seeking data in 2016 Field Testing at the legal entity level and that will be a starting point for future considerations of fungibility of capital.

i) **The impact of the ICS on the ERM of IAIGs practised at the individual insurance legal entity level.** This is a matter that can only be assessed as the ICS develops technically and through the Field Testing process. Volunteer IAIGs will have the opportunity to share their views on this matter with the IAIS.

j) **The extent to which existing jurisdictional group capital frameworks will be considered consistent with the ICS.** As the ICS is still being developed, it is too early to say to what extent existing group capital frameworks will be considered consistent with the ICS. The ICS is being developed as a minimum standard and that will mean different changes for different capital frameworks. The entire point of the ICS is to create a global, consistent capital standard to address the lack of comparability among existing group capital frameworks.

1.3 Providing feedback

16. Feedback on this CD is invited by 19 October 2016. Feedback received by this date will enable the IAIS to develop ICS Version 1.0. The IAIS is seeking answers to the specific questions listed in each section of the CD.

17. Questions are structured to require a specific answer mostly in the form of Yes/No answers. Stakeholders are then asked to explain their answers. Explanations are most helpful if they:

a) Are clear as to the issue being addressed;

b) Provide a clear rationale and basis for comments made; and

c) Include evidence or references (eg to publicly available documents or data sources) to support the response.

18. Comments must be sent electronically via the IAIS Consultations webpage.[4] All comments will be published on the IAIS website unless a specific request is made for comments to remain confidential.

19. References are made throughout this document to the resolution of comments to the 2014 ICS CD, as well as the 2015 and 2016 Field Testing packages. These documents can be found on the IAIS public website.[5]

1.4 Next steps

20. The IAIS will carefully consider comments from IAIS Members and stakeholders on this CD and will revise the proposed ICS where appropriate.

21. The feedback received to this CD and the analysis of Field Testing data will be critical in the development of ICS Version 1.0.

22. Going forward, ICS Version 1.0 will be subject to confidential reporting which will inform the further development of the ICS towards Version 2.0.

23. The broad timetable can be summarised in **Table 1** as follows:

[4] http://www.iaisweb.org/page/consultations/current-consultations
[5] See http://www.iaisweb.org/page/supervisory-material/insurance-capital-standard for the IAIS resolutions to comments on the 2014 ICS CD, as well as the 2015 and 2016 Field Testing packages.

Table 1. ICS and Field Testing Timetable

DATE	MILESTONE
May 2016	Launch of 2016 Quantitative Field Testing
July 2016	Publication of second ICS CD
August 2016	Phase 1 Field Testing submissions due
September/October 2016	Phase 2 Field Testing submissions due
October 2016	Comments due on second ICS CD
Mid-2017	Adoption of ICS Version 1.0 for confidential reporting Launch of 2017 confidential reporting process
September/October 2017	Data due for 2017 confidential reporting process
May/June 2018	Launch of 2018 confidential reporting process
Mid-2018	Publication of comprehensive ComFrame consultation including ICS Version 2.0
September/October 2018	Data due for 2018 confidential reporting process Comments due on ICS Version 2.0 and ComFrame consultation
April/May 2019	Launch of 2019 confidential reporting process
August/September 2019	Data due for 2019 confidential reporting process
IAIS 2019 General Meeting	Adoption of ComFrame, including ICS Version 2.0

24. The road map for the development of the ICS between Version 1.0 and Version 2.0 is given by their respective goals adopted by the IAIS and presented in the section 2 below.

25. In the period between the completion of ICS Version 1.0 and the completion of ICS Version 2.0, the IAIS will also consider transitional arrangements (eg with respect to qualifying capital resources) that help ensure a smooth implementation of the ICS. It is not uncommon to allow for gradual phase-in of new requirements depending on the extent of system changes that may be expected of those impacted insurance groups. Transitional periods for implementation are also common where requisite laws and/or regulations are necessary to be adopted by relevant jurisdictions.

26. Transitional arrangements will be considered during the confidential reporting period. In effect, this will allow private discussions amongst supervisors and IAIGs about necessary transitional arrangements. During this period the ICS Ratio or components of the ICS calculation will not be published. A framework for jurisdictions to determine transitional arrangements will be set out. For the purposes of this ICS CD, it is too early to detail all of these issues. It is acknowledged that these issues will need to be addressed for the adoption of ICS Version 2.0.

2 Insurance Capital Standard

2.1 Context and overview

27. This CD focuses on the insurance component of the ICS.[6] This document is structured in a way that sets out all of the components of the ICS. There are three major components of the ICS:

a) Valuation, which is a foundation for the next two components;

b) Qualifying capital resources; and

c) ICS capital requirement.

28. As a necessary preliminary step, the scope of the group defining the perimeter of the ICS calculation is described in section 3.

29. The valuation basis of assets and liabilities is an integral component of the ICS. The ICS Version 1.0 is being developed based on two valuation approaches set out in section 4.

30. The definition of qualifying capital resources sets out criteria and specifications that consider policyholder protection and loss absorbency; these are set out in section 5. All potential capital resources are assessed against this definition to determine whether they are qualifying capital resources.

31. The ICS capital requirement, calculated using a risk-based method, is the amount of capital resources needed to cover loss(es) at the specified target criteria of 99.5% Value at Risk (VaR) statistical measure. The ICS capital requirement will specify the risks to be covered and the target criteria to be met.

32. The ICS Ratio (a capital adequacy measure) is determined by comparing the amount of qualifying capital resources to the ICS capital requirement using the following ratio:

ICS Ratio = qualifying capital resources/ICS capital requirement

33. The capital requirement part of ICS Version 1.0 will be developed as a standard method specifying the appropriate treatment of risk, the treatment of risk mitigation techniques and of aggregation/diversification. Section 6 sets out the general architecture of the ICS capital requirement and approaches for the risks. Finally, section 7 provides preliminary considerations about the tax treatment across different elements of the ICS.

[6] Non-insurance aspects are mentioned briefly in section 2.7.

34. The ICS is part of ComFrame,[7] a comprehensive framework being developed to address qualitative as well as quantitative requirements for IAIGs. This framework will evolve and be refined over time.

35. The ICS must necessarily achieve a greater degree of comparability than achieved through implementation of the ICPs. The ICPs are general in nature and are designed to be implemented in a wide variety of contexts in a proportionate manner. This intent is best described in the Assessment Methodology set out in the ICPs:

> *Paragraph 12 of the ICPs updated November 2015[8]:*
>
> *The framework described by the ICPs is general. Supervisors have flexibility in determining the specific methods for implementation which are tailored to their domestic context (eg legal and market structure). The standards set requirements that are fundamental to the implementation of each ICP. They also facilitate assessments that are comprehensive, precise and consistent. While the results of the assessments may not always be made public, it is still important for their credibility that they are conducted in a broadly uniform manner from jurisdiction to jurisdiction.*

36. Once finalised and agreed, the ICS is designed to establish minimum standards for setting levels of capital for IAIGs, including methods of calculating the ICS capital requirement and ICS capital resources. Supervisors may adopt additional arrangements that set higher standards or higher levels of minimum capital. Moreover, they may put in place supplementary measures of capital adequacy for the IAIGs in their jurisdiction. Supervisors may use additional capital measures to address, for example, potential inaccuracies in measuring levels of risk which is inherently uncertain in any capital requirement or determination of capital resources. Where a jurisdiction employs a supplementary capital measure in conjunction with the ICS, the capital required under the supplementary measure may, in some instances, be more binding. Details of how the ICS will be implemented as a minimum standard will be set out in a subsequent consultation on the ICS.

37. The ICS is being designed to measure the capital adequacy of an IAIG. The ICS is one component of ComFrame that should be used by group wide supervisors to assess the financial condition of an IAIG. Please refer to ComFrame and the ICPs for more information about other proposed expectations in the assessment of IAIGs' capital adequacy and with respect to the setting of IAIG-specific internal capital targets and capital management policies (eg ORSA and ERM).

[7] See http://www.iaisweb.org/page/supervisory-material/common-framework/file/58726/revised-comframe-draft-2014

[8] See http://www.iaisweb.org/page/supervisory-material/insurance-core-principles

2.2 Principles for ICS development

38. A first version of the principles set forth in **Table 2** below was published in September 2014. Principles 3 and 6 were subsequently amended following the 2014 ICS CD. The principles will be followed in ICS development.

Table 2. The ICS Principles

ICS Principle 1: The ICS is a consolidated group-wide standard with a globally comparable risk-based measure of capital adequacy for IAIGs and G-SIIs. The standard incorporates consistent valuation principles for assets and liabilities, a definition of qualifying capital resources and a risk-based capital requirement. The amount of capital required to be held and the definition of capital resources are based on the characteristics of risks held by the IAIG irrespective of the location of its headquarters.
ICS Principle 2: The main objectives of the ICS are protection of policyholders and to contribute to financial stability. The ICS is being developed in the context of the IAIS Mission, which is to promote effective and globally consistent supervision of the insurance industry in order to develop and maintain fair, safe and stable insurance markets for the benefit and protection of policyholders and to contribute to global financial stability.
ICS Principle 3: One of the purposes of the ICS is the foundation for Higher Loss Absorbency (HLA) for G-SIIs. Initially, the Basic Capital Requirements (BCR) is the foundation for HLA for G-SIIs.
ICS Principle 4: The ICS reflects all material risks to which an IAIG is exposed. The ICS reflects all material risks of IAIGs' portfolios of activities taking into account assets, liabilities, non-insurance risks and off-balance sheet activities. To the extent that risks are not quantified in the ICS they are addressed in ComFrame.
ICS Principle 5: 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. Applying a common means to measure capital adequacy on a group-wide consolidated basis can contribute to a level playing field and reduce the possibility of capital arbitrage.
ICS Principle 6: The ICS promotes sound risk management by IAIGs and G-SIIs. This includes an explicit recognition of appropriate and effective risk mitigation techniques.
ICS Principle 7: The ICS promotes prudentially sound behaviour while minimising inappropriate pro-cyclical behaviour by supervisors and IAIGs. The ICS does not encourage IAIGs to take actions in a stress event that exacerbate the impact of that event. Examples of pro-cyclical behaviour are building up high sales of products that expose the IAIG to significant risks in a downturn or fire sales of assets during a crisis.
ICS Principle 8: The ICS strikes an appropriate balance between risk sensitivity and simplicity. Underlying granularity and complexity are sufficient to reflect the wide variety of risks held by IAIGs. However, additional complexity that results in limited incremental benefit in risk sensitivity is avoided.

ICS Principle 9: The ICS is transparent, particularly with regard to the disclosure of final results.
ICS Principle 10: The capital requirement in the ICS is based on appropriate target criteria which underlie the calibration. The level at which regulatory capital requirements are set reflects the level of solvency protection deemed appropriate by the IAIS.

39. On 25 June 2015, the IAIS announced a series of goals related to the development of the ICS. These goals clarify the delivery process for the ICS. The series of goals provide for the following milestones:

- Mid-2017 – ICS Version 1.0 for Confidential reporting
- End-2019 – ICS Version 2.0 (for adoption within ComFrame)
- No particular date attached – ICS Ultimate Goal

2.3 Goal for ICS Version 1.0 for confidential reporting

40. 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.

41. 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; and
- variations of the standard method.

42. For 2016 Field Testing, Volunteer IAIGs have been asked to reconcile reported GAAP insurance liability amounts to both MAV and GAAP Plus amounts. This data is being collected to understand the significant adjustments applied to reported GAAP to produce a current estimate per the specifications for MAV and GAAP Plus approaches.

2.4 Goal for ICS Version 2.0 (for adoption within ComFrame)

43. 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; and
    - variations of the standard method.

44. After ICS Version 2.0 is adopted there will be an implementation period. According to IAIS By-Laws, Members commit to implement IAIS supervisory material taking into account specific market circumstances and undergo periodic self-assessments and peer reviews. The IAIS will create an implementation monitoring process during which lessons will undoubtedly be learned and used as progress is made along the path of convergence to future milestones beyond ICS Version 2.0.

2.5 Ultimate goal

45. The IAIS' ultimate goal, by a date yet to be determined, is a single ICS that includes a common methodology by which one ICS achieves comparable, ie 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.

46. ICS Principle 1 is also relevant to the issue of comparability and provides a practical way to consider that issue. In the explanation to that principle, it states: The amount of capital required to be held and the definition of capital resources are based on the characteristics of risks held by the IAIG irrespective of the location of its headquarters.

2.6 Confidential reporting

47. Confidential reporting of the ICS to group-wide supervisors is a natural extension of the existing voluntary Field Testing process, the notable change being that ICS Version 1.0 is expected to be developed to a sufficient degree such that supervisors can begin to consider it in the context of other information available, and thus become an additional source of feedback to the IAIS. Confidential reporting supports three objectives:

a) **Supervisors:** It provides the supervisor with firm-specific information on the potential impact of the proposed ICS requirements and on the ability of an individual IAIG to meet the ICS requirements, if it were to be adopted and implemented based

on the then-current Field Testing specifications. During confidential reporting, the IAIS will seek feedback from supervisors as to how such reporting of the ICS, albeit not yet in final adopted form, may begin to achieve a key goal for the ICS: to increase mutual understanding and encourage supervisory cooperation among group-wide and host supervisors by providing an objective group-wide measure of capital adequacy for IAIGs comparable across jurisdictions.

b) **IAIGs:** Of equal importance is information about the impact of the developing ICS standard on each IAIG's specific risk profile. It provides the IAIG the ability to engage with the IAIS, providing feedback on the appropriateness of the measure, and with the supervisors on planning for the future implementation.

c) **IAIS:** It provides the IAIS with information to aid in the identification of potential changes needed to the ICS or additional measures (eg transitional provisions) to be considered.

48. The confidential reporting phase of the ICS will provide time for monitoring and refinement of the ICS which should enable its suitability to be assessed and improved.

49. During the confidential reporting phase, the IAIS aspires to have 100% of likely IAIGs participating in Field Testing. The criteria to qualify as an IAIG are set out in ComFrame and are summarised as follows:

a) at least US$50b insurance assets or US$10b premiums; and

b) active in 3 or more jurisdictions; and

c) at least 10% premiums written outside home jurisdiction.

50. There are currently 42 Volunteer IAIGs participating in 2016 Field Testing, which achieves a good balance of business models across the population of firms which are, or may soon become, IAIGs. Although the sample of current Volunteer IAIGs achieves a broad and balanced coverage of geographical insurance markets and insurance products, it is important to test ICS Version 1.0 with a more complete set of likely IAIGs to assess the appropriateness of the ICS for different risk profiles. This will enable the further development and Field Testing of an appropriate ICS Version 2.0 before its adoption by the IAIS and its implementation by the IAIS members.

2.7 Non-insurance aspects of the ICS

51. Capital resources are to be assessed on a consolidated basis at the group-wide level. Therefore, there are no specific non-insurance considerations for capital resources. However, for matters of valuation and capital requirements, the IAIS is taking an aggregation approach in the ICS between insurance and non-insurance components.

52. For putting together the consolidated balance sheet of the IAIG there are two components: the consolidated insurance group to which the valuation approaches set out in

the ICS CD should apply and then the aggregation of that with the non-insurance components of the group with the valuation approach applicable for the relevant sectors.

53. For determining the capital requirement of an IAIG there are two components: the insurance component of the ICS capital requirement which is the subject of section 6 of this ICS CD and the addition of capital requirements from other financial sectors as per the 2015 BCR. That approach is set out below in summary form.

54. For regulated banking business, the capital requirement to be included is the maximum of the Basel III capital ratio requirements of 8% of Risk-Weighted Assets or the 3% Leverage ratio. For non-regulated banking business, the capital requirement to be included would be an adaption of the Basel III capital ratio applying a 4% Leverage Ratio. For assets under management, the ICS uses the standard indicator method for addressing Operational risk of asset management activities in Basel II,[9] but with an uplift as per 2015 BCR so that the calculation is 16% of gross income (averaged over three years).

[9] Paragraph 654 of the Basel II Comprehensive Version (http://www.bis.org/publ/bcbs128.pdf).

3 Scope of group: perimeter of ICS calculation

55. ICS capital resources are calculated on a consolidated group basis. The insurance component of the ICS capital requirement is calculated on a consolidated insurance group basis. The overall ICS capital requirement is the aggregation of the insurance component of the ICS and ICS components from other sectors, particularly banking.

56. The starting point for the scope of the group is the consolidated balance sheet of the insurance holding company of an insurance group or financial holding company of an insurance-led financial conglomerate subject to the adjustments set out below. The concept of an insurance-led financial conglomerate as per the guidance in ICP 23 has not been defined by the IAIS. It may well be a material matter to define for a minority of IAIGs. One way of defining it may be to define an insurance-led financial conglomerate as one where the insurance business controlled outweighs the non-insurance financial business and where the financial business outweighs the non-financial business.

Question 1. **Should the IAIS further define the concept of an insurance-led financial conglomerate to give greater certainty to supervisors and IAIGs as to how the head of an IAIG will be identified in a complex conglomerate structure? If "yes", is the proposed definition a helpful start and if so what further specification is suggested?**

Question 2. **Are there any instances of groups likely to be identified as IAIGs where it is likely supervisory judgement will need to be exercised in determining the level at which the group consolidated balance sheet should be prepared for ICS purposes? If "yes", what is the nature of the uncertainty in identifying the Head of the IAIG?**

(1) If "yes" to Question 2, is this uncertainty related to the insurance group or financial conglomerate forming part of a wider group? If "yes", please describe concerns with identifying the correct Head of the IAIG.

57. To ensure comparability of results, when reporting balance sheet information under both valuation approaches (MAV, and GAAP Plus – see section 4) the calculations should be applied to the same set of group entities. This may require adjustments to one or both of the valuation approaches to ensure a consistent consolidated approach.

58. The scope of the group should include all related entities within a group that may be a potential source of risks to the insurance operations, including all entities with exposures to Systemic Risk from Insurance Product Features (SRIPF)[10] and non-insurance risks.

59. Non-insurance financial entities are included in the consolidation.

[10] See http://www.iaisweb.org/page/supervisory-material/financial-stability-and-macroprudential-policy-and-surveillance

60. Capital requirements for non-insurance financial entities subject to separate specific prudential supervision are calculated according to the sectoral requirements.

61. Entities in the group can be excluded from the scope only if they are immaterial from a risk perspective; that is, when they do not significantly contribute to the total group risks. It is important to note that materiality in this case relates to the materiality of the risks posed to the financial entities in the group, not the size of the operations.

62. Non-financial entities may be excluded from the consolidation if they are completely separate from the financial businesses in the group. This would mean no linkage to the holding company in terms of guarantees or other financial links, application of credit rating methodologies, shared treasury operations or shared resources such as IT platforms and buildings. The IAIG must be able to establish that financial stress or bankruptcy of the non-financial businesses would have no financial or reputational effect on the financial entities, holding companies or ultimate holding company of the group.

63. The value of equity and debt owned by the IAIG in entities that are excluded from the scope of the group should be deducted from the capital resources of the group for solvency purposes.

64. The Field Testing Technical Specifications provide additional description and specific examples of how the consolidation should be performed and can be found on the IAIS website.[11]

Question 3. Given the description of entities to be included in the consolidation for ICS purposes, are there uncertainties as to material entities that should be included within the perimeter of the ICS calculation? If "yes", for which types of entities are supervisors and IAIGs most likely to benefit from greater specification of the scope of the group?

Question 4. Are there any further comments on this section on the scope of group that the IAIS should consider in the development of ICS Version 1.0? If "yes", please explain with sufficient detail and rationale.

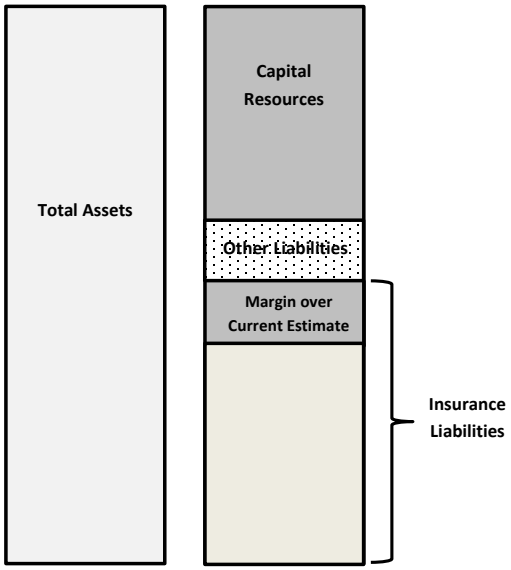
[11] See http://www.iaisweb.org/page/supervisory-material/insurance-capital-standard

4 Valuation

65. A precondition of the ICS is that the calculation basis is comparable across jurisdictions (ICS Principle 1). Therefore, the valuation basis of assets and liabilities is an integral component of the ICS. The balance sheet used for ICS purposes provides some of the underlying exposures for the calculation of the ICS capital requirement.[12] In addition, the balance sheet provides the foundation for determining qualifying capital resources.

66. One of the main considerations in setting the valuation requirements is the pursuit of a total balance sheet approach[13] in line with ICP 17. A total balance sheet approach should lead to the interactions between assets and liabilities being reflected consistently in both qualifying capital resources and the ICS capital requirement as circumstances change.

Figure 1. Total Balance Sheet Approach



67. To satisfy ICS Principles 1 and 5, which address outcomes across jurisdictions and comparability of risk-based measures of capital adequacy, the ICS should be comparable across IAIGs regardless of the jurisdiction in which any IAIG's head office is located or the IAIG's legal domicile. Current regulatory regimes vary in the degree of prudence included in the valuation of insurance liabilities (eg margins), in the valuation of invested assets or other

[12] For 2016 Field Testing of the ICS capital requirement standard method, the balance sheet provides the basis for measuring risks except in the case of Catastrophe risk, components of Operational risk and Premium risk.

[13] Total balance sheet approach: A concept which recognises the interdependence between all assets, all liabilities, all regulatory capital requirements and all capital resources. A total balance sheet approach should ensure that the impacts of all relevant material risks on an IAIG's overall financial position are appropriately and adequately recognised. It is noted that the total balance sheet approach is an overall concept rather than implying use of a particular methodology.

assets and liabilities, and in capital requirements.[14] If these differences are not addressed, they would affect both the measurement of qualifying capital resources and the ICS capital requirement.

68. ICS Principle 7 requires a valuation approach that prompts supervisory attention when appropriate. Such supervisory attention should not over-emphasise volatility that does not affect the solvency of an IAIG. Prudentially sound behaviour by IAIGs is promoted where the ICS does not encourage IAIGs to take actions in a stress event that exacerbate the impact of that event (for example fire sales of assets) or to focus on short term goals to the detriment of appropriate long term objectives. Stability in valuation is important in that context.

69. Informed by 2014 Field Testing results, the IAIS arrived at the following decisions on two possible valuation approaches:

> *"The market-adjusted valuation approach will be used as the initial basis to develop an example of a standard method in the ICS.*
>
> *The GAAP valuation approach data will be collected. Reconciliation between the market-adjusted valuation approach and GAAP valuation approach will be requested of the participating IAIGs. This will be used to explore and, if possible, develop a GAAP with adjustments valuation approach."*

70. In 2015 Field Testing, the IAIS tested the full example of a standard method on an MAV basis as well as particular risks on a GAAP Plus basis (Mortality risk, Interest Rate risk, Equity risk, Premium risk, Claims Reserve risk and Catastrophe risk). In 2016 Field Testing, the standard method is being fully tested using both valuation approaches. The standard method to determine the ICS capital requirement referred to above can be found in section 6.

4.1 Market-adjusted valuation (MAV) approach

71. The MAV approach focuses on comparability of valuation of assets and liabilities across IAIGs, regardless of the jurisdiction in which any IAIG's head office is located or the IAIG's legal domicile. This should ensure comparability of the exposure measures used for calculating the capital requirement as well as the amount of capital resources.

72. To achieve this, MAV requires that various IAIS prescribed adjustments are made to significant components within jurisdictional GAAP accounting valuations, including: the

[14] ICP 14 addresses valuation but is not sufficiently granular to create comparability across jurisdictions. It is meant to set out the issues to be addressed by each individual jurisdiction and its development did not include the goal of comparability across jurisdictions.

requirement to use current estimates[15] for insurance liabilities;[16] the use of an IAIS prescribed yield curve to project and discount the insurance liability cash-flows; and the use of fair value for financial instruments. The MAV approach will be transparent and verifiable to supervisors.

4.1.1 MAV general approach

73. IAIGs are not required to revalue every balance sheet item to a MAV methodology. The valuation of assets and liabilities other than insurance liabilities and financial instruments should generally be based on International Financial Reporting Standards (IFRS) or GAAP valuations, as applicable for consolidated audited general-purpose financial statements (or statutory amounts in the case of U.S. mutual IAIGs).

74. The IAIG should make adjustments to the following items:[17]

a) Insurance liabilities and reinsurance balances should be adjusted to a current estimate as described below, to which a margin over current estimate is added (see section 4.3).

b) Financial instruments, both assets and liabilities, including derivatives and mortgage/loan assets[18], should be adjusted to fair value using the fair value specification determined under the IAIG's applicable IFRS or GAAP standards for reporting or disclosure purposes.

c) Liabilities, including debt instruments issued by the IAIG, should be adjusted to a value that does not take into account changes in the credit standing of the IAIG.

Question 5. Do the adjustments to GAAP specified in the 2016 Field Testing Technical Specifications for the construction of the MAV balance sheet succeed in providing a largely comparable picture of the financial situation of IAIGs and a consistent basis for the calculation of the ICS? Please explain.

Question 6. Are there any other material areas of divergence across existing GAAPs (or statutory accounts) that should be subject to adjustments when constructing the MAV balance sheet? If "yes", please explain.

[15] The term "current estimate" will be used going forward as that is consistent with existing IAIS terminology. Current estimate is defined in ICP standard 14.8: "The current estimate reflects the expected present value of all relevant future cash flows that arise in fulfilling insurance obligations, using unbiased, current assumptions."

[16] This leads to the elimination of prudence margins from insurance liabilities as explained in section 4.1.2. Note that the IAIS is developing a consistent and comparable MOCE which is intended to be added to current estimates – see section 4.3.

[17] See section 6.2 of the 2016 Field Testing Technical Specifications

[18] In this context, mortgage/loan assets means mortgages/loans that the IAIG has invested in or itself written as the lender.

4.1.2 Methodology for calculation of current estimate

75. For the purposes of MAV, the current estimate should correspond to the probability-weighted average of the present values of the future cash flows associated with insurance liabilities using IAIS specified yield curves.

76. This entire section applies equally to the calculation of reinsurance recoverables. Reinsurance recoverables should be calculated so that they are consistent with the current estimates of insurance liabilities. Therefore the same assumptions and inputs should be used.

77. The calculation of the current estimate should be based on up-to-date and credible information and realistic assumptions. Implicit or explicit margins are not part of the current estimate. The determination of current estimate should be comprehensive, and objectivity is required in terms of observable input data.

78. Uncertainty in future cash flows should be captured in the current estimate. Uncertainty in cash flows can arise from a number of sources, namely:

a) the timing, frequency and severity of claim events;

b) claims amounts, including uncertainty in claims inflation, and the period needed to settle claims;

c) the amount of expenses;

d) the value of an index/market values used to determine claim amounts;

e) policyholder behaviour; and

f) path dependency.

The calculation should consider the variability of the cash flows in order to ensure that the current estimate represents the mean of the distribution of cash flows.

79. To calculate the current estimate, it may not be necessary or even possible to explicitly incorporate all possible scenarios in the valuation of insurance liabilities, or to develop explicit probability distributions in all cases. This depends mainly on the type of risks affecting the scenarios and the expected materiality of their financial impact in the overall calculation.

80. When valuing insurance liabilities, no adjustment should be made to take account of the own credit standing of the IAIG.

81. Further details of the methodology for determining current estimates can be found in the 2016 Field Testing Technical Specifications, including:

a) cash flow projections;

b) recognition/derecognition of insurance liabilities;

c) contract boundaries;

d) time horizon;

e) data quality and setting of assumptions;

f) possible methodologies;

g) liabilities expressed in different currencies;

h) valuation of options and guarantees;

i) policyholders' behaviour; and

j) valuation of future benefits and management actions.

There have been no significant changes to these items since the 2014 ICS CD. Refer to the IAIS website (www.iais.org) for the resolution of comments received on the 2014 ICS CD. Of these issues, only contract boundaries is specifically addressed as part of this ICS CD (see section 4.1.3).

82. Concerning the specificities of the MAV approach, it was decided that the focus should continue to be on increased comparability of the main elements of an IAIG's balance sheet. With that objective in mind, the IAIS continues to refine the approach through Field Testing, improving the guidance (Technical Specifications) as necessary.

4.1.3 Contract boundaries

83. Only contracts existing at the valuation date, and recognised according to the "recognition/derecognition" criteria, should be taken into account. This provision implies that no future business should be taken into account for the calculation of insurance liabilities.

84. Any obligations, including future premiums, relating to the contract shall belong to the contract. However, future premiums (and associated claims and expenses) relating to an existing and recognised contract beyond the following dates should not be considered in insurance liabilities, unless the IAIG can demonstrate that they are able and willing to compel the policyholder to pay the premiums:

a) The future date where the IAIG has a unilateral right to terminate the contract or reject the premiums payable under the contract; OR,

b) The future date where the IAIG has a unilateral right to amend the premiums or the benefits payable under the contract in such a way that the premiums fully reflect the risks.

85. For group policies, similar rules apply. If premiums can be amended unilaterally for the entire portfolio in a way that fully reflects the risks of the portfolio, the second condition above (i.e. paragraph 84.b)) will be fulfilled for group policies.

86. The approach to contract boundaries deviates from a pure economic approach usually used to value insurance businesses for portfolio transactions. This is in line with the aim of ensuring an assessment of the solvency of the IAIG on the basis of the risks (current or future) which have already been assumed at the valuation date, without any exit possibility (from the

perspective of the IAIG). The risks are no longer relevant for the solvency assessment of the IAIG after the point where the risks to the IAIG can be extinguished, through the cancellation of the contract or an unlimited change in the premiums and/or benefits. A change in the valuation of insurance liabilities to include renewals and/or new business assumptions could complicate the determination of future premiums and associated liability cash-flows accounted for in the current estimate. This approach requires IAIGs to calculate the likelihood that in-force contracts will be renewed and the likelihood that the renewed contracts will be altered, taking into account firms' management actions and policyholder behaviour. This approach also increases the degree of uncertainty and discretion in the determination of future premiums and associated liability cash-flows with the risk that they are not determined appropriately and consistently over time and across IAIGs.

87. The inclusion of new business assumptions would also imply significant changes to other parts of the ICS to ensure the overall consistency of the ICS framework. Among the areas affected by such changes would be, for example, the Standard Method of the ICS Capital Requirement (eg Lapse risk), the definition of (eligible) capital resources and the specification of the Margin Over Current Estimate (MOCE).

Question 7. **Should MAV include a more economic approach to contract boundaries (eg renewal rate and stability of premiums) rather than focusing on contractual or legal aspects? If "yes", why would this provide a better assessment of the solvency position of IAIGs?**

Question 8. **If an economic approach were adopted, would that make the determination of the contract boundaries more complicated? Please explain.**

Question 9. **If an economic approach were adopted, the calibration of some ICS risk charges would need to be revised to capture the different exposure to risks (eg Lapse risk). What areas of the ICS capital requirement would be affected and how? Please explain in terms of the defined risks in the ICS capital requirement.**

Question 10. **To ensure the overall consistency of the framework, the definition of MOCE would need to be reviewed following the adoption of an economic approach to contract boundaries. Would a change to an economic approach to contract boundaries impact the specification of MOCE? Please explain.**

Question 11. **If material amounts of future business were included in the valuation of insurance liabilities, through the consideration of future expected renewals, would the resulting capital resources (future profits) continue to meet the criteria for inclusion in Tier 1 (eg regarding the criterion on availability)? Please explain.**

Question 12. **Would other components of the ICS, be affected by such change? If "yes", please specify those components and provide an explanation.**

4.1.4 Discounting

4.1.4.1 Background

88. The main objective of providing IAIS specified discount curves is comparability.

89. In the 2014 ICS CD and 2015 Field Testing, the approach taken for discounting was to prescribe yield curves for the 35 most traded currencies and provide the methodology for determining those yield curves for Volunteer IAIGs that operate in other markets which are not covered by the prescribed yield curves. The prescribed yield curves by currency were created by:

a) determining base yield curves (using either swap market data or government bond market data depending on currency); and

b) applying an adjustment to that base yield curve.

90. In response to feedback received from the 2014 ICS CD, the approach to the construction of the base yield curve was refined for 2015 Field Testing. The most significant change was the abandonment of the artificial flattening of the yield curve after the 30-year point (ie the "flat after 30 years" assumption). The design of the base yield curve evolved into a 3-segment design ie

a) Segment 1: Liquid segment based on market information;

b) Segment 2: Extrapolation/gradation between first and third segments; and

c) Segment 3: (convergence): Long Term Forward Rate (LTFR) that currently begins at year 60 for all currencies. The LTFR was determined using a macroeconomic approach based on information from the Organisation for Economic Co-operation and Development (OECD).[19]

This approach continues to apply for the 2016 Field Testing exercise.

91. To strive to reflect the long-term nature of insurance contracts and mitigate potential excessive volatility in capital resources (by avoiding reflecting changes in market conditions that do not affect the solvency of the IAIG), an adjustment to the base yield curve was introduced. This ICS CD also presents the conclusion that in this area the IAIS will specify a concrete methodology, rather than be limited to issue high level principles.

92. The adjustment to the base yield curve used in 2014 and 2015 Field Testing was based on applying a proportional increase across the yield curve. The magnitude of the proportional increase was determined by observing spreads earned on a reference asset portfolio defined as an investment grade corporate bond or broad market index (ie a basket of liquid bonds with a credit rating from AAA to BBB). Where a relevant corporate bond index was not available a default level of 50 basis points was used as a proxy. In a second step, the observed spread on the reference portfolio was used to proportionally uplift the yield curve under the

[19] For further details please refer to http://www.oecd.org/eco/outlook/lookingto2060.htm

assumption that the 10 year tenor would receive 40% of the total spread observed on the reference portfolio. A cap was applied to avoid any point on the yield curve receiving more than 100% of the spread observed on the reference portfolio.

$$interest\ rate\ adjustment_t = min\left(basic\ risk\ free_t \frac{40\%\ times\ spread_{10}}{basic\ risk\ free\ rate_{10}}, spread_{10}\right)$$

93. In case of currency unions, such as the Eurozone, both government bond and corporate bond spreads were taken into account. The adjustment had regard to the average composition of IAIGs' assets between government bonds and corporate bonds. The adjustment is calculated as:

$$Weight\_Govt\ x\ Relevant\_Spread\_Govt + Weight\_Corp\ x\ Relevant\_Spread\_Corp$$

94. For markets where a number of indicators (eg lack of index, low amount outstanding, few high quality bonds) suggested that the corporate bond market does not allow considerable investments by IAIGs, a simple assumption was made that the adjustment would be 50 basis points.

4.1.4.2 Comments received on 2014 ICS CD

95. Stakeholder responses to the 2014 ICS CD highlighted the need to refine the approach to the construction of the IAIS yield curves. Many stakeholders raised issues with the construction of the base yield curves (artificially flattened after the 30-year point for all currencies) and the design and calibration of the adjustment to the base yield curves. For example, some stakeholders pointed to the need to consider higher or different types of adjustments, particularly for long-term insurance contracts. The core concern was related to the potential ineffectiveness of these adjustments under particular market conditions for individual institutions. For example, due to changes in credit spreads the asset side of the balance sheet may respond to market changes differently than the liability side and this could lead to volatility of capital resources.

96. Another view was that IAIGs should be allowed to develop their own yield curves based on IAIS high-level principles, rather than applying the IAIS determined yield curves.

97. Other responses included:

a) use a rate as close as possible to a pure risk-free market curve;

b) develop a Solvency II type volatility adjustment;

c) discounting should not be required for non-life business; and

d) maintain consistency with IFRS 4 Phase 2.

4.1.4.3 IAIS' response to stakeholder comments and Field Testing results

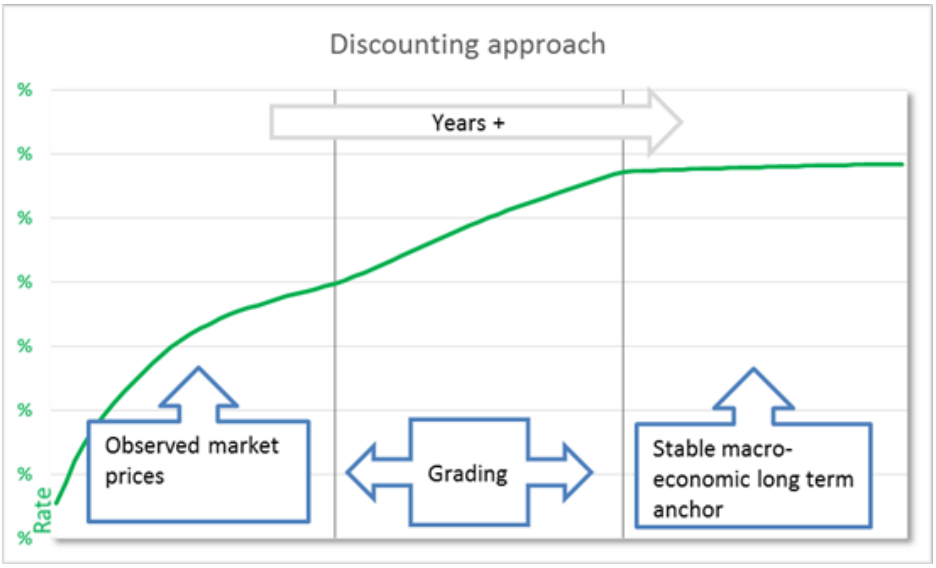
98. For 2015 Field Testing purposes, the IAIS strove to improve the approach to discounting by:

a) developing a new methodology to determine the base yield curves to a three segment approach, as described above; and

b) maintaining the same adjustment approach, but further exploring the issues around the methodology through the Field Testing Questionnaire. The IAIS asked Volunteer IAIGs to comment on various proposals to change the adjustment approach.

Base yield curve

Figure 2. Current design of the base yield curve



99. The introduction of the three segment approach was generally well received by Volunteer IAIGs and their supervisors, and no amendments were applied for 2016 Field Testing except for the Credit risk adjustment (CRA) (see below).

100. However, feedback is sought from stakeholders on the following key elements for the determination of the base yield curve.

101. For each currency, Segment 1 is based either on interest swap rates or on government bond rates, with the aim to use markets that are deep, liquid and transparent. By default, swap markets have been used based on the assumption that swap markets in most currencies are deeper, more liquid and more transparent than government bond markets in the same currency.

102. In 2015 Field Testing, the financial instruments on which Segment 1 is based were first adjusted for Credit risk and for simplicity that was applied irrespective of whether they were swap rates or government bond rates. This approach was revised in 2016 Field Testing so

that only yield curves based on swap rates are subject to a CRA.[20] The removal of the CRA for yield curves based on rates of government bonds follows the assumption that these instruments are risk-free.

103. The convergence point, ie the maturity at which the forward rates of the yield curves converge to the LTFR, has been set at 60 years for all currencies, irrespective of whether the last point of Segment 1 comes at year 10 or year 30. On one hand, the LTFR is assumed to represent the nominal rate expected to be earned when economies reach their long-term macroeconomic equilibrium. It follows that the convergence point to the LTFR must be set in the distant future, eg in 60 years. On the other hand, it is not obvious whether the convergence point should be the same for all currencies or whether it is the convergence time (ie the length of Segment 2) which should be the same across currencies. In the latter case, assuming a convergence time of 50 years would mean a convergence point at 80 years (30y+50y) for the Australian Dollar yield curve and a convergence point at 60 years (10y+50y) for the Brazilian Real yield curve. In absence of strong evidence advocating for one approach or the other, a mix of the two approaches could be found out by setting a minimum convergence point and a consistent convergence speed for all currencies. For example, if a minimum convergence point of 60 years is chosen and a convergence time of 50 years is chosen then the convergence point would be determine by: convergence point = max(last point of Segment 1 + 50y, 60y).

104. The LTFR for each currency is based on long-term expectations of economic growth and long-term expectations of inflation for the relevant economies. The long-term expectations of economic growth are derived from an OECD study.[21] In that study, OECD economies are expected to grow 1.5% per annum from the time of the study in 2014 until 2060 and non-OECD countries are expected to grow at 2.75% per annum over the same period. When combined with inflation targets of the central banks, a growth figure can then be derived. For example, for Australia the inflation target is 2.5% and the growth expectations is 1.5% which derives a 4% long-term forward rate. For Brazil, it is a non-OECD country with a 2.75% growth expectation and long-term inflation expected of 4.5% leading to an LTFR of 7.3% (rounded up). Below is a table setting out target long-term inflation in different economies.

Table 3. Long-term target inflation

[20] The CRA relates to the fact that the reference rates used as floating legs in the swap agreements carry counterparty Credit risk, since they originate from unsecured interbank market transactions. For example, the floating leg of Euro area swaps is based on Euribor rates. Given that the floating leg reflects counterparty Credit risk, the fixed leg will also carry Credit risk, since in an efficient market the fixed leg will be based on expectations of future realisations of the floating rate over the duration of the swap arrangement. For the sake of simplicity, the CRA has been set for Field Testing at 10 basis points for all currencies.

[21] For further details please refer to http://www.oecd.org/eco/outlook/lookingto2060.htm

Long term target inflation	
2.0%	Default
2.5%	Australia, Poland, Iceland and Norway
3.0%	Chile, Hungary, Mexico and Korea
4.0%	Argentina, China, India and Russia
4.5%	Brazil, Indonesia and South Africa
5.0%	Turkey

Table 4. Starting points for extrapolation and convergence with LTFR (by currency) in 2016 Field Testing

Currency Symbol	Currency	Instrument used to derive the base curve	Segment 2 (ie extrapolation) starts at year	Segment 3 starts at year	Long term forward rate
AUD	Australia Dollar	Swaps	30	60	4.0%
BRL	Brazil Real	Govt bonds	10	60	7.3%
CAD	Canada Dollar	Swaps	20	60	3.5%
CHF	Switzerland Franc	Swaps	20	60	3.5%
CLP	Chile Peso	Swaps	10	60	4.5%
CNY	China Yuan Renminbi	Govt bonds	10	60	6.8%
COP	Colombia Peso	Swaps	10	60	4.5%
CZK	Czech Republic Koruna	Swaps	15	60	3.5%
DKK	Denmark Kroner	Swaps	20	60	3.5%
EUR	Euro	Swaps	20	60	3.5%
GBP	United Kingdom Pound	Swaps	30	60	3.5%
HKD	Hong Kong Dollar	Swaps	15	60	3.5%
HUF	Hungary Forint	Govt bonds	15	60	4.5%
IDR	Indonesia Rupiah	Swaps	10	60	7.3%
ILS	Israeli New Shekel	Swaps	20	60	3.5%
INR	India Rupee	Swaps	10	60	6.8%
JPY	Japan Yen	Govt bonds	30	60	3.5%

Currency Symbol	Currency	Instrument used to derive the base curve	Segment 2 (ie extrapolation) starts at year	Segment 3 starts at year	Long term forward rate
KRW	South Korea Won	Govt bonds	20	60	4.5%
MXN	Mexico Pesos	Govt bonds	20	60	4.5%
MYR	Malaysia Ringgit	Swaps	20	60	7.3%
NOK	Norway Kroner	Swaps	10	60	4.0%
NZD	New Zealand Dollar	Swaps	20	60	3.5%
PEN	Peruvian Nuevo Sol	Swaps	10	60	4.5%
PHP	Philippine Peso	Swaps	10	60	7.3%
PLN	Poland Zloty	Govt bonds	15	60	4.0%
RON	Romania New Leu	Swaps	10	60	3.5%
RUB	Russia Ruble	Swaps	10	60	6.8%
SAR	Saudi Arabian Riyal	Swaps	15	60	4.8%
SEK	Sweden Kronor	Swaps	10	60	3.5%
SGD	Singapore Dollar	Swaps	20	60	3.5%
THB	Thailand Baht	Swaps	15	60	7.3%
TRY	Turkey Lira	Swaps	15	60	6.5%
TWD	Taiwan New Dollar	Govt bonds	10	60	6.8%
USD	United States Dollar	Swaps	30	60	3.5%
ZAR	South Africa Rand	Govt bonds	30	60	7.3%

Question 13. **Is the current 3-segment approach to the definition of IAIS base yield curves a sound basis to determine the base yield curve? Please explain.**

Question 14. **The base yield curves are based on either swaps or government bonds, depending on the liquidity of the underlying markets. Are any of the IAIS' choices of either swaps or government bonds as a basis for determining individual currency yield curves as set out in Table 4 above inappropriate? If "yes", for which currencies is the choice inappropriate? Please explain your answer.**

Question 15. For each currency, the extrapolation period begins at the point where the market for the instruments used no longer fulfils the criteria for being considered deep, liquid and transparent. Is the starting point of Segment 2 inappropriate for any currency? If "yes", for which currencies is the starting point inappropriate? Please explain.

Question 16. Currently, the IAIS has adopted the simplification that Segment 3 should start at maturity 60, for all currencies. Should the IAIS continue with this simplification? If "yes", are there any necessary amendments to that approach? If "no", should the IAIS seek to adopt a different approach to determining the start of Segment 3 based on one of the following options?

(1) Should the IAIS harmonise the length of Segment 2 at a set number of years? If "yes", what should be the length of Segment 2?

(2) Should the IAIS consider determining a minimum convergence point as well as a consistent convergence time and take a maximum of the last point of Segment 1 plus the consistent convergence time and the minimum convergence point? If "yes", what should be the consistent convergence time and minimum convergence point?

Question 17. The proposed LTFR is based on a macroeconomic approach using OECD information. Is this methodology appropriate? Please explain.

(1) If "no" to Question 17, should the IAIS develop an alternative methodology to derive the LTFR? Please provide an outline of such an alternative methodology.

Question 18. The discounting approach is based on a stable macro-economic long-term anchor while the methodology to derive it may show drifts or even steps over time. Should the IAIS also address the issue of frequency of assessment and ways to update the LTFR? If "yes", please provide details of how the IAIS should address the issue of frequency of assessment and ways to update the LTFR.

Question 19. Do you have any other proposals for refinement of the methodology to derive the base yield curves? If "yes", please provide a detailed rationale for your suggestions.

Adjustment to base yield curve

105. Volunteer IAIGs remained concerned about the potential volatility that the methodology of determining the credit spread adjustment to the base yield curve used for the 2014 and 2015 Field Testing could introduce on capital resources under specific market conditions. They believe the methodology to adjust the base yield curve may not adequately reflect the behaviour observed on the asset side of the balance sheet, regarding credit spreads.

106. To this end, Volunteer IAIGs have been advocating for a change to the adjustment methodology, to better align the behaviour on the two sides of the balance sheet. As a response, the IAIS has committed to explore possible refinements to the adjustments to the

base yield curves, including their appropriateness during a stress scenario. This is borne out by the design of options to be considered for determining the adjustment which will be the subject of 2016 Field Testing.

4.1.4.4 Policy issues regarding the design of the adjustment

107. The MAV credit spread adjustment to the base yield curve is intended to mitigate the potential excessive volatility in capital resources due to periods of exaggeration of credit spreads in financial markets. The various designs explore different approaches to identify the portion of future investment return the IAIG may be able to earn, due to the specific nature of insurance business. Performing such estimation with greater accuracy, based on a very tailored assessment of the IAIG's assets and liabilities, increases the complexity of the calculations and can lead to the incentive for IAIGs to inflate their regulatory capital resources by investing in high-yield assets. On the other hand, estimating the adjustment on the grounds of a reference portfolio of assets will reduce complexity, but maintain a certain level of basis risk (to the extent to which the assets held by IAIGs deviate from those represented in the reference portfolio).The adjustment options being tested have been chosen to investigate the trade-offs between accuracy, complexity and minimising poor risk management incentives.

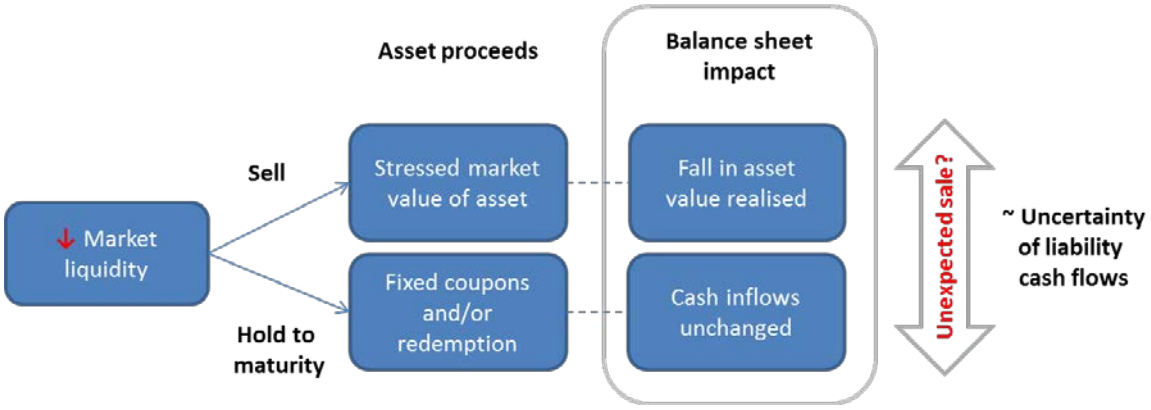
108. An important element in estimating the likely future investment return on assets is the likelihood of unexpected sale of assets. This is particularly relevant for assets offering fixed cash inflows, such as debt instruments, since the market value of assets can vary even while the expected value of future coupons and/or redemption payments remains unchanged. Following a fall in the levels of liquidity in a market, for instance, the prices of debt instruments are likely to fall due to decreased demand. The degree to which this affects an IAIG holding such instruments then depends on whether or not the IAIG:

a) subsequently sells the debt instrument, in which case the IAIG realises the loss stemming from the asset price fall; or

b) holds the bond to maturity, in which case the value of the asset to the IAIG is not based on its market value but on the value of the future coupon and/or redemption payments.

109. The relevance of the current market value of the asset to the IAIG's ability to meet its obligations is therefore dependent on the likelihood that it will unexpectedly be required to sell the asset. For IAIGs, this will depend in part on the uncertainty of their corresponding liabilities. Whilst in many cases IAIGs' positive cash flows will enable IAIGs to hold investments to maturity, the more uncertain their liabilities are, for instance due to surrender options or by covering more volatile risks, the more likely the IAIG is to unexpectedly sell the asset and realise the market value. To reflect this, some of the adjustment options vary the balance sheet impact of market value fluctuations according to 'liability liquidity' categories (or buckets).

Figure 3. Possible effects of market fluctuations on balance sheet



110. A fall in the market value of a debt asset has the effect of increasing its yield spread, since this effectively measures value of the fixed coupons and/or redemption payment against the current market value of the asset. Each of the adjustments acts to reflect a portion of this expected future return on debt instruments in the discount rate used to value the liabilities, thereby reducing the overall balance sheet impact of market price fluctuations in assets.

111. The IAIS discussions concerning the possible refinement of the 2015 adjustment methodology developed around five policy issues:

a) the approach to portfolio selection for the calculation of spreads;

b) the approach to liability bucketing;

c) the level of granularity allowed for in the calculation of the credit spread adjustment;

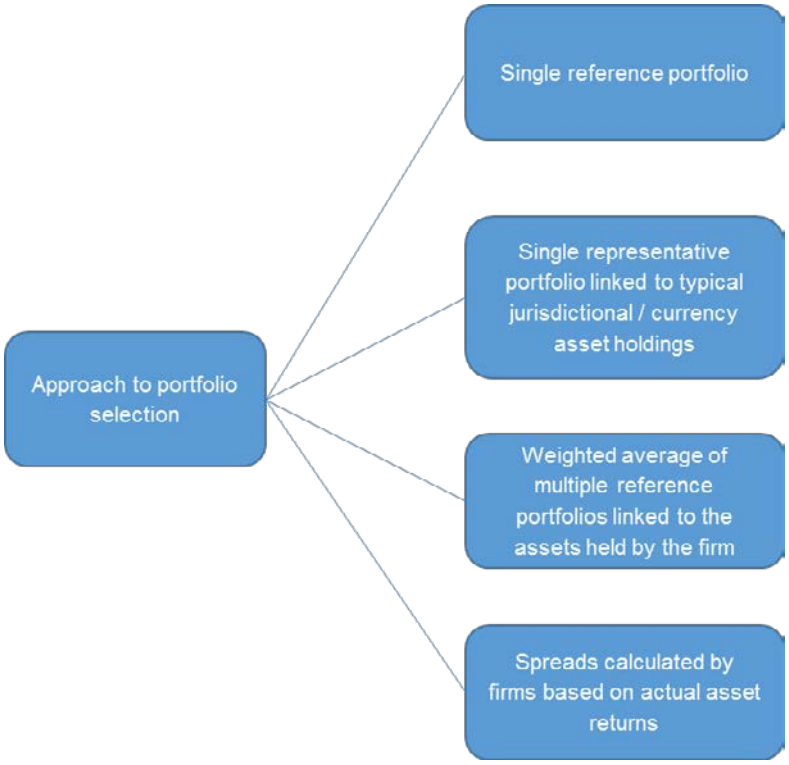
d) the approach to default allowance; and

e) the segments of the base yield curve that should be affected by the application of the adjustment.

112. The first policy issue relates to the **approach to portfolio selection for the calculation of spreads.** Should the credit spread adjustment to the base yield curve be determined on the basis of a single reference portfolio, multiple reference portfolios or based on the IAIG-specific assets?

113. Several possibilities are being considered by the IAIS:

Figure 4. MAV discounting options in 2016 Field Testing



114. When comparing the different options, it should be noted that there is a trade-off between comparability and basis risk (the risk that there will be differences between the basis on which liability cash flows are discounted and the implicit credit spreads that markets apply to determine the fair value of the assets held by the IAIG).

115. At one extreme (eg the Single Reference Portfolio used for the 2014 and 2015 Field Testing methodology), insurance liabilities are fully comparable among IAIGs, which is in line with the concept of the MAV methodology. However, given the specificity of the assets and liabilities held by each individual IAIG, this methodology is likely to lead to the higher degree of basis risk, as the adjustment will not allow for a full alignment between the movements of the assets and liabilities of any individual IAIG.

116. At the other extreme, the adoption of a firm-specific adjustment based on its own asset holdings is likely to better align the movements of assets and liabilities, but will cause the value of otherwise identical insurance liabilities to differ in value which in itself is no longer consistent with a MAV methodology. In addition, it could create incentives detrimental to sound risk management by rewarding the holding of high yield assets, which are likely to imply high level of risk.

117. This issue is particularly relevant taking into consideration that one of the fundamental objectives of the ICS is to ensure the protection of policyholders. The creation of inappropriate investment incentives through this measure aiming to mitigate the risk of pro-cyclical behaviour is not desirable.

118. It is sometimes argued that individual IAIG investment choices (eg investment in lower rated assets delivering higher credit spreads) should be allowed to flow entirely into the valuation of insurance liabilities, as the increased risks posed by such investments would already be captured by the ICS capital requirement in the Credit and Market risk charges. When credit spreads are disregarded (in total or partially), there may be a double counting of Asset risk in the framework.

119. Those who oppose this view argue that the incentives created by a direct alignment of the valuation of insurance liabilities and the assets could and should be avoided. Also, it is arguable that the additional capital requirements would offset the additional capital resources generated by the use of higher discounting yields in the calculation of current estimates (therefore negating the abovementioned perverse incentives). In practice, this is difficult to demonstrate and standardised spreads will better ensure that reported liabilities are adequate for all IAIGs.

120. Another way of mitigating perverse investment incentives embedded in the valuation framework is by limiting the degree to which spreads from lower quality assets are included in the adjustment. For example, under the Reference Method 3 which is being tested in 2016 Field Testing, no asset's spread may exceed the BBB-spread in the portfolio used to calculate the adjustment, for each currency. A similar approach is also implemented either implicitly or explicitly in all other options.

Question 20. Which approach to portfolio selection, as a basis for the calculation of the credit spread adjustment, is more appropriate for the MAV approach, taking into account the need to ensure a balance between complexity, comparability and basis risk? Please explain.

Question 21. Is it appropriate to have entity-specific elements in the valuation of insurance liabilities? If "yes":

(1) To what extent is this appropriate?

(2) How can that be aligned with the market-based nature of the framework (evident in the approach used to value assets) and the need to protect all policyholders in an equal manner, independently of the individual choices made by each IAIG, as discussed above?

Question 22. Is it important for the valuation framework, together with the capital requirement framework, to not provide incentives for low quality investments undermining policyholder protection?

(1) If "yes" to Question 22, is the capping of the contribution to the adjustment to that of a comparable BBB asset an effective way of achieving that objective? Please explain.

(2) If "no" to Question 22(1), what other approaches could the IAIS explore to achieve that objective?

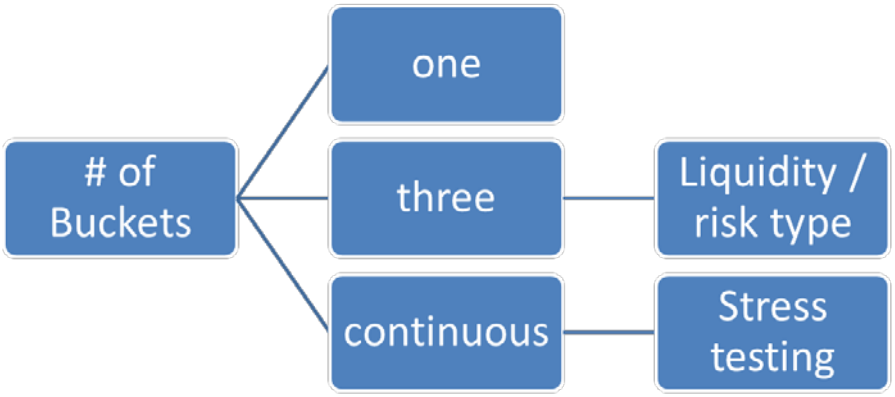
121. The second policy issue relates to the **approach to bucketing of liabilities**. The questions are whether the adjustments should be applied equally to all insurance liabilities (ie

single bucket) or if there should be a more nuanced approach to the adjustment through the use of multiple buckets linked to liability features, leading to different application ratios of the initial adjustment. If multiple buckets are introduced, the methodology to be used to allocate liabilities to the different buckets also needs to be defined.

122. Conceptually, the introduction of buckets may be justifiable. Valuations tend to be lower for more stable liability cash flows because IAIGs can invest in less liquid investments without increasing risk. Where liabilities are longer and more stable (ie more predictable in the sense that it is less likely that unexpected pay-outs need to be satisfied through the sale, at current market prices, of backing assets before their maturity), the IAIG will have a greater ability to back them with long term or illiquid assets, allowing for a higher portion of the credit spreads to be effectively earned without the need to sell the assets (eg due to an early lapse of the policies).

123. The IAIS discussed several possible approaches to segment liabilities according to their liquidity characteristics:

Figure 5. Possible approaches to bucketing of liabilities



124. The most relevant consideration relates to the trade-off between complexity and reflecting the economic reality. It is important to ensure that the solution chosen can be effectively implemented by IAIGs and supervised by supervisory authorities. In particular, the criteria need to be capable of being implemented, without generating complex debates about unbundling of liabilities or borderline discussions (in the case of liabilities that cannot clearly be assigned to a specific bucket).

125. Continuous approaches, where each contract (or homogeneous group of contracts) is discounted using a different credit spread adjustment corresponding to its level of liquidity, may lead to very precise application ratios, but are extremely burdensome and complex to implement and supervise. On the other hand, a small number of liability buckets implemented through a relatively simple methodology are easier to implement and supervise, but will deliver a less reliable relationship between contract liquidity and the ability of firms to earn the spread allocated to the bucket. These considerations have been central in the design of the options included in 2016 Field Testing (Section 4.1.4.5).

Question 23. **Should insurance liabilities be segregated into buckets for the purpose of applying the credit spread adjustment?**

(1) If "yes" to Question 23, which criteria are appropriate to allocate liabilities to the different buckets?

(2) If "yes" to Question 23, what is an appropriate number of buckets?

(3) If "yes" to Question 23, what should be the application ratios associated with each bucket?

(4) If "no" to Question 23, as an alternative to a criterion for predictability of insurance liabilities, could partial risk transfer to policyholders (eg market value adjusted products) be a criterion for determining the credit spread adjustment?

Question 24. **Does the ability of IAIGs to earn credit spreads above the risk-free interest rates in a risk-free manner depend on the IAIGs' ability to match liability cash-flows with asset cash-flows? Please explain.**

126. The third policy issue relates to the **level of granularity which is allowed for in the calculation of the credit spread adjustment**; some options are set out in the questions below.

Question 25. **What level of granularity is more appropriate for the calculation of the credit spread adjustment? Please justify your answer.**

- ☐ **A single spread adjustment calculated and then applied to the different buckets (if more than one) using different application ratios.**
- ☐ **The IAIG identifies different classes or combinations of assets backing specific classes of liabilities associated with each bucket, calculating different credit spread adjustments for each bucket on the basis of the groups of assets identified.**

Question 26. **In the absence of requirements concerning asset-liability matching and ring-fencing, should supervisors require the proposed allocation be demonstrated and maintained throughout the lifetime of the corresponding insurance liabilities? Please explain and if "yes", how could this be achieved?**

127. The fourth policy issue relates to the **methodology for the adjustment of spreads for default and other risks** which are deducted to reflect unexpected losses that are not reflected in observed market spreads.

128. For the purposes of the 2016 Field Testing, the expected default loss on corporate bonds is calculated as the annualised expected default probability of a hypothetical bond issued 10-years prior to the current year. The transition matrices from those 10 years are multiplied together in sequential order to generate the bond's cumulative probability of default.

The transition matrices provide the probabilities of a bond with a given rating moving to any other credit rating. Multiplying the matrices together therefore provides the cumulative probabilities of the bond reaching any rating in some future year, conditional on its original rating. This rate is annualised by calculating the average per period default probability ie

$$\overline{PD} = 1 - (1 - CPD)^{\frac{1}{T}}$$

where CPD is the cumulative probability of default, T is the number of years (10 in this case).

129. A Credit risk premium is added for corporate bonds to the expected default rate to account for uncertainty in credit markets. This is based on the standard deviation of historical defaults, again over the 10 year assumed average duration of the portfolio.

130. Due to the rarity of default events on sovereign debt, the default allowance for sovereign bonds is instead based on 30% of long-term average spreads. This is again taken over a 10-year period, to be consistent with the time period used for corporate bonds.

Question 27. Is the proposed approach for calculating the adjustments for default reasonable? If "no", please explain how it could be improved.

131. The fifth policy issue relates to the **segments of the base yield curve that should be affected by the application of the adjustment**.

132. The methodology used in 2014 and 2015 Field Testing consisted of an adjustment applied only to the liquid part of the base curve (Segment 1). The adjustment was then phased out throughout Segment 2 (extrapolation).

133. The justification for this approach is that the rationale for the introduction of the adjustment is linked to the ability of IAIGs to earn spreads by holding assets to maturity. As such spreads can only be observed and measured on assets which are currently available on the market, they could only affect the valuation of insurance liabilities up to the maturities where they could be backed by such existing assets.

134. On the other hand, it may be unrealistic to assume that spreads over the risk-free rate will not continue to exist in the future, when the existing assets mature and reinvestment needs to be made. Such long term spreads should be measured and added as an adjustment to the LTFR.

135. As an additional refinement and in order to address the technical constraints posed by the current environment of very low or even negative yield curves, the IAIS is also considering to move from a proportional adjustment (eg the 2015 Field Testing Adjustment methodology) to an absolute value adjustment.

136. Under this revised approach, the adjustment would be a number of basis points to be added to the base yield curve as a parallel shift, rather than a proportional movement.

137. The current proposals for adjustments to the discounting curve may create situations in which some IAIGs, depending on their asset/liability profile, could benefit from an increase

in the level of credit spreads through an increased adjustment on the base yield curve. This could happen in particular where an IAIG invests in bonds with duration shorter than its liabilities: all other things remaining unchanged, an increase in the level of credit spreads would result in a decrease in the value of bonds, and potentially a larger reduction in the technical provisions. Such a situation, where the solvency situation of an IAIG would benefit from deteriorated market conditions, and suffer when the conditions are better ("inverted risk profile"), would go beyond the initial aim of the adjustment, and could potentially create perverse investment incentives.

Question 28. Should the IAIS consider introducing an adjustment to the LTFR? If "yes", what would be the technical rationale for an adjustment to the LTFR and which methodologies should the IAIS explore?

Question 29. Is there a way to avoid or mitigate the issue of "inverted risk profile" (as described above)? If "yes", please explain.

Question 30. Is the move to an adjustment defined as an absolute change (in bps) to the base yield curve appropriate, rather than a proportional movement? Please explain.

138. An important element which the IAIS has not yet addressed is the interplay between the adjustment to the base yield curve for the purpose of the valuation of insurance liabilities and the calculation of capital requirements under the ICS Standard Method. This will be discussed following the adoption of a methodology for the adjustment for the purpose of ICS Version 1.0.

4.1.4.5 Options for adjustments to base yield curves – 2016 Field Testing

139. On the basis of the discussion described in the section above, the IAIS developed for the 2016 Field Testing exercise a set of options for determining credit spread adjustments for discounting liabilities. These options are intended to mitigate the impact on capital resources of falling asset values when there are temporary increases in credit spreads. It is important to bear in mind that these options do not necessarily reflect the potential final design of the credit spread adjustment that may be included in the ICS MAV valuation. These options were designed to cover the range of policy issues described and allow the IAIS to collect information on the potential impact of different possible design methodologies and application ratios with a view to refine the MAV Valuation approach in time for ICS Version 1.0.

140. In addition to these three options, through 2016 Field Testing the IAIS is also collecting additional information on the impact of these three methods which will serve as reference points:

a) **Reference method 1:** "Risk-free" rates without adjustment – this will allow the benchmarking of the effectiveness of the three aforementioned options.

b) **Reference method 2:** 2015 adjustment methodology – this will allow the comparison with last year's exercise and assess the effectiveness of the three aforementioned options.

c) **Reference method 3:** Asset earned rate – this option allows the IAIS to assess the impact of rates linked to the specific assets held by the IAIG under the construct of option 3, as a similar bucketed methodology will be applied (ie it will allow the assessment of differences between the asset spreads set out in option 3 compared to rates earned by IAIGs on their asset portfolios).

141. To assess the effectiveness of this mitigation measure and the behaviour of the different options under different market conditions, the IAIS is asking Volunteer IAIGs to apply the discount rate adjustment options and reference methods to their balance sheets under two different credit scenarios:

a) Current market conditions at the reference date; and

b) Stressed credit spread conditions, specified by the IAIS for all currencies (eg 2008 or 2011 type of scenario), depending on when the most stressed recent market conditions have been observed.

142. The following table summarises the different options and reference methods which Volunteer IAIGs are requested to calculate for each of the two scenarios.

Table 5. Reference Methods and Options

		Reference Methods			Options		
		Risk-free	2015 methodology	Asset earned rate	Option 1: currency-specific	Option 2: firm-specific	Option 3: Bucketing
Liability segmentation (buckets)		N/A	1	3	1	1	3
Portfolio Composition		N/A	Reference portfolio per jurisdiction	IAIG's own portfolio – own view of earning rate	Representative portfolio per currency	Weighted average based on firm's assets	Weighted average based on firm's assets
Default Deduction		N/A	Included in 60% deduction of spread	Risk Correction	Risk Correction	Risk Correction	Risk Correction
Liquidity buckets	1	0%	100%	80%	100%	100%	80%
	2			60%			60%
	3			40%			40%

143. To see further details of how these discounting options are specified see the MAV section of the 2016 Technical Specifications. There is also a description of the stress scenario to be applied for each of the reference methods and discounting options included in 2016 Field Testing in the same section.

Question 31. **Which of the proposed options strikes a better balance between the different policy issues under consideration by the IAIS? Please explain.**

(1) Could the chosen option be modified to make it even more appropriate? If "yes", please provide details of the suggested modifications to the chosen option.

4.1.5 General comments

Question 32. **Are there any further comments on MAV that the IAIS should consider in the development of ICS Version 1.0? If "yes", please explain with sufficient detail and rationale.**

4.2 GAAP with adjustments

4.2.1 Background

144. The GAAP with adjustments ("GAAP Plus") approach to valuation was developed in response to concerns that departures from GAAP for valuation could pose operational and audit challenges. Discussion and debate by Members regarding these concerns gave rise to the notion of a GAAP Plus approach, which would be based to the extent possible on amounts, systems, processes and rigorous controls that support reported GAAP amounts and any adjustments would be transparent and verifiable to supervisors, internal auditors and independent external auditors. This discussion and debate culminated in the determination by the IAIS Executive Committee in October 2014 on the way forward regarding valuation under the ICS (see paragraph 69).

145. The starting point for GAAP Plus is "GAAP – Related to Insurance Activities", which is outlined in the 2015 Field Testing Specifications as the balances reported on the IAIG's audited, consolidated, general-purpose balance sheet, whether that be on an IFRS, U.S. or Japanese GAAP, or statutory (in the case of U.S. mutual IAIGs) basis as appropriate for the respective IAIG.

146. The 2015 Field Testing Specifications recognised that GAAP Plus would have a different starting point for different jurisdictions, in recognition of their different jurisdictional GAAPs. Thus jurisdictional-specific GAAP Plus examples of adjustments were provided in the specifications for the following GAAPs: U.S. GAAP; U.S SAP (statutory accounting principles for use by U.S. mutual IAIGs that do not prepare or file GAAP financial statements); Solvency II reporting used by European Union groups; Canadian GAAP; and Japanese GAAP (J-GAAP). [22] General principles were also included in the specifications that could be used by

[22] See Section 10 of Instructions for the April 2015 Quantitative Data Collection Exercise (2015 Technical Specifications)

Volunteer IAIGs participating in Field Testing who use other GAAPs, with the suggestion that they also consult with their group-wide supervisor with respect to any adjustments proposed for GAAP Plus.

147. These principles are as follows:

a) Like the MAV approach, (1) the adjustments to be made for GAAP Plus will address only the most significant or material items on the balance sheet, specifically, insurance-related liabilities and invested assets, and (2) the proportionality principle applies.

b) To the extent possible, adjustments should be based on amounts from the underlying audited GAAP financial reports, or which emanate from processes and/or systems that are subject to independent external audit. The intent is to derive the necessary adjustments in a manner that is both practicable and with a level of independent assurance given each IAIG's existing GAAP basis, process of reporting, related internal controls as well as its audit function.

c) Invested assets should be valued on a basis that is consistent with reported balances in the IAIG's audited GAAP financial statements.

d) Insurance liabilities (and any reinsurance assets/liabilities) should be valued on a basis that is consistent with reported balances in the IAIG's audited GAAP financial statements and adjusted as necessary to produce discounted cash flows that approximate a current estimate (as defined under ICP 14 – Valuation), to the extent practicable, using existing jurisdictional GAAP and any indicated adjustments derived therefrom (see ICP 14.7 for additional detailed information on current estimate).

e) Insurance assets and liabilities should be treated consistently such that non-economic volatility is minimised. To achieve a level of comparability across firms this may require an adjustment to capital resources to align the valuation of certain liabilities and assets for some jurisdictional GAAPs. In other cases, this objective is achieved through the adjustment of the yield curves used to discount insurance liabilities.

f) Capital resources and deductions – Aside from an adjustment for some jurisdictional GAAPs (eg, U.S. GAAP) to address the consistent treatment of assets and liabilities and non-economic volatility, all adjustments related to the ICS capital resources should apply equally to GAAP Plus just as they would for other approaches.

g) Tax effects – Deferred taxes should follow the same treatment as under other valuation approaches, but amounts would likely differ, due to different balance sheet values and no corresponding changes to the tax bases.

4.2.2 2014 Consultation

148. GAAP Plus was only two months into development prior to the publication of the 2014 ICS CD. While progress had been made to develop GAAP Plus, there were no detailed

specifications at the time of the consultation publication date. Thus, a common refrain from stakeholders in response to the questions about the approach posed in the 2014 ICS CD was that more information would be needed to fully address the questions.

149. For example, the 2014 ICS CD asked stakeholders if their particular IAIG/jurisdiction would be likely to consider using GAAP Plus, and why. Most stakeholder responses were caveated by the need to know more about GAAP Plus, but clear regional preferences were expressed: U.S.-based stakeholders favoured GAAP Plus, while most European stakeholders favoured the MAV approach. Stakeholders from other areas were more mixed in their responses. Some commented that any response would be better informed over time through Field Testing in order to better understand the comparability of GAAP Plus and MAV.

150. A number of stakeholders responded to the 2014 ICS CD with possible examples of adjustments, some of which were incorporated into the 2015 Field Testing exercise and for which data has now been collected and analysed.

151. Other questions posed in the 2014 ICS CD pertained to the need for adjustments to determine the ICS capital requirement, and how to calculate any applicable adjustments so that the results could be most comparable to the MAV approach. Stakeholders commented that they needed additional information on the GAAP Plus approach to respond to these questions, therefore little relevant information was provided in those responses.

152. The 2014 ICS CD also requested that stakeholders suggest adjustments, if any, to apply to local jurisdictional GAAP financial statements for the purpose of meeting these stated objectives and principles of GAAP Plus. The key proposed adjustments submitted by stakeholders in response to the 2014 ICS CD are listed below, including how each was addressed in 2015 Field Testing, and any changes made for 2016 Field Testing:

Table 6. Key proposed GAAP Plus adjustments and resolutions

Description of Suggested Adjustment	Resolution for the Field Testing Exercises
Regarding the valuation of investments, stakeholders were mixed in their responses. Some recommended reporting investments at market values where liability valuations were based on market derived discount rates. Other jurisdictions where long-term insurance liabilities are tied more closely to average book yields recommended that assets backing such liabilities should be valued on a cost/amortised cost basis which would be more consistent with those liabilities.	2015: The GAAP Plus Field Testing specifications were premised on the fact that the valuation of investments is not consistent among jurisdictions. Investments are either reported on a market value basis, or on another basis (eg, cost or amortised cost) as per the respective jurisdictional GAAP. The Technical Specifications sought to achieve some symmetry between the valuation of investments and insurance liabilities while maximising the use of audited amounts. 2016: For the new GAAP Plus examples of Chinese Taipei, Korea and Singapore, all

Description of Suggested Adjustment	Resolution for the Field Testing Exercises
	investments are adjusted to market value. The J-GAAP example was changed such that no adjustment is made to investments. (In 2015, the J-GAAP example called for investments to be adjusted to market value.) All other jurisdictional examples remain the same as in 2015. In order to address the concern related to inconsistent valuation of assets and liabilities, an "Accumulated Other Comprehensive Income (AOCI) adjustment" is set out in the Technical Specifications for specific GAAP Plus examples.
Eliminate insurance related deferred expense assets (ie Deferred Acquisition Costs, Valuation of Business Acquired)	2015: The Technical Specifications called for an adjustment to reverse all deferred expense assets and any related shadow accounting with the resulting offset recorded in Retained Earnings. 2016: A similar adjustment is proposed except that the offset will be recorded against the related insurance liability which is the same approach taken by MAV.
Adjust life liabilities to current estimates using loss recognition testing (U.S.), liability adequacy testing (IFRS) or statutory cash flow testing (Japanese GAAP).	2015: This suggestion was adopted and specified in greater detail in the case of particular jurisdictional GAAP Plus examples included therein. See the 2015 Field Testing section below for a more detailed discussion on the adjustments made to reflect current estimates under GAAP Plus. 2016: Same as 2015, with the addition of several additional jurisdictional GAAP Plus examples.

Description of Suggested Adjustment	Resolution for the Field Testing Exercises
For non-life reserves, some stakeholders responded in support of discounting all reserves, others supported reporting non-life reserves on an undiscounted basis.	2015: There were different approaches specified under the GAAP Plus jurisdictional examples resulting in some Volunteer IAIGs reporting non-life liabilities on a discounted basis and others on a mostly undiscounted basis. See the 2015 Field Testing section below for a more detailed discussion on the adjustments made to reflect current estimates under GAAP Plus. 2016: No change to the approach. The liability reconciliation was amended to more easily identify discounted versus undiscounted non-life liabilities. As part of the reconciliation, information on non-life liabilities discounted using IAIS yield curves will still be collected. This will allow for further analysis regarding discounting approaches.
For GAAP Plus, include debt with equity characteristics in capital resources	2015: GAAP Plus principles provided that, other than the then-anticipated AOCI adjustment (the adjustment itself was not provided in the Technical Specifications), no other adjustments for capital resources unique to the GAAP Plus valuation basis was proposed. In other words, all adjustments detailed in the ICS capital resources section apply to GAAP Plus just as they apply to MAV. 2016: Same as 2015.
Address statutory accounting (for U.S. mutual IAIGs)	2015: A specific example was included in the Technical Specifications to indicate how a U.S. mutual IAIG that does not prepare GAAP reports could derive a GAAP Plus consolidated balance sheet using statutory accounting as its starting point. 2016: Same as for 2015.

4.2.3 2015 Field Testing

153. As noted previously, the starting point for most jurisdictions under GAAP Plus was the audited, consolidated reports of the Insurance Group or Financial Holding Company as defined in the ICS Scope of Application. There was one exception to this: for U.S. mutual IAIGs that do not file GAAP reports, an aggregation method was developed to approximate a U.S. GAAP consolidated balance sheet for use as a starting point to derive GAAP Plus. Adjustments to these audited balances were proposed by jurisdictional supervisors based on the GAAP Plus principles that had been developed with input from stakeholders as noted above.

154. As the GAAP Plus principles state, only the most significant or material items on the Field Testing balance sheet were considered for adjustment. Thus adjustments were directed primarily at investment assets, insurance liabilities, reinsurance assets and deferred expense amounts. All other balance sheet items would remain unadjusted for purposes of the Field Testing balance sheet, as is also the case in MAV. Both valuation bases make use of the same adjustments to certain other balance sheet amounts to derive the amount of capital resources.

155. The following provides a further discussion of the valuation approaches for investment assets, insurance liabilities and reinsurance assets that were developed for GAAP Plus in 2015 Field Testing.

4.2.3.1 Investment assets

156. In order to conform to the GAAP Plus principles, assets are generally not adjusted under GAAP Plus. However, there are certain jurisdictions where supervisors determined that market value would be a more appropriate measure where insurance liability current estimates were derived using market based discount curves under those specific GAAP Plus examples. A related adjustment is being evaluated in 2016 Field Testing that would address asymmetry in accounting for assets and liabilities as an adjustment to capital resources for certain jurisdictional GAAP approaches (see 2016 Field Testing discussion on “AOCI Adjustment”).

4.2.3.2 Insurance liabilities and reinsurance assets

157. As each jurisdiction begins from a different starting point, it was necessary to develop specific examples of adjustments for insurance liabilities for each jurisdiction. These adjustments would also be applied to reinsurance assets. The objective was to utilise to the extent possible audited amounts, processes and systems to derive a current estimate liability that would be in accordance with the definition provided in ICP 14, meet the objectives of GAAP Plus and to the extent possible be consistent with the MAV insurance liability balances.

158. For EU firms reporting under Solvency II, it was decided for Field Testing purposes that the liability best estimate as reported under Solvency II, with certain adjustments applied, would approximate a current estimate. (See 2016 Field Testing Technical Specifications for further details.)

159. For all other jurisdictions, it was determined for Field Testing purposes that the best approach, as suggested by stakeholders, would be to leverage cash flow testing that was employed under jurisdictional GAAPs to test for either asset or liability adequacy. These tests

incorporate discounted liability cash flows that can be modified to approximate a current estimate. In particular, the cash flows produced by the tests do not contain conservatism, margins or provisions for adverse deviation embedded in insurance liabilities under jurisdictional GAAPs. In addition, the tests require that cash flows are based on updated market and actuarial assumptions which may not be reflected in reported GAAP.

160. Life insurance liabilities based on cash flow testing as stipulated under each jurisdictional GAAP can differ to some degree as to contract boundaries and relevant expenses. The IAIS continues to evaluate these differences in Field Testing.

161. The choice of the discount rate or curve that is applied to liability cash flows is a subject of extensive analysis and Field Testing. As discussed in this section, a range of approaches are being contemplated, some of which approximate the approaches to discounting under some of the jurisdictional GAAPs.

162. For GAAP Plus in Field Testing, a discount rate based on a book yield adjusted for reinvestments, defaults and investment expenses is generally considered to be appropriate and valid, although there may be other approaches, some of which are detailed in section 4.1.4, that support the goals of GAAP Plus. To support long-term insurance liabilities, IAIGs are able hold long-term fixed income assets with little risk that they must be sold prior to maturity. As long as those assets are held, their projected cash flows do not change (except through defaults), regardless of short-term changes in interest rates. Projected investment cash flows are sensitive to interest rate changes through projected yields on reinvested coupon, maturity and redemption payments. It is appropriate that the rate used to discount projected liability cash flows should be a combination of a fixed portfolio return with projected reinvestment yields that reflect scheduled asset cash flows. Discount rates that do not adequately reflect portfolio yields (and overweight reinvestment yields) would be inconsistent with the GAAP Plus valuation principles for assets that are intended to be held to maturity.

163. On the Non-life side, insurance liabilities have two components – one relating to claims and one relating to unearned premiums. These were reported in total for 2015 Field Testing but will be split for the purposes of 2016 Field Testing. A number of jurisdictional GAAP Plus examples specify that claims liabilities should remain on an undiscounted basis, with an exception for some longer duration liabilities in some jurisdictions. Other jurisdictions specify that claims liabilities should be valued based on the cash flow testing approach used for life liabilities. Further differences were identified in the jurisdictional definitions of unearned premiums – particularly in relation to recognition criteria and treatment of future profit. Using the more detailed reporting on unearned premiums, these differences will be further investigated in 2016 Field Testing.

164. Other insurance liabilities such as options and guarantees, which are typically modelled using stochastic based approaches, follow jurisdictional GAAP adjusted to remove any provisions for adverse deviation and any exit value related elements such as the impact of own Credit risk or risk transfer components.

4.2.4 Results from 2015 Field Testing for GAAP Plus

165. The analysis phase of 2015 Field Testing was completed with a number of key findings and observations. The analysis focused on each jurisdictional GAAP reported, rather than on each jurisdiction, inasmuch as some Volunteer IAIGs report on a different jurisdictional GAAP

basis than that of their own home jurisdiction. The analysis also focused on the reconciliations of insurance liabilities from GAAP to GAAP Plus and to MAV amounts, as well as on the stresses of the several risks for which data was requested using both GAAP Plus and MAV as inputs.

166. With respect to risk charges, 2015 Field Testing included testing of only a limited set of risks using the GAAP Plus basis, as compared to MAV for which all risks were tested in 2015.

167. With some exceptions/outliers, convergence was generally seen as insurance liability data migrated from GAAP to GAAP Plus and then to GAAP Plus using the IAIS-prescribed discount rates/curves.

168. For life insurance liabilities, the clearest and largest difference between the GAAP Plus and MAV was the different discount rates/curves that are used in each.

169. With respect to other differences in determining insurance liabilities (assumptions, contract boundaries) clear results were difficult to determine and further refinement of the Field Testing template and questionnaire will hopefully lead to improved data on these items for 2016 Field Testing. However, the general results looking at both quantitative and qualitative data on these other potential differences is that they were considered to be less material in the aggregate than the aforementioned impact of using different discount rates/ curves.

170. Other significant differences included deferred tax adjustments and the capital amount result driven by the differences in asset and liability valuation amounts between GAAP Plus and MAV. While capital resources under GAAP Plus are calculated using the same adjustments as MAV, with the exception of the proposed AOCI adjustment, the different valuation approaches contribute to potentially large differences when comparing GAAP Plus to MAV. While the aim is for a comparable outcome to MAV, the individual components of the capital ratio may not be, and are not expected to be, comparable. The analysis of such differences in capital resources is pending further progress on the other components of the ICS under GAAP Plus, that being valuation and capital requirements.

171. For those capital requirement stresses that were tested in 2015 using GAAP Plus as well as MAV as inputs, differences noted were generally minor. However, results were deemed to be preliminary as the valuation method as then specified was still considered to be under construction and there was little to no instruction provided to Volunteer IAIGs on how to conduct the GAAP Plus stresses.

172. One area that was identified as requiring additional work was the interest rate stress. It was observed, particularly with U.S. Life Volunteer IAIGs, that the GAAP Plus interest rate stress as designed for MAV may not be yielding appropriate results. For 2016 Field Testing, two methods were developed to evaluate alternative interest rate stress measures. Details of these methods can be found in the section on Interest Rate risk (see section 6.12.1.3).

4.2.5 2016 Field Testing

173. Given the results of 2015 Field Testing, the IAIS considered potential changes going forward into 2016 Field Testing. A number of changes were made to the 2016 Field Testing materials for GAAP Plus, but with few exceptions (discussed in the following paragraphs),

these are considered to be relatively minor and for purposes of additional clarification. Additionally, examples have now been included in the 2016 Field Testing specifications for applicable jurisdictional GAAPs in use in Korea, Singapore, and Chinese Taipei.

174. For 2016 Field Testing, all risks will be included. Details can be found in the sections on the ICS capital requirement (section 6).

175. One material adjustment added under the U.S. example of GAAP Plus is an "AOCI adjustment" in order to address the asymmetric valuation of assets and liabilities -- see section 11.3.2 of the 2016 Field Testing Technical Specifications. Under U.S. GAAP, long-term insurance liabilities are valued using an average investment portfolio earned rate adjusted for future reinvestments, defaults, and expenses. This rate adjusts gradually based on emerging long-term trends as compared to an instant reaction to current market movements. Conversely, under U.S. GAAP the majority of assets backing long-term liabilities adjust to current fair value each reporting period with the change flowing through Accumulated Other Comprehensive Income (AOCI), a component of equity. If left unadjusted, this asymmetric treatment of assets and liabilities produces artificial and undue volatility under the U.S. GAAP Plus example.

176. Under the U.S. GAAP Plus example in 2016 Field Testing, this artificial volatility is addressed by identifying the portion of AOCI related to debt securities backing long-term liabilities for which it is more likely than not that the unrealised gains and losses would not be realised, and then excluding that portion from capital resources.

177. There is also a potential that, with the benefit of the analysis of Field Testing results later this year, the AOCI adjustment could eventually be found to apply to the GAAP Plus examples of at least several other jurisdictions, in addition to the U.S GAAP Plus example. Data will be collected from other non-U.S. jurisdictions (excluding EU Solvency II filers) and analysed to evaluate this applicability.

178. Under MAV, a different approach is being considered to address undue volatility. That approach would utilise an adjusted discount curve to value certain long-term liabilities and would delineate long-term liabilities for discounting and the corresponding assets supporting them by bucketing. This approach could also be leveraged to identify assets backing long-term liabilities under the AOCI adjustment calculation.

179. For 2016 Field Testing, in order to calculate the AOCI adjustment a number of simplifying assumptions have been employed:

a) The AOCI adjustment includes only unrealised gains and losses on debt securities backing long-term liabilities. For purposes of Field Testing, long-term liabilities are defined as life insurance products. As noted above, the IAIS will be considering refinements to this definition including adapting the liability bucketing based on liquidity characteristics that is being tested as part of the MAV discounting options to identify those assets supporting more illiquid liabilities.

b) The AOCI adjustment excludes unrealised gains and losses where it is more likely than not that they would be realised. While the Field Testing Technical Specifications do not include a specific list of asset types that would be excluded, there is an expectation that unrealised gains/losses on callable bonds (excluding

make whole calls), Residential Mortgage-Backed Securities (RMBS) that are likely to be prepaid, and below investment grade assets would be evaluated to determine whether unrealised gains/losses should be excluded under the more likely than not criteria.

c) Unrealised gain/loss related to default risk may also be excluded from the AOCI adjustment. This would result in only adjusting for the portion of unrealised gain/loss related to liquidity and other non-credit default factors. For 2016 Field Testing, the AOCI adjustment calculation does not take into account the exclusion of any default risk that would be embedded in the unrealised gain/loss amount; however, a default risk adjustment is being contemplated.

180. The following questions relate to the AOCI adjustment and supporting data:

Question 33. **The AOCI adjustment is proposed to only apply to unrealised gains and losses related to debt securities backing long-term liabilities where it is more likely than not that the unrealised gains and losses would not be realised. Is this an appropriate way to segregate non-economic volatility from the fair value measurement of investments in debt securities? If "no", what alternative would you propose, and why?**

Question 34. **Are there any refinements that should be made to identify assets backing long-term liabilities for purposes of the AOCI adjustment? For example, would a bucketing approach similar to that proposed for assets under MAV discounting option 3 (based on liquidity characteristics of the liabilities) be an appropriate way to identify assets backing long-term liabilities? Please explain.**

Question 35. **Is the "more likely than not" criterion to exclude certain unrealised gain/losses an appropriate element of the AOCI adjustment calculation? Please explain.**

(1) Is this an appropriate way to segregate assets where unrealised gain/loss is more likely than not to be realised? If "no", what alternative would you propose and why?

Question 36. **Are there specific asset classes that should be included in the "more likely than not" category? If "yes", please explain.**

181. The following questions relate to the potential for a default risk adjustment for the AOCI adjustment.

Question 37. **Is a default risk adjustment appropriate? Please explain.**

Question 38. **A possible method for calculating the default risk adjustment is to reference the credit rating at purchase (or previous write down) as compared to the current rating. The change in rating can be used to determine the portion of the credit spread related to default risk. Is this an appropriate method to estimate the unrealised loss related to default risk? Please explain.**

If "no", please suggest an alternative method that could be used to calculate the default risk spread.

Question 39. It has been suggested by some Volunteer IAIGs that the default risk spread could be highly volatile in certain periods of stress. Are there methods to evaluate this volatility over historically relevant periods, and is appropriate data available to do so? Please explain.

182. As indicated above, jurisdictional examples of GAAP Plus have been provided for Canada, Chinese Taipei, EU, Japan, Korea, Singapore, U.S. GAAP and U.S. SAP – See section 7.3 of the 2016 Field Testing Technical Specifications. The following questions pertain to those examples.

Question 40. Do the GAAP Plus principles and guidelines constitute a sufficient basis for the specification of an ICS Valuation Approach that fulfils the ICS Principles as defined by the IAIS? Please explain.

Question 41. Are there any internal inconsistencies in the GAAP Plus jurisdictional examples as outlined in the 2016 Field Testing Technical Specifications, or any area which is not aligned with the stated GAAP Plus principles and guidelines? If "yes", please explain what you would propose to amend in the examples.

Question 42. Under GAAP Plus there are differences between jurisdictions in the approach to valuing assets. Should all assets be valued under the same approach (whether that be fair value or a mix of cost and fair value) for all jurisdictions? Please explain.

Question 43. Under GAAP Plus there are differences between jurisdictions in the approach to valuing liabilities. Should all liabilities be valued under the same approach whether that be closer to book value or market value for all jurisdictions? Please explain.

Question 44. Are there any refinements that could be made to lead to a more comparable valuation outcome for insurance liabilities between jurisdictions? Please explain.

Question 45. A method for aggregating financial data for U.S. Statutory only filers has been developed for GAAP Plus (see section 7.3.2 of the 2016 Field Testing Technical Specifications). Does this method capture all material elements such that the resulting aggregated financial statements would be materially equivalent to U.S. GAAP consolidated statements? If "no", please provide details of other elements or adjustments that could address any material differences.

183. The IASB and FASB are currently making revisions to accounting standards that will have a significant impact on the valuation of insurance liabilities and assets backing those liabilities. These changes have the potential of affecting the way in which GAAP Plus valuation

approaches would be designed in most jurisdictions, and is a matter that the IAIS will need to monitor and address going forward. The following question is in relation to these emerging accounting standards:

Question 46. Is there a way to evaluate the impacts of these proposed accounting standards on the ICS, and more specifically on GAAP Plus, in the absence of current data and prior to the implementation of the rules? Please explain.

4.2.6 General comments

Question 47. Are there any further comments on GAAP Plus that the IAIS should consider in the development of ICS Version 1.0? If "yes", please explain with sufficient detail and rationale.

4.3 Margin Over Current Estimate (MOCE)

184. In many valuation contexts (eg GAAP regimes, actuarial guidance) margins are included in the valuation of insurance liabilities. Differences in how margins are calculated across different regions are one of the key reasons for the lack of comparability in the valuation of insurance liabilities. For the purpose of the ICS, the introduction of a "consistent and comparable MOCE" (CC MOCE) is being considered and tested. A CC MOCE could be incorporated under both MAV and GAAP Plus valuation approaches.

185. In the 2014 ICS CD, the IAIS consulted on two approaches with different purposes that could be followed to define a CC MOCE:

a) A margin for prudence

b) A margin to recognise transfer value

186. The 2014 ICS CD identified two calculation approaches that could be used to specify a CC MOCE: the quantile and the cost of capital approaches.

187. The feedback received from the 2014 ICS CD showed that those who supported the development of a CC MOCE were mostly supervisors while those who opposed it were mostly stakeholders. The two main reasons put forward by stakeholders for a negative response were the lack of clarity on the purpose of the MOCE and the potential for the MOCE to be the driver of greater complexity within the framework.

4.3.1 Background - Cost of Capital MOCE (CoC MOCE)

188. Comments received during the 2014 ICS CD on a potential calculation methodology often mentioned the cost of capital method. Following these comments, the Cost of Capital

MOCE (CoC MOCE) was implemented in 2015 Field Testing and is also used, with some modifications, for 2016 Field Testing.

189. The versions tested aimed to avoid unnecessary complexity by including some simplifications, in particular:

a) The capital requirement is derived from the ICS calculated based on the Volunteer IAIG's portfolio mix and the risks prescribed to be included in the calculations and risks to be excluded as they could potentially be avoided or hedged (eg most of the Market and Credit risks).

b) The cost of capital assumed to be borne by the transferee or recapitalised Volunteer IAIG is set at a fixed level (ie 6% for 2015 Field Testing and 5% for 2016 Field Testing) regardless of jurisdiction, currency or insurance sector (ie life or non-life).

c) The projection of future capital requirements was prescribed for Non-life risks (using three different patterns) and based on Volunteer IAIG projections for Life risk.

190. Based on the analysis of 2015 Field Testing data and the feedback received from Volunteer IAIGs, some changes were made for the 2016 Field Testing. In particular:

a) The projection of future capital requirements was prescribed for Non-life risks (using three longer patterns) and based on more granular projection patterns provided by Volunteer IAIG for Life and Health risks.

b) For 2015 Field Testing, Interest Rate risk was included within the risks to be projected considering that not all Interest Rate risk (eg the part associated with the longer maturity for which financial instruments might not be available) could be avoided or hedged. Based on feedback received, for 2016 Field Testing Interest Rate risk is included in the risks deemed avoidable or hedgeable. For simplicity, it was decided that distinguishing the part of the Interest Rate risk that is avoidable from the part that is unavoidable is not practical.

c) The allocation of the different components of the capital requirement to the different projection patterns was refined.

d) In order to assess the trade-off between simplicity and risk sensitivity, multiple projection patterns for Life and Health risks (separated by risks and currencies) are being collected (eg, outgoing cash flows excluding maturity benefit for Mortality risk or sums at risk).

4.3.2 Background - The Prudence MOCE (P-MOCE)

191. For non-life, the approach adopted is based on avoiding the recognition of future profits. For claims liabilities, the effect of discounting increases with the length of the cash flows and is used as a proxy for estimating the uncertainty. For unearned premium, future profits are calculated directly. Based on data analysis and feedback received from 2015 Field Testing, the calculation approach for the unearned premium component is more explicitly specified in 2016 Field Testing.

192. For life and health, the P-MOCE is calculated based on a percentage of the estimated standard deviation for life and health liabilities, respectively.

4.3.3 Theoretical rationale for the CoC MOCE

***Rationale 1**: The MOCE should be added to the current estimate to capture all "production" costs of the insurance liabilities*.

193. ICP 14.7 sets out that "The valuation of technical provisions exceeds the current estimate by a margin (Margin over the Current estimate or MOCE)." ICP 14.7.5 provides some additional explanation: "In addition to covering the cash flows associated with fulfilling insurance obligations, an IAIG incurs the cost of covering the uncertainty inherent in those cash flows (eg through holding capital, or through hedging, reinsurance or other forms of risk mitigation)."

194. The cost to cover the uncertainty inherent in insurance liabilities cash flows cannot be directly derived from observed or market values the same way as it can be done for fair value assets. However the quantification of this cost can be informed by observed market transactions. Although the idiosyncrasy of the transactions and limitations in the information publicly available limit the precision of conclusions drawn, some market transactions seem to indicate that insurance liabilities trade above the current estimate. An additional alternative indication of a market cost of uncertainty could be found in the cost of reinsurance protection.

195. The recognition of these costs in the valuation of the insurance liabilities (ie on the balance sheet) must cover the IAIG's cost of capital necessary to remain a going concern as required under the ICS after the IAIG's capital resources are exhausted. The present value of expected cash flows (ie the current estimate) alone is inadequate to ensure the ICS target level of policyholder protection can be maintained. The CoC MOCE allows the IAIG to raise sufficient capital to maintain the original ICS-prescribed level of policyholder protection.

196. Another reason (not inconsistent with the fair value rationale developed above) to include a margin in the valuation of the insurance liabilities is to allow for a risk adjusted valuation of insurance liabilities. Such risk adjustment could be seen as a way to ensure consistent treatment of assets and insurance liabilities where the valuation of assets includes a risk adjustment; in particular, where assets are reflected (either directly or through dedicated adjustments) at fair value. Indeed, the fair value of assets is a risk adjusted valuation (eg the price of bonds reflects the expected risk of default). In the absence of a MOCE, (as part of the valuation of insurance liabilities) assets will reflect the cost of the risk associated with the assets, while insurance liabilities will not reflect the cost of the risk associated with insurance liabilities.

***Rationale 2**: The cost of capital approach is a method to calculate a "production" cost that safeguards the internal consistency of the regulatory framework.*

197. The rationales presented above motivate the inclusion of a margin as part of the valuation of insurance liabilities. The CoC MOCE covers the cost of accessing the capital to meet the ICS capital requirement related to existing insurance liabilities. Accessing capital could be accomplished either through transfer to a third party or through own fulfilment by the recapitalised original IAIG.

198. A CoC MOCE makes the regulatory framework internally consistent by specifying the MOCE (ie the measure of uncertainty around the valuation of the liabilities) in relation to the quantification of risks associated with insurance liabilities (ie the capital requirement). Such link between a CoC MOCE and risk would ensure that the desirable characteristics identified in ICP 14.9.7 are met (some of the criteria were developed jointly by the IAIS and the International Actuarial Association). [23]

199. The MOCE calculated as the cost of capital provides the present value of the hurdle return (ie the minimum return) expected by investors on the amount of capital that will be required to support the existing insurance liabilities. Investors could be existing shareholders – corresponding to own fulfilment of the liabilities, or new shareholders – corresponding to transfer of the liabilities.

200. Identifying/setting the hurdle rate of return for shareholders could be informed by the observed Equity risk premium. Observed Equity risk premia vary over time and over different economic environments.

201. In the cost of capital approach, all Market risks and most of the Credit risk (with the exception of the counterparty default risk related to reinsurance contracts) are excluded from the projected capital requirement. Under the current IAIS specifications, the CoC MOCE would allow for the recapitalisation (when all assets in excess of liabilities have been exhausted) to meet the capital requirement provided that the IAIG faces no residual Market risk and only limited Credit risk (ie only Credit risk associated with reinsurance counterparty default). This would be supported by an investment strategy avoiding Market and most of the Credit risks.

202. If both Market and Credit risks are mostly avoided, the invested assets will only earn the risk free rate (otherwise returns in excess of the risk free rate would be available without

[23] An appropriate method for the determination of the MOCE would be expected to exhibit the following characteristics:

a) Insurance obligations with similar risk profiles have similar MOCEs;
b) The less that is known about the cash flows; the higher the MOCE;
c) For the same level of probability, risks with higher impact have higher MOCEs than those with lower impact;
d) Risks with low frequency and high severity will generally have higher MOCEs than risks with high frequency and low severity;
e) For risks of the same or a similar nature, contracts that persist over a longer timeframe will have higher MOCEs than those of shorter duration;
f) Risks with a wide probability distribution have higher MOCEs than those risks with a narrower distribution; and
g) To the extent that emerging experience reduces uncertainty, MOCEs should decrease, and vice versa.

See also section 6.2 from Measurement of liabilities for Insurance Contracts: Current Estimates and risk Margin, International Actuarial Association (IAA) 2009

any residual market risk exposure). Consequently, for the calculation of the CoC MOCE, the projections of future capital requirement are discounted at the risk free rate. The alternative assumption of investing in risky assets will require taking into account the additional risks associated with the investment which will, under a broad range of circumstances, result in a higher MOCE.

203. Under an investment assumption free of most Market and Credit risks, the reconstituted capital will earn the risk free rate, so the hurdle cost of capital to be covered by the MOCE is the hurdle rate of return in excess of the risk free rate.

***Rationale 3**: The MOCE does not overlap with the capital requirement and does not form part of the qualifying capital resources.*

204. The cost of capital approach for the MOCE allows the total valuation of the insurance liabilities (current estimate + CoC MOCE) to support the ability to raise the capital required under the ICS (ie to remain prudentially viable as a going concern) after the IAIG's capital resources are exhausted. The current estimate, the CoC MOCE and the capital requirement fulfil complementary functions in the regulatory framework:

a) The current estimate covers the expected present value of all relevant future cash flows over the lifetime of the liabilities;

b) The capital requirement covers the deviations from expectation over the one year time horizon. It ensures that the IAIG can absorb unexpected losses as defined by the prescribed target confidence level over the one year horizon; and

c) The CoC MOCE covers the cost of accessing capital to cover for the risks associated with the insurance liabilities for their remaining lifetime. It includes the cost for the one year time horizon and the remaining lifetime thereafter. It ensures that, in case of unexpected losses of the magnitude of the capital requirement, the IAIG can raise the capital necessary to remain prudentially viable under the ICS.

205. In the absence of MOCE, the remaining assets, after the occurrence of an unexpected loss of the magnitude of the capital requirement, will only cover the current estimate. Therefore, the IAIG will face a higher probability than implied by the confidence level to be unable to meet its obligations to policyholders.

Example: Assume an IAIG with a current estimate equal to 100, and a capital requirement (at 99.5% confidence level) of 30. In the absence of any margin over current estimate, the minimum total assets will be 130 (100+30). The occurrence of a loss of 29 (marginally below the level of calibration of the capital requirement) will leave the IAIG with 101 assets. This may be insufficient for the IAIG to meet its obligations associated with existing liabilities, while the losses it faced was below the maximum amount that could have arisen within the confidence level set for the capital requirement.

206. Following from the absence of overlap between the CoC MOCE and the capital requirement as established above, the CoC MOCE should not be included in the eligible capital resources available to meet the capital requirement.

4.3.4 Theoretical rationale for P-MOCE

207. ICP 14.9 states, "The MOCE reflects the inherent uncertainty related to all relevant future cash flows that arise in fulfilling insurance obligations over the full time horizon thereof… Only risk inherent to the policy obligations should be reflected in the MOCE. Other risks should be reflected in regulatory capital requirements. Where risks are reflected in both the MOCE and regulatory capital requirements to provide an overall level of safety, double counting should be avoided as far as practical."

208. The 2015 Field Testing Technical Specifications required the P-MOCE calculation to be based on the current estimate of insurance liabilities and a proxy for estimation uncertainty. The P-MOCE reflects the risks/uncertainty of the reserve and premium estimates of each IAIG.

209. P-MOCE is intended to be a simple and comparable way to calculate a consistent margin to ensure policyholder protection. It is based on an own-fulfilment view. P-MOCE is generally consistent with the view that margins (as well as capital) are loss absorbing; more on this general issue will be covered in the "Open Issues" section below.

210. One principal advantage of P-MOCE is its simplicity. It does not require any assumptions about capital requirements beyond the time horizon or the capital required by any entity to which insurance liabilities may be transferred. This simplicity also provides a connection to calibration. Under P-MOCE, calibration addresses whether the capital requirement and P-MOCE margins together provide an adequate level of protection. Non-life P-MOCE is based on the same reporting framework that is used for non-life calibration. Differing treatment of life and non-life could be perceived as a disadvantage but, given differences in the nature of underlying capital requirements, it is unavoidable (for instance, non-life has capital requirements relating to Premium/Catastrophe risk on one year of future business; Life charges only relate to business that has already been written).

211. As ICPs 14.9 and 14.0.9[24] recognise, margins and the capital requirement serve complementary purposes that cannot be easily distinguished. Depending on definitions, similar levels of policyholder protection could result from different combinations of margins and the capital requirement. P-MOCE is intended to be a simple way to ensure the target level of protection is met without double counting.

4.3.4.1 Theory behind Life/Health P-MOCE

212. The current P-MOCE construction for Life business is based on the confidence interval approach, using the assumption that unexpected losses follow a normal distribution. The level

[24] Guidance 14.0.9 to ICP 14 states "Technical provisions are a significant component of valuation for solvency purposes. They include a margin for risk appropriate for solvency purposes. Regulatory capital requirements are another component of the solvency assessment, and they include further allowance for risk so that when taken together, they are sufficient to ensure that policy obligations are satisfied with the probability of sufficiency required by the supervisor."

of unexpected loss covered by the margin was targeted at the liability margins currently reported by the Volunteer IAIGs in their audited financial statements. This methodology gave an overall target of two thirds of one standard deviation. This measure was derived from the distribution assumption and the individual life insurance risks charges calculated in the ICS. Similar to the CoC MOCE, the risk charges associated with Market and Credit risks are excluded.

4.3.4.2 Theory behind Non-Life P-MOCE

213. The definition of Non-life P-MOCE comes from the implied margins that arise from the typical approaches for calculating reported non-life liabilities (triangles, loss history, etc.). Similar reporting is also used in the calibration of the non-life capital framework. In this framework, claims reserves reflect expected trends in the frequency and severity of losses but are not discounted. The impact of this is an implicit margin. There is also an implied profit margin in unearned premium that is recognised at the same rate that premiums are earned. To calculate a current estimate, a company would start from this framework and then remove these implicit margins using estimates of payment patterns, yield curves, combined ratios, etc. These adjustments can be complex and subjective. To get an insurance liability, adding a comparable margin could present further complexity. Using undiscounted reserves and unearned premiums as the insurance liability is a simple alternative.

214. The timing and magnitude of non-life liability cash flows are, as a general matter, highly uncertain and inflation-sensitive. Non-life P-MOCE serves as a simplified (if imperfect) proxy for this risk. Uncertainty is, all else equal, higher for longer-term liabilities – as in non-life P-MOCE. An unearned premium reflects an IAIG's own assessment of the proper price for risk at the time a policy was written, but this assumption would likely be a few months out of date by the time non-life P-MOCE is calculated.

215. This definition for the non-life P-MOCE is already connected to detailed company reporting. It allows for a wide variety of supervisory and actuarial tools for monitoring the adequacy of insurance liabilities as a whole and not just for the current estimates. Further, insurance liabilities under non-life P-MOCE are additive. This means that the insurance liability for all segments is equal to the sum of the insurance liabilities for each individual segment; the insurance liability gross of reinsurance is equal to the difference between net liability and the ceded liability etc.

4.3.4.3 Interaction of the P-MOCE with the capital requirement

216. The MOCE is an item on the ICS balance sheet. The ICS is built on the concept of a "total balance sheet approach" and so it stands to reason that MOCE should be stressed along with other balance sheet items when calculating the capital requirement. That is:

$$\begin{aligned} Required\ Capital\ &= \ Impact\ of\ Stress\ on\ Total\ Balance\ Sheet \\ &= \ (Impact\ of\ Stress\ W/O\ Margins)\ +\ (Impact\ of\ Stress\ on\ Margins) \end{aligned}$$

217. Such a stress would raise potential technical issues and, to date, two simplifying assumptions have been proposed. For CoC MOCE, the simplification is that margins are unaffected by stresses. That is, CoC MOCE is the same before and after stresses. For P-MOCE, the simplification is that the margin is fully loss absorbing; that is, P-MOCE after stress

is zero.[25] (The word "stress" will be used broadly here to include factor and model based requirements as for Non-life and Catastrophe risks.)

218. On average, there will be less uncertainty around future cash-flows at the end of a one year time horizon than there is today. For a given set of policies, the expected value of the margin in one year should be less than the current margin. However, it does not necessarily imply that a margin post-stress would be less than the current margin for shorter time horizons. This depends on whether there is expected to be more or less uncertainty in future cash-flows post-stress than there is pre-stress. All else being equal, the longer the time horizon that is used, the less uncertainty there is at the end. For a runoff-to-ultimate (ie infinite) time horizon, margins are fully loss absorbing. For shorter time horizons, uncertainty may increase or decrease post-stress. The assumptions underlying ICS development – particularly regarding independence between financial year results – would generally imply less uncertainty. If uncertainty is thought to increase under stress, this may require further consideration. It could imply that risk beyond the one year time horizon is related to risk before the one year time horizon in a manner that is not reflected in the proposed design of the MOCE. If uncertainty is thought to decrease, then the stressed margin will be less than the current margin.

219. As a technical matter, stressing margins can raise difficulties. The current Field Testing approach is to avoid these difficulties by reporting stresses on balance sheets that exclude margins. No change to this practice is being considered. However, some adjustments can be made to those reported outputs. One approach is to assume stressed margins (M_S) are some proportion K of the base margin (M_B). Given a reported stress without margins equal to S, this would give:

$$Required\ Capital\ =\ (Impact\ W/O\ Margins)\ +\ (Impact\ on\ Margins)\ =\ S\ +\ (M\_S\ -\ M\_B)\ =\ S\ +\ (K-1)*M\_B$$

220. K could be a constant or could be based on a risk-sensitive formula using inputs from elsewhere in the ICS. The simplifications proposed for CoC-MOCE and P-MOCE correspond to K = 1 and K = 0, respectively. For P-MOCE, further refinements to this approximations will be field tested.

4.3.5 Open issues for consultation

221. Through this CD, the IAIS would like to receive specific input on how to refine the approaches under consideration for the CC MOCE. Feedback with relevant evidence and references are more likely to be considered for the refinement of the MOCE for ICS Version 1.0.

Question 48. With respect to the CC MOCE calculations (both prudence and cost of capital approaches), are there any particular issues with the way that GAAP Plus liabilities are calculated that would necessitate a difference in the calculation of a CC MOCE under GAAP Plus from the CC MOCE under MAV? If "yes", please explain.

[25] Note this is not specified in 2016 Field Testing.

4.3.5.1 Cost of capital approach

222. Regarding the CoC MOCE approach, the IAIS is seeking specific feedback on the following issues:

a) margins observed in actual market transactions;

b) cost of capital parameter;

c) projection of the capital requirement;

d) discount factor; and

e) interaction with capital resources and capital requirement.

Margin observed in actual market transactions

Question 49. Based on your experience or any data analysis, are you able to observe or estimate the value of market transactions of insurance liabilities in comparison with the current estimate as defined in the MAV? If "yes", what value do you observe or estimate related to the current estimates (to be differentiated by type of liabilities, if appropriate). Please provide evidences or reference to support the response.

Cost of capital parameter

Question 50. Should the hurdle cost of capital parameter be:

- **Fixed? If "yes", how should it be determined?**
- **Linked to another economic variable in order, in particular, to reflect different economic environments? If "yes", which economic variable should be used (eg interest rate curve, spread level…)?**
- **Determined with reference to a minimum (hurdle) level that could be different from the average observed level? If "yes", please explain why and how this should be reflected.**
- **Based on a broad equity market or on insurance-specific measures? If "yes", please explain.**

Projection of capital requirement

Question 51. Are the risks to be included in the projected capital requirement appropriate? If "no", please explain which risks should be excluded/added and why.

Question 52. Is the calculation of the global projected capital requirement appropriate? If "no", please suggest amendment(s) with supporting rationale.

Question 53. Is the approach to project the future capital requirements as part of the standard method appropriate considering the trade-off between accuracy/risk sensitivity and simplicity (eg outgoing cash flows excluding maturity benefit for Mortality risk or sums a risk)? If "no", please suggest and justify any proposed amendment.

Question 54. Is an IAIG's ICS capital requirement (99.5% one-year VaR) the appropriate amount of capital on which to base the CoC MOCE? If "no", please provide an alternative suggestion with rationale.

Question 55. Should the projected future capital requirements reflect minimal, average, or optimal diversification benefits (considering a willing buyer which is likely to achieve a conceivable synergy from the transaction)? If "yes", how can the diversification benefit be reflected in the CoC MOCE calculation?

Discount factor

Question 56. If Market risks and most of the Credit risk are excluded from the projection of the future capital requirements as per the 2016 Field Testing Technical Specifications, does this imply that such MOCE only allows a recapitalisation where no Market risk and only limited Credit risk could be supported (ie with not enough resources to take on market risks)? If "no", please explain.

Question 57. If no Market risk and only limited Credit risk could be supported by the level of recapitalisation allowed by the level of MOCE, then should the future return from invested assets free of Market risk and Credit risk be the risk free rate? If "no", please explain.

Question 58. Assuming that the answers to the two questions above are "yes" then is it consistent to discount the projected future capital requirement by the risk free rate? If "no", please provide an alternative suggestion with rationale.

Question 59. Should the discount factor be linked in some way to the hurdle rate (cost of capital parameter)? If "yes", please provide an alternative suggestion to discounting at risk free rate with rationale.

Interaction with capital resources and capital requirement

Question 60. Should the CoC MOCE be part of the valuation of insurance liabilities and not included in capital resources? If "no", please explain.

Question 61. Is holding the CoC MOCE, in addition to a 99.5% VaR calibrated capital requirement, a condition to ensure that the IAIG remains prudentially viable with a 99.5% probability (by providing the cost to serve a level of capital meeting the supervisory capital requirement)? If "no", please explain.

Question 62. If CoC MOCE is targeted to a level of prudential viability, is the current definition of capital resources appropriate? If "no", please explain, including details of what level of prudential viability should be maintained, and

whether other forms of capital resources should be considered for that purpose.

Question 63. Is there any double counting between the CoC MOCE and the capital requirement? Please explain.

4.3.5.2 P-MOCE approach

223. Regarding the P-MOCE approach, the IAIS is seeking specific feedback on the following issues:

a) Loss absorbency of the P-MOCE; and

b) Stressing the P-MOCE.

Question 64. Should the P-MOCE be loss absorbing? Please explain and if "yes", elaborate on the circumstance(s) in which this loss absorption may occur.

Question 65. Should the P-MOCE be stressed along with other balance sheet items in the calculation of the ICS capital requirement? Please explain.

4.3.6 General comments

Question 66. Are there any further comments on MOCE that the IAIS should consider in the development of ICS Version 1.0? If "yes", please explain with sufficient detail and rationale.

4.4 Reinsurance recognition

224. It has been noted that there are differences between jurisdictions in the way that reinsurance risk transfer is defined under jurisdictional GAAPs for purposes of determining qualifying reinsurance. Thus, there may be inconsistency between jurisdictions when recognising reinsurance both under the MAV and GAAP Plus approaches.

Question 67. Should all reinsurance contracts be identified using a consistent definition across all jurisdictions? If "yes", please propose a definition.

Question 68. Considering proportionality and the desire for pragmatism, would it be appropriate to limit a consistent approach across jurisdictions to only certain types of reinsurance contracts? If "yes", what kind of contracts? Please explain.

4.4.1 General comments

Question 69. Are there any further comments on reinsurance recognition that the IAIS should consider in the development of ICS Version 1.0? If "yes", please explain with sufficient detail and rationale.

5 Capital resources

5.1 Background

225. The capital resources framework proposed for the ICS is similar to the approach adopted for the BCR, but contains more refined criteria for financial instruments and a more stringent assessment of items other than financial instruments. As the ICS is part of ComFrame, which applies to IAIGs and G-SIIs, it is intended to be a more risk-sensitive standard than the BCR and supported by higher quality capital.

226. The capital resources section of the 2014 ICS CD consulted broadly on the proposed capital resources framework, which determines qualifying capital resources through an assessment of the nature, quality and suitability of all potential capital resources. A two-tier approach was proposed, focussing on five key principles: loss-absorbing capacity, subordination, availability to absorb losses, permanence and the absence of both encumbrances and mandatory servicing costs.

227. Tier 1 capital resources comprise qualifying financial instruments, and capital elements other than financial instruments, that absorb losses on a going-concern basis and in winding-up. Tier 2 financial instruments and capital elements other than financial instruments absorb losses only in winding-up.

228. The 2014 ICS CD proposed a series of qualifying criteria that financial instruments would be required to meet for inclusion in each tier of capital. It also proposed recognition of certain capital elements other than financial instruments and a number of deductions from capital resources for items that may not provide loss absorption on a going concern basis or in winding-up.

229. Comments received in response to the 2014 ICS CD were considered and resolutions of those comments published on the IAIS website. Key decisions made with respect to the capital resources framework and published in the IAIS responses to the 2014 ICS CD were:

a) Consistent with ICP 17.11, the IAIS will maintain two tiers of capital in order to recognise the distinctions between those elements that absorb losses on both a going concern basis and in winding-up and those that only absorb losses in winding-up.

b) Similar to the BCR, the IAIS will proceed with one ratio, and appropriate limits within the tiers of capital, for the development of ICS Version 1.0.

230. The 2015 Field Testing approach to capital resources closely followed the approach outlined in the 2014 ICS CD. As such, qualifying capital resources, including both financial instruments and elements other than financial instruments, were classified into two tiers of capital, Tier 1 and Tier 2.

231. Financial instruments recognised as capital resources were classified into tiers based on their quality and suitability, taking into consideration a number of criteria focused on the five key principles proposed in the 2014 CD: loss absorbing capacity (on a going concern basis and in winding-up), subordination, availability to absorb losses, permanence, and

absence of both encumbrances and mandatory servicing costs. Within each tier, financial instruments may be allocated into two categories with differing qualifying criteria:

a) Tier 1:

   i) Tier 1 financial instruments for which there is no limit (Tier 1 Unlimited)

   ii) Tier 1 financial instruments for which there is a limit (Tier 1 Limited)

b) Tier 2:

   i) Paid-Up Tier 2 financial instruments (Tier 2 Paid-Up)

   ii) Non-Paid-Up Tier 2 financial instruments (Tier 2 Non-Paid-Up)

232. Sections 7.1.2.1 and 7.1.2.2 of the 2015 Technical Specifications listed the criteria that financial instruments were required to meet in order to qualify as Tier 1 for which there is no limit, Tier 1 for which there is a limit and Paid-Up Tier 2. Section 7.2 of the 2015 Technical Specifications listed the criteria that non-paid-up financial items, contracts and arrangements were required to meet in order to qualify as Non-Paid-Up Tier 2.

233. The following table provides a high-level overview of the differences between the tiers and categories of capital with respect to the classification of financial instruments:[26]

Table 7. Overview of Tiering in Capital Resources

Key Principles	Tier 1 Unlimited	Tier 1 Limited	Tier 2 Paid-Up
Loss absorbing capacity	Absorbs losses on both a going concern basis and in winding-up	Absorbs losses on both a going concern basis and in winding-up	Absorbs losses in winding-up
Level of subordination	Most subordinated (ie is the first to absorb losses); subordinated to policyholders, other non-subordinated creditors and holders of Tier 2 capital instruments	Subordinated to policyholders, other non-subordinated creditors and holders of Tier 2 capital instruments	Subordinated to policyholders and other non-subordinated creditors

[26] Tier 2 Non-Paid Up items are not included in the table as they do not directly possess these features but, in their paid-up forms, give rise to financial instruments or elements other than financial instruments that possess these features.

Availability to absorb losses	Fully paid-up	Fully paid-up	Fully paid-up
Permanence	Perpetual	Perpetual – no incentives to redeem; issuer may redeem after a minimum period of five years after issuance or repurchase at any time, subject to prior supervisory approval	Initial maturity of five years – may have incentives to redeem but first occurrence deemed to be "effective maturity date"
Absence of both encumbrances and mandatory servicing costs	IAIG has full discretion to cancel distributions (ie distributions are non-cumulative); the instrument is neither undermined nor rendered ineffective by encumbrances	IAIG has full discretion to cancel distributions (ie distributions are non-cumulative); the instrument is neither undermined nor rendered ineffective by encumbrances	The instrument is neither undermined nor rendered ineffective by encumbrances

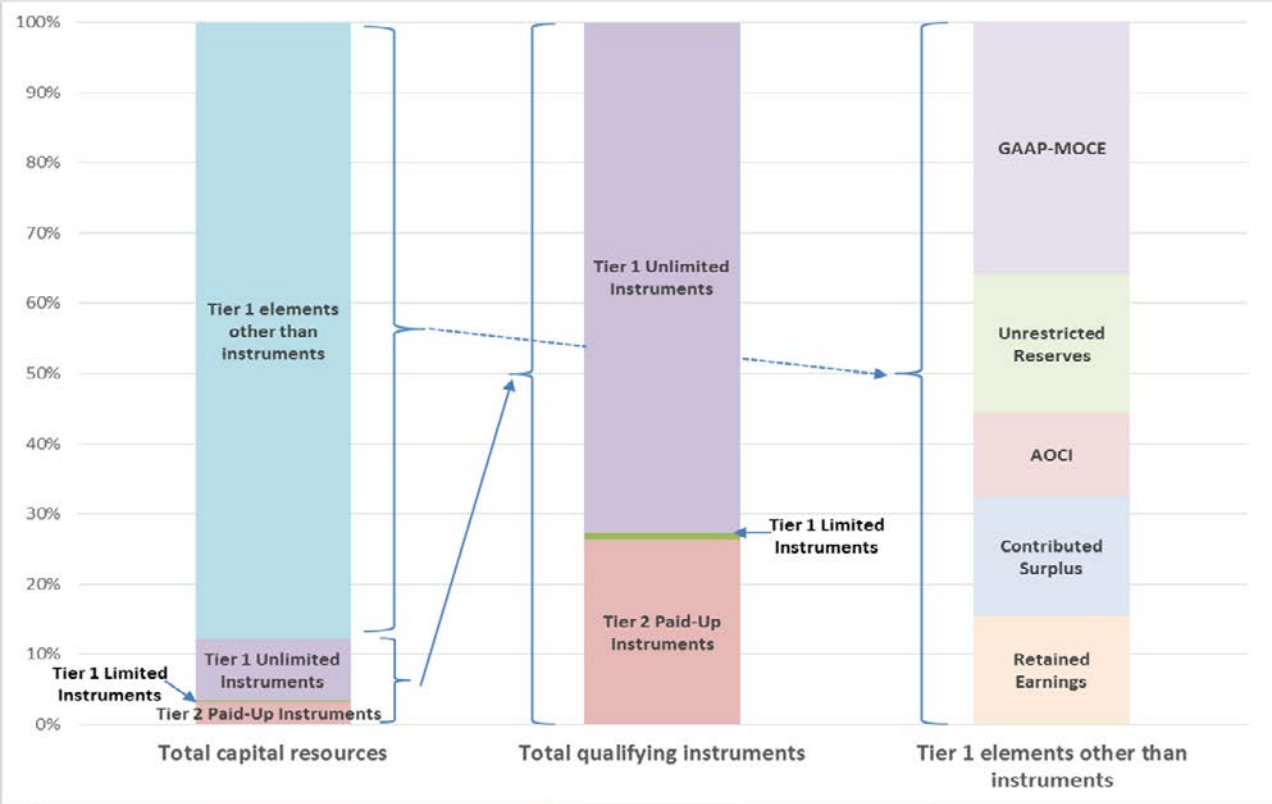
234. Section 7.3 of the 2015 Technical Specifications described capital elements other than financial instruments under consideration for inclusion in either Tier 1 or Tier 2 capital resources, such as retained earnings, share premiums and regulatory reserves.

235. Section 7.4 of the 2015 Technical Specifications listed the items that should be deducted from Tier 1 and Tier 2 capital in order to reflect that the recognition or basis of valuation of these items may not be appropriate for capital adequacy purposes. These items include goodwill, intangible assets, and DTAs, among other items.

236. In 2015 Field Testing, Volunteer IAIGs reported 645 financial instruments with a total face amount of approximately US$ 360 billion (prior to assessment against the qualifying criteria). Of those financial instruments reported, approximately US$ 148 billion qualified for Tier 1, US$ 53 billion qualified for Tier 2, and US$ 159 billion was non-qualifying.

237. The following chart presents the composition of capital resources, as observed from the 2015 Field Testing data, prior to deductions.[27]

Figure 6. Composition of capital resources reported in 2015 Field Testing



238. The results of the 2015 Field Testing exercise indicated that, on average, total capital resources (before deductions) were comprised of approximately 87% capital elements other than financial instruments and 13% financial instruments. It should be noted that this 87% figure includes full recognition of the insurance liability/reinsurance adjustment offset within Tier 1 and is expected to decrease when the IAIS finalises the ICS approach to the CC MOCE.

239. The results also indicate that, on average, total capital resources (after deductions) were comprised of approximately 93% Tier 1 capital resources and 7% Tier 2 capital resources. As above, it should be noted that this 93% figure includes full recognition of the insurance liability/reinsurance adjustment offset within Tier 1 and is expected to decrease when the IAIS finalises the ICS approach to the CC MOCE.

[27] 2015 Field Testing did not explicitly test capital composition limits.

5.2 2016 Field Testing

240. Building on the 2015 Field Testing approach to capital resources, the 2016 approach further refined the qualifying criteria for financial instruments, more clearly defined those capital elements other than financial instruments that may qualify as Tier 1 or Tier 2 capital resources and incorporated capital composition limits. Details of the full approach to capital resources can be found in the capital resources section of the 2016 Technical Specifications.

241. The analysis of 2015 Field Testing data indicated that, in many cases, the criterion related to repurchases was the primary cause for non-qualification of a significant number of financial instruments, for both Tier 1 Limited and Tier 2 Paid-Up capital resources. The relevant criterion was:

> *The instrument may be repurchased by the issuer at any time with prior supervisory review or approval provided that at least in the first five years after issuance such repurchase is funded out of the proceeds of a new issue of an instrument of the same or better quality.*

242. The IAIS reviewed the original purpose of this criterion, which was to ensure a certain degree of permanence for financial instruments. However, as Tier 1 Unlimited financial instruments may be repurchased at any time subject to prior supervisory approval, the IAIS concluded that it would not be consistent to require a stricter treatment for repurchases of lower tiers of capital. Thus, for 2016 Field Testing, the criterion has been modified to the following:

> *The instrument may be repurchased at any time with prior supervisory approval*.

243. This change would have resulted in up to an additional $60 billion of financial instruments qualifying as capital resources in 2015 Field Testing. The following table shows the potential maximum impact of the change by instrument type, based on 2015 Field Testing data:

Table 8. Potential increase in capital resources following amendments to the repurchase criterion

Financial Instrument	Tier 1 Limited (US$ billion)	Tier 2 Paid-Up (US$ billion)
Non-cumulative perpetual preferred shares	4.4	0.3
Hybrids	-	6.4
Surplus Notes	-	4.6
Subordinated Debt	-	44.5
Total	4.4	55.8

244. The definition of unrestricted reserves has been amended for 2016 Field Testing to include those reserves that are appropriated but may be unappropriated through supervisory

notification or approval. A table of specific jurisdictional reserves and the tier of capital for which they qualify has been included in the 2016 Technical Specifications. Unrestricted reserves are treated as Tier 1 and restricted reserves are treated as Tier 2 Paid-Up capital resources.

245. In addition, the definitions for retained earnings and other contributed surplus were clarified due to reporting inconsistencies identified in the analysis of 2015 Field Testing data.

246. ICS capital composition limits are being tested for the first time in 2016 Field Testing. Given that there is a single ICS capital ratio, the capital composition limits manage the quality of qualifying ICS capital resources to ensure an adequate amount of high-quality capital. The following three capital composition limits are being tested:

a) Tier 1 Limited capital resources are limited to one of the following two options:

   i) 10% of the ICS capital requirement;

   ii) 20% of ICS net Tier 1 capital resources, where net Tier 1 is defined as total Tier 1 capital resources less capital adjustments and deductions.

b) Tier 2 capital resources are limited to 50% of the ICS capital requirement.

c) Tier 2 Non-Paid-Up capital resources are limited to 10% of the ICS capital requirement.

5.3 Open issues for consultation

247. The open issues for which the IAIS seeks input are:

a) principal loss absorbency mechanism;

b) financial instruments issued by consolidated subsidiaries of the IAIG and held by third parties;

c) treatment of certain items deducted from Tier 1 (DTAs, computer software intangibles, net pension plan surplus asset);

d) structural vs contractual subordination (treatment of senior debt);

e) mutual IAIGs;

f) non-paid-up capital;

g) capital composition limits;

h) supervisory approval for redemption at maturity;

i) treatment of AOCI; and

j) treatment of insurance liability/reinsurance adjustment offset.

5.3.1 Principal loss absorbency mechanism

248. Some jurisdictions require certain financial instruments to contain a principal loss absorbency mechanism. Such mechanisms provide a means for such instruments to absorb losses on a going-concern basis through reductions in the principal amount in addition to the cancellation of distributions.

249. The IAIS may consider that a principal loss absorbency mechanism is required for Tier 1 Limited financial instruments to qualify as capital resources. Without such mechanisms these instruments could be considered to only provide going concern loss absorbency through cancellation of distributions.

Question 70. Should Tier 1 Limited financial instruments be required to have a principal loss absorbency mechanism?

(1) If "no" to Question 70, should the principal be considered to provide loss absorbency on a going concern basis? Please explain how does the instrument demonstrates loss absorbency on a going concern basis.

5.3.2 Financial instruments issued by consolidated subsidiaries of the IAIG and held by third parties

250. Due to the non-fungible nature of financial instruments issued by consolidated subsidiaries of the IAIG and held by third parties, the potential need for a limit on the amount of these financial instruments that may be included in capital resources is under discussion.

Question 71. Is there an objective methodology that the IAIS could use to determine the amount of financial instruments issued by consolidated subsidiaries of the IAIG and held by third parties that is not available to the group for the protection of policyholders of the IAIG? Please explain.

5.3.3 Treatment of items deducted from Tier 1 (DTAs, computer software intangibles, net defined benefit pension plan surplus asset)

251. In 2015 Field Testing, three items [DTAs that rely on future profits, computer software intangibles and net defined benefit (DB) pension plan assets] were deducted from Tier 1, but then added back to Tier 2, subject to a realisability assessment performed by Volunteer IAIGs. Volunteer IAIGs reported, on average, that 92% of deducted DTA's were realisable and 86% of deducted computer software intangibles were realisable. However, several Volunteer IAIGs indicated that such items would not be realisable in a stress situation. The IAIS specified an allowable add-back of 50% of the value of net DB pension plan assets that were deducted from Tier 1.

252. The subjectivity of the realisability assessment and the wide range of outcomes indicate that a more objective approach would be appropriate and provide comparability

across IAIGs. In addition, the IAIS views the realisable value of these items as uncertain in a stress situation. As such, the IAIS is exploring approaches that will allow for an objective and limited recognition of these items in Tier 2.

253. One potential approach is to create a Tier 2 basket that allows limited recognition of each of the three items with an overall limit on the total value of the items within the basket. For example, the value of each item within the basket could be limited to the minimum of x% of the ICS capital requirement and the amount deducted from Tier 1. The total basket could then be limited to y% of the ICS capital requirement.

Question 72. Is there an objective methodology that the IAIS could use to determine the amount that should be added back to Tier 2 for those items deducted from Tier 1? Please explain.

5.3.4 Structural vs contractual subordination (treatment of senior debt)

254. Senior debt financial instruments reported in 2015 Field Testing did not meet the proposed qualifying criteria for either Tier 1 or Tier 2 capital resources. The two key Tier 2 Paid-Up criteria from 2015 Field Testing that those types of instruments failed to meet were:

a) the instrument is subordinated to policyholders and other non-subordinated creditors; and

b) no redemptions (ie calls) in the first five years and redemption is subject to prior supervisory approval.

255. The ICS is a consolidated group capital standard. Under consolidation, intra-group transactions are eliminated; that is the transaction outlined above between a holding company and its insurance subsidiary cancels out and what remains is a liability at the holding company (ie the debt issued to third parties).

256. The IAIS is exploring whether the ICS should take into account structural subordination, in addition to contractual subordination, of financial instruments. Following 2015 Field Testing, this issue has been discussed with specific relevance to senior debt instruments issued by non-operating insurance holding companies (to third party investors) where the proceeds are directly invested in an insurance subsidiary.

257. Contractual subordination is when subordinated creditors contractually agree (in the legal terms of a debt instrument) to rank lower (ie, being paid after in a liquidation) than other creditors and policyholders of an entity. In a situation as the one outlined above, where a non-operating insurance holding company does not have policyholders, legal or contractual subordination (ie within the terms of a debt instrument) to policyholders may not be possible.

258. Structural subordination is a form of subordination (ie, ranking after other creditors and policyholders) achieved by the structure of connected transactions between two legal entities (eg a holding company and an insurance subsidiary) and the regulatory regime in which they operate. Ie in a winding-up, the assets of a subsidiary would be paid to that subsidiary's policyholders first, and any surplus would only be distributed to the holding company as ordinary shareholder of the subsidiary after all of the subsidiary's policyholders and other creditors have been paid in full. Only after the holding company has received funds in the

winding up of its subsidiary would it be able to pay its own investors. Thus, those creditors are said to be structurally subordinated to the policyholders in the group. In addition, in some jurisdictions, payments (ie, dividends) from the subsidiary to the non-operating insurance holding company require supervisory approval. Without such approval, the proceeds downstreamed into the subsidiary could be considered ring-fenced and could not leave the subsidiary.

259. One view is that such structural subordination allows these instruments to meet the criterion that the instrument is subordinated to policyholders. Another view is that structural subordination does not provide adequate protection for policyholders.

Question 73. Is structural subordination sufficient to guarantee that policyholders will be paid first in a winding up? Please explain.

Question 74. Does structural subordination produce the same outcomes as legal or contractual subordination? Please explain.

5.3.5 Mutual IAIGs

260. The main form of Tier 1 capital for mutual IAIGs for the purpose of 2015 and 2016 Field Testing is currently retained earnings. Unlike joint stock companies, mutual IAIGs are unable to issue common/ordinary shares. In at least some jurisdictions, mutual IAIGs are able to issue certain financial instruments.

261. The IAIS continues to discuss how the specificities of mutual IAIGs should be taken into consideration when assessing financial instruments against the qualifying criteria. The current approach in 2016 Field Testing is that all financial instruments, whether issued by a joint stock company or a mutual insurance company, are assessed primarily on their contractual terms and conditions.[28] Another approach under discussion is to also consider more broadly the applicable supervisory regime and the requirements/restrictions that it places on the instrument.

262. Considering primarily the contractual terms and conditions of the financial instruments issued by mutual IAIGs that were reported in 2015 Field Testing, those instruments are expected to meet the qualifying criteria for Tier 2 Paid-Up capital as currently defined in the 2016 Field Testing Technical Specifications.

263. However, 2016 Field Testing is testing a limit on Tier 2 capital, which may prove problematic for mutual IAIGs in times of stress. Mutual IAIGs would need the ability to issue Tier 1 compliant capital instruments in order to more effectively raise capital resources in a stress scenario. The criteria for Tier 1 that such instruments are not expected to meet in 2016 Field Testing (considering primarily contractual terms and conditions) are:

[28] Some of the criteria consider limited features of a jurisdiction's regime. For example, a criterion for Tier 1 Limited is: "*If jurisdictional insolvency law includes a test of whether liabilities exceed assets, then the instrument is not treated as a liability for the purpose of that test*."

a) The instrument is perpetual

b) The IAIG has full discretion at all times to cancel distributions

264. Some financial instruments are subject to various supervisory requirements, such as: (1) supervisory approval for issuance, (2) supervisory restrictions on interest payments, and (3) supervisory restrictions on redemption, including at contractual maturity. These features, which are embedded in jurisdictional law, can be viewed to provide the financial instrument with loss absorbing capacity on a going concern basis. One of the issues for discussion is whether these features are sufficient for the instrument to be classified as Tier 1 capital resources.

Example 1: Surplus notes are the most subordinated claim in liquidation for a U.S. mutual insurer and can only be issued with prior supervisory approval. In addition, prior supervisory approval is required in order to accrue and then make interest payments. Finally, prior supervisory approval is required for the redemption of the instrument prior to, at or after the contractual maturity.

Example 2: Foundation funds (Kikin) are the most subordinated claim in liquidation for a Japanese mutual insurer and can only be issued with prior supervisory approval. In addition, there are restrictions placed on interest payments and the instrument cannot be redeemed at contractual maturity until such time that a Kikin Redemption Reserve has accumulated an amount equivalent to the par value of the instrument. These features, which are embedded in jurisdictional law to make Kikin functionally equivalent to shareholders' equity, are intended to provide Kikin with loss absorbing capacity on a going concern basis.

Question 75. Is a requirement for supervisory approval prior to the redemption of a financial instrument at contractual maturity sufficient for that instrument to be considered perpetual? Please explain.

Question 76. Is a requirement for supervisory approval of distributions prior to contractual maturity (eg interest payments, dividends) sufficient for the distributions to be considered non-cumulative? Please explain.

Question 77. Do existing financial instruments issued by mutual IAIGs (for example, but not limited to surplus notes, Kikin and other forms of subordinated financial instruments) absorb losses on a going concern basis? Please identify which instrument and explain.

Question 78. Should the Tier 1 criteria (unlimited or limited) be changed in some way to better classify the financial instruments of mutual IAIGs? Please explain.

Question 79. What would prevent mutual IAIGs from issuing other financial instruments that meet the qualifying criteria for Tier 1 capital resources as set out in the 2016 Field Testing Technical Specifications? Please explain.

5.3.6 Non-paid-up capital

265. The ICS capital resources framework set out in the 2016 Technical Specifications allows Tier 2 capital resources to include items that are not yet paid-up. Such items may qualify as ICS capital resources to a limited extent provided there are strong, contractual safeguards to ensure that the items will be paid-up when called by an IAIG and the paid-up form of the item meets the relevant Tier 1 or Tier 2 Paid-Up qualifying criteria. Non-paid-up capital may take a number of different forms, including unpaid shares, unpaid subordinated debt, letters of credit, guarantees and mutual member calls. The qualifying criteria for Tier 2 Non-Paid Up capital resources are set out in the 2016 Technical Specifications.

266. One view is that ICS capital resources should not include items of non-paid-up capital due to their lack of availability to absorb losses and the lack of evidence to demonstrate that non-paid-up items will be available when needed by an IAIG. Another view is that non-paid-up capital items should be included because appropriate safeguards have been set in the qualifying criteria and the limit imposed on such items is designed to ensure adequate quality of capital resources backing the ICS capital requirement.

267. The 2015 Field Testing exercise did not yield sufficient information on the use of non-paid-up capital items by Volunteer IAIGs to reach a conclusive position. The IAIS has requested Volunteer IAIGs to submit any relevant data on non-paid-up capital items as part of 2016 Field Testing, to help inform the treatment of this type of capital within the ICS capital resources framework.

Question 80. Should non-paid-up items be included in ICS qualifying capital resources? Please explain.

(1) If "yes" to Question 80, do the qualifying criteria set out in the 2016 Technical Specifications capture all the requirements that should be applied to the assessment of non-paid up items? Please explain.

Question 81. If non-paid-up capital items are permitted, is the capital composition limit proposed in 2016 Technical Specifications appropriate? If "no", how should the limit be set?

5.3.7 Capital composition limits

268. The 2016 Field Testing exercise includes explicit capital composition limits to test the impact on overall capital resources and inform on the appropriateness of the limits.

Question 82. What theoretical basis could the IAIS use to determine appropriate capital composition limits?

5.3.8 Prior supervisory approval for redemption of financial instruments

269. The qualifying criteria for Tier 2 Paid-Up financial instruments set out in 2016 Field Testing is that they only require prior supervisory approval for redemption of a financial

instrument at call dates prior to contractual maturity. This could include redemption at an instrument's effective maturity date where it falls before the contractual maturity date. Prior supervisory approval is not currently required for redemption of a financial instrument at its contractual maturity date. Instead, the amount recognised as capital resources is amortised over the final five years to effective maturity, unless the financial instrument contains a lock-in clause.

270. One view is that prior supervisory approval should be required in advance of any redemption of a financial instrument by an IAIG, whether prior to or at contractual maturity. In applying supervisory judgement, supervisors are not limited to considering whether a redemption would cause a breach of any applicable capital requirements; they may, for example, also choose to consider the impact on an IAIG's medium term capital position. Discretion to reject the redemption of a financial instrument at maturity – in cases where it could have a significant adverse impact on an IAIG's capital position, could be an important tool to ensure the supervisor's views on the safety and soundness of an IAIG are taken into account.

271. Another view is that the current approach is appropriate and supervisory approval should not be required for redemption at contractual maturity. The rationale for this view is that, if a supervisor did not approve the redemption of a dated instrument at contractual maturity, it could signal to the market that there are concerns about the IAIG's capital position. This could potentially be more damaging to the IAIG than the redemption of the financial instrument. The current approach (as outlined above) is sufficient and has the advantage of encouraging IAIGs to take a longer term view of their capital planning such that new capital is in place prior to a redemption at contractual maturity.

272. A further view is that the current framework should be modified so that, prior supervisory approval should not be required for redemption at its effective maturity date. This would remove the requirement for prior supervisory approval for redemption in cases where the effective maturity date is earlier than the contractual maturity date, ie the first instance of a call date with a step up (or other incentive to redeem). The argument in favour of this view is that an instrument with an effective maturity of five years but a contractual maturity of ten years should be subject to the same recognition criteria as an instrument with a five-year contractual maturity, as they have equivalent effective maturity dates. However, to qualify as Tier 2 capital under the 2016 Technical Specifications, the former would require supervisory approval prior to redemption at five years, whereas the latter would not. Moreover, for an instrument with no lock-in clause, the amount recognised as capital resources at the effective maturity is zero. Therefore, one view is that prior supervisory approval at this effective maturity date is not necessary. It should also be noted that requiring supervisory approval at both effective and contractual maturity dates, as presented above, would also resolve the issue of difference in treatment between a ten-year financial instrument with a call option at five years, and a five-year instrument.

273. It has also been argued that a lock-in feature provides a safeguard akin to prior supervisory approval; therefore the current 2016 Field Testing requirement for supervisory approval prior to contractual maturity could be removed where a financial instrument possesses a lock-in feature.

Question 83. When should prior supervisory approval of the redemption of a financial instrument issued by an IAIG be required?

- ☐ **At its effective maturity date.**
- ☐ **At its contractual maturity date.**
- ☐ **Otherwise. Please explain.**

(1) Should any other factors (eg lock-in and amortisation) be taken into consideration? Please explain.

Question 84. Does a lock-in feature provide the same safeguard as supervisory approval prior to redemption of a financial instrument? Please explain.

(1) If "yes" to Question 84, should the ICS qualifying criteria be amended to remove the requirement for prior supervisory approval where a financial instruments possesses a lock-in feature? Please explain.

5.3.9 Treatment of Accumulated Other Comprehensive Income (AOCI)

274. In 2016 Field Testing, AOCI is included as a component of Tier 1 capital resources. For jurisdictional GAAPs that employ an AOCI construct (eg, U.S. GAAP, Japanese GAAP and IFRS), components of AOCI generally include:

a) unrealised gains or losses on investments classified as available for sale (AFS);

b) pension-related items including actuarial gains/losses;

c) gains and losses resulting from translating the financial statements of foreign subsidiaries;

d) gains and losses related to certain hedges; and

e) revaluation surplus (Land, Fixed Asset).

275. Unrealised gains and losses on AFS investments and revaluation surplus would only appear under the GAAP Plus approach in certain jurisdictions. In addition, unrealised gains and losses on assets backing long-term liabilities may be reversed through the application of the proposed AOCI adjustment under GAAP Plus. Under MAV, all invested assets are reflected at market value, and gains and losses are typically recognised in net income. Both 2015 and 2016 Field Testing required a deduction from Tier 1 capital resources of net defined benefit pension fund assets that cannot be easily and promptly accessed for the own use and on-going operations of the IAIG; however, the related AOCI amounts are not specifically addressed. As there are a number of distinct components included in AOCI, the IAIS is considering differentiating these items by their loss absorbing capacity to determine whether they should be included in capital resources.

Question 85. Do any of the above AOCI elements provide loss absorbing capacity on a going concern basis? Please provide an explanation as to how the element(s) absorbs losses.

Question 86. Are there any additional elements that are included in AOCI under specific jurisdictional GAAPs that could be considered to be loss absorbing on a going concern basis, and therefore should be included in capital resources? Please explain.

5.3.10 Treatment of insurance liability/reinsurance adjustment offset

276. The revaluation of the balance sheet under both the MAV and GAAP Plus approaches results in a balancing amount that has been termed "insurance liability/reinsurance adjustment offset". More specifically, this amount represents the sum of adjustments for insurance liabilities, reinsurance assets, deferred expense assets and related deferred tax amounts. In 2015 Field Testing, this amount was included in Tier 1 capital resources. 2015 Field Testing also provided that the MAV and GAAP Plus approaches calculate a consistent and comparable MOCE (CC MOCE) to be added to insurance liabilities, which would serve to reduce this offset component of capital resources. As the CC MOCE is still under development and is the primary determining factor of the amount of residual offset, the ultimate disposition of the offset amount for inclusion in capital resources has not yet been determined.

Question 87. Is the definition of insurance liability/reinsurance adjustment offset as described appropriate? Please explain.

Question 88. Are there any valuation adjustment amounts that should be included or excluded? Please explain.

Question 89. Would the inclusion of insurance liability/reinsurance adjustment offset generate significant volatility in capital resources? If "yes", how should the volatility be addressed?

5.4 General comments

Question 90. Are there any further comments on capital resources that the IAIS should consider in the development of ICS Version 1.0? If "yes", please explain with sufficient detail and rationale.

6 ICS capital requirement: the standard method

6.1 Risks

277. It follows from ICS Principle 4 that all material risks to which an IAIG is exposed should be reflected in the ICS. The IAIS considers that the key categories of risk included in the standard method are: Insurance risk, Market risk, Credit risk and Operational risk. With respect to the 2014 ICS CD, most stakeholders commented that these categories capture all material risks and no additional risks should be added.

278. There are risks to which an IAIG is exposed other than the key risks set out in **Table 9** below, such as Group risk and Liquidity risk (other than that addressed in Lapse risk). The IAIS considers that these other risks, for the time being, should not be quantified in the ICS capital requirement and should be addressed elsewhere in ComFrame's qualitative requirements,[29] specifically in Module 2 Elements 3 and 4 which addresses ERM. However, it is noted that some aspects of group risk, such as fungibility and minority interests, may be addressed within qualifying capital resources.

279. The ICS capital requirement is based on the potential adverse changes in capital resources resulting from unexpected changes, events or other manifestations of the specified risks. The risks covered by the ICS capital requirement are outlined in **Table 9**. The definitions and risks described in the table builds on those proposed in the 2014 ComFrame Draft. Where appropriate, some modifications have been made and further refinement may follow as the ICS is finalised.

Table 9. Risks and definitions

Categories of risk	**Key risk**	**Scope/definition: Risk of adverse change in the value of capital resources due to**
Insurance risk	Mortality risk	Unexpected changes[30] in the level, trend or volatility of mortality rates
	Longevity risk	Unexpected changes[30] in the level, trend or volatility of mortality rates
	Health risk[31]	Unexpected changes[30] in the expected future payments for health claims and expenses and unexpected changes in the level of health policy lapses, terminations, renewals and surrenders
	Morbidity/Disability risk[31]	Unexpected changes[30] in the level, trend or volatility of disability, sickness and morbidity rates

[29] See http://www.iaisweb.org/page/supervisory-material/common-framework for the latest draft of ComFrame.
[30] Expected impacts are assumed to be incorporated in valuation methodologies
[31] In ICS Version 1.0, only one of Health risk or Morbidity/Disability risk will be included.

	Expense risk	Unexpected changes[30] in liability cash flows due to the incidence of expenses incurred
	Lapse risk	Unexpected changes[30] in the level or volatility of rates of policy lapses, terminations, renewals and surrenders
	Premium risk (non-life)	Unexpected changes[30] in the timing, frequency and severity of future insured events (to the extent not already captured in health or Morbidity/Disability risk)
	Claim reserve risk (non-life)	Unexpected changes[30] in the expected future payments for claims (to the extent not already captured in health or Morbidity/Disability risk)
	Catastrophe risk	Unexpected changes[30] in the occurrence of low frequency and high severity events
Market risk	Interest Rate risk	Unexpected changes[30] in the level or volatility of interest rates
	Equity risk	Unexpected changes[30] in the level or volatility of market prices of equities
	Real Estate risk	Unexpected changes[30] 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
	Currency risk	Unexpected changes[30] in the level or volatility of currency exchange rates
	Asset Concentration risk	The lack of diversification in the asset portfolio
Credit risk		Unexpected changes[30] in the actual default as well as in the deterioration of an obligor's creditworthiness short of default, including migration and spread risks.
Operational risk		Operational events including inadequate or failed internal processes, people and systems, or from external events. Operational risk includes legal risk, but excludes strategic and reputational risk

280. The approach taken for the standard method is to consider each risk and, based on current risk knowledge, insurance products' characteristics, and practicality versus materiality, determine the most appropriate approach to measuring that risk on an individual basis.[32] Some risks are best measured on the basis of a stress approach (see below for a description of a stress approach). This is particularly the case where a risk could manifest in changes both in the values of both assets and liabilities, or where the risk cannot be adequately captured by a single factor or item on the balance sheet (eg Mortality/Longevity risk, Interest Rate risk).

[32] For 2015 and 2016 Field Testing, all calculations of risk charges exclude MOCE. All stress-based calculations include only current estimates in determining the Net Asset Value (NAV). Factors applied to insurance liabilities are only applied to current estimates.

Stress approach

In a stress approach, the calculation of the capital requirement for a particular risk, or a number of risks, follows a dynamic approach looking at the balance sheet at two points in time: the IAIG's current balance sheet pre-stress and the IAIG's balance sheet post-stress.

The capital requirement for each individual risk is determined as the decrease between the amount of capital resources on the pre-stress balance sheet (CR0) and the amount of capital resources on the post-stress balance sheet (CR1). Stresses can be applied individually with individual stressed balance sheets being calculated (CR0 - CR1) to determine the capital requirement with respect to each individual stress.

281. Other risks are measured using a factor-based approach. Examples where this is appropriate include cases where a risk exposure is appropriately captured by a balance sheet item. However, particularly in the case of Catastrophe risk, a stochastic modelling approach forms part of the standard method as this is likely to provide the desired level of risk sensitivity and to more adequately reflect the risk profile of the IAIG.

Factor-based approach

Under a factor-based approach, the calculation of the ICS capital requirement for a particular risk, or a number of risks, is determined by applying factors to specific exposure measures. It should be noted that a factor-based approach would, in general, be simpler to implement than a stress approach; however, it would need to include additional measures to allow for the IAIG-specific recognition of loss absorbing effects of mechanisms such as risk mitigation techniques and profit sharing. An example of a factor-based approach is represented by the BCR.

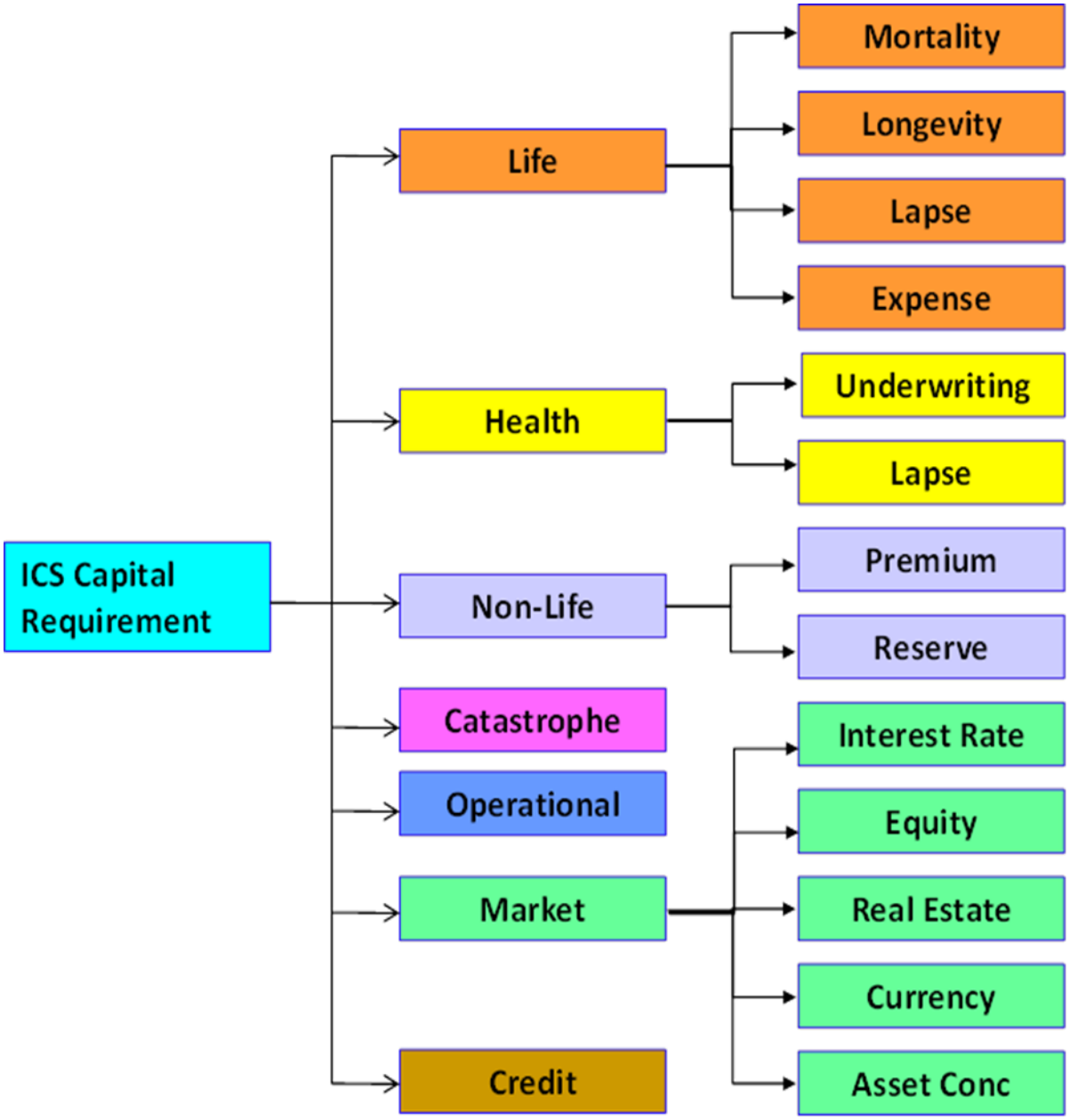
282. **Table 10** below provides a summary of the risk measurement methods in the standard method as set out in the 2016 Field Testing Technical Specifications.

Table 10. Summary of risk measurement methods proposed in the standard method

Risk/Sub-risk / Approach	Factor-based	Stress	Other
Insurance risks			
• Mortality		✓	
• Longevity		✓	
• Health or Morbidity/Disability		✓	
• Lapse		✓	
• Expense Risk		✓	
• Premium	✓		
• Claims reserve	✓		
• Catastrophe			✓
Market risks			
• Interest rate		✓	
• Equity		✓	
• Real estate		✓	
• Currency/FX		✓	
• Asset concentration	✓		
Credit risk	✓		
Operational Risk	✓		

283. The following **Figure 7** provides an overview of the structure of the standard method as currently set out in the default options for the 2016 Field Testing.

Figure 7. Overview of standard method for the purposes of 2016 Field Testing



284. The individual risks will be combined to recognise risk diversification.

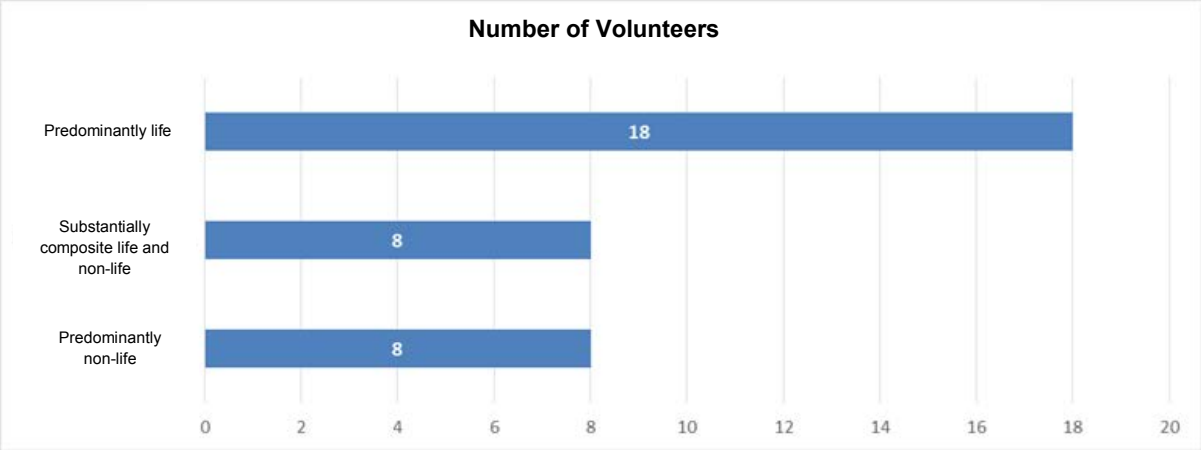
6.1.1 2015 Field Testing results

285. To provide context to the following sections covering individual risk charges, some results from 2015 Field Testing are relevant. While the primary focus of 2015 Field Testing was on the design of an example standard method, tentative provisional calibration parameters were provided to enable calculations of risk charges. The calibrations were based on supervisory judgement with the exception of Equity risk, Interest Rate risk, Currency risk and Credit risk which were calibrated using available data. However, it must be noted that

even where using available data supervisory judgement is still highly relevant, for example in selecting calibration methodologies and the length of the data series to use. Even where a calibration using available data has been performed, there have been refinements for 2016 Field Testing and there are likely to be further refinements in future. Therefore the results from 2015 Field Testing in terms of the materiality of each of the risks can be considered indicative rather than definitive.

286. Another important point to understand is the nature of the population of 34 Volunteer IAIGs for 2015 Field Testing. There is a predominance of life business in the collective business mix of the population of Volunteer IAIGs. See **Figure 8**:

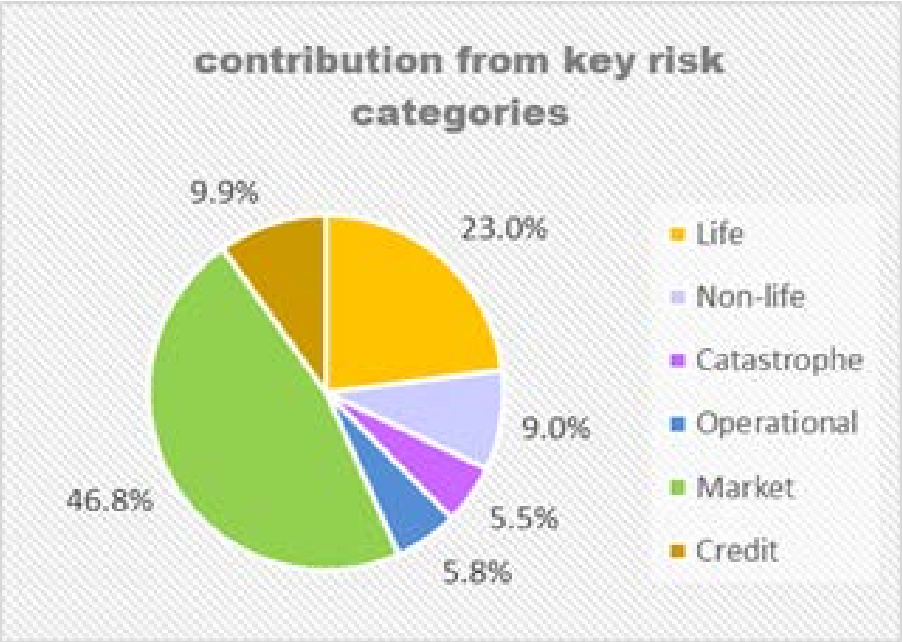
Figure 8. Business mix of Volunteer IAIGs[33]



287. This shows that 18 of 34 Volunteer IAIGs in 2015 Field Testing predominantly conduct life insurance business, with eight of the 34 predominantly conducting non-life insurance business. The remaining eight can be considered composite life and non-life groups. This provides context to the results on the contribution from each of the risks shown below.

[33] Based on contribution of non-life risk charges to the overall ICS capital requirement.

Figure 9. Contribution of key risk categories to ICS capital requirement

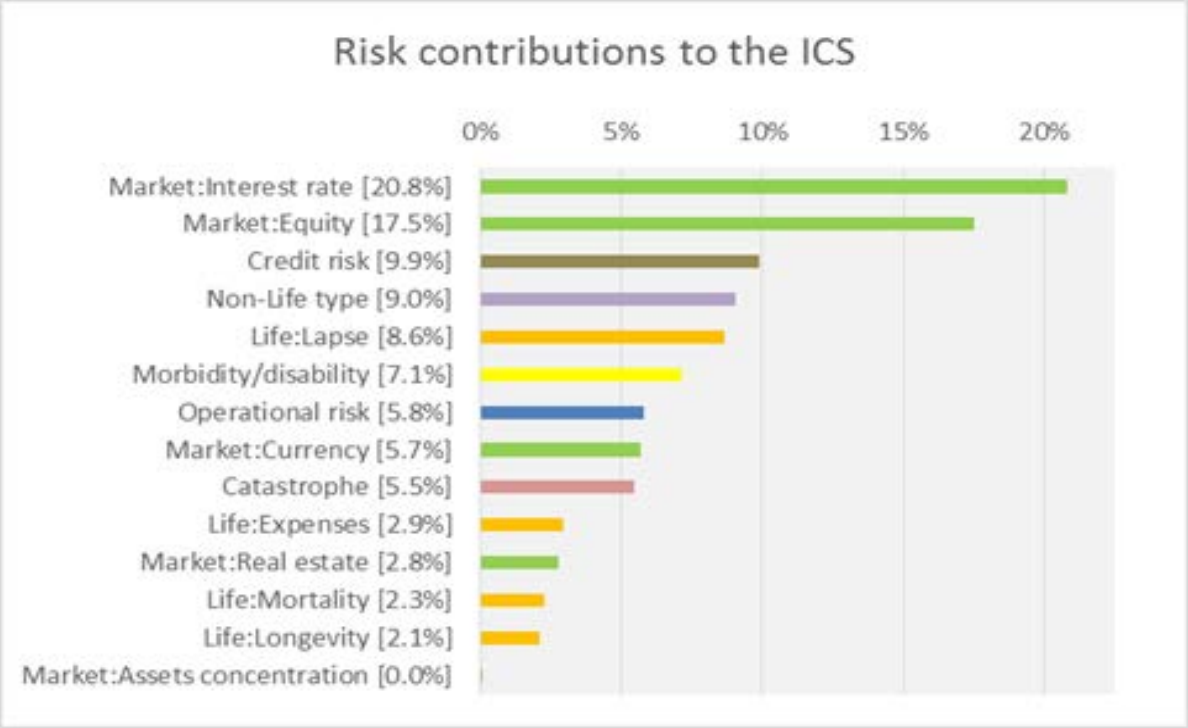


288. **Figure 9** shows the contributions of the major risks over the entire set of Volunteer IAIGs as determined through the ICS capital requirement post management actions and post diversification. The relative weights for individual Volunteer IAIGs did vary significantly from this global risk profile picture, depending on their individual business models which were diverse as shown in **Figure 8**. The results should not be compared to similar analyses based on one firm. There are significantly different results per Volunteer IAIG. It is expected these results will evolve in 2016 because of changes in the population of Volunteer IAIGs as well as changes in the design and calibration of the ICS Standard Method.

289. In particular, the contribution of Catastrophe risk to overall risk appears to be low. That is due to the smaller number of participating non-life Volunteer IAIGs in the population of Volunteer IAIGs. However, data shows that Catastrophe risk can be more material for some (non-life) groups.

290. In further detail, the contribution of the individual risk charges is set out in **Figure 10** below. **Figure 9** and **Figure 10** are designed to fit with the risk structure set out in **Figure 7**. However, it must be noted that in 2015 Field Testing the separate Health risk was not present as it is for 2016 Field Testing. Health risks were included in Life risks (predominantly Morbidity/Disability risk) and Non-life risks.

Figure 10. Contributions of various risks to ICS Capital Requirement in 2015 Field Testing



291. These graphs must be interpreted in the context of the notional 99.5% VaR calibration used for 2015 Field Testing (see next section on "Target Criteria"). For example, there were concerns from Volunteer IAIGs about the calibration of Interest Rate risk and Morbidity/Disability risk. Any high calibrations will then result in an over-representation of those risks compared with other risks. This is the reason that these results must be considered indicative rather than definitive or conclusive about the materiality of particular risk charges.

6.2 Target criteria

292. The definition of the ICS capital requirement needs to achieve materially consistent results in the calculation of the ICS capital requirement globally across IAIGs. To achieve this, the definition needs to specify a number of key aspects for the quantification of the ICS capital requirement. These key aspects are:

a) A risk measure (eg VaR,[34] Tail-VaR,[35] etc.)

b) A time horizon (eg 1-year, run-off to ultimate, etc.)

c) A confidence level (eg 99.5%, 99%, etc.).

6.2.1 Risk measure

293. In comments received on the 2014 ICS CD, most stakeholders commented that VaR is the most appropriate from a practical perspective (ie easier to implement). Some stakeholders commented that Tail-VaR is theoretically superior (particularly if used in conjunction with internal models), but far more difficult to implement, so VaR should be used for a standard method. Several stakeholders commented that Tail-VaR is not suitable for a standard approach and should not be field tested.

294. Through 2015 Field Testing, the IAIS learned that Volunteer IAIGs largely support the use of a VaR measure on practical grounds. Given this, and the complexity of implementing a Tail-VaR measure (especially from a calibration of risks perspective), the IAIS will focus on only a VaR risk measure in 2016 Field Testing.

6.2.2 Time horizon

295. Most stakeholders responded that a one-year time horizon is appropriate. However, a few stakeholders commented that a one-year time horizon is inappropriate for IAIGs with long-term liabilities.

296. The IAIS will proceed with a one-year time horizon as it is in line with the annual cycle of financial reporting and solvency surveillance prevalent throughout the financial services industry. Supervisors, policyholders, beneficiaries and other stakeholders are interested in the financial position an IAIG reports through its balance sheet.

297. The 2014 ICS CD also sought feedback on whether or not, for the purposes of the ICS capital requirement, it may be assumed that the IAIG will carry its existing business for the one-year time horizon as going concern or if the ICS capital requirement may only apply to risks existing at the measurement date (ie assume no new business). Stakeholder responses on this issue varied. Some stakeholders view the going concern assumption as more appropriate because it leads to a more accurate risk assessment including a reflection of the IAIG's business plan. Others stakeholders commented that ICS should only apply to risks at the measurement date, as including new business increases complexity and the ICS capital requirement should focus on policyholder protection (ie a run-off basis).The IAIS will proceed

[34] Value-at-Risk (VaR) is the loss at a predefined confidence level (eg 99.5%), ie the loss that is not exceeded with probability equal to the confidence level.
[35] Tail Value at Risk (Tail-VaR) is the expected value of the loss given that the loss exceeds the predefined confidence level. It is sometimes also called Conditional Tail Expectation (CTE), Expected Shortfall (ES) or Expected Tail Loss.

with the assumption that the IAIG will carry on only existing business[36] for the one year time horizon as a going concern.

6.2.3 Confidence level

298. The ICS capital requirement should be calibrated so there is only a small probability that the balance sheet one year from now will have negative capital resources.

299. For 2016 Field Testing the IAIS attempted to calibrate all risks at 99.5% VaR over a 1-year time horizon. Calibrations set out for the standard method in the 2016 Field Testing are based on a notional 99.5% VaR and subject to change and refinement as calibration work progresses. For example: some calibrations are based on IAIS analysis (ie Equity risk, Currency risk, Interest Rate risk, partially Non-life risk, Health risk and Credit risk), whereas the remainder of calibrations has been derived from inference from existing jurisdictional capital requirements, analysis of jurisdictional data, and professional supervisory judgement. As explained in the individual risk sections (eg Life and Non-life risks), the IAIS is seeking inputs on the most appropriate methodologies and data to be used to further refine the calibrations.

6.3 Risk Mitigation

6.3.1 Background

300. In order to promote good risk management and achieve an appropriate level of risk sensitivity, the ICS takes account of the effect of risk-mitigation techniques provided certain conditions are met.

301. In the 2014 ICS CD, a set of principles was presented as the proposed basis for addressing the concept of risk mitigation. In response to comments received on the 2014 ICS CD:

a) It was noted that these principles had adequate support to continue as the basis for developing more detailed methods of allowing for risk mitigation in the ICS with respect to individual risks.

b) IAIS decided that dynamic hedging arrangements will not be included in the scope of recognised risk mitigation techniques for the ICS Version 1.0 as it conflicts with the application of instantaneous stresses for market risks and it is also not aligned with the principle of allowing only the effect of risk mitigation techniques for assets and liabilities existing at the reference date of the ICS calculation.

c) Non-life exposure to Premium and Catastrophe risks include business to be written over the next year. It is general market practice to manage these risks using risk mitigation arrangements (eg reinsurance protection) often on a “losses occurring

[36] Premium risk and Catastrophe risk are exceptions to this as new business to be written in the next 12 months will also be taken into consideration.

during" basis. It was noted that existing risk mitigation arrangements with respect to non-life business could be in force for a shorter period than the time horizon for the calculation of the ICS, but that they would often be expected to be subsequently renewed. The IAIS decided that it will develop a set of criteria to be met in order to recognise the renewal of these risk mitigation arrangements.

6.3.2 Principles for the recognition of Risk Mitigation

302. The principles stated in the 2014 ICS CD were used as a basis for the development of the 2015 and 2016 Field Testing Technical Specifications.

303. For ease of reference, the latest version used in 2016 Field Testing (slightly amended from the 2015 version to enhance clarity) is set out as follows:

a) The risk mitigation technique must be legally effective and enforceable in all relevant jurisdictions and there must be an effective transfer of risk to a third party.

b) The contractual arrangement ensures that the risk transfer is clearly defined.

c) The calculation of the ICS capital requirement allows for the effects of risk mitigation techniques through a reduction in requirements commensurate with the extent of risk mitigation. It should make reasonable allowance for any basis risk effects due to changes in risk mitigation assumptions and relationships during a stress scenario and there should be appropriate treatment of any corresponding risks embedded in the use of risk mitigation techniques (eg Credit risk). These two effects should be separated.

d) The calculation should be made on the basis of assets and liabilities existing at the reference date of the ICS calculation.

e) There should be no double counting of mitigation effects.

f) The IAIG has, in the event of a default, insolvency or bankruptcy of a counterparty or other credit event set out in the transaction documentation for the arrangement, a direct claim on that counterparty.

g) Providers of risk mitigation should have an adequate credit quality (demonstrable through either adequate rating, capitalisation or collateralisation levels) to guarantee with appropriate confidence that the IAIG will receive the protection in the cases specified by the contracting parties.

h) Credit quality should be assessed consistently with the definition of credit categories provided in the Credit Risk section of the 2016 Field Testing Technical Specifications.

6.3.3 Criteria for risk mitigation arrangements in force for less than the next 12 months

304. The following criteria were included in 2016 Field Testing (which are largely unchanged from 2015 Field Testing):

a) Only risk-mitigation techniques that are in force for at least the next 12 months shall be fully taken into account in the ICS capital requirement. In all other cases, the risk-mitigation effect of risk-mitigation techniques that are in force for a period shorter than 12 months shall be taken into account in the ICS capital requirement in proportion to the length of time involved for the shorter of the full term of the risk exposure or the period that the risk-mitigation technique is in force.

b) Renewal of risk mitigation arrangements with respect to non-life insurance risks may be taken into account if the IAIG expects to renew, and the costs of renewal within the time horizon are taken into account. The renewal of the arrangements should be taken into account only if:

   i) the renewal is consistent with previous business practice and documented strategy;

   ii) the renewal is realistic with regards to availability of the arrangement and its cost (that will be reflected on the financial statements); and

   iii) any additional risk stemming from the risk mitigation arrangement (eg Credit risk) is taken into account in the ICS capital requirement.

305. The recognition of financial risk mitigation techniques is subject to one additional principle that applies specifically to the recognition of financial risk mitigation techniques in the ICS.

a) There should be an explicit reference to specific exposures or a pool of exposures.

306. Due to the limited effectiveness of risk mitigation of Operational risk, risk mitigation is not recognised in the calculation of the ICS risk charge for Operational risk.

6.3.4 Open issues for consultation

307. The open issues for which the IAIS seeks input are:

a) Allowance of risk mitigation only on the basis of assets and liabilities existing at the reference date of the ICS calculation;

b) Recognition of risk mitigation in force for less than 12 months;

c) Criteria for recognition of renewal of Non-life risk mitigation arrangements;

d) Recognition of renewal of risk mitigation for risks other than non-life; and

e) Basis risk.

6.3.4.1 Allowance for the effect of risk mitigation techniques in the ICS capital requirement only on the basis of assets and liabilities existing at the reference date of the ICS calculation

308. The principle described in paragraph 303.d) was included to ensure that any risk mitigation techniques recognised in the ICS serve to mitigate risk borne by the IAIG as of the reference date of the ICS Calculation.

309. In the IAIS resolution of comments on the 2014 ICS CD, the IAIS stated that dynamic hedging arrangements will not be included in the scope of recognised risk mitigation techniques for the ICS Version 1.0 as it conflicts with this principle. Furthermore, Market risk charges are calculated using instantaneous shocks which by construction would not be able to benefit from subsequent hedging adjustments.

310. The issue of whether dynamic hedging should be recognised will continue to be discussed and considered for the development of ICS Version 2.0.

Question 91. Is the above principle appropriate? Please explain.

Question 92. Should dynamic hedging arrangements be included in the scope of recognised risk mitigation techniques for ICS Version 2.0? Please explain. If "yes", please also comment on:

(1) Dynamic hedging programs that should be recognised in the ICS;

(2) How this principle could be amended in a manner appropriate to the ICS and the way it is currently constructed (ie the use of instantaneous shocks for market risk); and

(3) What criteria should be met to allow the effect of dynamic hedging arrangements to be recognised in the ICS capital requirement.

6.3.4.2 General treatment for risk-mitigation techniques that are in force for less than the next 12 months

311. The current approach for risk mitigation techniques for any exposures in force as at the reference date for less than the next 12 months is to recognise them in proportion to the length for which the risk-mitigation technique is in force.

Question 93. Is the general treatment given for risk-mitigation techniques that are in force for less than the next 12 months appropriate for the ICS standard method? Please explain. If "no", please provide details of a practical alternative that would be appropriate for the ICS standard method.

6.3.4.3 Criteria for recognising the renewal of Non-life risk mitigation arrangements

312. Considering the relatively short-term nature of Premium and Catastrophe Risk and that the use of risk mitigations arrangements is a material and largely used tool for risk management of these risks, the IAIS allows for the recognition of future renewals of Non-life risk mitigation in Field Testing. For the 2016 Field Testing the IAIS provided a set of criteria for the recognition of renewal of Non-life risk mitigation arrangements that are in force for less than 12 months as of the reference date (for further details please refer to paragraph 304.b) above).

Question 94. Are the criteria for recognising the renewal of Non-life risk mitigation arrangements appropriate for the ICS standard method? Please explain. If "no", please detail which criteria should be amended, including rationale and suggested amended wording.

6.3.4.4 Renewal of risk mitigation arrangements for risks other than non-life (eg Currency risk) arising out of assets and liabilities existing at the reference date of the ICS calculation

313. The approach taken so far limits the recognition of the renewal of risk mitigation arrangements to arrangements covering Non-life risks.

314. An example of risk mitigation arrangements covering risks other than Non-life risks is the hedging of Currency risk for assets and/or liabilities existing at the reference date of the ICS calculation using a rolling program of short term currency forwards that are renewed monthly.

Question 95. With regard to risks arising from the balance sheet as at the reference date, should renewal of risk mitigation arrangements other than those relating to non-life insurance risks also be recognised? Please explain. If "yes", please also provide:

(1) Specific suggestions for criteria that can be applied to the recognition of such renewals;

(2) Specific examples of risk mitigation arrangements that would qualify as such, including details of the risks addressed and the materiality of these arrangements; and

(3) Suggestions on how the issues such as future availability, future cost and uncertainty of the decision should be addressed.

6.3.4.5 Basis risk

315. The principle in paragraph 303.c) states that the ICS should make reasonable allowance for any basis risk effects due to changes in risk mitigation assumptions and relationships during a stress scenario.

Question 96. **Should a materiality threshold for basis risk arising from any risk mitigation techniques be defined? If "yes", please provide a detailed suggestion of a definition that would be appropriate for the ICS and your rationale.**

Question 97. **Are you aware of organisations that account for basis risk arising from risk mitigation techniques? If "yes", please provide details on how this is done in practice.**

6.3.5 General comments

Question 98. **Are there any further comments on risk mitigation that the IAIS should consider in the development of ICS Version 1.0? If "yes", please explain with sufficient detail and rationale.**

6.4 Look-through

316. The 2014 ICS CD consulted on whether or not the look-through approach should be applied for the calculation of the ICS capital requirement. This issue is potentially relevant wherever the assets held by an IAIG repackage market, credit or underwriting risks. This is, for instance, the case for investment funds and catastrophe/longevity bonds. A notable exception is Credit risk securitisations, which should not be looked through since explicit Credit risk stress factors are specified for them under the ICS. Two options for the implementation of a look-through approach were presented.

317. Option 1 proposed that the look-through approach should apply whenever and to the extent possible on the basis of the underlying current exposures at a point in time inherent in the indirect investment or insurance arrangement. This option also allowed for partial look-through when full look-through is not possible. However, when no look-through is possible this option proposed that the full investment should be considered as an asset belonging to the asset class with the highest risk charge.

318. Option 2 proposed the approach where it is assumed that the fund first invests, to the maximum extent allowed under its mandate, in the asset classes with the highest risk charge, and then continues making investments in descending order until the maximum total investment level is reached.

319. The 2015 Field Testing approach collected data on the basis of Option 1 as set out in the 2014 ICS CD.

320. Taking into account the feedback received on the 2014 ICS CD and the 2015 Field Testing results, the IAIS is continuing with Option 1 for 2016 Field Testing, with one refinement: when no look-through is possible, the full investment should be considered as unlisted equity. In addition, data will be collected on the exposure amount to which the look-through approach applies.

6.4.1 General comments

Question 99. Are there any comments on look-through that the IAIS should consider in the development of ICS Version 1.0? If "yes", please explain with sufficient detail and rationale.

6.5 Management actions

6.5.1 Background

321. The section on credit for participating/profit sharing and adjustable products of the 2014 ICS CD consulted on three key issues:

a) the stage at which the credit for exercising management actions should be applied to the calculation of the ICS capital requirement;

b) appropriate criteria for determining qualifying participating/profit sharing and adjustable products; and

c) considerations on the aggregation of the credit across participating/profit sharing and adjustable products.

322. The IAIS took these inputs into account in developing the 2015 Field Testing approach to management actions.

323. For 2015 Field Testing, a credit for exercising management actions with respect to participating/profit sharing and adjustable products was taken into account at the level of each risk in the ICS capital requirement. Volunteer IAIGs were asked to report their total insurance liabilities for future bonuses or other discretionary benefits. This reported amount was used as a cap on the overall credit allowed in the ICS. This cap was applied after aggregating the total of management actions post-diversification across the risks. There was no significant adverse comment on this approach among Volunteer IAIGs and so this is continued in 2016 Field Testing.

324. For 2015 Field Testing, a credit for participating/profit sharing and adjustable products was set at the total amount of liabilities for future bonuses or other discretionary benefits. This was applied after aggregating the total of management actions post-diversification across the risks. Volunteer IAIGs did not object to this overall approach and it will be repeated in 2016 Field Testing.

325. In 2015 Field Testing, the definition of management actions was confined to reductions in liabilities for future bonuses or other discretionary benefits. The 2015 Technical Specifications further clarified that management actions should be realistic and cannot be contrary to the Volunteer IAIG's obligations to policyholders or to legal provisions applicable to the Volunteer IAIG.

6.5.2 2016 Field Testing

326. In preparation for 2016 Field Testing, the IAIS considered that for some (multi-annual) health products, IAIGs can contractually change the level of premium (within some constraints), for instance when the global claim experience is significantly worse than expected. This option can play an important role in the management of the portfolio of contracts and it is directly comparable to the IAIG's ability to adjust the level of benefits. To appropriately reflect the risk profile of the contract in the solvency requirements, premium increases should be recognised as future management actions (provided that this ability fulfils the general requirements applicable to future management actions for their recognition in the current estimate calculation). In particular, this is necessary to differentiate between a contract where the IAIG has no ability to amend the premium (high risk profile), and a contract providing the same guarantee, but with a (limited) ability of the IAIG to amend the level of premiums (lower risk profile).

327. For these reasons, the approach for 2016 Field Testing extends the definition of "Management Actions" to include limited premium increases for Health business as described above.

328. It is important to note that when an IAIG has the unilateral right to amend the premium to the extent that the premium fully reflects the risk, such premium is not considered if it is outside the contract boundaries and, to that extent, the impact of future management actions on those premiums is irrelevant. The ability of the IAIG to amend the premium is then reflected through shorter contract boundaries, and therefore a smaller risk basis, rather than through future management actions in the capital requirement calculation.

329. Management actions should be substantiated in order to be taken into account. For example, management actions should be:

a) documented in a formal plan with an approval process at the right level of authority, including regulatory approval, where required; and

b) supportable through an objective review over prior periods, where applicable.

Question 100. Is this extension of the definition of management actions to include limited premium increases for health business appropriate? Please explain.

6.5.3 Open issues for consultation

330. The open issues for which the IAIS seeks input are:

a) further extension of management actions; and

b) cap on management actions.

6.5.3.1 Further extension of management actions

331. The IAIS is considering whether or not it is appropriate to allow for the recognition of premium adjustments in management actions on a wider basis than just limited premium increases for health business. For example, the IAIS is considering life contracts where management has the ability within the contract provisions to increase Cost of Insurance (COIs) on a portfolio basis subject to maxima in the contract.

332. The IAIS is currently assessing whether or not a possible extension to management actions to include future premium increases is consistent with the method applied to determine the effect of management actions in a stress scenario.

Question 101. Are there examples of other instances for which an extension of management actions to allow for the recognition of premium adjustments may be appropriate? Please explain.

6.5.3.2 Cap on management actions

333. The approach for 2016 Field Testing limits the effect of management actions to total insurance liabilities for future bonuses or other discretionary benefits; however, future premium increases are not captured in these discretionary benefits. One options to deal with this inconsistency is to allow for the effect of premium increases in the determination of the current estimate post-stress before the application of management actions related to future bonuses or other discretionary benefits.

Question 102. Is the method to determine the effect of management actions in a stress scenario inconsistent with the recognition of future premium increases in stress scenarios? If "yes", please suggest a solution.

6.5.4 General comments

Question 103. Are there any further comments on management actions that the IAIS should consider in the development of ICS Version 1.0? If "yes", please explain with sufficient detail and rationale.

6.6 Mortality and Longevity risk

6.6.1 Background

334. The Mortality and Longevity risk section of the 2014 ICS CD consulted on four key issues:

a) the use of a stress approach or a factor-based approach;

b) the treatment of participating products within Mortality and Longevity risk;

c) the sub-components to include in the calculation (ie level, trend, volatility); and

d) geographic differentiation of the level of stress.

335. The rest of this section summarises the key decisions made with respect to Mortality and Longevity risk and published in the IAIS resolutions to comments received on the 2014 ICS CD, available on the IAIS website.

336. A stress approach will be maintained for Mortality and Longevity risk for 2016 Field Testing, including allowance for management actions that reduce liabilities for future bonuses and other discretionary benefits of participating policies.

337. The 2015 Field Testing approach to Mortality risk used a simple stress approach whereby the risk charge was determined by stressing only the level of mortality. The Mortality risk calculation applied only to those policies subject to Mortality risk.

338. The 2015 Field Testing approach to Longevity risk used a simple stress approach whereby the risk charge was determined by stressing only the level of longevity. The Longevity risk calculation applied only to those policies subject to Longevity risk.

339. For both Mortality and Longevity risk, IAIGs were asked to provide data according to the ICS defined geographical groupings:

- EEA and Switzerland[37]
- US[38] and Canada
- China[39]
- Japan
- Other developed markets[40]
- Emerging markets[41]

[37] Including Austria, Belgium, Bulgaria, Croatia, Republic of Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom, Iceland, Liechtenstein, Norway and Switzerland.
[38] Including NAIC members outside of the 50 United States: American Samoa, Guam, Northern Mariana Island, Puerto Rico and US Virgin Islands
[39] Including Macao SAR
[40] Australia, New Zealand, Israel, San Marino, Korea, Singapore, Chinese Taipei, Hong Kong SAR
[41] See Table E of the Statistical Appendix of the IMF World Economic Outlook April 2016 (http://www.imf.org/external/pubs/ft/weo/2016/01/pdf/text.pdf). For completeness, if a country is not listed in the other regions in this list, it is classified as "emerging market".

340. Both the Mortality and Longevity risk charges were calculated as the change in net asset value (NAV) after applying the prescribed shock (net of reinsurance and not including changes in the MOCE), where NAV was defined as the value of assets less insurance liabilities.

341. The shock for Mortality risk was a 15% increase in mortality rates at all ages for all policies where an increase in mortality rates would lead to a decrease in the NAV, ie (1.15) x base mortality assumptions.

342. The shock for Longevity risk was a 20% decrease in mortality rates at all ages for all policies where a decrease in mortality rates would lead to a decrease in the NAV, ie (0.8) x base mortality assumptions.

343. Volunteer IAIGs were asked to determine the change in NAV both before and after management actions for both Mortality and Longevity risk. Mortality and Longevity risk shocks were not differentiated by geographical regions in 2015 Field Testing. Further details on the approach for 2015 Field Testing can be found in the 2015 Technical Specifications. A high level summary of results from 2015 Field Testing is included in section 6.1.1 of this document.

344. Volunteer IAIG feedback regarding the 2015 approach to Mortality and Longevity risk was that the stress levels were overly high and trend risk should be explicitly stressed since Volunteer IAIG's are more likely to be exposed to trend risk than level risk due to the size of their portfolios.

6.6.2 2016 Field Testing

345. Building on the 2015 Field Testing approach to Mortality and Longevity risk, the 2016 approach has lowered the calibration of the level stress and an explicit stress on the trend component has been added for Longevity risk. The stress levels do not vary by geographical region. The full approach to Mortality and Longevity risk can be found in the Mortality and Longevity risk sections of the 2016 Technical Specifications.

346. The shock to Mortality risk is a simultaneous shock to mortality rates and mortality improvement rates, defined as an increase of 10% in mortality rates [ie (1.10 x base mortality assumptions)].

Question 104. Should the trend component be explicitly considered within Mortality risk? Please explain.

Question 105. Are the stress levels for Mortality risk appropriate? Please explain. If "no", please provide supporting evidence and rationale for a different stress level.

347. The shock to Longevity risk is a simultaneous shock to mortality rates and mortality improvement rates, defined as:

a) an increase of 1% in mortality improvement rates (ie base mortality improvement assumptions + 1%); and

b) a decrease of 15% in mortality rates (ie (0.85 x base mortality assumptions)).

Question 106. Should the trend component be explicitly considered within Longevity risk? Please explain.

Question 107. Are the stress levels for Longevity risk appropriate? Please explain. If "no", please provide supporting evidence and rationale for a different stress level.

6.6.3 Open issues for consultation

348. The open issues for which the IAIS seeks input are the calibration of stresses and geographic differentiation.

349. The IAIS is undertaking a voluntary data collection exercise with Volunteer IAIGs with the aim to determine an appropriate calibration level for mortality and longevity stresses and whether or not the stress level should vary by geographic region.

Question 108. Is there evidence to support the use of stresses for Mortality and Longevity risk that vary by geographical region? Please explain and provide supporting evidence.

Question 109. Is there a specific methodology and reference data that the IAIS should use to determine appropriate mortality and longevity stress levels by geographic region? Please explain.

6.6.4 General comments

Question 110. Are there any further comments on Mortality and Longevity risk that the IAIS should consider in the development of ICS Version 1.0? If "yes", please explain with sufficient detail and rationale.

6.7 Morbidity/Disability risk

6.7.1 Background

350. The Morbidity/Disability risk section of the 2014 ICS CD consulted on four key issues:

a) the products covered by this risk charge;

b) the types of benefit payment approaches covered by this risk charge;

c) the appropriateness of the distinction between products that are "similar to life" and "not similar to life"; and

d) appropriateness of the example stress scenario.

351. The 2015 Field Testing approach to Morbidity/Disability risk involved the simultaneous occurrence of:

a) a relative increase of 30% of the incidence (inception) rate;

b) a relative decrease of 20% of the recovery rate; and

c) a relative increase of 5% for medical claim payments combined with an absolute increase of the inflation rate that varies by geographical region as follows:

i) 1% for EEA and Switzerland, U.S. and Canada, Japan and Other developed countries; and

ii) 3% for emerging markets.

352. Morbidity/Disability risk was applied only to guarantees pursued on ”similar to life” technical bases. Therefore, a distinction was made between products that should be included in life segments, and thus be included in the scope of Morbidity/Disability risk, and those that should be included in non-life segments and thus, not in scope for this risk.

353. The 2015 Technical Specifications identified a non-exhaustive list of the major types of Morbidity/Disability products that should be considered as “similar to life” and within the scope of Morbidity/Disability risk.

354. The Morbidity/Disability risk charge was calculated as the change in NAV after applying the prescribed shock (net of reinsurance and not including changes in the MOCE), where NAV was defined as the value of assets less insurance liabilities. Volunteer IAIGs were asked to determine the change in NAV both before and after management actions for Morbidity/Disability risk. Further details on the approach for 2015 Field Testing can be found in the 2015 Technical Specifications. A high level summary of results from 2015 Field Testing is included in section 6.1.1 of this document.

355. The analysis of data received during 2015 Field Testing revealed that there were inconsistent interpretations and simplifications made by Volunteer IAIGs, affecting the consistency and reliability of data. In addition, several Volunteer IAIGs commented that the design of the stress was overly complex and the calibration was too high for certain lines of business.

6.7.2 2016 Field Testing

356. The 2016 Field Testing exercise is testing two alternative designs to calculate the capital requirements for health business, including Morbidity/Disability risk.

6.7.2.1 Option 1 - Health risk

357. The Health risk approach removes the distinction between “similar to life” and “not similar to life” that was part of 2015 Field Testing and creates a separate Health risk charge

such that a shock is applied to the level of claims rather than incidence rates, recovery rates and payment levels.

358. Under this approach, all insurance risks related to health business are captured by the new health module and are no longer included in the life and non-life modules and risk charges. Given that its applicability is limited to health business, this approach implies the deletion of the Morbidity/Disability risk from the Life insurance risk module. The health-specific lines of business are also removed from the non-life Premium and Claims Reserve risk charge calculations.

359. The Health risk charge consists of an underwriting risk charge and a lapse risk charge.

360. Four health segments have been defined and the health underwriting shock will vary between the segments. The four segments, as defined in the 2016 Technical Specifications, are:

a) Category 1: Medical expenses

b) Category 2: Lump sum in case of health event

c) Category 3: Short-term recurring payments

d) Category 4: Long-term recurring payments

361. In categories 3 and 4 (recurring payments), a distinction is made between claims already incurred and claims not yet incurred to recognise the lower uncertainty of claims already incurred.

362. The Health underwriting risk charge is calculated as the change in NAV after applying the prescribed shock (net of reinsurance and not including changes in the MOCE), where NAV is defined as the value of assets less insurance liabilities. The shock is applied directly to the amount of expected claim and expense payments as projected in the calculation of the current estimate.

363. The Health lapse risk charge is calculated as the change in NAV after applying the prescribed shock, where NAV is defined as the value of assets less insurance liabilities. The shock is an immediate lapse of 30% of all surrenderable, retail health policies and 50% of all surrenderable, non-retail health policies.

Question 111. Is the proposed segmentation for health business appropriate? Please explain.

Question 112. Are the stress levels for the health segments appropriate? Please explain. If "no", please provide supporting evidence and rationale for a different stress level.

Question 113. Is the shock for Health lapse risk appropriate? Please explain.

6.7.2.2 Option 2 - Morbidity/Disability risk

364. The Morbidity/Disability risk approach is similar to the approach used in 2015 Field Testing. This approach maintains the distinction between those products that are considered "similar to life" and "not similar to life". The key difference compared to the 2015 approach is that "similar to life" insurance obligations are split into two mutually exclusive segments that receive different stresses. The full details of the Morbidity/Disability approach can be found in the Morbidity/Disability risk section of the 2016 Technical Specifications.

365. The two product segments for the Morbidity/Disability approach are:

a) medical treatment insurance: products that provide medical treatment due to illness, accident, disability or infirmity with financial compensation that is directly linked to the cost of such treatment; and

b) financial compensation insurance: products that provide a financial compensation arising from illness, accident, disability or infirmity that is not directly linked to the cost of such treatment.

366. The risk charge for the approach to Morbidity/Disability risk is the sum of the risk charges for the two specified product segments, where the stresses are defined as:

a) medical treatment insurance: A relative increase of 5% for medical claim payments combined with an absolute increase of the inflation rate that varies by geographical region as follows:

   i) 1% for EEA and Switzerland, U.S. and Canada, Japan and Other developed countries; and

   ii) 3% for emerging markets.

b) financial compensation insurance: the maximum of the incidence (inception) rate stress and the recovery rate stress, defined as

   i) a relative increase of 25% of the incidence (inception) rate in the first year and 15% thereafter; and

   ii) a relative decrease of 20% of the recovery rate.

Question 114. Are the two product segments as defined appropriate? Please explain.

Question 115. Are the stress levels appropriate? Please explain. If "no", please provide supporting evidence and rationale for a different stress level.

6.7.3 Open issues for consultation

367. The open issues for which the IAIS seeks input are:

a) calibration of stresses and geographic differentiation; and

b) a single approach for adoption in ICS Version 1.0

6.7.3.1 Calibration of stresses and geographic differentiation

368. The IAIS is collecting historical experience data from Volunteer IAIGs on both approaches: Health risk and Morbidity/Disability risk. This data will be used to validate the appropriateness of the calibration for both options, as well as to explore differentiating the shocks by product type and geographic regions.

Question 116. Is there evidence that the volatility of health claims (Option 1) varies by geographical region, thereby justifying a more refined granularity? Please explain.

Question 117. Is there a specific methodology and reference data that the IAIS should use to determine appropriate Health stress levels by geographic region? Please explain.

Question 118. Is there evidence to support the use of stresses for Morbidity/Disability risk (Option 2) that vary by geographical region? Please explain and provide supporting evidence.

Question 119. Is there a specific methodology and reference data that the IAIS should use to determine appropriate Morbidity/Disability stress levels by geographic region? Please explain.

6.7.3.2 Single approach to Morbidity/Disability for ICS Version 1.0

Question 120. Is Option 1 (Health risk) or Option 2 (Morbidity/Disability risk) the most appropriate to adopt within ICS Version 1.0? Please explain.

Question 121. Should any revisions or modifications be made to the approach selected in Question 120 to make it more appropriate for ICS Version 1.0? Please explain.

6.7.4 General comments

Question 122. Are there any further comments on Health or Morbidity/Disability risk that the IAIS should consider in the development of ICS Version 1.0? If "yes", please explain with sufficient detail and rationale.

6.8 Lapse risk

6.8.1 Background

369. The Lapse risk section of the 2014 ICS CD consulted on five key issues:

a) the scope of key risks relating to lapses (ie level and trend and mass lapse);

b) proposed geographical grouping;

c) whether the mass Lapse risk charge should depend on product type;

d) the proposed methodology; and

e) whether Lapse risk is relevant for non-life business.

370. This section summarises the key decisions made on Lapse risk with respect to the comments received on the 2014 ICS CD. The IAIS will retain the scope as published in the 2014 CD; however, further clarifications will be provided based on stakeholder comments.

371. The Lapse risk charge applies only to life business. For non-life business, the Lapse risk is implicitly accounted for in the risk charge. For health business, there is an explicit stress for Lapse risk in the determination of the risk charge.

372. The 2015 Field Testing approach to Lapse risk was to take the higher of:

a) Level and Trend: ±40%; and

b) Immediate Mass Lapse: 30% (retail), 50% (non-retail) for products with positive surrender strain.

373. For Lapse risk, Volunteer IAIGs were asked to provide data according to the ICS-defined geographical groupings:

- EEA and Switzerland
- US and Canada
- China
- Japan
- Other developed markets
- Emerging markets

374. Both the level and trend and mass lapse risk charges were calculated as the change in NAV after applying the prescribed shock (net of reinsurance and not including changes in the MOCE), where NAV was defined as the value of assets less insurance liabilities.

375. The level and trend component of Lapse risk was determined by applying two independent shocks:

a) upward shock: an increase of 40% in the assumed option take-up rates in all future years for all homogenous groups adversely affected by such risk; and

b) downward shock: a decrease of 40% in the assumed option take-up rates in all future years for all homogenous groups adversely affected by such risk.

376. Volunteer IAIGs were asked to determine the change in NAV both before and after management actions for both the upward and downward shocks of the level and trend component of Lapse risk. The shock that produces the larger decrease in NAV after management actions for each homogenous group was used in the calculation of the level and trend component of the Lapse risk charge.

377. The mass lapse shock was an immediate surrender of 30% of retail policies with positive surrender strain, an immediate surrender of 50% of non-retail policies with positive surrender strain, and 0% surrender for all other policies. Lapse risk shocks were not differentiated by geographical regions in 2015 Field Testing. Further details on the approach for 2015 Field Testing can be found in the 2015 Technical Specifications. A high level summary of results from 2015 Field Testing is included in section 6.1.1 of this document.

378. Volunteer IAIG feedback on the 2015 approach to Lapse risk was that the stress levels were overly high for some regions. Feedback was also received that mass lapse risk should not differentiate between policies with positive and negative surrender strain because in the situation of a loss of confidence, a policyholder's decision to lapse would not consider surrender strain.

6.8.2 2016 Field Testing

379. Building on the 2015 Field Testing approach to lapse, the 2016 approach remains the same in terms of design. The Lapse risk charge remains the higher of the level and trend component and the mass lapse component. The stress for the level and trend component remains unchanged. However, the mass lapse component no longer differentiates between products with positive and negative surrender strain, and will be applicable to all surrenderable products. The stress levels do not vary by geographical region. The full approach to Lapse risk can be found in the Lapse risk section of the 2016 Technical Specifications.

380. The level and trend component of Lapse risk is determined by applying two independent shocks:

a) upward shock: an increase of 40% in the assumed option take-up rates in all future years for all homogenous groups adversely affected by such risk; and

b) downward shock: a decrease of 40% in the assumed option take-up rates in all future years for all homogenous groups adversely affected by such risk.

381. The mass lapse shock is an immediate surrender of 30% of retail policies and an immediate surrender of 50% of non-retail policies for surrenderable policies (ie policies that offer some form of value upon surrender or termination).

382. In 2015 Field Testing, lapse or persistency changes due to changes in market conditions were addressed under Market risk. Although the effect from market changes may be experienced through lapses, increases in coverage or unexpected persistence, the risk driver for many such changes is due to market changes. For instance, in an equity stress situation, the effect on lapse rates should be considered in respect of this particular risk. The IAIS elaborated in the published frequently asked questions (FAQ) for the 2015 Quantitative Field Testing that the level and trend component need not be determined for such products with dynamic lapse function such as variable annuities and universal life products.[42]

383. Experience from 2015 Field Testing indicates that there are merits to requiring an explicit level and trend shock to products with dynamic lapse functions. For 2016 Field Testing, the level and trend component as well as the mass lapse component applies to products with a dynamic lapse function. The level and trend component shock is to be applied to the base rate of the dynamic lapse function.

Question 123. Is the stress level for the level and trend component appropriate? Please explain. If "no", please provide supporting evidence and rationale for a different stress level.

Question 124. Is the stress level for Mass Lapse risk appropriate? Please explain. If "no", please provide supporting evidence and rationale for a different stress level.

Question 125. Is the treatment of dynamic lapses appropriate? Please explain. If "no", please suggest an alternative treatment.

Question 126. Is the approach of taking the maximum of the level and trend components and the mass lapse component appropriate? Please explain.

6.8.3 Open issues for consultation

384. The open issues for which the IAIS seeks input are:

a) calibration of stresses and geographic differentiation; and

b) treatment of surrender strain for determining mass lapse component.

6.8.3.1 Calibration of stresses and geographic differentiation

385. The IAIS is collecting historical lapse experience data from Volunteer IAIGs in order to validate the appropriateness of the calibration of the level and trend component and mass

[42] A dynamic lapse function typically varies the lapse rate used in the calculation of liabilities depending on the difference between the return the insurer is providing on its policies and the returns provided by competitors.

lapse component, as well as to explore differentiating the shocks by product type and geography.

Question 127. **Is there evidence to support the use of stresses for Lapse risk that vary by geographical region? Please explain and provide supporting evidence.**

Question 128. **Is there a specific methodology and reference data that the IAIS should use to determine appropriate lapse stress levels by geographic region? Please explain.**

6.8.3.2 Treatment of surrender strain for determining mass lapse component

386. The IAIS is considering the appropriate treatment of positive and negative surrender strain in the determination of mass lapse. In 2015 Field Testing, the mass lapse stress was applied only to those surrenderable policies with positive surrender strain. In 2016 Field Testing, the mass lapse stress is applied to all surrenderable policies, whether the surrender strain is positive or negative. It is expected that the mass Lapse risk charge will be lower in 2016 Field Testing due to the cross-subsidisation of policies with positive surrender strain and policies with negative surrender strain.

Question 129. **Should the mass lapse stress be applied to all surrenderable policies, regardless of surrender strain? Please explain.**

Question 130. **Should the mass lapse stress be applied only to surrenderable policies with positive surrender strain? Please explain.**

6.8.4 General comments

Question 131. **Are there any further comments on Lapse risk that the IAIS should consider in the development of ICS Version 1.0? If "yes", please explain with sufficient detail and rationale.**

6.9 Expense risk

6.9.1 Background

387. The Expense risk section of the 2014 ICS CD consulted on the proposed methodology.

388. Comments received on Expense risk on the 2014 ICS CD were considered and resolutions of those comments were published on the IAIS website. The key decision made with respect to Expense risk and published on the IAIS website is that the Expense risk charge

applies only to Life business. For Non-life business and Health business, the Expense risk is implicitly accounted for in the respective risk charges.

389. The 2015 Field Testing approach to Expense risk used a simple stress approach whereby the risk charge was determined by simultaneously stressing both the best estimate unit expense assumption and the best estimate expense inflation assumption.

390. For Expense risk, Volunteer IAIGs were asked to provide data according to the ICS defined geographical groupings:

- EEA and Switzerland
- US and Canada
- China
- Japan
- Other developed markets
- Emerging markets

391. The Expense risk charge was calculated as the change in NAV after applying the prescribed shock (net of reinsurance and not including changes in the MOCE), where NAV was defined as the value of assets less insurance liabilities.

392. The shock was defined as an increase of x% in unit expense assumptions [ie *(1+x%) x base unit expense assumptions*] and an increase of y% per annum in expense inflation (ie *base expense inflation assumption + y%*).

Table 11. Expense risk shocks

Geographic Region	**Unit expense stress (x)**	**Expense inflation stress (y)**
EEA and Switzerland	6%	1%
US and Canada	6%	1%
Japan	6%	1%
Other developed markets	8%	2%
China	8%	3%
Emerging markets	8%	3%

393. Volunteer IAIGs were asked to determine the change in NAV both before and after management actions for Expense risk.

394. Further details on the approach for 2015 Field Testing can be found in the 2015 Technical Specifications. A high level summary of results from 2015 Field Testing is included in section 6.1.1 of this document.

395. Volunteer IAIG feedback of the 2015 approach to Expense risk was that the stress levels were overly high for some regions, particularly the expense inflation stress for emerging markets.

6.9.2 2016 Field Testing

396. Building on the 2015 Field Testing approach to expense and the general inflation data used to validate the inflation shocks, the 2016 approach remains the same in terms of design and the stress levels. The full approach to Expense risk can be found in the Expense risk section of the 2016 Technical Specifications.

Question 132. Is the stress level for Expense risk appropriate? Please explain. If "no", please provide supporting evidence and rationale for a different stress level.

6.9.3 Open issues for consultation

397. The open issues for which the IAIS seeks input are:

a) calibration of stresses and geographic differentiation;

b) aggregation of unit expense and expense inflation; and

c) compounding effect of expense inflation.

6.9.3.1 Calibration of stresses and geographic differentiation

398. The IAIS is collecting historical expense data from Volunteer IAIGs in order to validate the appropriateness of the calibration of the unit expense and expense inflation, as well as to validate differentiating the shocks by geographic region.

Question 133. Is there evidence to support the use of stresses for Expense risk that vary by geographical region? Please explain and provide supporting evidence.

Question 134. Is there a specific methodology and reference data that the IAIS should use to determine appropriate expense stress levels by geographic region? Please explain.

Question 135. Is there evidence that the volatility of expense inflation experience for insurance companies varies from that of general inflation? Please explain.

6.9.3.2 Aggregation of unit expense and expense inflation

399. The current approach to aggregating the unit expense and expense inflation stresses is to add them together. Feedback was received that assuming a 100% correlation between these components is excessive.

Question 136. Should the IAIS assume 100% correlation between unit expense and expense inflation? Please explain. If "no", how could correlation be built into the assumptions?

Question 137. Are there data sources available that could be used to calibrate the correlation between unit expense and expense inflation? If "yes", please provide information on the source.

6.9.3.3 Compounding effect of inflation expense

400. The compounding effect of expense inflation could result in very high risk charges for products with long durations. Feedback was received that it is unreasonable to assume that IAIGs would allow expenses to keep increasing without taking action.

Question 138. Should the IAIS consider introducing a cap to moderate the compounding effect of expense inflation? If "yes", what would be a reasonable level for the cap? Please provide rationale for the proposed level of the cap.

6.9.4 General comments

Question 139. Are there any further comments on Expense risk that the IAIS should consider in the development of ICS Version 1.0? If "yes", please explain with sufficient detail and rationale.

6.10 Premium and Claims Reserve Risks

401. Premium risk covers risks associated with the timing, frequency and severity of future insured events. This includes the risk posed by business to be written over the next year along with already written policies.

402. Claims Reserve risk covers 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. This includes all possible claims under policies, including claims that are not yet known about but would be covered under the policy. The risks associated with catastrophe events that have already occurred are included within Claims Reserve risk.

403. Premium and Claims Reserve risks are applicable to Non-life business only because the risks for life and health business are captured within other relevant components. Any overlap with Health and Life risks is avoided using segmentation definitions.

404. Premiums reported under Premium risk may include catastrophe-exposed premiums that are also assessed under Catastrophe risk. Double counting of future Catastrophe risk across the Premium and Catastrophe risk components is proposed to be avoided by an appropriate adjustment to the Premium risk factors.

6.10.1 2014 ICS CD

405. In the 2014 ICS CD, the IAIS consulted on general issues relating to the design of Premium and Claims Reserve risks. This included the scope of the risks, segmentation used for lines of business, geographical grouping, and the design of the risk charge (eg applying a factor to net current estimates). Further details can be found in the IAIS resolution to comments received on the 2014 ICS CD, on the IAIS website.

6.10.2 2015 and 2016 Field Testing

406. Comments received on the 2014 ICS CD informed the design of the Premium and Claims Reserve risk charge in 2015 and 2016 Field Testing. The following paragraphs highlight some key features of the approach in 2015 and 2016 Field Testing. For complete details please refer to the 2015 and 2016 Field Testing packages which are publicly available on the IAIS website. A high level summary of results from 2015 Field Testing is included in section 6.1.1 of this document.

6.10.3 Segmentation, methodology and aggregation

407. A factor-based approach is being used whereby factors are applied to exposure measures. The exposures used for Field Testing are projected net earned premiums and net current claims estimates. Volunteer IAIGs were asked to report these exposures using segments used for jurisdictional regulatory reporting. Exposures to Premium and Reserve risks should be reported based on the location of the risks. Each reporting line of business is assigned, in consultation with the respective jurisdictional supervisor, to:

a) one of six IAIS categories for the purpose of aggregation: property-like, liability-like, other, non-traditional other, mortgage and credit. The first four categories are aggregated within the Non-life risk component, while the last two categories (mortgage and credit) are aggregated with Real Estate and Credit risks, respectively; and

b) a risk bucket for the purpose of calculating the risk charge. The allocation of each line of business to a risk charge bucket was initially made (for the 2015 Field Testing) using supervisory judgement to reflect the volatility of each line of business. Starting in 2016, the IAIS is performing a data driven calibration exercise to refine the preliminary 2015 calibration. Please refer to the 2016 Technical Specifications and the open issues section below for more details. For 2015 and well as 2016 Field Testing, eight buckets were used for premiums and eight buckets were used for reserves.

408. A multi-step aggregation approach within the non-life component was adopted, in the following order:

a) premium and Reserve risk is aggregated for each line of business;

b) two of the IAIS categories (mortgage and credit) are aggregated with other risks (Real Estate and Credit risks, respectively). Risk charges within the remaining four IAIS categories are added and then aggregated across the four IAIS categories within a region, with a correlation matrix applied to the risk charge for each of the four IAIS categories; and

c) risk charges for the four IAIS categories aggregated within the non-life component are aggregated across the geographical regions (EEA and Switzerland, US and Canada, Japan, China, other developed markets, other emerging markets), using a correlation matrix applied to the risk charge for each region. The mortgage and credit categories are added across the regions and to the Real Estate and Credit risk charges, respectively.

409. 2015 Field Testing indicated (see **Table 12** below) that, using the methodology described above and the correlation factors specified, the dominant source of diversification within the Premium and Claims Reserve risks component was geographic diversification.

Table 12. Split of the Non-Life risk charge in 2015 Field Testing

Risk charge components as a percentage of the total Non-life risk charge	
Undiversified Premium risk charge	70%
Undiversified Reserve risk charge	80%
Impact of diversification between Premium and Reserve risks	-15%
Impact of diversification between four IAIS categories	-10%
Impact of diversification between geographical regions	-25%
Non-Life risk charge	**100%**

410. The figures in **Table 12** above are calculated for the full 2015 Field Testing sample and vary across individual Volunteer IAIGs. For instance some Volunteer IAIGs have a higher contribution from Premium risk suggesting a dominant exposure to property-like risk, while other Volunteer IAIGs have a higher contribution from Claims Reserve risk suggesting a dominant exposure to liability-like risks.

6.10.4 Open issues for consultation

411. The open issues for which the IAIS seeks input are:

a) Use of jurisdictional reporting segments;

b) Diversification within Non-Life risks;

c) Calibration approach; and

d) Adjustments needed when calibrating data.

6.10.4.1 Use of jurisdictional reporting segments

412. The use of jurisdictional segments is intended to ensure the practicality and accuracy of reporting, while the mapping of jurisdictional segments to a limited set of buckets and risk factors achieves an increased level of comparability across segments. The range of segments used for 2016 Field Testing is subject to revision. The IAIS may consider expanding the list if it appears that the current list does not appropriately reflect the portfolio mix of IAIGs. Alternatively, the IAIS may consider reducing the list to a smaller number of standardised segments to remove the difference of treatment (eg granularity) resulting from the use of jurisdictional reporting segments.

413. Using a wide range of reporting segments involves defining and mapping a very large number of jurisdictional segments, many of which may not be material to any IAIG. In 2015 Field Testing, the top 20 Non-Life lines of business accounted for close to 80% of total Premium and Claims Reserve risk charges across all Volunteer IAIGs.

Question 140. Non-life exposures should be reported based on the location of risks to ensure consistency across IAIGs. Regarding the reporting segment, which of the following should be used:

- ☐ **A more compact standardised segmentation. If "yes", please explain the rationale.**
- ☐ **A more detailed reporting segmentation based on existing jurisdictional reporting segments. If "yes", please explain how consistent treatment across segments could be ensured.**

414. The Premium Risk charge is calculated by applying a factor to the greater of the net earned premiums for the past year and net premium to be earned during the next year, both net of reinsurance. The other exposure measure being considered is net premiums charged, also known as net written premium.

415. The Claims Reserve Risk charge is calculated by applying a factor to the net current estimates. This is the current estimate for claims that have already occurred, net of reinsurance. The net current estimates are being collected on a discounted and undiscounted basis, though use of the discounted amount is being considered for the ICS standard method.

Question 141. Should projected net earned premiums be used as the exposure base for Premium risk? If "no", please specify what other measure should be used and why.

Question 142. Should net current claims estimates be used as the exposure base for Claims Reserve risk? If "no", please specify what other measure should be used and why.

6.10.4.2 Diversification within Non-Life risks

416. For 2016 Field Testing, diversification is applied explicitly between Premium and Claims Reserve risks, between each of the four IAIS categories, and between geographical regions. No diversification is applied explicitly within an IAIS category, and no geographic diversification is applied explicitly within a single geographic region. However, some additional diversification is implicitly reflected within the reporting segments. In particular, the data driven calibration exercise described in the following section will capture the diversification within each reporting segment by reflecting the combined volatility within the segment. For instance, the segments from the emerging markets geographical region are likely to display a lower volatility – reflecting the diversification – than similar segments from individual countries part of the emerging markets geographical region.

417. Stakeholders and Volunteer IAIGs have commented that geographical diversification should be recognised within regions in addition to between regions.

418. At the same time, for the purposes of a standard method it is appropriate to confine the explicit recognition of diversification and correlations to the most material sources of diversification in order to achieve a reasonable balance between practicality and granular risk sensitivity.

419. The IAIS will continue investigating appropriate ways to reflect diversification within Premium and Claims Reserve risks in the standard method, as part of calibration work (see the following section) leading to ICS Version 1.0.

Question 143. For the purposes of the ICS standard method, is the approach taken in 2015 and 2016 Field Testing adequate to account for diversification effects in Premium and Claims Reserve risks? If "no", please provide a more appropriate alternative suggestion including rationale, keeping in mind the need to apply a consistent methodology across all jurisdictions, and to balance practicality and materiality with risk sensitivity in a standard method.

420. The correlation factors applied within the Non-life component aim at appropriately capturing any tail correlation and non-linear dependencies between subcategories of Non-life risks.

421. The correlation factors for the aggregation of Premium and Claims Reserve risks differ depending on the IAIS categories:

Table 13. Correlation between Premium and Claims Reserve risks

Category	Correlation factor
Property-like	25%
Liability-like	75%
Other	50%
NT other	50%
Mortgage	75%
Credit	75%

Question 144. Are the correlation factors appropriate for the ICS standard method? If "no", please provide rationale and alternative suggestions supported by evidence.

422. Some diversification is explicitly recognised between IAIS categories (Property-like, Liability-like, Other, Non-traditional Other) within each region. A 50% correlation factor is applied between IAIS categories.

Question 145. Is the 50% correlation factor between categories appropriate for the ICS standard method? If "no", please provide rationale and alternative suggestions supported by evidence.

423. Some diversification is explicitly recognised between regions. A 25% correlation factor is applied between reporting regions.

Question 146. Is the 25% correlation factor between regions appropriate for the ICS standard method? If "no", please provide rationale and alternative suggestions supported by evidence.

6.10.4.3 Calibration Approach

424. A goal for the ICS standard method is to have factors that reflect a consistent understanding of risks for each segment. Premium and Reserve risk factors used in 2015 Field Testing have been partially refined in 2016 Field Testing using initial calibration work performed on non-life data available to supervisors. No single methodology has yet been decided. A variety of statistical methods were used to fit distributions to historical loss ratios and reserve experiences.

425. As part of 2016 Field Testing, and in order to perform a more robust calibration exercise to determine factors for ICS Version 1.0, Volunteer IAIGs have been encouraged to

provide historical premium and loss data for non-life business. Please refer to the 2016 Field Testing package for details of this supplementary data request.

426. The IAIS intends to apply a common methodology for calibrating factors to calculate the Premium and Claims Reserve risk charge for the ICS. As part of the calibration process, calibration methods will be applied to each reporting segment for which adequate data is provided. For those reporting segments without adequate data provided, a tentative factor will be allocated based on supervisory judgement. The IAIS then intends to review the appropriateness of the eight existing buckets and their associated factors in light of the results of the calibration exercise. Technical input is sought on appropriate calibration methodologies to be used and on the approach to be taken for segments without adequate data.

Question 147. Is there a methodology that the IAIS could use for the calibration of Premium and Claims Reserve risk factors that can be easily and consistently applied across jurisdictional lines of business using the supplementary data requested in 2016 Field Testing? If "yes", please provide specific details, technical references and rationale. Please indicate if some methods are more appropriate for particular segments or particular types of data.

Question 148. In the absence of adequate data, is there a way that the IAIS could determine appropriate Premium and Claims Reserve risk factors for lines of business. If "yes", please explain.

Question 149. Is there a methodology that the IAIS could use to determine the appropriate number of buckets and factors, taking into consideration the context of the ICS standard method and the aim to achieve comparable results across comparable risks? Please explain.

6.10.4.4 Adjustments Needed When Calibrating Data

427. The data available for calibration does not in all cases naturally lend itself to the categories and definitions used in 2016 Field Testing. Detailed non-life reporting is generally on an undiscounted basis; breakdowns of development history (which is necessary for one-year factors) and catastrophe experience are often unavailable. The most difficult of these to adjust for is likely the potential double count between Premium and Catastrophe risks. It is proposed to avoid double counting by appropriately adjusting the Premium risk factors as part of the calibration process. Ideally this would be based on historical data both with and without catastrophe experience. In reality, this data is unlikely to exist in many instances and, even where it does, catastrophes may not be defined in a manner consistent with the ICS. When not possible to make direct use of data, other adjustments to premium factors will be considered.

Question 150. Are there practical methods for determining these adjustments in the context of the ICS standard method (considering, in particular, the trade-off between materiality of the impact and complexity of the method)? If "yes", please provide details. If necessary please differentiate by risk and reporting segments.

6.10.5 General comments

Question 151. Are there any further comments on Premium and Claims Reserve risks that the IAIS should consider in the development of ICS Version 1.0? If "yes", please explain with sufficient detail and rationale.

6.11 Catastrophe Risk

428. Catastrophe risk covers risks associated with claims events that have yet to occur, and are risks associated with low frequency/high severity events, often arising from an aggregation of multiple claims arising from a single source. It considers all losses arising in the next 12 months, not just from a single event, and may take into account expected business volumes. For clarity, this risk is applied to both life and non-life business.

429. Catastrophe risks cannot be realistically assessed using a simple factor-based approach, due to the complex and heterogeneous nature of exposures and risk mitigation arrangements entered into by IAIGs. In practice, the assessment will need to be quantified using models and standardised stress and scenario test techniques. It is therefore necessary to rely on IAIG self-assessments in the standard method, including the use of partial models for natural Catastrophe risks. However, these should be subject to supervisory oversight, which will increase as catastrophe exposures become more material to the IAIG.

430. Risk mitigation arrangements are recognised (eg outwards reinsurance protection purchased) which may reduce overall Catastrophe risk. IAIGs are allowed to claim the benefit of such arrangements, subject to the provisions on the use of risk mitigation provided (see the section on "Risk mitigation" in this document and the 2016 Field Testing Technical Specifications). For the purpose of the Catastrophe risk charge it should be assumed that the payments will always be fully recovered where applicable, and the contingent Credit risk associated with such recoveries are assessed as part of Credit risk (see section on "Credit risk").

6.11.1 Background

431. The 2014 ICS CD asked questions on the general approach that should be taken for Catastrophe risk, including whether sub-risks should be modelled explicitly or implicitly, the scope of Catastrophe risk, perils that should be defined, and how scenarios should be specified. Please refer to the 2014 ICS CD, and the Resolution of Comments to the 2014 ICS CD, on the IAIS website for more details.

432. The 2014 ICS CD discussed the list of perils that is appropriate to include in the standard method considering in particular their potential materiality to individual IAIGs. The following list was included:

a) tropical cyclone;

b) extra-tropical windstorm and hail;

c) earthquake;

d) city centre terrorist attack;

e) marine collision; and

f) pandemic.

433. A number of suggestions were received which informed the broader list of perils defined in 2015 and 2016 Field Testing.

434. In 2015 Field Testing, Volunteer IAIGs were asked to calculate loss amounts relating to Natural Catastrophe events, using stochastic catastrophe models and including secondary effects, for:

a) tropical cyclone, hurricane, typhoon;

b) extra-tropical windstorm/winter-storm;

c) earthquake ; and

d) other material natural perils such as:

i) flood;

ii) tornado, hail, convective storms; and

iii) other risks.

435. Loss amounts related to natural catastrophe were requested for different confidence levels and different measures (VaR and Tail-VaR). Volunteer IAIGs were also asked to report qualitative information regarding the catastrophe model used as well as how the model was used. Allowing the use of natural catastrophe models as part of the standard method during 2015 Field Testing was perceived as an appropriate approach leveraging on scientific risk assessment methodologies embedded in such models and aligning the risk assessment with generally recognised market practices.

436. 2015 Field Testing also requested the calculation associated with the following man-made scenarios:

a) a terrorist attack scenario;

b) a liability catastrophe scenario;

c) a pandemic scenario;

d) a marine collision scenario;

e) an aviation collision scenario; and

f) a credit and surety scenario.

437. The specifications for these man-made scenarios aim at providing individual Volunteer IAIGs with the necessary information to calculate the amount of potential loss at the level of the ICS target criteria (ie VaR 99.5% confidence level over one year). One of the two following approaches was adopted to specify the scenarios:

a) a description of the severity of the scenario, with each individual Volunteer IAIG identifying its own specific set of exposures. This approach was adopted for the terrorism, aviation and marine scenarios.

b) a set of prescribed parameters to be applied to specific exposures, defined based on a global or market wide scenario and then allocated back to the global or market wide exposures. This approach was adopted for the liability, pandemic and credit and surety scenarios.

438. The man-made catastrophe scenarios were assumed to be mutually independent.

439. A high level summary of results from 2015 Field Testing is included in section 6.1.1 of this document.

440. 2015 Field Testing results, as shown in **Table 14** below, indicated that the most material Catastrophe risks across the population of Volunteer IAIGs are natural catastrophe and liability catastrophe risks. However the materiality of perils varies by Volunteer IAIG. For Volunteer IAIGs with little to no non-life exposure, the pandemic scenario could be the most material.

441. The analysis of 2015 Field Testing data and the feedback received (on the 2014 ICS CD and as part of 2015 Field Testing) largely supported maintaining this approach for 2016 Field Testing with minor refinements, except for a more substantial change to the liability scenario.

Table 14. Breakdown of total Catastrophe risk charges in 2015 Field Testing

Perils	Percentage of Total net loss
Natural catastrophes	40.3%
Liability catastrophe	31.0%
Pandemic	14.8%
Terrorism	5.6%
Credit and surety	5.4%
Marine	1.6%
Aviation	1.3%

442. The overall conclusion that can be drawn from the results from 2015 Field Testing is that from a materiality perspective the focus of future development of the Catastrophe risk charge should be on natural catastrophe and liability risks. In addition, these are historically known to be the two biggest drivers of non-life insurer insolvency.

443. The liability risk bears a much closer relationship to Premium and Claims Reserve risks than any of these other catastrophes. The feedback received during the 2015 Field Testing led to some material changes being made to the liability scenario of the catastrophe component.

444. The contribution to the Catastrophe risk charge and ultimately to the ICS capital requirement from other components of the Catastrophe risk charge are considerably reduced by the effect of diversification.

445. The impact of risk mitigation (eg reinsurance) is material on average across the population of Volunteer IAIGs (on average risk mitigation reduced the gross Catastrophe risk charge by 30%). However, there was a large variation in the use of risk mitigation across Volunteer IAIGs.

6.11.1.1 Aggregation of risk charge

446. For the purpose of calculating the Catastrophe risk charge, the man made catastrophe scenarios were assumed to be mutually independent and independent from the natural catastrophe perils. Consequently, the total ICS Catastrophe risk charge was calculated in 2015 Field Testing as follows:

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

6.11.2 2016 Field Testing

447. Based on the analysis of the 2015 Field Testing and the feedback received (on the 2014 ICS CD first, then as part of the 2015 Field Testing), the IAIS largely maintained the approach for 2016 Field Testing, with the exception of a few key changes that are outlined below.

6.11.2.1 Method for determining risk charge

448. For the natural Catastrophe risk, the risk charge was calculated during 2015 Field Testing at a 99.5% VaR over one year loss amount. This resulted in an over-estimation of the impact of stresses. The approach was refined for 2016 Field Testing to define the risk charge as the loss at the 99.5% confidence level (ie the ICS target criteria) minus the expected loss.

6.11.2.2 Latent liability scenario

449. For the 2016 Field Testing, the liability catastrophe scenario was substantially modified in scope, design and calibration. To reflect the new focus of the scenario, it was renamed as a 'latent liability' scenario.

450. The purpose of the "latent liability" scenario is to capture the portion of liability risk that is not adequately captured by historical claims experience. While analogous, there are some fundamental differences with other Catastrophe risks. As usually understood, a catastrophe results in sudden and mass destruction, and poses a threat to business inforce at the time of occurrence. Latent liability exposure can develop over many years and can also affect written business that is no longer in force.

451. The focus of the "latent liability" scenario for 2016 Field Testing is on the exposure of the Volunteer IAIG to mass tort events. This is considered to be one of the most material ways in which historical experience does not reflect an IAIG's full exposure to liability risk. Further methods – along with refinements to this approach – are under consideration.

452. The scenario is defined as, during the one-year time horizon considered for the ICS capital requirement, a general and potentially legally enforceable (eg following a court decision) opinion emerges that a specific product or substance causes observed or potential material future adverse effects. Such adverse effects include bodily injury, property damage or environmental damage. This is expected to lead, during the year and later, to claims on the product liability insurance of the producers. This is expected to be followed by mass litigation against companies that are distributing or using or have distributed or used the product or substance, leading to an accumulation of potential worldwide claims on general commercial liability and workers compensation/employers liability insurance policies.

453. The 2016 Field Testing Technical Specifications provided a clearer definition of the scenario, clearer identification of the specific Non-Life lines of business affected, and consideration of the statutes of limitations which limit the number of policy years that may be affected by the scenario. Compared with 2015 Field Testing, the new scenario impacts a reduced number of lines of business and captures explicitly, although in a simplified and pragmatic way, the impact on multiple underwriting years.

Question 152. Is the new specification of "latent liability risk" appropriate? Please explain.

Question 153. Should the mass tort scenario be used to represent latent liability risk in the ICS? Please explain.

Question 154. Are any other scenarios/refinements needed for the latent liability scenario? If "yes", please specify and provide rationale.

6.11.3 Open issues for consultation

454. The open issues for which the IAIS seeks input are:

a) The list of perils;

b) the use of natural catastrophe models as part of the standard method;

c) the man-made catastrophe scenario; and

d) the calculation of the recoverable amount to be used for the calculation of the contingent Credit risk.

6.11.3.1 List of perils

455. Although no change was made to the list of perils for 2016 Field Testing, the IAIS will continue to monitor and seek feedback on the Catastrophe risks that could be material to IAIGs and that could be considered for the standard method.

456. New risks that may emerge should be reflected in the ICS standard method such as Cyber risk or other risks. For instance, the development of Cyber risk insurance indicates the need to monitor developments in this field and consider the relevance of a Cyber risk component at a later stage. Additional Catastrophe risks could emerge from development of existing products, for instance the foreseen development of driverless cars in the not-so-distant future will likely result in changes in motor insurance with potential concentration of risk on manufacturers and technology providers and away from individual drivers.

Question 155. In addition to the perils covered in 2016 Field Testing (listed above), are there other material Catastrophe perils to which IAIGs may be materially exposed for which a scenario should be defined in the ICS standard method ? If "yes", please provide a list, including a definition of the peril and any other specific details to support the suggestion(s).

Question 156. Are there scenarios used in 2015 and 2016 Field Testing (listed above) which, for materiality or other reasons, should not be included in the Catastrophe risk component? If "yes", please provide a list, including the rationale.

6.11.3.2 Use of natural catastrophe models as part of the standard method

457. In order to leverage on the largely accepted methodology for risk assessment of natural catastrophe, the IAIS allows the use of catastrophe models (during 2015 and 2016 Field Testing) namely taking into account the significant limitations of other alternative approaches (eg scenario based approach, stress approach). Although there are some concerns inherent in the use of such models, under some conditions these concerns could be mitigated to an acceptable level.

458. The first area of supervisory concern relates to the quality of the model itself. This includes the definitions and characteristics of the simulated physical events (eg their consistency with historical events), the impact generated by the events (eg potential impact on people, property and other valuables) and the financial components (eg calculation on the losses on insurance contracts).

459. The second area of supervisory concern relates to the use of the models by IAIGs. This includes the collection and preparation of exposure data, any adjustment of input or results to reflect any incompleteness of collected data and any adjustment to the model itself to correct any identified weaknesses.

460. Allowing the use of catastrophe models to calculate the Catastrophe risk charge requires that the supervisory concerns identified above be properly addressed. These concerns could be addressed by different and possibly complementary means, for example:

a) by requiring IAIGs to report fit-for-purpose information such as, but not limited to, the identification and characteristics of the models used, information on the risk profile and natural Catastrophe risks to which the IAIG is exposed, and information on the way the model has been used (eg adjustments made).

b) by setting some restrictions, if any, either to the models being allowed, and/or to the way the models have been used (eg regarding the use of some options provided by vendor models, and/or regarding potential adjustments).

c) by requesting the IAIG to perform a self-assessment, signed-off by its Board on the use of the model or by receiving agreement from the IAIG that such self-assessment could be performed if concerns emerge.

Question 157. Should the IAIS allow the use of catastrophe models for the ICS Version 1.0? Please explain.

Question 158. If the IAIS allows the use of catastrophe models in ICS Version 1.0, should there be requirements to ensure that the use of catastrophe models results in a fair and comparable assessment of the natural catastrophe risk? If "yes", please comment on requirements that should be included.

Question 159. Is there information about catastrophe models and their use by the IAIG that should be reported to the group-wide supervisor? If "yes", please provide specific examples.

Question 160. Are there additional conditions or restrictions about catastrophe models or their use by IAIGs that should form part of ICS Version 1.0? Please explain.

Question 161. If an IAIG were unable to meet the requirements that were set out in the specifications of the ICS, are there measures that the group supervisor should take in order to correct the weaknesses? If "yes", please provide details of suggested measures and the rationale.

6.11.3.3 Man-made catastrophe scenario

461. The man-made catastrophe scenarios have been defined, in the context of the standard method, to support the measure the 99.5% VaR over one year for each individual IAIG. This obviously involves some simplifications acceptable for a standard method, subject to achieving an appropriate level of comparability and accuracy while preserving a desirable level of simplicity and practicality.

Question 162. Is the man-made catastrophe scenario (as defined in the 2016 Technical Specifications) appropriate for the ICS standard method? If "no",

please provide specific suggestions supported by reference or evidence to amend the scenario(s).

6.11.3.4 Calculation of the recoverable amount to be used for the calculation of the contingent Credit risk

462. For the purpose of the ICS capital requirement calculation in 2015 and 2016 Field Testing, the following simplification is being applied: The recoverable amount should be calculated as the difference between the risk charge for Catastrophe risk calculated as if the risk mitigation arrangements did not exist and the risk charge for Catastrophe risk calculated taking into account qualifying risk mitigation arrangements.

463. In order to calculate the contingent Credit risk associated with the reinsurance recovery, the recoverable amount is then allocated by rating categories using the ratio based on the sum of the total recoveries across the catastrophe scenarios (please refer to the 2016 Technical Specifications for more details).

Question 163. Is the approach to calculate the contingent Credit risk associated with reinsurance recovery appropriate for the purposes of ICS Version 1.0? Please explain. If "no", please provide details of an alternative approach that would be more appropriate for the ICS standard method.

6.11.4 General comments

Question 164. Are there any further comments on Catastrophe risk that the IAIS should consider in the development of ICS Version 1.0? If "yes", please explain with sufficient detail and rationale.

6.12 Market risk

6.12.1 Interest Rate risk

6.12.1.1 Background

464. Interest Rate risk is defined as the risk of loss arising from adverse movements in the level and volatility of interest rates. Since changes in interest rates affect both assets and liabilities of an IAIG, the ICS Interest Rate risk charge aims to measure the net loss in an IAIG's qualifying capital resources in the event of an adverse movement in interest rates.

465. Two approaches were considered for the calculation of the Interest Rate risk charge in the 2014 ICS CD:

a) an approach based on measuring the durations of an IAIG's assets and liabilities and

b) an approach based on measuring the changes in the market-adjusted value of an IAIG's assets and liabilities under prescribed stresses to the risk-free interest rates.

466. The prescribed stress approach contemplated:

a) up and down interest rate stress scenarios; and

b) possibly an interest rate volatility component.

467. Stakeholders provided the following feedback:

a) most supported the prescribed stress approach with at least upward and downward stresses;

b) most supported the inclusion of an interest rate volatility shock but a minority said it should not be included in the ICS or at least the initial version of the ICS with some indicating that the complexity involved outweighed the benefits; and

c) most stakeholders supported applying the shock to the balance sheet instantaneously, although some thought the treatment was only appropriate because the ICS is designed to capture unexpected losses over a one-year time horizon. A small minority of stakeholders indicated that a shock over time may be more appropriate because the stress is applied to long-term assets and liabilities. Several stakeholders mentioned that both instantaneous shocks and shocks that develop over a period of time are useful and provide different perspectives.

468. The IAIS decided to test the following approach in 2015 Field Testing:[43]

a) a prescribed stress approach calibrated to the base yield curve[44] with upward, downward and flattening shocks. While the upward and downward shocks were supported by stakeholders, the IAIS believed that a flattening shock could also be relevant for some IAIGs in Field Testing;

b) the stressed yield curves included the same spread adjustment used to construct the base yield curves;[45]

c) the shock was applied instantaneously rather than over time; and

d) interest rate volatility shocks were not included in the prescribed stress approach. After considering comments from stakeholders and members the IAIS decided it would not include an interest rate volatility shock in the standard method at this

[43] See section 13.4.2.1 of the 2015 Technical Specifications.
[44] The base yield curve and stressed yield curves were determined by the IAIS for the 35 top traded currencies as per http://www.bis.org/publ/rpfx13fx.pdf
[45] For a description of the spread adjustment applied in 2015 Field Testing see the MAV section.

point. However, the IAIS may consider a volatility shock as part of the standard method between ICS Version 1.0 and ICS Version 2.0.

469. A high level summary of results from 2015 Field Testing is included in section 6.1.1 of this document.

470. The 2015 Field Testing results showed that the stress type that was most adverse (up, down or flattening) varied across Volunteer IAIGs and geographical regions.

471. The analysis of data and Volunteer IAIGs' responses suggested potential issues both on design and calibration (eg the shape of stressed curves for some currencies and Volunteer IAIGs).

472. Assets and liabilities were revalued by discounting projected liability cash flows under the stressed yield curve. Volunteer IAIGs were required to adjust projected cash flows to reflect the interest rate stress.

473. In 2015 Field Testing stressed valuations were not permitted to fall below the cash surrender value of the contract.

474. The analysis of 2015 Field Testing results and comments from Volunteer IAIGs showed that:

a) the high percentage of the capital requirement that is ascribed to Interest Rate risk for some Volunteer IAIGs suggests that the level and/or shape of the stressed interest rate curves may require revision.

b) the shape of stressed curves should be refined to consider additional calibration points along the curves.

c) the stresses in 2015 Field Testing, which were calibrated using a single reference currency, were found to be inappropriate for some currencies.

d) the list of scenarios to be applied for the Interest Rate risk calculation should be reviewed in the future, in particular considering whether all three scenarios (up, down and flattening) are necessary going forward. Field Testing results showed that up and down scenarios are required but the relevance of the flattening scenario is unclear.

e) Volunteer IAIGs questioned whether the LTFR should be stressed, and if those rates are stressed, how the IAIS should extrapolate rates between the last observable point and the long-term forward rate.

475. During the development of 2015 Field Testing stressed curves, issues with methodologies for calibration arose when examining currencies with very low (less than 0.5%) and negative interest rates. In 2016, this issue became more pronounced as more currencies of developed economies moved to very low or negative interest rate territory. In 2015 Field Testing, rates were floored at 0.5% to accommodate the square root stress formula. For example, an upward stress was calculated as follows:

$$r_i' = r_i + a_i\sqrt{\max(r_i, 0.5\%)} + b_i$$

where a_i and b_i were provided by the IAIS for all currencies.[46] The calibration of these factors was carried out using a simplified Cox-Ingersoll-Ross model without a mean reversion parameter.

476. If the same approach had been used for determining stressed yield curves in 2016 Field Testing, the rate floor would have been binding for large portions of some yield curves, thereby skewing the calibration of the stresses.

6.12.1.2 Approach for 2016 Field Testing – MAV

477. To address all the issues noted above from 2015 Field Testing, the following approach was taken for 2016 Field Testing:

a) the stressed yield curves were calibrated using currency specific volatilities rather than applying the single volatility from a reference currency to all currencies;

b) twelve calibration points were used (instead of the two in 2015) based on twelve observable maturities – years 1 to 10, year 20 and year 30 (if available for a particular currency);

c) each calibration point was based on 6 years of historical data (from the beginning of 2010), without filtering for outliers. This period for calibration corresponds to the change in monetary policy in most advanced economies after the Great Financial Crisis (GFC);

d) the stress levels were determined by applying a Principal Component Analysis (PCA) on the twelve observed maturities listed above;

e) to derive the shocked interest rate curves, the weekly changes in the past data were captured by the formula below. The focus is on the annual interest factor (1+r) used for discounting: (1+r)^-t. Multiplicative movements $e^{s(i)}$ for maturity *i* can be derived using the following formula:

$$s \sim \ln\left(\frac{1 + R_{t+1}^i}{1 + R_t^i}\right) \quad (i = 1,2,3,4,5,6,7,8,9,10,20,30)$$

f) stress levels between the observed maturities were interpolated using the interpolation part of the Smith-Wilson technique for consistency with the methodology used to determine the base yield curves;

g) a stress of 15% was applied to the long-term forward rate (LTFR) before the notional spread adjustment (10 basis points, see MAV section); and

[46] For further details on the determination of stressed yield curves please see section 13.4.2.1 of the Public 2015 Field Testing Specifications.

h) stressed yield curves between the last observable point and the stressed LTFR were extrapolated.

478. Stress scenarios for 2016 Field Testing were calibrated as follows:

a) a maximum of the up stress and down stress calibrated according to the 1st Principal Component;

b) a flattening stress calibrated according to the 2nd Principal Component;

c) the first two principal components are mathematically independent, and reflect the level and shape changes of observed interest rate movements; and

d) the first two components were found to explain a high proportion of the total observed volatility.

479. Note that a steepening scenario could also be derived from the 2nd Principal Component, but it was discarded because stress losses under this scenario are highly unlikely to exceed the projected losses under the other scenarios.

480. Based on results of 2016 Field Testing, the IAIS will determine whether it will continue to include three scenarios or focus on the refined approach for up and down stresses as suggested by some stakeholders.

481. In contrast to 2015 Field Testing where only the maximum of the three scenarios became the pre-diversification Interest Rate risk charge, in 2016 Field Testing the results will be combined using a square root aggregation. This is the square root of the sum of squares of the 1st Principal Component (maximum of the up or down stress) and the stress derived from the 2nd Principal Component (flattening stress).

482. The cash surrender value floor has been dropped from 2016 Field Testing. This floor is equivalent to assuming that polices with cash value would be surrendered when interest rate changes push the MAV below the cash surrender value. Volunteer IAIGs believed that policyholders were unlikely to lapse policies in great numbers, even if the value of a contract dips below the cash surrender value.

483. Other aspects of the approach taken in 2015 Field Testing remain unchanged.

6.12.1.3 Approach for 2016 Field Testing – GAAP with adjustments

484. Under GAAP Plus in certain jurisdictions (eg, the U.S.), the valuation of long-term insurance current estimates utilise a discount rate representing a blend of the book yield based on current portfolio adjusted for defaults and expenses, and a reinvestment rate based on current market assumptions. In 2016 Field Testing, two approaches are used to test GAAP Plus. Method 1, while not compatible with GAAP Plus principles on valuation, is used to test how a market-value based (not MAV per se) approach to valuation, using market-based discount rates, works for GAAP Plus numbers. Method 2, for liabilities that do not use market rates in discounting, is an approach better aligned with the GAAP Plus approach to valuation. The stressed rates impact the valuation by impacting the reinvestment rates.

485. Short-term changes in interest rates would impact reinvestment assumptions, but have little to no impact on a book yield based on a current portfolio adjusted for defaults and expenses.

486. The interest rate stress under MAV, which shocks the discount rate applied to liability cash flows at each tenor, and fair values assets, would not be consistent with the GAAP Plus approach where liability valuation and capital resources are largely based on book values.

487. Nonetheless, for analytical purposes, the IAIS has requested data from Volunteer IAIGs to evaluate Interest Rate risk as determined under the MAV and as applied to GAAP Plus ("Method 1" as described herein)

488. In addition, the IAIS is exploring an alternative approach for valuing liabilities under the interest rate stress that is more consistent with the proposed GAAP Plus stress on the assets backing the liabilities. The impact of the interest rate shock is reflected in the reinvestment rate. ("Method 2" as described above).

489. Volunteer IAIGs have been requested to provide results for both methods for 2016 Field Testing analysis purposes.

Method 1

Assets

490. Where assets are measured at fair value, the stress is consistent with the standard method for MAV. Assets that are measured at cost (eg loans, and bonds classified as held to maturity) are not impacted by the market value-based stress scenario.

Liabilities

491. For insurance liabilities where a market consistent discount curve is applied directly in valuation under GAAP, such as for guarantees and options, the interest rate stress would be the same as under MAV.

492. For insurance liabilities where an IAIG uses discount rates for each tenor (based on portfolio earned rates, reinvestment rates or other assumptions), the IAIG should apply the differences between the IAIS base and stressed yield curves to corresponding discount rates at each tenor.

493. For all other insurance liabilities where a single discount rate is applied, IAIGs should apply single rate stresses based on the average difference between the IAIS base and stress yield curves over tenor buckets that correspond to effective duration of each liability:

a) the use of tenor buckets is a means to translate points along the IAIS yield curves into a single discount rate stress for each bucket; and

b) the stress will be applied to the pre-stress discount rate used for the GAAP methodologies and the stressed liability valuation will be calculated to derive the liability stress.

Example

If an IAIG has five insurance liabilities with effective liability durations of 3 years, 7 years, 9 years, 12 years, and 13 years, the corresponding stresses would be as follows:

	Differences between the IAIS base and stress yield curves			GAAP+ Shocks			
	Up	Down	Flattening	Tenor bucket	Up	Down	Flattening
Year 1	30 bps	-50 bps	50 bps	0-5	=average (30,50,100 ,150,200) = 106 bps	=average (-50,-110, -160,-190, -200) = -142 bps	=average (50,40,30, 30,30) = 36 bps
Year 2	50 bps	-110 bps	40 bps				
Year 3	100 bps	-160 bps	30 bps				
Year 4	150 bps	-190 bps	30 bps				
Year 5	200 bps	-200 bps	30 bps				
Year 6	200 bps	-200 bps	20 bps	5-10	196 bps	-196 bps	10 bps
Year 7	200 bps	-200 bps	20 bps				
Year 8	200 bps	-200 bps	10 bps				
Year 9	190 bps	-190 bps	10 bps				
Year 10	190 bps	-190 bps	-10 bps				
Year 11	180 bps	-190 bps	-10 bps	10-20	155 bps	-160 bps	-25 bps
Year 12	170 bps	-190 bps	-10 bps				
Year 13	170 bps	-180 bps	-20 bps				
Year 14	160 bps	-180 bps	-20 bps				
Year 15	160 bps	-170 bps	-30 bps				
…	…	…	…				
Year 20	…	…	…				
…	…	…	…	20-30	…	…	…
Year 30	…	…	…				

	Effective duration	GAAP+		
		Up	Down	Flattening
Insurance Liab1	3 years	106 bps	-142 bps	36 bps
Insurance Liab2	7 years	196 bps	-196 bps	10 bps
Insurance Liab3	9 years	196 bps	-196 bps	10 bps
Insurance Liab4	12 years	155 bps	-160 bps	-25 bps
Insurance Liab5	13 years	155 bps	-160 bps	-25 bps

Method 2

Assets

494. Method 2 measures the changes for long-term life insurance liabilities and the assets supporting them. As both are intended to be held to maturity, the impact of the rate shock is measured through changes in cash flows rather than assessing the changes in market values

which would be both inconsistent with the GAAP valuation principles and irrelevant where assets are intended to be held to maturity. Assets are initially marked to market in accordance with GAAP valuation, but the value, for those assets supporting long-term liabilities, is changed back to book value through the AOCI adjustment in GAAP Plus. The stress impact is from changes in the reinvestment cash flows, as the coupon and principal payments are reinvested at the stressed rates. The liabilities are then valued using a blended rate as the discount rate. The blended rate is a rate between the portfolio earned rate and the market based reinvestment rates.

495. Where assets are measured at fair value through profit and loss, the stress is consistent with the standard method for MAV. Assets measured at cost (e.g. loans, and bonds classified as held to maturity) are not impacted by the market value-based stress scenario.

496. An "AOCI adjustment," as included in GAAP Plus capital resources, is reflected under this method, i.e., fixed income investments backing long-term insurance liabilities and that have a relatively low liquidity risk would be measured at amortised cost and would not be impacted by stress curves.

Liabilities

497. For insurance liabilities where a market consistent discount curve is applied directly in the valuation under GAAP, such as for guarantees and options, the interest rate stress would be the same as under MAV.

498. For all other insurance liabilities that are discounted using a portfolio earned rate/curve, long-term insurance liabilities should be discounted using a blended rate of the portfolio earned rate on existing investments and the stressed IAIS yield curves for reinvestment at each tenor and currency.

6.12.1.4 Open issues for consultation

499. The open issues for which the IAIS seeks input are:

a) calibration methodology;

b) period of data to be used for calibration;

c) interest rate scenarios to be applied;

d) aggregation of the results of interest rate scenarios;

e) recognition of the diversification of Interest Rate risk between currencies; and

f) GAAP with adjustments approach to Interest Rate risk.

Calibration methodology

500. The most significant issue for Interest Rate risk in the current environment is calibration of the stressed yield curves with base yield curves containing negative and very low rates at a number of maturities. This is now prevalent among developed economies. In such an environment, the methodology used for 2016 Field Testing is not ideal. Conversely, a

methodology only focused on protracted low yield environments may overlook alternative high yield environments such as those observed when inflation rates are high and as currently observed in a number of developing markets.

Question 165. Are there any calibration methodologies for stressed yield curves that work in both the current negative and low interest rate environment in developed countries and where base yield curves are as they have been in the past with higher rates observed at all maturities? If "yes", please provide details.

Period of data to be used for Calibration

501. For 2016 Field Testing, it was decided to use data only from the period immediately following the GFC. There were two reasons for this:

a) the choice of options was to balance a reasonable calibration level with smooth, appropriately shaped curves; and

b) there was one major consideration to focus the calibration period on a period of extraordinary monetary policy that is currently being experienced in many developed countries following the GFC.

502. Some IAIS Members do not believe this is an adequate period of data for the purposes of calibration and would prefer to see a longer data series, such as 20 years. Additionally, having the ICS Interest Rate risk charge calibrated to current market conditions rather using a steady state calibration (long time series) may lead to the need for regular recalibration exercises as market conditions change.

Question 166. Is the IAIS approach to calibrate Interest Rate risk stresses using six years of historical data appropriate? If "no", please comment on the appropriate length of data to calibrate Interest Rate risk stresses to a target level of VaR 99.5% over a one-year time horizon. If a shorter time series is preferred, please comment on how to deal with changing market conditions and the frequency of recalibrating the ICS Interest Rate risk stresses.

Interest rate scenarios to be applied

503. For 2015 and 2016 Field Testing, the IAIS applied upward, downward and flattening scenarios to determine Interest Rate risk. Feedback from stakeholders indicates support mainly for only the upward and downward scenarios.

Question 167. Should the ICS only assess the principal observed driver in yield curve evolutions (upward and downward movements), or should twists (flattening or steepening) be included in the risk assessment? Specifically, which of the following should be used? Please explain your answers.

- ☐ **Only upward and downward movements**

- **Upward, downward and flattening**
- **Upward, downward and steepening**
- **Upward, downward, steepening and flattening**

Aggregation of the results of interest rate scenarios

504. For 2015 Field Testing, the maximum of the upward, downward and flattening scenarios was taken as the Interest Rate risk charge for the ICS. For 2016, the calibration methodology changed to using PCA. As the results of principal components are deemed to be independent, the overall Interest Rate risk is calculated by using the following formula to aggregate risk amounts from the two principal components (PCs):

$$\sqrt{(Risk\ amount\ from\ 1st\ PC)^2 + (Risk\ amount\ from\ 2nd\ PC)^2}$$

505. The risk amount from the 1st PC is the maximum of the upward and downward scenarios and the risk amount from the 2nd PC is the result from the flattening scenario.

Question 168. Is the methodology used by the IAIS to determine Interest Rate risk post-diversification appropriate? If "no", please suggest an alternative methodology.

Recognition of diversification of Interest Rate risk between currencies

506. In 2015 and 2016 Field Testing, any diversification effect between currencies is not taken into account for the purposes of determining Interest Rate risk. Volunteer IAIGs have raised the possibility of including a diversification effect.

Question 169. Should the IAIS recognise diversification of Interest Rate risk between currencies? Please explain and provide details of how this could be done.

GAAP with adjustments approach to Interest Rate risk

507. There are two methods for measuring Interest Rate risk under the GAAP Plus approach as stated above. An open question is which method is preferable in determining Interest Rate risk for the GAAP with adjustments valuation approach.

Question 170. Which of the alternative methods for GAAP Plus (1 or 2) is a better measure of Interest Rate risk? Please explain. If neither are considered suitable, please suggest an alternative method or refinements to the current method.

Question 171. Method 2 is based on the assumption that certain assets backing liabilities are intended to be held to maturity, and consequently are only exposed to reinvestment risk. Should the IAIS consider developing

criteria to identify such assets? If "yes", please explain and provide suggestions for such criteria.

(1) Alternatively, should method 2 make allowance for the fact that some of these assets may in fact not be held to maturity? If "yes", please explain and suggest how this may be done.

6.12.1.5 General comments

Question 172. Are there any further comments on Interest Rate risk that the IAIS should consider in the development of ICS Version 1.0? If "yes", please explain with sufficient detail and rationale.

6.12.2 Equity risk

6.12.2.1 Background

508. In the 2014 ICS CD, the IAIS looked for feedback on a broad range of considerations in order to better develop its proposals for Equity risk charges. The topics discussed in the 2014 CD included: the type of assets covered by the equity component of the ICS, the sub-risks to be covered (eg volatility as well as price level), the segmentation of equity type and practical examples of possible designs.

509. Questions asked with respect to Equity risk solicited feedback on various issues, including:

a) the segmentation of equities into five buckets:

   i) Listed equity in developed markets;

   ii) Listed equity in emerging markets;

   iii) Other equity in developed markets;

   iv) Other equity in emerging markets; and

   v) Direct equity interest in infrastructure;

b) the appropriateness of stressing equity volatilities and the complexity of doing so;

c) the appropriate aggregation across all equity classes; and

d) how best to treat preference shares and hybrid debt.

510. The 2014 ICS CD also provided an illustration on a possible implementation of the Equity risk calculation as the greater decrease in capital resources of an IAIG following the occurrence of four scenarios each containing seven variables:

a) Scenario 1 – prices down, volatility up;

b) Scenario 2 – prices down, volatility down;

c) Scenario 3 – prices up, volatility up; and

d) Scenario 4 – prices up, volatility down.

511. Taking into account the comments received, the IAIS made the following refinements to Equity risk for the 2015 Field Testing:

a) a four-bucket approach to the segmentation of equities was used (listed equity in developed markets, listed equity in emerging markets, hybrid debt/preference shares, other equity);

Question 173. Is the four-bucket approach to the segmentation of equities appropriate? Please explain. If "no", please provide an alternative suggestion and rationale.

b) the focus was on the "prices-down" scenarios (ie scenarios 1 and 2) with a request for Volunteer IAIGs to provide information on "prices-up" scenarios when those scenarios could possibly lead to a risk charge for Equity risk greater than that calculated with the "prices-down" scenarios; and

c) hybrid debt and preference shares attracted a risk charge corresponding to a relative drop in value depending on their credit rating.

512. 2015 Field Testing results showed that:

a) the "prices-down, volatility up" typically produced the most adverse results;

b) although there was general agreement with the approach used to calibrate the price component, the use of MSCI index for calibrating the price shock was challenged; and

c) the approach used for volatility charges needed refinement.

513. A high level summary of results from 2015 Field Testing is included in section 6.1.1 of this document.

6.12.2.2 2016 Field Testing

514. Consequently, for 2016 Field Testing purposes, the IAIS made the following key changes:

a) results are being requested from Volunteer IAIGs for only one scenario ("prices-down, volatility up");

b) calibrations for listed equities are based on the FTSE Index (rather than the MSCI), which resulted in some slight changes to the calibrations; and

c) implied volatility shocks are based on different tenors, as discussed in the Open issues section below.

6.12.2.3 Open issues for consultation

515. The open issues for which the IAIS seeks input are:

a) stressing equity volatilities;

b) long-term equity investments;

c) applying equity stress simultaneously;

d) counter-cyclical measure for Equity risk charge and

e) path dependence.

Stressing equity volatilities

516. Respondents to the 2014 ICS CD generally supported stressing equity volatilities, but most also indicated that:

a) doing so would significantly increase implementation complexity, and this was the prevailing view amongst companies focussed on non-life business; and

b) the use of different volatility stresses may be appropriate, with some noting that relevant data should be investigated in this regard.

517. In 2015 Field Testing, a flat equity volatility stress was used. Field Testing results indicated that some, although not all, Volunteer IAIGs are materially exposed to equity volatility. For 2016 Field Testing, the IAIS refined the design to differentiate volatility shocks at different tenors, and the calibration was revised based on data available. Details can be found in the 2016 Technical Specifications.

Question 174. Should an equity volatility stress be included in the ICS standard method? Please explain.

Question 175. Is the design of the equity volatility stress in 2016 Field Testing appropriate? If "no", please provide specific suggestions, as well as supporting rationale and evidence.

518. For 2016 Field Testing, the volatility stress is designed as a multiplicative, rather than an additive, stress. This means that the stressed volatility at each tenor is expressed as a factor multiplied by the current volatility. Under an additive stress, the stressed volatility at each tenor would be expressed as a factor added to the current volatility.

Question 176. Is the multiplicative approach suitable for the ICS standard method? Please explain. If "no", please highlight the key design and data considerations for developing an alternative approach (eg additive volatility stress).

Long-term equity investments

519. The ICS Equity risk component within 2016 Field Testing does not apply a different treatment to those equity investments that IAIGs may hold for long-term investment purposes (eg strategic equity investments, infrastructure, etc.).

Question 177. Is the treatment of long-term equity investments appropriate? Please explain. If "no", how should they be treated differently and what criteria should be used to define long-term equity investments? Please highlight key design features and provide supporting evidence (including data).

Applying equity stresses simultaneously

520. Stakeholders also generally commented that the Equity risk charge should not reflect the simultaneous application of equity stresses across all buckets, and favoured consideration for a correlation matrix. This matter has continued to remain an open item while the IAIS has assessed the adequacy of the equity shock calibrations in Field Testing.

Question 178. Is there evidence that supports the application of a correlation matrix for determining the Equity risk charge? If "yes", please provide evidence supporting suggested correlations.

Countercyclical measure for Equity risk charge

521. The Equity risk component within 2016 Field Testing does not include a countercyclical measure to reduce pro-cyclical behaviour such as equity 'fire sales'.

522. The IAIS is aware that some jurisdictional regulatory capital regimes currently include a countercyclical measure within their Equity risk capital rules. For example, in some jurisdictions, the Equity risk charge is based on a 'through-the-cycle' calibration and includes a symmetric adjustment to reduce pro-cyclical behaviour during stressed markets.

Question 179. Should the Equity risk charge include a countercyclical measure to reduce pro-cyclical behaviour? Please explain. If "yes", how should such a measure be designed and calibrated? Please highlight key data considerations where relevant.

Path dependence

523. For purposes of simplicity, the stress approach has been used for the full balance sheet including contracts (and associated hedges) where valuations are path dependent. Guarantees on variable annuities, for example, may be sensitive to the interaction between market events, policyholder behaviour and management actions over a multi-factor market path. Instantaneous, single-factor, prescribed market shocks may not have a significant impact on best estimate valuations, and it may be straightforward and inexpensive to hedge this risk. The IAIS is considering alternatives for these types of businesses that may better capture path dependent risks that may emerge over the risk horizon.

Question 180. Are the current approaches in the ICS appropriate for products with path dependent valuations? Please explain.

Question 181. Does the ICS capture all of the material risks for these types of contracts? Please explain.

Question 182. Are there alternative approaches that would capture path dependent Equity and Interest Rate risk? Please explain.

6.12.2.4 General comments

Question 183. Are there any further comments on Equity risk that the IAIS should consider in the development of ICS Version 1.0? If "yes", please explain with sufficient detail and rationale.

6.12.3 Real Estate risk

6.12.3.1 Background

524. In the 2014 ICS CD, the IAIS solicited feedback on a broad range of considerations in order to better develop its proposals for the Real Estate risk charge. The topics discussed in the 2014 CD included advantages and disadvantages of adopting a factor-based approach or a stress approach, the treatment of real estate held for own use and the possible consequences for the design of the ICS of different characteristics (eg locations, type) and different usage (eg tenant credit, in-force lease agreement). Questions asked with respect to Real Estate risk solicited feedback on various issues, including:

a) the appropriateness of using a stress approach to determine the Real Estate risk charge;

b) if a stress approach were to be selected which components should be included in the Real Estate risk charge, eg:

   i) the level of real estate market prices;

   ii) the volatility of real estate market prices;

iii) the amount and timing of cash flows from investment in real estate; and

c) The treatment of property held for own use.

Stakeholders generally indicated a preference for simplified approaches.

525. 2015 Field Testing followed the real estate proposals within the 2014 ICS CD, focussing on a stressing the level of real estate market prices. In assessing the 2015 Field Testing results, it was noted that:

a) Real Estate risk generally accounted for relatively small component of the overall ICS capital requirement; and

b) for property held for own use, some Volunteer IAIGs reported risk exposures greater than the balance sheet value of those properties. This was explained by the fact that property held for own use had typically been recorded by the Volunteer IAIG at historical cost, whereas the stress on real estate had been applied to the fair value of the asset.

526. A high level summary of results from 2015 Field Testing is included in section 6.1.1 of this document.

6.12.3.2 2016 Field Testing

527. Consequently, for 2016 Field Testing purposes, the IAIS made no significant changes to Real Estate risk, but made the following amendments:

a) for consistency with the treatment of investment property and to avoid inappropriate charges (ie the risk charge for property held for own use being greater than the balance sheet value of those assets), the valuation of property held for own use is adjusted to fair value as determined under the IAIG's IFRS or GAAP valuations; and

b) specific provisions were developed for the testing of property held for own use within Real Estate risk under the GAAP Plus approach. The Real Estate risk charge under GAAP Plus is calculated as the difference, if positive, of the balance sheet value at the balance date less 70% of the property's fair value at the balance date. If the fair value of such a property is not available, then the risk charge is 30% of the property's book value. The risk charge is determined on a property-by-property basis. Please refer to the 2016 Field Testing Technical Specifications for more details on Real Estate risk.

Question 184. Is the approach adopted for Real Estate risk in 2016 Field Testing appropriate for the ICS standard method under MAV? Please explain. If "no", please provide specific proposals to amend the approach as well as supporting rationale and evidence.

Question 185. Is the approach adopted for Real Estate risk in 2016 Field Testing appropriate for the ICS standard method under GAAP Plus? Please

explain. If "no", please provide specific proposals to amend the approach as well as supporting rationale and evidence.

6.12.3.3 General comments

Question 186. Are there any further comments on Real Estate risk that the IAIS should consider in the development of ICS Version 1.0? If "yes", please explain with sufficient detail and rationale.

6.12.4 Currency risk

6.12.4.1 Background

528. Currency risk is the risk associated with changes in the level or volatility of currency exchange rates. This risk may arise from the assets and/or liabilities, taking into account that changes in the value of some items on the balance sheet (eg investment assets) could be offset or partially offset by changes in value of other items on the balance sheet (eg claims reserves).

529. The Currency risk section of the 2014 ICS CD consulted on four key issues:

a) the use of a stress or scenario approach;

b) identification of the reference currency;

c) calibration of stresses; and

d) treatment of investments in foreign subsidiaries.

530. The rest of this section summarises the key decisions made with respect to Currency risk and the IAIS resolutions to the comments received on the 2014 ICS CD.

531. A stress approach has been maintained for Currency risk for 2016 Field Testing.

532. The reference currency, defined to be the currency in which the group-wide supervisor assesses the solvency position of the IAIG, will be maintained for 2016 Field Testing.

533. The 2015 Field Testing approach to Currency risk used a stress approach whereby a pre-defined stress was applied to the net open position in each currency that the IAIG holds. IAIGs were asked to apply two stress scenarios:

a) **Scenario 1:** All of the currencies in which the IAIG had a net long position decrease in value, while all of the currencies in which the IAIG has a net short position remain unchanged; and

b) **Scenario 2:** All of the currencies in which the IAIG had a net short position increase in value, while all of the currencies in which the IAIG has a net long position remain unchanged.

534. The amount of the decrease or increase of each foreign currency relative to the reporting currency tested was:

a) 30% if both the reporting and foreign currencies are in developed markets; and

b) 60% for all other foreign currencies.

535. For each scenario, the losses by currency were aggregated using a correlation formula for which the assumed correlation of loses between each pair of foreign currencies was 50%. The Currency risk charge was equal to the higher of the aggregated losses under the two scenarios.

536. The net open position was defined as Assets – Liabilities and an exemption was not granted for investments in foreign subsidiaries.

537. The results from 2015 Field Testing indicated that Currency risk was overstated for those IAIGs with significant currency exposure. The two stress levels were overly punitive and in many instances, the stress was much larger than the historical volatility between individual currency pairs. A high level summary of results from 2015 Field Testing is included in section 6.1.1 of this document.

6.12.4.2 2016 Field Testing

538. Building on the 2015 Field Testing approach to Currency risk, the 2016 approach provides more granular pairwise currency stresses and includes an exemption for a portion of an investment in a foreign subsidiary. The full approach to Currency risk can be found in the Currency risk section of the 2016 Technical Specifications.

539. For 2016 Field Testing, the IAIS has taken a more granular approach to the calibration of Currency risk. Pair-wise volatility since 1 January 1999 was calculated for each pair of currencies for 35 predefined currencies. Results were converted to annual rates at a confidence level of VaR 99.5%. The results were then rounded to the nearest 5% with a floor of 5% and a cap of 75%. A World bucket has been defined for currencies not in the list of 35 predefined currencies. Any currency pair that has one currency from the World bucket receives a stress of 60%.

540. The aggregated Currency risk is calculating the risk charges of the individual currency using a correlation factor or 50% for all currencies. Pegged currencies are treated the same as all other currencies and rely on historical data. Assumptions are not made as to whether or not the peg will continue in the future.

Question 187. Is the methodology used to determine the level of the Currency risks stresses appropriate? Please explain.

Question 188. Is the assumption of a single correlation factor of 50% for all currencies appropriate in a time of stress? Please explain. If "no", what

methodology could the IAIS use to determine an appropriate correlation matrix for Currency risk?

Question 189. Is the treatment of currency pegs appropriate? Please explain.

541. The net open position is determined after giving an exemption to a portion of investments in foreign subsidiaries. The rationale for allowing such an exemption is that IAIGs carry assets in excess of liabilities in order to meet its foreign subsidiary's capital requirement. Specifically, the net open position for each currency is defined as (Assets – Liabilities) less up to a 10% deduction of the net insurance liabilities in that currency from the net open (long) position in that currency. The limit is meant to ensure that none of the net open positions become short positions due to the deduction. The exemption of 10% of liabilities is meant to serve as a proxy for the subsidiary's contribution to the ICS.

Question 190. Should the IAIS allow for a partial exemption for investments in foreign subsidiaries? Please explain.

Question 191. Is the exemption for investments in foreign subsidiaries appropriate? Please explain.

Question 192. Is there a better proxy of the subsidiary's contribution to the ICS? Please explain.

Question 193. Are there any further comments on the approach described for 2016 Field Testing? Please explain.

542. The risk charge for Currency risk is determined based on the full exposure (ie open position) regardless of the length of time remaining in the currency contract. A reduction in the risk charge is not given for currency contracts with a maturity of less than one year as it is more conservative to assume that the contract will be renewed at maturity. For currency hedges, an approach is taken to consider the length of time remaining in the contract, with no assumption of contract renewal. For example, if a currency hedge is in place for three months, one-quarter of its face value is taken into account.

Question 194. Is the treatment of currency exposures with a maturity of less than one year appropriate? Please explain.

6.12.4.3 General comments

Question 195. Are there any further comments on Currency risk that the IAIS should consider in the development of ICS Version 1.0? If "yes", please explain with sufficient detail and rationale.

6.12.5 Asset Concentration risk

6.12.5.1 Background

543. In the 2014 ICS CD, the IAIS solicited feedback on key considerations for the development of an Asset Concentration risk charge. The topics discussed in the 2014 CD included: the concept of asset concentration in reference to a well-diversified portfolio, approaches used to address this issue in existing regulatory regimes (both in insurance and banking), and some considerations on possible approaches to designing an Asset Concentration risk charge. Questions asked with respect to Asset Concentration risk solicited feedback on various issues including:

a) How best to address Asset Concentration risk for ICS capital treatment; and

b) Whether the proposed exposure threshold should be based on a qualifying capital resources measure or another measure such as assets.

544. Respondents to the 2014 ICS CD provided a diversity of views on the appropriate treatment for Asset Concentration risk within the ICS, with suggestions ranging from a "pillar 2" type treatment for the risk, similar to the model developed by the Basel Committee on Banking Supervision (BCBS) for banks, to the use of a factor-based approach beyond a specified limit.

545. For 2015 Field Testing, the IAIS tested a simple factor-based approach including the following key elements:

a) both qualifying capital resources and total assets measure were tested as exposure thresholds;

b) sovereign exposures were given a 0% risk charge, and the OECD/non-OECD distinctions were removed from the model design; and

c) additional supplementary data was collected, such as on counterparties and exposures to property held for own use that exceeded the thresholds, as well as on G-SII exposures to other G-SIFIs when using a lower exposure threshold.

546. A high level summary of results from 2015 Field Testing is included in section 6.1.1 of this document.

547. In assessing the 2015 Field Testing results, it was noted that:

a) only a small proportion of Volunteer IAIGs were impacted by the Asset Concentration risk charge, with those impacts driven by a small number of counterparty exposures rather than from property exposures;

b) Asset Concentration risk accounted for a very small component of the overall ICS capital requirement; and

c) the use of qualifying capital resources as an exposure threshold presented some volatility concerns.

6.12.5.2 2016 Field Testing

548. Despite the general low impact of the Asset Concentration risk charge for Volunteer IAIGs, the IAIS made the decision to continue to collect similar data within 2016 Field Testing. However, only the total assets metric is being used for determining exposure thresholds and no data will be collected on G-SII exposures to other G-SIFIs when using a lower exposure threshold.

Question 196. Is the approach adopted for Asset Concentration risk in 2016 Field Testing appropriate for the ICS standard method? Please explain. If "no", please provide specific proposals to amend the approach as well as supporting rationale and evidence.

6.12.5.3 General comments

Question 197. Are there any further comments on Asset Concentration risk that the IAIS should consider in the development of ICS Version 1.0? If "yes", please explain with sufficient detail and rationale.

6.13 Credit risk

6.13.1 Background

549. In the 2014 ICS CD, the IAIS solicited feedback on a broad range of considerations for the development of Credit risk charges. The topics discussed in the 2014 CD included: the definition of Credit risk for the ICS covering not only the risk of default but also the loss in asset value due to the deterioration in creditworthiness (eg impact of migration and change in spread), the possible use of a factor-based approach, the segmentation by type of assets, some considerations for off-balance sheet transaction and some considerations for risk mitigation (eg collateral, guarantees etc.). Questions asked with respect to Credit risk covered various issues including:

a) whether Credit risk factors should vary by maturity;

b) the scope and segmentation of asset classes subject to Credit risk charges; and

c) possible alternatives for assessing credit quality without reliance on rating agencies and internal models.

550. Respondents to the 2014 ICS CD generally supported the proposed approach, but also provided a number of suggestions for improvement.

551. For 2015 Field Testing, the IAIS tested Credit risk factors derived from the asymptotic single risk factor model that serves as the basis for the Basel II internal ratings-based (IRB) approach. The Credit risk requirement includes the following key elements:

a) sovereign exposures were given a 0% risk charge, with a supplementary data collection of exposure information;

b) Credit risk factors that varied by maturity were used; and

c) the Credit risk charge was determined on the basis of allowing the use of U.S. NAIC designations.

552. A high level summary of results from 2015 Field Testing is included in section 6.1.1 of this document.

553. In assessing the 2015 Field Testing results, it was noted that:

a) the inability to apply management actions under a factor-based approach could have a material impact on the overall Credit risk results for some Volunteer IAIGs;

b) the size of the Credit risk component in relation to overall ICS risks varied significantly amongst the Volunteer IAIGs, with the extent of unrated assets having a large impact; and

c) the range of commercial mortgage holdings also varied significantly amongst Volunteer IAIGs, suggesting the use of more granular factors may be appropriate.

6.13.2 2016 Field Testing

554. Consequently, for 2016 Field Testing, the IAIS made the following key changes:

a) Volunteer IAIGs are allowed to take credit for management actions;

b) the ability to use credit rating agencies has been expanded, with A.M. Best ratings being allowed for reinsurance exposures and other agencies allowed where jurisdictional regulators recognise the agency and explicit acceptance has been provided by the IAIS. Data will also be collected on the use of U.S. NAIC designations and the impacts of not using those designations;

c) more granular stress factors are being used for commercial and residential mortgages, using a model similar to the model currently utilised by the U.S. NAIC; and

d) exposures to multilateral development banks and supranational obligations are given a 0% stress factor, with supplementary data collection of exposure information, the same as for sovereign exposures.

6.13.3 Open issues for consultation

555. The open issues for which the IAIS seeks input are:

a) reliance on the use of external credit ratings;

b) granularity for commercial and residential mortgages;

c) treatment of reinsurance exposures; and

d) treatment of sovereign exposures.

6.13.3.1 Reliance on the use of external credit ratings

556. There was no consensus from respondents to the 2014 ICS CD on reasonable alternatives for assessing credit quality that do not rely on rating agencies or on internal models.

557. To date, the IAIS approach to allowing the use of credit rating agencies for ICS purposes has been largely based upon the BCBS model used for banks, with some exceptions. At the same time, the IAIS is sensitive to the possible regional disparities caused by too strict of an adherence to stringent criteria, especially where those criteria may not have a substantive bearing on the credibility of the ratings provided by a particular credit rating agency.

Question 198. Do you support the approach used for 2016 Field Testing with respect to allowing the use of external credit ratings for ICS Credit risk purposes? Why or why not?

558. The IAIS is aware that some jurisdictions currently allow in their regulatory framework for the use of ratings and/or designations that are not issued by credit rating agencies; in particular, some jurisdictions allow for the use of ratings and/or designations provided by a supervisory-owned process (eg, the NAIC Securities Valuation Office). The IAIS is currently assessing under what conditions and to what extent the ICS should incorporate the use of such ratings and/or designations. In this context, some of the key issues are listed below:

a) Should a supervisory-owned process be subject to the same criteria used for the recognition of rating agencies? If “no”, what criteria are most relevant for a supervisory-owned process?

b) Should the IAIS encourage the use of a supervisory-owned process to help reduce reliance on the use of credit rating agencies?

c) If a supervisory owned process limits the access to ratings/designations, could this change IAIG investment behaviour and/or possibly create “level playing field” issues across some jurisdictions? If “yes”, how could this be addressed?

Question 199. Does any alternative to the use of ratings issued by credit rating agencies exist in the regulatory framework of your jurisdiction (eg supervisory-owned processes)? Please provide details.

Question 200. Should the IAIS allow the use of ratings and/or designations that are not issued by credit rating agencies, for example, ratings and/or

designations that are issued by a supervisory-owned process (eg, the NAIC Securities Valuation Office)? Please explain.

(1) If "yes" to Question 200, should the IAIS consider modifying the criteria for the recognition of rating providers, taking account of the specific features of the supervisory-owned process? Please explain.

(2) If "yes" to Question 200, are the criteria for credit rating agencies appropriate for alternatives to the use of credit rating agencies? Please explain.

Question 201. Are there any additional factors the IAIS should consider when deciding on whether to allow in the ICS the use of credit assessments (eg ratings or designations) from sources other than credit rating agencies? If "yes", please explain and provide details.

6.13.3.2 Granularity of commercial and residential mortgage factors

559. Respondents to the 2014 ICS CD did not express a general consensus of views on how to produce an internationally applicable, practical risk segmentation definition for commercial and residential mortgages.

560. Nevertheless, the IAIS felt that more granularity of commercial and residential mortgages would be a useful objective given the observed wide range of mortgage portfolio holdings amongst the Volunteer IAIGs. Consequently, for 2016 Field Testing, a stress factor model is being tested for commercial and residential mortgage factors that is based upon the model currently used by the U.S. NAIC for risk-based capital (RBC) purposes.

Question 202. Is the approach adopted for 2016 Field Testing for commercial and residential mortgage Credit risk charges appropriate for the ICS standard method? Please explain. If "no", please provide specific proposals for how it should be changed as well as supporting rationale and evidence.

6.13.3.3 Treatment of reinsurance exposures

561. Many respondents to the 2014 ICS CD indicated that the approach used to determine Credit risk charges for reinsurance exposures should be different from the approach used for corporate exposures – citing differences in risk features between these types of exposures.

562. Most notably, some believe the 'substitution approach' currently applied for collateralised reinsurance is not appropriate on the basis that there would typically be little correlation between reinsurer and collateral default. The IAIS continues to explore alternatives such as a double default approach and a 'haircut' approach.

a) Under a double default approach, the Credit risk factor applied to a collateralised reinsurance exposure is based on the joint probability of both the reinsurer and the issuer of the collateral defaulting. This probability will normally be lower than both

the probability of default of the reinsurer, and the probability of default of the issuer of the collateral, as the two Credit risks are unlikely to be perfectly correlated.

b) Under a haircut approach, the reinsurance credit exposure is reduced by the amount of collateral, with the collateral amounts subject to "haircuts" to account for potential declines in value due to risks to which the collateral is exposed (typically Market and Credit risk).

563. While the IAIS has explored other alternative approaches, no specific and satisfactory alternative has emerged for 2016 Field Testing.

Question 203. Should the IAIS continue to explore a different approach for Credit risk from reinsurance exposures, and in particular, for collateralised reinsurance? Why or why not? If "yes", please provide specific proposals, rationale and evidence to support the proposals.

6.13.3.4 Treatment of sovereign exposures

564. The IAIS continues to apply a 0% risk charge to sovereign exposures.

565. A key consideration in continuing to maintain a 0% stress factor for sovereign exposures is that the BCBS is currently re-examining their approach to sovereign credit exposures for bank capital purposes. In order to avoid creating significant differences in the capital treatment of sovereign exposures between banks and insurers, which could raise 'level playing field' issues and create opportunities for sectoral arbitrage, the IAIS will reconsider this matter after release of ICS Version 1.0.

6.13.4 General comments

Question 204. Are there any further comments on Credit risk that the IAIS should consider in the development of ICS Version 1.0? If "yes", please explain with sufficient detail and rationale.

6.14 Operational Risk

6.14.1 Background

566. The 2014 ICS CD focussed on a factor-based approach for the Operational risk charge. Under the proposal described in the 2014 CD, the Operational risk charge was determined by applying factors to a predetermined set of exposure measures. Three exposures measures were specified:

a) **the other risk charges in the example standard method** for the ICS capital requirement – for example, the sum of the other charges after any diversification credit;

b) **the business of the IAIG** – for example, exposure measures for non-life and life business, such as premiums or liabilities or account balance. Additional factors could be developed to be applied to exposure measures such as growth in premium; or

c) a combination of both (a) and (b).

567. Stakeholders expressed support for a factor-based approach and the recognition of the increased risk associated with excessive growth. Growth could be indicative of an increase in the Operational risk of an IAIG, such as through acquisitions or entries into new lines of business. Option b) above was widely, but not exclusively, supported.

568. The 2015 Field Testing approach to Operational risk followed the approach outlined in the 2014 ICS CD. A high level summary of results from 2015 Field Testing is included in section 6.1.1 of this document.

6.14.2 2016 Field Testing

569. 2016 Field Testing will continue to explore the same design as 2015 Field Testing and consider all three options above for the exposure measure. Without prejudice to further developments of the ICS, Option b) is used in 2016 Field Testing as the default option for the calculation of the ICS capital requirement. Further details can be found in the 2016 Technical Specifications.

570. 2016 Field Testing will also consider and assess several issues, including the level of calibration (eg individual factors and their relativities), other possible exposure drivers, levels of granularity, refinements to the specification of the 'growth' component, and potential geographical differentiation.

6.14.3 Open issues for consultation

571. The open issues for which the IAIS seeks input are the appropriateness of exposure measures and the appropriateness of the specified factors.

572. The current exposures and factors are provided in the 2016 Technical Specifications. These exposures and factors are not finalised.

Question 205. Should the IAIS use exposures that are reported before the impact of ceded reinsurance for determining the Operational risk charge? Please explain.

Question 206. Are the proposed Operational risk exposures appropriate for the ICS standard method? Please explain.

Question 207. Are the proposed Operational risk factors appropriate for the ICS standard method, both in terms of size and relativity? Please explain.

6.14.4 General comments

Question 208. Are there any further comments on Operational risk that the IAIS should consider in the development of ICS Version 1.0? If "yes", please explain with sufficient detail and rationale.

6.15 Aggregation/Diversification

6.15.1 Background

573. The aggregation/diversification section of the 2014 ICS CD focussed on correlation matrices (ie a variance-covariance approach).

574. Comments received on aggregation/diversification within the 2014 ICS CD were considered and resolutions of those comments were published on the IAIS website.

575. In summary, there was widespread, although not universal, support for both the use of correlation matrices and the use of multiple steps in the calculation of the aggregation/diversification benefit for the ICS standard method capital requirement calculation.

576. The 2015 Field Testing approach to aggregation/diversification followed the approach outlined in the 2014 ICS CD of taking multiple steps, aggregating sub-sets of individual risks, and then aggregating the multiple results from prior steps using a sequence of correlation matrices. A high level summary of results from 2015 Field Testing is included in section 6.1.1 of this document.

577. The approach included multiple steps in the ICS aggregation process, with some of these steps either implicitly or explicitly reflecting diversification:

a) individual risk components were calibrated at VaR (99.5%), which implicitly reflects the diversification within individual risks (eg the calibration of Non-life risk segments implicitly reflects the diversification within each segment);

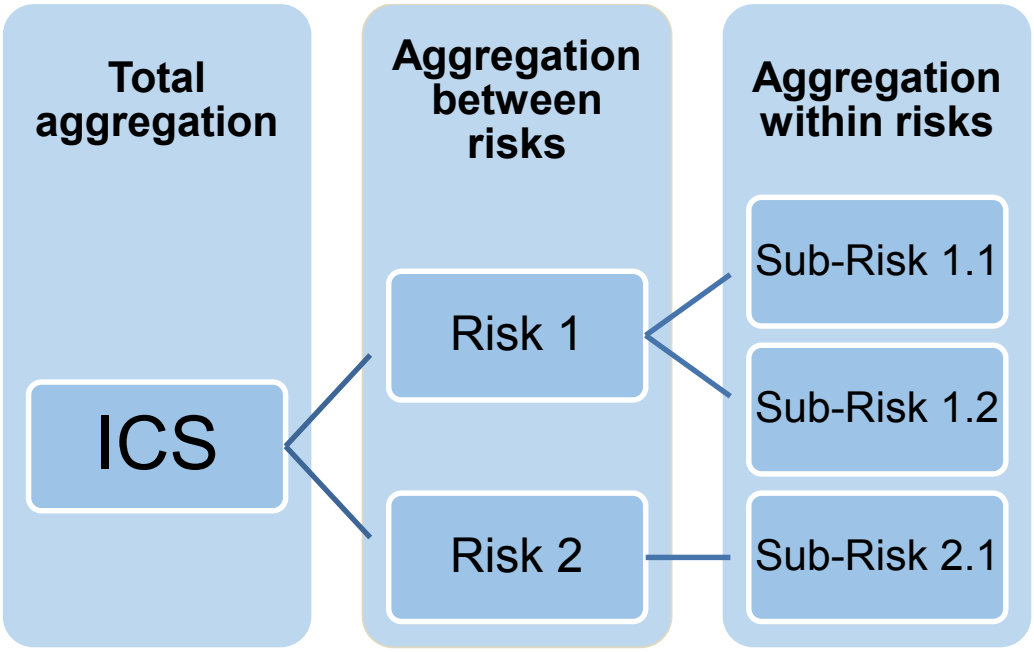
b) some risk components were calculated as the maximum between multiple stresses (eg upward or downward movements of exchange rates);

c) some individual risks were added using a simple sum (eg life risks in different geographic areas); and

d) some individual risks were aggregated using linear (tail) correlation assumptions (eg 50% correlation between Equity and Real Estate risks).

578. Some arrangements for risk sharing were also taken into account (eg risk sharing with policyholders for participating products).

Figure 11. Multiple-step aggregation approach through different sets of variance/covariance matrices

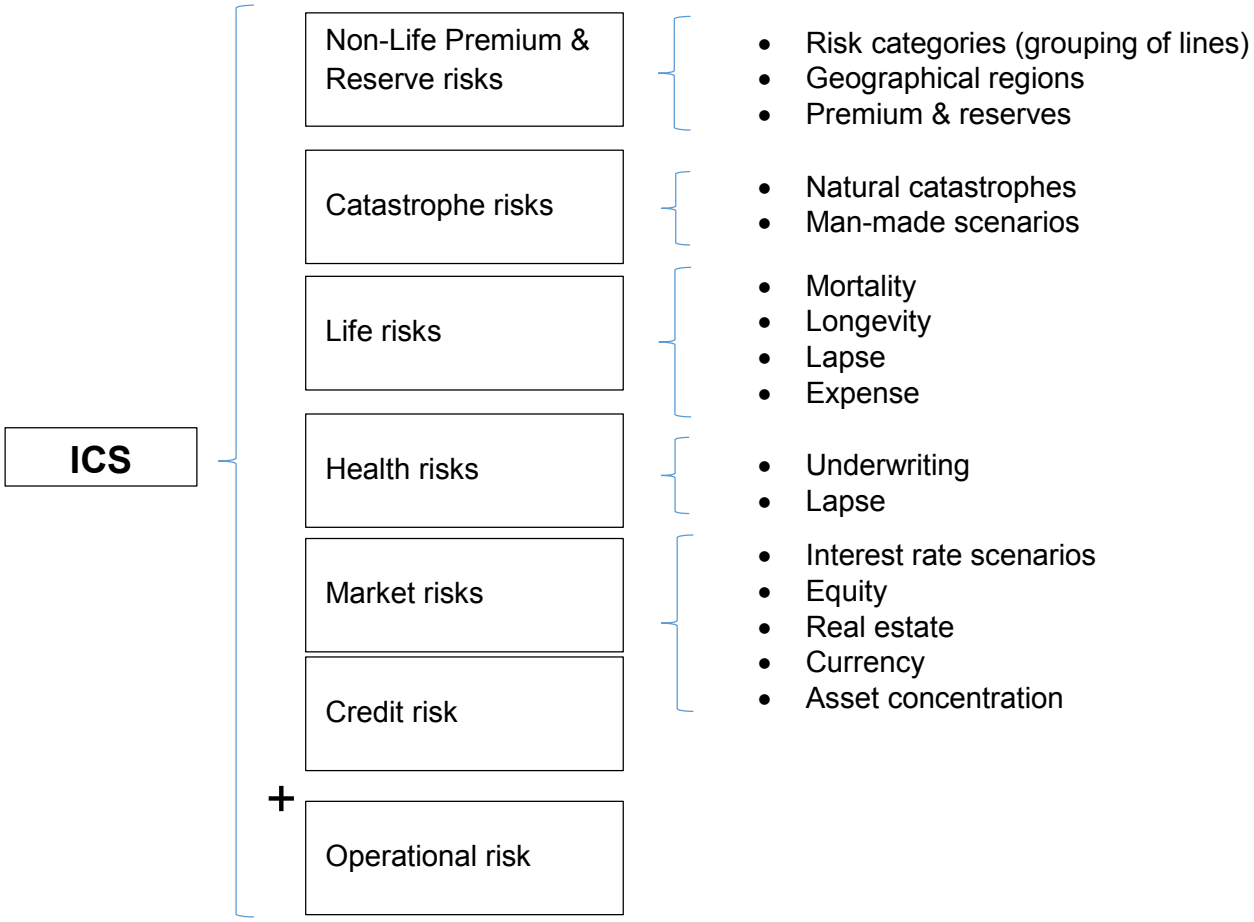


6.15.2 2016 Field Testing

579. The 2016 Field Testing approach follows the same approach as 2015 Field Testing. Risks have been aggregated in multiple steps using correlation matrices. The structure has been adapted to the changes in the design of the ICS capital requirement (noting the inclusion of a separate Health risk charge).

580. The structure of correlation matrices set out in the 2016 Field Testing Template represents a trade-off between simplicity and risk sensitivity that is deemed appropriate for the standard method. For instance, the multiple steps approach offers the benefit of limiting the number of correlation parameters to be prescribed and calibrated, but reduces the risk sensitivity that a single matrix (including the correlation between each individual risk) would have produced.

Figure 12. Standard Method Aggregation structure



581. The correlation parameters used for 2016 Field Testing are largely unchanged from 2015 Field Testing. As the design and calibration of the individual risk components are finalised, the IAIS will consider if and how the correlation parameters will be reviewed. Some data collected as part of 2016 Field Testing for the principal purpose of the calibration of individual risks could also inform a review of the correlation factors.

6.15.3 Open issues for consultation

582. The open issues for which the IAIS seeks input are:

a) structure of the aggregation calculation; and

b) calibration of the correlation parameters.

6.15.3.1 Structure of the aggregation calculation

Question 209. Is the structure of the correlation matrices used for 2016 Field Testing appropriate? If "no", please provide specific alternative suggestions and evidence on why this approach would be more appropriate.

6.15.3.2 Calibration of correlation parameters

583. In the context of the ICS standard method, the correlation parameters should be calibrated in order for the ICS to meet its target criteria (ie a 99.5% VaR confidence level). Correlation parameters that are valid for the tail of distributions might differ from parameters valid for the average or lower part of the distributions. As an example, in a stressed environment some correlations may increase.

584. The availability of data on which to base a calibration of the correlation parameters is limited. As such, the calibration will include a material degree of judgement.

Question 210. Should the calibration of the correlation parameters for the ICS standard method include a material degree of judgement since relevant and available data are limited? Please explain. If "no", please provide rationale, specific suggestions and evidence or references to support an alternative approach.

Question 211. How could the IAIS combine data and judgement in the calibration of correlation parameters for aggregation and diversification?

Question 212. Are there available data that would be relevant for the calibration of the correlation parameters of the ICS standard method? Please explain.

585. **Table 15** below provides the variance/covariance matrix setting out the correlation factors for the **aggregation between risks** (Non-life, Catastrophe, Life, Health, Market and Credit risks), as set out in the 2016 Field Testing Technical Specifications.

Table 15. Variance/Covariance matrix – correlation between risks

Correlation factors for ICS standard method						
	Non-life	Catastrophe	Life	Health	Market	Credit
Non-life	100%	25%	0%	0%	25%	25%
Catastrophe	25%	100%	25%	25%	25%	25%
Life	0%	25%	100%	25%	25%	25%
Health	0%	25%	25%	100%	25%	25%
Market	25%	25%	25%	25%	100%	25%
Credit	25%	25%	25%	25%	25%	100%

Question 213. Are the correlation factors being used between ICS risks appropriate for the ICS standard method? Please explain. If "no", please provide rationale and alternative suggestions supported by evidence.

586. The aggregation and correlation factors applied for Non-life and Catastrophe risks are discussed in section 6.10 and section 6.11 respectively.

587. The table below provides the variance/covariance matrix setting out the correlation factors for the **aggregation within life risks** (Mortality, Longevity, Lapse and Expense risks), as set out in the 2016 Field Testing Technical Specifications.

Table 16. Variance/Covariance matrix – Life risks

Life risk – correlation factors for ICS standard method				
	Mortality	Longevity	Lapse	Expense
Mortality	100%	-25%	0%	25%
Longevity	-25%	100%	25%	25%
Lapse	0%	25%	100%	50%
Expenses	25%	25%	50%	100%

Question 214. Are the correlation factors being used for Life risks appropriate for the ICS standard method? If "no", please provide rationale and alternative suggestions supported by evidence.

588. The table below provides the variance/covariance matrix setting out the correlation factors for the **aggregation within Market risks** (Interest Rate, Equity, Real Estate, Currency and Asset Concentration risks), as set out in the 2016 Field Testing Technical Specifications. Please note that the three Interest Rate risk scenarios are included in the matrix in order to allow for different correlation factors between interest rate and the other market risks, however a single combination of the first (up or down) and second (flattening) principal components will contribute to the aggregated market risk charge (refer to section 6.12.1 for further details regarding the calculation of the Interest Rate risk charge).

Table 17. Variance/Covariance matrix – Market risk - correlation between risks

Market risk – correlation factors for ICS standard method							
	IRR Upw.	IRR Downw.	IRR Flat	Equity	Real Estate	Currency	Assets Concentr.
Interest rate upward	100%	100%	100%	25%	0%	25%	0%
Interest rate downward	100%	100%	100%	50%	25%	25%	0%
Interest rate flattening	100%	100%	100%	25%	25%	25%	0%
Equity	25%	50%	25%	100%	50%	25%	0%
Real Estate	0%	25%	25%	50%	100%	25%	0%
Currency long	25%	25%	25%	25%	25%	100%	0%
Assets Concentration	0%	0%	0%	0%	0%	0%	100%

Question 215. Are the correlation factors being used for Market risks appropriate for the ICS standard method? If "no", please provide rationale and alternative suggestions supported by evidence.

6.15.4 General comments

Question 216. Are there any further comments on Aggregation and Diversification that the IAIS should consider in the development of ICS Version 1.0? If "yes", please explain with sufficient detail and rationale.

7 Holistic approach to tax within the ICS

7.1 Background – taxes in 2015 and 2016 Field Testing

589. Taxes impact different parts of the ICS. Since there are three key components of the ICS: Valuation, Capital Resources and Capital Requirements the effect of taking taxes into account can be considered in each key component. The treatment of taxes in relation to each of these components in 2015 Field Testing is set out below.

7.1.1 Tax effects of valuation adjustments on both MAV and GAAP Plus

590. Considering that taxes and the actual tax cash flows have an impact on the solvency position of IAIGs, it would be relevant to consider them in the ICS valuation bases (MAV and GAAP Plus).

591. Deferred taxes as reported on an ICS balance sheet, whether MAV or GAAP Plus, arise from differences between the value ascribed to an asset or a liability for tax purposes, and its value in accordance with either MAV or GAAP Plus valuation rules. Deferred taxes may also result from certain carry forward items such as tax credits and operating loss carry forwards. Deferred taxes recognised for local (jurisdictional) GAAP purposes are adjusted to reflect the different valuation approaches under the ICS. The impact of this adjustment which flows through to capital resources can be significant.

592. The most significant component of this deferred tax adjustment, as observed in 2015 Field Testing, resulted from the conversion of GAAP insurance liabilities to current estimates which created material, additional deferred tax liabilities (DTLs) as typically current estimates in both MAV and GAAP Plus were less than GAAP insurance liabilities.

7.1.2 No tax effect on CC MOCE in 2015 Field Testing

593. For simplicity the proposed options for CC MOCE have not been subject to tax effects in Field Testing thus far. If CC MOCE were to be tax-effected, that would offset to some extent the material DTLs created by the valuation adjustment from GAAP insurance liability to current estimates.

7.1.3 Deduction and add back of Deferred Tax Assets (DTAs) in capital resources

594. With respect to capital resources, DTAs are deducted from Tier 1 capital resources and added back as Tier 2 capital resources if considered realisable. Specific criteria to determine DTA realisability have not yet been proposed for Field Testing. In 2015, Volunteer IAIGs have treated the entire DTA balance including those created as a result of differences in valuation as realisable (ie Tier 2 capital).

7.1.4 Top-down tax effect on the capital requirement

595. In 2015 and as currently specified under Field Testing, the ICS Capital Requirement is calculated based on amounts derived from the ICS balance sheet (MAV or GAAP Plus) through the application of stresses, factors and models in the case of Catastrophe risk. These individual risk calculations are calculated on a pre-tax basis and then aggregated taking into account diversification. The ICS capital requirement is subject to an overall tax effect.

Specifications provided for the application of a global effective tax rate to the post-diversification, pre-tax capital requirement (a top-down approach) which had the effect of materially reducing the ICS capital requirement. This meant notionally recognising all additional DTAs in the calculation of the post-tax capital requirement.

7.1.5 Acknowledged inconsistencies in tax treatment across the ICS

596. There are a number of examples of potential inconsistencies and elements that have not been adequately specified for the ICS in 2016 Field Testing, examples being:

a) Inconsistencies:

i) allowing a tax effect for valuation differences between GAAP and ICS valuation approaches including the conversion of GAAP insurance liabilities to current estimates but not applying a similar effect to CC MOCE; and

ii) allowing DTAs only to the extent of realisability in capital resources for the pre-stress balance sheet but allowing the full tax effect in the ICS capital requirement (post-stress balance sheet) without a realisability test;

b) Elements not adequately specified:

i) considering the impact of deferred tax assumptions within the CC MOCE calculation;

ii) specifying an explicit method for evaluating the realisability of DTAs in Capital Resources including possible deductions or limits;

iii) specifying an explicit method for determining a global effective tax rate[47]; and

iv) specifying an explicit method for evaluating realisability in a post stress scenario including issues related to estimation, stress and prior utilisation (double counting) of future tax profits.

7.2 Open issues for consultation

597. The open issues for which the IAIS seeks input are:

a) valuation;

b) margin over current estimate;

c) capital resources; and

[47] Note that the IAIS has not determined whether a top-down approach applying a global effective tax rate will be the way forward in the ICS.

d) ICS capital requirement.

7.2.1 Valuation

598. The fundamental question to be addressed is whether it is appropriate to include the impact of taxes in the calculation of the ICS Ratio. There are clearly economic impacts related to the timing of tax related cash flows which are reflected in deferred tax accounting. However there are also operational concerns and potential issues around accuracy and verifiability that may reduce the utility of reflecting tax impacts on the ICS post-valuation balance sheet under the MAV or GAAP Plus approaches.

599. A portion of any DTA balance can either be offset against DTLs, applied to tax profits from prior tax returns, or claimed as credits. However there is uncertainty as to the realisability of the remaining portion of DTA that relies on future taxable income. In many jurisdictions, statutory rules are more conservative and limit or prohibit the inclusion of DTAs that depend on future tax income to account for the level of uncertainty related to forecasting future tax profits.

600. The level of the granularity of the deferred tax calculation may impact the ability to evaluate realisability of the DTA. In order to determine which DTA and DTL amounts could be legally offset and what tax profit would be available to offset losses, it is necessary to identify the local tax jurisdiction under which the taxes would be assessed. When developing a consolidated group balance sheet, it may be very difficult or impractical to perform calculations at this level to support deferred tax adjustments. Thus if a top-down type approach is pursued under the ICS, there may be a need to reflect this uncertainty through a deduction or partial deduction of the DTA balance.

601. Another design challenge relates to the impact of management actions on realisability of DTAs. A number of jurisdictional GAAPs allow for prudent and reasonable tax strategies to be contemplated in the evaluation of realisability of DTAs. Inclusion of such tax strategies as applicable to a post-valuation balance sheet could present difficulties for supervisors regarding verifiability.

602. Design options for reflecting the impact of revaluation under GAAP Plus and MAV on deferred taxes that are currently being evaluated and are open for comment are as follows:

a) require that the impact revaluation on deferred taxes be reflected in the consolidated balance sheet under GAAP Plus and MAV but that the calculation would be performed using a top-down methodology with some consideration for the impreciseness of the calculation applied through a DTA reduction and or limit;

b) require a more precise bottom up calculation that may not require an adjustment to any resulting DTA but could pose operational challenges and further rule complexities; and

c) other options as put forth by Volunteer IAIGs and stakeholders.

603. Note that these considerations on the granularity of the calculation are also considerations for the determination of the tax effect on the ICS capital requirement.

Question 217. What would be an appropriate level of granularity that would strike a balance between accuracy and operational feasibility/complexity?

Question 218. Would an approach that utilises an effective tax rate at the country level be appropriate? Please explain.

Question 219. Please provide any commentary on what would be considered an appropriate method to derive a global effective tax rate. Please support any proposed method with a short list of pros and cons.

Question 220. If post valuation adjustment DTAs would be included as a component of capital, a method to determine realisability or a partial deduction would also likely be an element of the calculation. Do you have any suggestions for an appropriate method to determine realisability of DTAs given a top-down approach? Would you prefer a partial deduction method? Please provide a rationale for your answer.

Question 221. Should the IAIS pursue a more bottom up approach to determining deferred taxes post valuation adjustment? If "yes", please provide any commentary to support this view.

Question 222. Please provide any other options that should be considered by the IAIS with respect to reflecting the impact of revaluation under GAAP Plus and MAV on deferred taxes.

604. Under most GAAPs, DTAs and DTLs are not discounted. This puts them at odds with other items on the balance sheet which are valued on the basis of discounted future cash flows. If deferred taxes arising from timing differences were to be discounted, this would require the date where the timing difference impacted the tax calculation to be determined. This would be particularly challenging in the case of investments, since it would require decisions to be made on which were to be held to maturity and which traded – and when. This raises a series of questions:

Question 223. Should DTAs and DTLs be adjusted in both the MAV and GAAP Plus approaches to take into account the effect of discounting to ensure they are valued consistently with other material balance sheet items? Please explain.

Question 224. If the answer to the above question is "yes", should a restriction be applied to the discounting of only one type of DTA or DTL, eg long-dated item? Please explain.

Question 225. Should an approximation of the discounting effect on a post-stress DTA be taken into account in any tax adjustment to the ICS capital requirement? Please explain.

7.2.2 Margin over current estimate

605. Another element of the tax discussion concerns the calculation of the tax impact on margin over current estimate (MOCE). There are two methods currently under consideration for the calculation of MOCE, referred to as the cost of capital and the prudence methods. Under a going concern assumption, MOCE may be considered as a permanent book tax difference as it would not be a tax deductible expense. Thus there is a question as to whether there should be a deferred tax impact resulting from recording a MOCE. It is notable however that removing margins or inherent prudence in GAAP valuations to arrive at a current estimate may result in a tax effect.

606. In addition, the cost of capital approach assumes that liabilities would transfer to a third party. It is not clear how or whether assumptions regarding deferred tax should be included as part of this calculation.

Question 226. Should MOCE be tax effected? If "yes", what effective tax rate should be applied, and why? Please answer for both prudence and cost of capital MOCE.

Question 227. Should deferred tax assumptions be incorporated into the cost of capital MOCE calculation? If "yes", please specify.

7.2.3 Capital resources

607. With respect to capital resources, the issue of realisability of DTAs and the level of quality of capital to which any realisable DTAs should be assigned needs to be resolved.

608. DTAs that are recognised on GAAP balance sheets are usually subject to a realisability test. However, supervisors may wish to apply a more prudent realisability test to those DTAs based on the result of the post-valuation balance sheet or may apply a partial deduction or an overall limit.

609. Due to the uncertainly regarding DTA realisability, which may be more acute during times of stress, and the inability for IAIGs to transfer or monetise DTAs, the IAIS may consider an overall limit on the percentage of capital that can be comprised of DTAs.

Question 228. Please provide any specific recommendations for an appropriate realisability methodology.

Question 229. Please provide any input or feedback on the consideration to limit the DTA in capital resources either through a partial deduction and/or an overall limit.

7.2.4 ICS capital requirement

610. The current approach in Field Testing of applying a top-down tax effect on the post-diversification capital requirements results in a significant reduction in the capital requirement

calculated on a pre-tax basis. How this impact is calculated under the ICS is open for consultation in this ICS CD. There are numerous potential issues and complexities around this design element of the capital requirement calculation. Similar to the valuation discussion there are questions that must be resolved around the level of granularity the calculation (eg top-down, bottom-up) and realisability of the DTA. In addition there are further complications from the inclusion of management actions and diversification and allocating these to individual entities in different tax jurisdictions if a bottom-up approach was to be applied.

611. One management action which IAIGs may wish to assume, if applicable, is that they can obtain value for the tax effects of the stress loss by selling tax losses to other group companies which have taxable profits. In the absence of a bottom-up approach it is not clear how a relevant realisability analysis could be performed. In particular, if entities wished to assume that they could obtain value for the tax effect by selling tax losses to unregulated group companies (ie group companies which are not regulated insurance, banking or securities companies), it is not clear how entities would assess whether these group companies would still be profitable in stress.

612. Thus the IAIS will be gathering proposals from Volunteer IAIGs and stakeholders based on how they currently reflect taxes in their internal models to use as the basis for formulating design options around the treatment of post-stress deferred taxes. One option is to ignore the impact of taxes on the post-stress balance sheet in favour of an adjustment to the overall calibration of the ICS.

Question 230. Is there an appropriate methodology for evaluating the realisability of DTAs under stress which would lead to an appropriate treatment of deferred tax in the ICS capital requirement? If "yes", please explain.

Question 231. Which of the following approach should the IAIS consider for including the impact of taxes in the calculation of the ICS capital requirement? Please explain including a list of pros and cons.

- **Should the tax impact be included in the individual ICS risk charge calculations pre diversification?**
- **Should the IAIS ignore the tax impact on the ICS capital requirement, and instead reflect that impact in the calibration of the ICS capital requirement through the calibration of individual ICS risk charge calculations pre-diversification? (Please provide any suggestions as to how the individual ICS risk charges could be recalibrated to reflect this.)**
- **Should the ICS capital requirement be calculated in a similar fashion to the current Field Testing approach, where each ICS risk charge is calculated on a pre-tax basis and the tax impact computed on a consolidated post-diversification basis using a global effective tax rate?**
- **Should any other approach be used? (Please provide details)**

Question 232. Should tax strategies/management actions and diversification impacts be reflected/allocated to tax jurisdictions if the deferred tax impact is calculated using a bottom-up approach? If "yes", how should this be reflected/allocated?

Question 233. Should the IAIS address the substantiation of the realisability of DTAs? If "yes", please explain, taking into account issues related to a stress DTA (including defining future tax profits, reflecting the shock on future profits and avoiding double counting).

Question 234. Should groups be able to assume they can obtain value for the tax effects of the stress loss by selling tax losses to unregulated group companies which have taxable profits? If "yes", how would they assess whether these group companies would still be profitable in stress?

7.3 General comments

Question 235. Are there any further comments on the approach to tax within the ICS that the IAIS should consider in the development of ICS Version 1.0? If "yes", please explain with sufficient detail and rationale.

Glossary

Terms	Acronym	Description/Reference
2014 ICS Consultation Document	2014 ICS CD	http://www.iaisweb.org/page/supervisory-material/insurance-capital-standard
2015 Field Testing		See "2015 Quantitative Field Testing package" at http://www.iaisweb.org/page/supervisory-material/insurance-capital-standard
2015 Technical Specifications		See "Public 2015 Field Testing Technical Specifications" also known as the "Instructions for the April 2015 Quantitative Data Collection Exercise," at http://www.iaisweb.org/page/supervisory-material/insurance-capital-standard
2016 Field Testing		See "2016 Quantitative Field Testing package" at http://www.iaisweb.org/page/supervisory-material/insurance-capital-standard
2016 Technical Specifications		See "Public 2016 Field Testing Technical Specifications" also known as the "Instructions for the May 2016 Quantitative Data Collection Exercise," at http://www.iaisweb.org/page/supervisory-material/insurance-capital-standard
Accumulated Other Comprehensive Income	AOCI	*See section 4.2.5 on "2016 Field Testing"*
Available for Sale	AFS	
Basic Capital Requirements	BCR	See "IAIS Basic Capital Requirements for G-SIIs" and other related documents at http://www.iaisweb.org/page/supervisory-material/financial-stability-and-macroprudential-policy-and-surveillance
Basel Committee on Banking Supervision	BCBS	https://www.bis.org/bcbs/
Common Framework for the Supervision of Internationally Active Insurance Groups	ComFrame	http://www.iaisweb.org/page/supervisory-material/common-framework
Consistent and Comparable MOCE	CC MOCE	*See section 4.3 on "Margin Over Current Estimate (MOCE)"*

Terms	Acronym	Description/Reference
Cost of Capital MOCE	CoC MOCE	*See section 4.3.1 on "Background - Cost of Capital MOCE (CoC MOCE)"*
Credit Risk Adjustment	CRA	*See section 4.1.4.3 on "IAIS' response to stakeholder comments and Field Testing results"*
Deferred Tax Assets	DTAs	*See section 5.3.3 on "Treatment of items deducted from Tier 1 (DTAs, computer software intangibles, net defined benefit pension plan surplus asset)"*
Deferred Tax Liabilities	DTLs	*See section 7.2.1 on "Valuation"*
Enterprise Risk Management	ERM	The process and activities of identifying, assessing, measuring, monitoring, controlling and mitigating risks in respect of the insurer's enterprise as a whole http://www.iaisweb.org/page/supervisory-material/glossary
European Economic Area	EEA	http://www.efta.int/eea
Financial Sector Assessment Program	FSAP	https://www.imf.org/external/np/fsap/fssa.aspx
Financial Stability Board	FSB	http://www.fsb.org/
GAAP with Adjustments	GAAP Plus	*See section 4.2 on "GAAP with adjustments"*
Generally Accepted Accounting Principles	GAAP	https://en.wikipedia.org/wiki/Generally_accepted_accounting_principles http://www.accountingfoundation.org/gaap
Global Financial Crisis	GFC	https://en.wikipedia.org/wiki/Financial_crisis_of_2007-08
Global Systemically Important Financial Institutions	G-SIFI	http://www.fsb.org/2011/11/r_111104bb/
Global Systemically Important Insurers	G-SII	http://www.iaisweb.org/page/supervisory-material/financial-stability-and-macroprudential-policy-and-surveillance http://www.fsb.org/2014/11/2014-update-of-list-of-global-systemically-important-insurers-g-siis/ http://www.fsb.org/2015/11/2015-update-of-list-of-global-systemically-important-insurers-g-siis/

Terms	Acronym	Description/Reference
Higher Loss Absorbency	HLA	See "IAIS Higher Loss Absorbency Requirement for G-SIIs" and other related documents at http://www.iaisweb.org/page/supervisory-material/financial-stability-and-macroprudential-policy-and-surveillance
Insurance Capital Standard	ICS	http://www.iaisweb.org/page/supervisory-material/insurance-capital-standard
Insurance Core Principles	ICP	http://www.iaisweb.org/page/supervisory-material/insurance-core-principles
International Association of Insurance Supervisors	IAIS	http://www.iaisweb.org/home
International Financial Reporting Standards	IFRS	http://www.ifrs.org/About-us/IASB/Pages/Home.aspx
International Monetary Fund	IMF	http://www.imf.org/external/index.htm
Internationally Active Insurance Group	IAIG	See the Revised ComFrame draft 2014 at http://www.iaisweb.org/page/supervisory-material/common-framework
Lock-in Clause		A condition in the terms of a financial instrument which prescribes the circumstances under which distributions of capital or redemption of the instrument are not permitted in order to protect the solvency position of the issuing firm *See section 5.3.8 on "Prior supervisory approval for redemption of financial instruments"*
Long Term Forward Rate	LTFR	*See section 4.1.4 on "Discounting"*
Management Actions		*See section 6.5 on "Management actions"*
Margin Over Current Estimate	MOCE	A margin that exceeds the Current Estimate in valuation of technical provisions to cover the inherent uncertainty of those obligations. http://www.iaisweb.org/page/supervisory-material/glossary See also ICP 14.7
Market-Adjusted Valuation	MAV	*See section 4.1 on "Market-adjusted valuation (MAV) approach"*

Terms	Acronym	Description/Reference
National Association of Insurance Commissioners	NAIC	http://www.naic.org/
Net Asset Value	NAV	The value of assets minus the value of liabilities.
Organisation for Economic Co-operation and Development	OECD	http://www.oecd.org/
Other Comprehensive Income	OCI	*See section 6.12.1 on "Interest Rate risk"*
Own Risk and Solvency Assessment	ORSA	ICP 16 Enterprise Risk Management for Solvency Purposes
Prescribed Capital Requirement	PCR	A solvency control level above which the supervisor does not intervene on capital adequacy grounds. See ICP 17.4
Principal Component Analysis	PCA	https://en.wikipedia.org/wiki/Principal_component_analysis *See section 6.12.1 on "Interest Rate risk"*
Prudence MOCE	P-MOCE	See section 4.3.2 on "Background – The Prudence MOCE (P-MOCE)"
Reference date		The balance sheet date on which the ICS is calculated
Simplified Cox-Ingersoll-Ross Model		https://en.wikipedia.org/wiki/Cox-Ingersoll-Ross-model *See section 6.12.1 on "Interest Rate risk"*
Smith-Wilson Technique		http://www.finanstilsynet.no/Global/Forsikring%20og%20pensjon/Skadeforsikring/Tilsyn%20og%20overv%C3%A5king/Rapportering/A_Technical_Note_on_the_Smith-Wilson_Method_100701.pdf *See section 6.12.1 on "Interest Rate risk"*
Systemic Risk from Insurance Product Features	SRIPF	http://www.iaisweb.org/page/supervisory-material/financial-stability-and-macroprudential-policy-and-surveillance

Terms	Acronym	Description/Reference
Tail Value at Risk	Tail-VaR	Value at risk (VaR) plus the average excess over the VaR if such excess occurs over a specified amount of time. Sometimes also called "Conditional value at risk", it asks the question "If things do get bad, how much can we expect to lose?" http://www.iaisweb.org/page/supervisory-material/glossary
Value at Risk	VaR	An estimate of the worst expected loss over a certain period of time at a given confidence level http://www.iaisweb.org/page/supervisory-material/glossary
Field Testing Volunteer Insurance Groups	Volunteer IAIGs	*See section 1 on "Introduction"*