INTERNATIONAL ASSOCIATION OF
INSURANCE SUPERVISORS

Public

Risk-based Global Insurance Capital Standard Version 2.0

Public Consultation Document

31 July 2018

Comments due by 30 October 2018

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. 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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1 Introduction

1.1 Purpose of the ICS Version 2.0 consultation document (CD)

1. The purpose of this CD is to solicit feedback from stakeholders on the ICS ahead of the completion of ICS Version 2.0, scheduled for late-2019, before the monitoring period begins on 1 January 2020. This CD covers both issues related to the ICS Version 2.0 monitoring period and the technical aspects of the design and calibration of ICS Version 2.0. Amongst other things, the IAIS is soliciting feedback on:

- The expectations for the IAIS and supervisors during the five-year monitoring period of the reference ICS and additional supplementary reporting. For example, confidential reporting to the group-wide supervisor (GWS), interaction with supervisory colleges and the role of the IAIS during the monitoring period.
- The reference ICS components, ie the market-adjusted approach to valuation, criteria for qualifying capital resources and the standard method for determining the ICS capital requirement.
- The additional reporting, at the option of the GWS, of GAAP with Adjustments (GAAP Plus) and other methods of calculation of the ICS capital requirement, including internal models.
- The incremental costs and benefits of the ICS for internationally active insurance groups (IAIGs).

2. Compared to the field testing package, which includes the Technical Specifications, Template, Questionnaire and yield curve spreadsheets, this document is intended for all stakeholders. To this end, it describes issues in a less technical way than the Technical Specifications. It also explains the rationale for the design and calibration of the ICS components and, where relevant, the various options being considered. This document contains some qualitative observations from 2017 Field Testing. It should be noted that results will evolve in 2018 due to changes in the population of Volunteer Groups as well as changes in the design and calibration of the ICS components. While quantitative results are not provided in this document, the IAIS will, in due course, provide information on results and calibration statistics on the ICS.

3. The IAIS is aware that stakeholders have a number of questions related to the implementation of the ICS and, to the extent possible, this CD will address these questions. However, there may be a subset of issues for which the outcome may be dependent on the monitoring period or external third parties. These issues will therefore not be the subject of this ICS CD. For example:

- Transitional arrangements from existing supervisory regimes to the ICS. The IAIS acknowledges a need to consider the transition of existing arrangements when moving to implementation of ICS Version 2.0 as a Prescribed Capital Requirement (PCR). The IAIS will therefore be considering these issues during the monitoring period.
- 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.

- The extent to which existing jurisdictional 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. The implementation of the ICS as a minimum standard, taking into account specific market circumstances in respective jurisdictions, will be addressed during the monitoring period.
- Comparability of components of the reference ICS with the GAAP Plus valuation and other methods of the calculation of the ICS capital requirement. This will be addressed in a future consultation.

1.2 The consultation process

4. At the same time as the ICS Version 2.0 consultation, the IAIS is also consulting on the Common Framework for the Supervision of IAIGs (ComFrame). While ICS is part of ComFrame, it was previously agreed that ICS Version 2.0 would be adopted as a stand-alone document in 2019. As such, there are two separate consultation documents.

5. Feedback on this CD is invited by 30 October 2018. The IAIS is seeking responses to the specific questions posed in each section of the CD. Each section of the CD will also include a question for feedback on issues not covered by the specific questions. Feedback on the ICS that is not covered by a specific question in the CD may be provided in the general feedback section of the consultation tool.

6. Questions are structured to require a specific answer mostly in the form of Yes/No answers. Stakeholders are then asked to provide rationale and/or evidence supporting the response. Explanations are most helpful if they:

- Are clear as to the issue being addressed;
- Provide a clear rationale and basis for comments made; and
- Include evidence or references (eg to publicly available documents or data sources) to support the response.

7. Comments must be sent electronically via the IAIS Consultations webpage.[1] All comments will be published on the IAIS website unless a specific request is made for comments to remain confidential.

8. References are made throughout this document to the resolution of comments to the 2014 and 2016 ICS CDs, as well as the Field Testing packages from 2015 through 2018. These documents can be found on the IAIS public website.[2]

1.3 Next steps

9. The IAIS will carefully consider comments from IAIS Members and stakeholders on this CD and will revise the ICS where appropriate. The feedback received on this CD and the

[1] http://www.iaisweb.org/page/consultations/current-consultations

[2] See http://www.iaisweb.org/page/supervisory-material/insurance-capital-standard for the IAIS resolutions to comments on the 2014 ICS CD, the ICS Version 1.0 for extended field testing document, as well as the all Field Testing packages.

analysis of field testing data will be critical in the refinement of ICS Version 2.0 prior to the start of the monitoring period.

10. The broad timetable for the ICS and field testing is summarised in Table 1 as follows:

Table 1: ICS and field testing timetable

DATE	MILESTONE
May 2018	Launch of 2018 Quantitative Field Testing
July 2018	Publication of ICS Version 2.0 CD and comprehensive ComFrame consultation
September 2018	Field Testing submissions due
October 2018	Feedback on ICS Version 2.0 CD and comprehensive ComFrame consultation due
April 2019	Launch of final round of ICS Field Testing
July 2019	Data due for 2019 Field Testing
IAIS 2019 General Meeting	Adoption of ComFrame, including ICS Version 2.0 for the monitoring period
Early-2020 to Late-2024	Five-year monitoring period
November 2024	Adoption of the ICS Version 2.0 for implementation as a group-wide consolidated PCR

2 Insurance Capital Standard

2.1 History/background

11. 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."[3] 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.[4]

12. Since its announcement in October 2013, the IAIS has been undertaking a multi-year quantitative Field Testing process with Volunteer Insurance Groups (Volunteer Groups), including potential Internationally Active Insurance Groups (IAIGs) and current Global Systemically Important Insurers (G-SIIs). The IAIS has conducted three quantitative Field Testing exercises in the development of the ICS - in 2015, 2016 and 2017. Currently, the IAIS is conducting its fourth quantitative ICS Field Testing exercise, with data to be submitted in August 2018. Each quantitative ICS Field Testing exercise has been informed by IAIS analysis of submitted data, as well as additional feedback and comments provided by Volunteer Groups as part of their submissions or through dedicated field testing workshops. 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 two public consultations on ICS matters.

13. Once adopted, the ICS will apply to IAIGs and G-SIIs as part of ComFrame.

2.2 The ComFrame Project

2.2.1 Definition of an IAIG

14. The criteria to determine an IAIG are set out in ComFrame Standard CF 23.0a and summarised as follows:

- Internationally active:
  - Premiums are written in three or more jurisdictions; and
  - Gross written premiums outside of the home jurisdiction are at least 10% of the group's total gross written premiums.
- Size (based on a three-year rolling average):
  - Total assets are at least USD 50 billion; or
  - Gross written premiums are at least USD 10 billion.

15. There are currently approximately 50 Volunteer Groups participating in 2018 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 Groups achieves a broad and balanced coverage of geographical insurance markets and insurance

[3] http://www.financialstabilityboard.org/publications/r_130718.pdf
[4] http://www.financialstabilityboard.org/wp-content/uploads/pr_141106a.pdf

products, it is important to consider ICS Version 2.0 during the monitoring period with a more complete set of likely IAIGs. This will enable the IAIS to assess the appropriateness of the ICS for different risk profiles.

2.2.2 Integration of the ICS into ComFrame

16. ComFrame is being designed as a framework for the supervision of IAIGs. ComFrame consists of both quantitative and qualitative supervisory requirements tailored to the complexity and international scope of IAIGs. The ICS is one of the components of ComFrame, which is a comprehensive framework with an integrated structure covering all elements of the framework, in order to ensure their consistency. For this reason, in June 2017 the IAIS agreed to take the following steps regarding the integration of the ICS into ComFrame:

- ICS Version 2.0 will be adopted in 2019 as a stand-alone document;
- ICP 14 (Valuation) and ICP 17 (Capital Adequacy) will not be reviewed until after ICS Version 2.0 is adopted;
- ComFrame text will be adopted, minus ICS Version 2.0, by end-2019 taking the above into account; and
- Integration of ICS Version 2.0 text into ComFrame text will occur after adoption of ICS Version 2.0.[5]

17. The IAIS acknowledges comments from stakeholders that there needs to be a balance between qualitative and quantitative requirements for IAIGs. This issue will be further explored as part of the consideration for how the ICS will be integrated with other parts of ComFrame.

2.3 Principles for ICS development

18. The IAIS published a first version of the principles set forth in Table 2 in September 2014. Principles 3 and 6 were subsequently amended following the 2014 ICS CD. These principles have been followed in the 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.

[5] Subsequently, a five-year monitoring period for ICS Version 2.0 was agreed. As such, the integration of ICS Version 2.0 text into ComFrame text will occur after adoption of ICS Version 2.0 for the monitoring period.

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.

19. Work continues on the IAIS holistic framework for the mitigation of systemic risk . Once this is completed, there may be a need to update the ICS Principles.

2.4 ICS Goals

20. On 25 June 2015, the IAIS announced a series of goals related to the development of the ICS. These goals clarified the delivery process for the ICS. Further clarifications on the delivery and implementation process were provided by the IAIS on 2 November 2017.

21. The IAIS embarked on the development of the ICS to create a common language for supervisory discussions of group solvency to enhance global convergence among group capital standards. Setting out goals for the development of the ICS (ie Version 1.0, Version 2.0 and the Ultimate Goal) indicated the need to take a carefully considered step-by-step approach

to this convergence process. The decision to take a two-phase approach to the implementation of ICS Version 2.0 is a further demonstration of this stepwise convergence process.

2.4.1 Goal for ICS Version 1.0 for extended field testing

22. The goal for this milestone was the delivery of an ICS for extended field testing purposes based on:

- the identified two valuation approaches, ie i) the market-adjusted valuation (MAV) and ii) GAAP with adjustments (GAAP Plus) valuation; and
- a standard method for calculating the ICS capital requirement.

23. This goal also stated that upon completion of ICS Version 1.0 for extended field testing, 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.

2.4.2 Goal for ICS Version 2.0

24. 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.

25. Subsequently, the IAIS agreed that implementation of ICS Version 2.0 will be conducted in two phases, as described in Section 2.5.

2.4.3 Ultimate Goal

26. 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.

27. 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."

2.5 Implementation of ICS Version 2.0: the Kuala Lumpur (KL) Agreement

28. On 2 November 2017, the IAIS announced a unified path to convergence of group capital standards in furtherance of its ultimate goal of a single ICS that achieves comparable outcomes across jurisdictions. The agreement clarifies that implementation of ICS Version 2.0 will be conducted in two phases:

- A five-year "monitoring period", during which ICS Version 2.0 will be used for confidential reporting to the GWS and discussion in supervisory colleges.
- The "implementation of the ICS as a group-wide PCR".

29. Implementation of ICS Version 2.0 will have two equally important components:

- Mandatory confidential reporting by all IAIGs[6] of a reference ICS; and
- Additional reporting, at the option of the GWS, of ICS based on GAAP Plus valuation and/or other methods of calculation of the ICS capital requirement.

30. During the monitoring period, ICS will not be used as a PCR[7] (ie the ICS results will not be used as a basis to trigger supervisory action). This will allow GWSs and host supervisors to discuss and assess the ICS in comparison with existing group capital standards or calculations that are in development. The monitoring period will last for five years starting from 2020.[8]

31. Once implemented as a PCR at the end of the monitoring period, ICS Version 2.0 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.

32. The IAIS is a standard setting body and does not have any legal power to directly mandate the implementation of the ICS as a PCR in jurisdictions. However, the IAIS By-Laws contain the following clause at Article 6(6):

> *(6) Members commit to:*
>
> *(a) pursue the mission of the Association;*

[6] During the monitoring period, other interested Volunteer Groups that do not meet the definition of an IAIG may choose to participate in the mandatory confidential reporting and additional reporting, at the option of the GWS.

[7] 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.

[8] GAAP Plus will continue development and field testing (for IFRS and U.S. GAAP) for 2020 and 2021 with a three-year monitoring period beginning in 2022. Japanese-GAAP will maintain the original five-year monitoring period, along with the reference ICS, beginning in 2020.

(b) implement IAIS supervisory material taking into account specific market circumstances; and

(c) undergo periodic self-assessments and peer reviews.

33. The ICS will be a minimum standard for a group PCR and not a legal entity PCR.

34. At the same time, the KL Agreement acknowledged the development of the Aggregation Method (AM) within the United States. The KL Agreement states that "*The IAIS has agreed to collect data from interested jurisdictions relevant to the development of the aggregation method. Although this is not part of ICS Version 2.0, the IAIS appreciates the significance of this development, and so it will collect data from interested jurisdictions that will aid in the development of the aggregation method. Through this approach, the IAIS aims to be in a position by the end of the monitoring period to assess whether the aggregation method provides comparable, ie substantially the same (in the sense of the ultimate goal), outcomes to the ICS. If so, it will be considered an outcome-equivalent approach for implementation of ICS as a PCR.*"

35. The IAIS remains committed to developing/defining criteria so that it is in the position, by the end of the monitoring period, to assess comparable, ie substantially the same (in the sense of the ultimate goal), outcomes to the ICS. IAIS members will be invited by the end of 2018 to provide input to this process. Internal discussions on this issue will begin before November 2019, which is the date of adoption of ICS Version 2.0.

2.6 Reference ICS components

36. The mandatory confidential reporting by all IAIGs of a reference ICS will be based on:

- market-adjusted valuation (MAV) with a single discounting approach
- the standard method for capital requirements, and
- converged criteria for qualifying capital resources

37. The reference ICS will provide a basis for comparison across IAIGs, and over time, during the monitoring period. The reference ICS could include a limited number of national discretions for issues that cannot be resolved. If national discretions are used, the impact of those national discretions should be reconcilable.

38. During the monitoring period, each GWS will need to ensure the reporting of the reference ICS. This is necessary to support the outcomes focus of the ICS development process. In order to assess the outcomes from the additional reporting, where required by a GWS, there needs to be a common reference point, hence the reference ICS. Having a reference ICS will provide a basis to assess and conclude by the end of the monitoring period whether GAAP Plus and/or other methods are included in the ICS.

39. Calculation of the reference ICS and the additional reporting is not meant to be burdensome and should be able to be leveraged off existing systems and processes through the use of simplifications, simplifying assumptions and proxies. However, there should be fewer simplifications, simplifying assumptions and proxies as the monitoring period progresses. There will not be requirements for audit and assurance in the monitoring period.

2.6.1 MAV with a single discounting approach

40. MAV was chosen as the valuation approach for the reference ICS due to its construction as a stable, comparable IAIS developed valuation basis.

41. The IAIS considers that MAV with a single discounting approach is necessary to ensure consistency in the calculation of the current estimate amongst currencies. Under the proposed approach, IAIGs should discount their insurance liabilities using an adjusted curve that is based on:

- risk adjusted liquid interest rate swaps or government bonds (risk-free yield curve); and
- an adjustment to the risk-free yield curve.

42. Several different options for the adjustment to the risk-free yield curve have been subject to field testing and consultation since the ICS project began. Building on the feedback received on the 2014 and 2016 ICS CDs and the ICS field testing exercises, the IAIS is focusing 2018 Field Testing of ICS Version 2.0 on the Three-Bucket Approach to discount insurance liabilities. This is because the IAIS aims to develop a discounting method that has appropriate supervisory constraints, while considering differences in asset and liability management (ALM) practices for different insurance products.

43. The technical details related to the determination of the risk-free yield curve and the Three-Bucket Approach for the adjustment to the risk-free yield curve can be found in the MAV section.

2.6.2 Standard method for the calculation of ICS capital requirement

44. A standard method for the calculation of the ICS risk charges is needed in order to provide a comparable basis for the capital requirement used in the determination of the ICS solvency ratio. The proposed standard method determines ICS risk charges for specific risks using a factor-based approach or a stress approach with IAIS-prescribed factors and stresses. The one exception is Catastrophe risk, where a model-based approach may be used. A prescribed correlation matrix is then used to aggregate all risk charges and recognise diversification impacts among and between risks.

45. The standard method uses a target criteria of 99.5% VaR over a one-year time horizon. The technical details related to the standard method can be found in Section 7.

2.6.3 Converged criteria for qualifying capital resources

46. Converged criteria for qualifying capital resources are needed in order to provide a comparable basis for the capital resources used in the determination of the reference ICS solvency ratio. The proposed capital resources framework determines qualifying capital resources through an assessment of the nature, quality and suitability of all potential capital resources. A two-tier approach is used, focussing on five key principles: loss-absorbing capacity, subordination, availability to absorb losses, permanence and the absence of both encumbrances and mandatory servicing costs.

47. The qualifying criteria for capital resources, as set out in 2018 Field Testing of ICS Version 2.0, were revised. In particular:

- certain criteria for Tier 2 capital resources were refined to recognise structural subordination in specific circumstances; and
- the Tier 1 Limited criterion related to permanence was refined for mutual IAIGs in order to recognise mutual-specific instruments, such as surplus notes and Foundation Funds (Kikin) in Tier 1 Limited.

48. One key outstanding issue related to converged criteria is whether debt instruments that contain an acceleration clause that can be triggered in going concern should be recognised in Tier 2 capital resources.

2.7 Additional reporting

49. ICS Version 2.0 also contains additional reporting, at the option of the GWS, of ICS based on GAAP Plus valuation and/or other methods of calculation of the ICS capital requirement.

50. The reference ICS and additional reporting at the option of the GWS within ICS Version 2.0 are equally important components. Both GAAP Plus and other methods of calculation of the ICS capital requirement are viable options that will be considered for inclusion in the ICS by the end of the monitoring period. GAAP Plus valuations are based on the different GAAPs applicable in jurisdictions and some may be subject to changes in the coming year. This was one of the reasons that MAV was chosen as the valuation approach for the reference ICS.

2.7.1 GAAP Plus

51. GAAP Plus is closely tied to jurisdictional accounting rules, which are currently being revised (IASB and FASB). These revisions will promote further convergence in valuation, however the timing of new rules will require development of GAAP Plus to continue beyond 2020. As such, GAAP Plus will continue development and field testing (for IFRS and U.S. GAAP) for 2020 and 2021 with a three-year monitoring period beginning in 2022. Japanese-GAAP will maintain the original five-year monitoring period, along with the reference ICS, beginning in 2020.

2.7.2 Other Methods of calculation of the ICS capital requirement ("other methods")

52. The scope for the additional reporting of other methods during the monitoring period is limited to the capital requirement. That is, the valuation and capital resources will not change as a result of other methods and are the same as that used for the ICS standard method. Other methods should provide the same level of protection as the standard method, which has a target criteria of 99.5% VaR over a one-year time horizon. In addition, other methods must be able to meet the ICPs and the ICS Principles.

53. Internal models are one form of other methods that will be permitted for additional reporting during the monitoring period, at the option of the GWS. See Section 9.2 for more information.

54. The IAIS is also considering possible other methods, besides internal models, for additional reporting during the monitoring period, including but not limited to:

- IAIG-specific factors (see Section 7.10.3);
- dynamic hedging (see Section 7.3.5); and

- supervisor-owned and controlled credit assessment processes (see Section 7.18.4.4).

55. A decision will be made by the end of the monitoring period whether these other methods will be included in the implementation of ICS Version 2.0 as a PCR.

56. In order to participate in additional reporting of other methods during the monitoring period, IAIGs will be expected to meet certain pre-requisites. Please refer to the relevant section for each potential other method for the list of pre-requisites that are under consideration.

2.8 Incremental costs and benefits

57. The IAIS recognises that the adoption of the ICS as a PCR will incur incremental costs to IAIGs, such as conversion costs and ongoing annual costs.

58. 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. The development of the ICS is consistent with the IAIS Mission and it is expected that adoption of the ICS as a PCR will provide benefits for IAIGs and policyholders, as well as benefits related to financial stability and consumer protection..

Question 1. What are the incremental costs associated with the changes that would have to be made solely for the adoption of the ICS as a PCR?

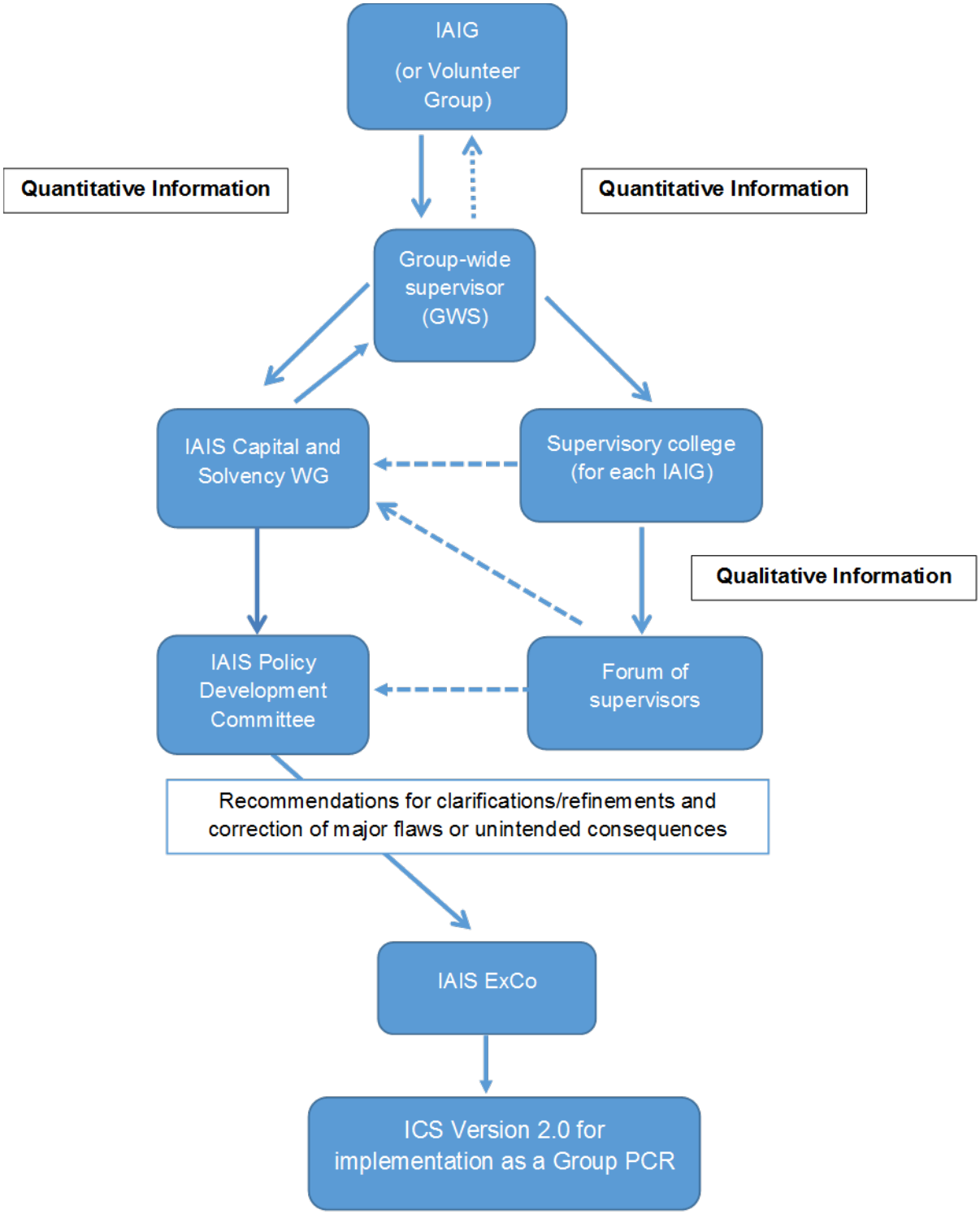
Question 2. Are there any other benefits of adopting the ICS as a PCR? Please explain.

3 ICS Monitoring period

59. There will be a significant difference between the purpose of field testing, which will continue in 2018 and 2019, and confidential reporting during the monitoring period. During field testing, significant design and calibration changes were made each year and, in some cases, various options were tested. In the field testing period, every component of the ICS was discussed for each field testing exercise. This is consistent with the project being in a testing phase. In 2019, the IAIS will adopt ComFrame, including ICS Version 2.0 for confidential reporting. This will be a significant milestone and will signal the IAIS' approval of the design and calibration of the components of ICS Version 2.0 for both the reference ICS and the additional reporting, at the option of the GWS. Therefore, there will be a period of stability for the reference ICS and the additional reporting. However, this does not preclude possible clarifications/refinements and correction of major flaws or unintended consequences identified during the monitoring period to improve the ongoing development of the ICS.

60. The following flowchart provides a sketch of how the monitoring period is envisaged to work.

Figure 1: Monitoring period process



3.1 Role of the group-wide supervisor

61. All IAIGs are expected to participate in the five-year monitoring period and, at a minimum, provide the data required to calculate the reference ICS. The KL Agreement calls for mandatory confidential reporting by all IAIGs of the reference ICS, which means that it is the responsibility of the GWS to ensure the reporting of ICS Version 2.0 – both the reference ICS and, if the GWS so wishes, additional reporting (ie ICS on a GAAP Plus basis and/or ICS with an other methods derived capital requirement).

62. Each GWS jurisdiction will need to ensure that reporting is done in a way that is suitable for their legal and regulatory framework. The expectation is that each GWS will achieve the outcome of the ICS being reported as specified. A spectrum of ways in which this may be achieved is envisaged, depending on the jurisdiction:

- at one end of the spectrum, an agreement for reporting between the GWS and the IAIG; and
- at the other end of the spectrum, a legal requirement set out in legislation.

63. Prior to the start of the five-year monitoring period, the GWS should discuss with its IAIGs whether it intends to require any additional reporting during the monitoring period. As the monitoring period progresses, participation in additional reporting may change as GWSs assess the costs and benefits of participation.

64. Participation in ICS Field Testing is confidential; that is, a public list of Volunteer Groups does not exist. It is expected that participation in the monitoring period by IAIGs, including participation in any additional reporting, will also remain confidential.

65. Similar to ICS Field Testing, it will be the GWS, and not the IAIG, that will submit the data template to the IAIS for continued monitoring of the ICS. Prior to submission, the GWS should perform reasonableness checks, at a minimum, on the data submission, to the extent it can do so under its jurisdictional law. Once the GWS is comfortable with the content of the data submission, it should also provide a report of summary results to the supervisory college of the IAIG for discussion.

66. There should be a feedback loop between the GWS and the IAIS since both will have access to the confidential data provided by the IAIG. The GWS will play an important role in providing quantitative and qualitative feedback to the IAIS regarding the appropriateness of the reference ICS and any additional reporting.

Question 3. Is the role of the GWS during the monitoring period appropriate? Please provide feedback on how the role should be refined.

3.2 Role of the IAIS

67. In order to assess the feedback on ICS Version 2.0 during the monitoring period, analysis of these inputs needs to be undertaken by experts. Therefore, a capital and solvency working group (the "Working Group" - note there will no longer be field testing) will be maintained by the IAIS with the following (non-exhaustive) list of responsibilities:

- provide GWSs with templates to collect ICS data;

- address IAIG and GWSs' questions through a formal Q & A process;
- revise the reporting requirements as needed;
- provide technical parameters (eg yield curves);
- further development of GAAP Plus (based on IFRS and U.S. GAAP) during the first two years of the monitoring period[9]
- organise the collection of ICS data from each IAIG and engage with them (via the GWS) for data cleaning and technical feedback purposes;
- perform an annual analysis of the outcome of the reference ICS calculations, as well as the additional reporting(s);
- engage with stakeholders;
- periodically inform the IAIS about the results of the monitoring period;
- develop technical criteria to assess the additional reporting items (GAAP Plus and other methods of calculation of the ICS capital requirement) by the end of the monitoring period; and
- make recommendations to the Policy Development Committee (PDC) on clarifications/refinements and correction of major flaws or unintended consequences, where appropriate, before the implementation of ICS Version 2.0 as a PCR.

68. In order to continue collecting this data from IAIGs, the IAIS will use a legal framework similar to the one that is currently in place for field testing. This will enable the GWS to submit data to the IAIS.

69. The Working Group will also maintain interactions with IAIGs through dedicated workshops in order to receive feedback on the reference ICS and any additional reporting during the monitoring period.

70. In addition, the Working Group will be responsible for other capital-related work, including:

- proposing revisions of ICP 14 (in conjunction with the Accounting and Auditing Working Group) and ICP 17 to its parent committee, the PDC. This work will begin following the start of the monitoring period for ICS Version 2.0;
- the integration of the ICS into ComFrame, prior to its implementation as a PCR; and
- data collection exercises aimed at refining calibration for ICS risk charges. Any data submitted for this purpose would not need to be discussed at supervisory colleges.

71. A forum of supervisors (consisting of both home and host supervisors) with a mandate focused on discussing the implementation of ICS Version 2.0 in the monitoring period could be created. This could be organised in the form of a network, exchanging views via e-mail and teleconferences, with one physical meeting per year. This would require IAIS resources for the organisation and support as well as a commitment from IAIS Members to send frontline supervisors with direct experience in analysing the ICS results and discussing in supervisory

[9] Development and field testing will continue in 2020 and 2021 for GAAP Plus based on IFRS and U.S. GAAP with a three-year monitoring period beginning in 2022.

colleges. Involvement of other existing forums, such as Supervisory Forum, could also be set up, which would need to be reflected in the latter's mandate and member resources, as needed. This forum of supervisors (with Secretariat support) would be responsible for producing a report for PDC on the experience of front-line supervisors with respect to the ICS. The forum of supervisors would also provide the same material to the Working Group, though at a more granular level (eg information at the IAIG level), since the Working Group is able to view confidential IAIG-level data.

72. The role of PDC and ExCo would remain the same during the monitoring period. Any recommendations from the Working Group regarding changes to ICS Version 2.0 would have to be first discussed at PDC and then at ExCo.

Question 4. Is the role of the Working Group within the IAIS during the monitoring period appropriate? Please provide feedback on how the role should be refined.

Question 5. Is the role of the forum of supervisors within the IAIS during the monitoring period appropriate? Please provide feedback on how the role should be refined.

3.3 Role of supervisory colleges

73. Supervisory colleges will play a key role during the monitoring period. The members of an IAIG's supervisory college are expected to discuss and assess the reference ICS as reported to the GWS during the monitoring period. Where the GWS requires an IAIG to provide additional reporting during the monitoring period, the members of the IAIG's supervisory college discuss and assess the additional reporting. The summary results provided by the GWS should be sufficient to enable the supervisory college to discuss and assess the reference ICS and additional reporting.

74. The assessment of the reference ICS and, if applicable, the additional reporting should include:

- a comparison with existing group capital standards or calculations that are in development;
- the extent to which material risks of the IAIG are captured;
- the appropriateness and practicality of the calculations required; and
- any difficulties in implementing the measure by the IAIG.

75. In order to achieve this objective, the IAIS will collect feedback and views from GWSs and host supervisors. To do this, the IAIS will provide for a secure means to collect written feedback from GWSs and host supervisors based on discussions in individual IAIG supervisory colleges.

Question 6. Is the role of supervisory colleges during the monitoring period appropriate? Please provide feedback on how the role should be refined.

3.4 Transitional measures

76. During the monitoring period, the IAIS will consider transitional arrangements (eg with respect to qualifying capital resources) that may help jurisdictions with implementation of the ICS as a PCR following the end of the monitoring period. For example, 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 impacted insurance groups. Transitional periods for implementation are also common where requisite laws and/or regulations are necessary to be adopted by relevant jurisdictions.

4 Scope of the Group: Perimeter of the ICS Calculation

77. The overall structure of the scope of group framework proposed for ICS Version 2.0 is broadly similar to that required in the 2016 ICS CD. The most significant developments come from:

- the current work on ComFrame in ICP 23 and the process it sets out for the identification of the Head of the IAIG. Going forward, the Head of the IAIG, as determined in accordance with ComFrame in ICP 23, and its subsidiaries (with some amendments as described below) are considered to be the scope of group for the ICS ratio calculation; and
- prior ICS field testing, which has indicated that, for some Volunteer Groups, material insurance or financial risks may not be captured if a single line treatment (the equity method) is used for including entities where significant influence is exercised. This has resulted in the proposed treatment outlined in paragraph 82c below.

78. The Head of the IAIG, as determined in accordance with ComFrame in ICP 23, calculates the ICS ratio (both the capital resources and capital requirement) on the basis of the consolidated balance sheet[10] of the IAIG, with amendments as described in this section. Unless otherwise described in this section, all legal entities controlled by the Head of the IAIG are included in the consolidation. Control for the purposes of this section includes both control as defined in ICP 6 and operational control as defined by ComFrame in ICP 23.[11]

79. The GWS may allow the Head of the IAIG to exclude the following entities from the scope of the group for determining the consolidated balance sheet for the purpose of the ICS calculation:

- related entities deemed immaterial by the GWS in that they do not contribute to the total group risk (as measured against the risks posed to financial entities in the group, not the size of the operations); or
- the following entities provided they are not financial entities[12]:
    - entities which are completely separate from the financial business of the group in that they are not linked by:
        - guarantees or other financial linkages;
        - the application of credit rating methodologies; or

[10] For Groups that do not report consolidated or group level financial statements, it will be necessary to generate a balance sheet on an aggregated basis to reflect group level, as outlined in section 8.1.1.1 of the 2018 Field Testing Technical Specifications.

[11] ComFrame in ICP 23 (https://extranet.iaisweb.org/page/projects-and-activities/consultations-and-surveys/current-consultations/overall-comframe-including-ics-version-20) defines operational control to be distinct from control exercised by virtue of ownership alone or exercise of voting rights as shareholder and refers to the ability in practice, whether or not a legal right exists, to do some or all of the following: selecting, appointing, or removing Board members of related entities; determining the remuneration of Board members; setting or influencing capital expenditures and investment plans; setting a dividend strategy and levels of surplus capital to be retained; determining new lines of business to be undertaken; setting risk management policies and procedures; and requiring reporting of management information..

[12] 'Financial entity' for this purpose should mirror the treatment for ComFrame in ICP 23.

- shared treasury operations or shared resources such as information technology platforms and buildings;

and

- any financial stress or bankruptcy of the entity would have no financial or reputational effect on the insurance entities within the IAIG.

80. 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.

81. The insurance component of the ICS capital requirement is calculated on a consolidated basis, after excluding investments or exposures to non-insurance financial entities that are subject to other financial sector capital requirements. The overall ICS capital requirement is the aggregation of the insurance component of the ICS and ICS components from other financial sectors, for example, banking. The ICS component from other financial sectors is the relevant share of the capital requirements for non-insurance financial entities subject to separate specific prudential supervision, calculated according to the sectoral requirements applicable to that entity.

82. The consolidation approach should follow prevailing accounting practices, modified if needed for (a) to (c) below, unless an exclusion from consolidation is allowed under paragraph 79:

a. all insurance entities, non-insurance financial entities and insurance and financial holding companies that are controlled by the Head of the IAIG should be fully consolidated;

b. any special purpose vehicles over which the Head of the IAIG has a dominant or significant influence should be fully consolidated; and

c. all holdings in related insurance and financial entities, that are not controlled by the Head of the IAIG and that are not considered under points (a) and (b) above, but where significant influence is exercised (for example, at least 20% of the entity is owned), should be proportionately consolidated on a line-by-line basis.

83. Paragraphs 77 to 82 apply in all cases irrespective of valuation approach (MAV or GAAP Plus) and method of calculating the ICS capital requirements (standard method or other methods).

Question 7. Are there any practical difficulties foreseen (such as the identification of the Head of the IAIG) in calculating the ICS capital ratio on the basis of the consolidated balance sheet of the Head of the IAIG that should be addressed in the design of the ICS? Please explain.

Question 8. With reference to the types of entities described in paragraph 82b, is full consolidation an appropriate approach to capture insurance and financial risks for ICS Version 2.0?

Question 9. With reference to the types of entities described in paragraph 82c, is a line-by-line proportional consolidation an appropriate approach to capture insurance and financial risks for ICS Version 2.0?

Question 10. With reference to both paragraphs 82b and 82c, would another approach (for example, making line-by-line proportional consolidation a requirement where further specific conditions exist, or where required by the GWS) be more appropriate?

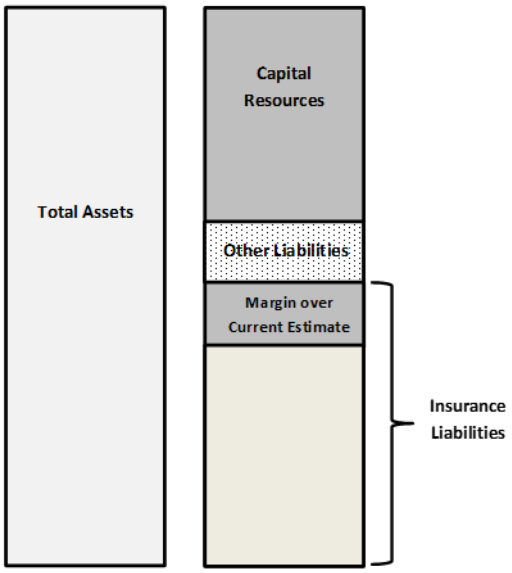
5 Reference ICS: Valuation

5.1 Market adjusted valuation (MAV) approach

84. The valuation basis of assets and liabilities is an integral component of the ICS and ICS Principle 1 establishes that the calculation basis should be comparable across jurisdictions. The balance sheet used for ICS purposes provides some of the underlying exposures for the calculation of the ICS capital requirement. In addition, the balance sheet provides the foundation for determining qualifying capital resources.

85. 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 2: Total balance sheet approach



[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.

87. 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 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.

88. 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 (eg 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.

89. 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.

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

91. Since the 2016 ICS consultation, the MAV approach (Sections 6.1 to 6.3.14 of the 2018 Field Testing Technical Specifications) has remained very stable on most of its key components, with the exception of discounting, where a number of different options have been tested over the years.

92. Two areas where refinements have been made are:

a. A more detailed specification of the expense components to be added in the calculation of the current estimate, with a focus on overhead expenses (Section 6.3.2 of the 2018 Field Testing Technical Specifications)

b. The definition of two simplifications which can be used to approximate the calculation of the current estimates for non-life premium liabilities (Section 6.3.3.2 of the 2018 Field Testing Technical Specifications)

[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.

[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.. Note that the IAIS is developing a consistent and comparable MOCE which is intended to be added to current estimates – see section 5.2.

93. The IAIS is also considering the potential future refinement of the treatment of premium receivables in the calculation of MAV current estimates.

94. The current Technical Specifications (Paragraph 49 h)) establish that the totality of premium receivables in the balance sheet, which are related to contracts within the contract boundaries, should be included in the calculation of the current estimate (in practice, they reduce the final amount of insurance liabilities).

95. The possible change would be to specify that only a portion of premium receivables should be netted against insurance liabilities, more specifically if they fall due in the future after the valuation date. Premium receivables for which the due date is prior to the valuation date, would not be deducted and would remain as assets on the balance sheet (irrespective of whether or not they are past-due).

Question 11. 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 provide details.

Question 12. Is the current specification of the treatment of expenses in the calculation of current estimate sufficiently detailed to ensure consistent calculations among IAIGs? If "no", please suggest which points could be further refined.

Question 13. Are the non-life premium liability simplifications appropriate to provide an approximation of the current estimate liability? If "no", please provide details on how the simplifications could be improved.

Question 14. Should the IAIS modify the treatment of premium receivables, as proposed? Please provide sufficient detail and rationale.

Question 15. Are there any other further comments regarding the MAV approach (excluding the discounting component) that the IAIS should consider in the development of ICS Version 2.0? If "yes", please explain with sufficient detail and rationale.

5.1.1 Discounting

5.1.1.1 Base yield curve

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

97. Since 2015 Field Testing, the approach taken for discounting is to prescribe yield curves for the 35 most traded currencies and provide the methodology for determining those yield curves for Volunteer Groups 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.

98. In response to feedback received at the early stages of ICS development, the approach to the construction of the base yield curve was refined, abandoning the artificial flattening of

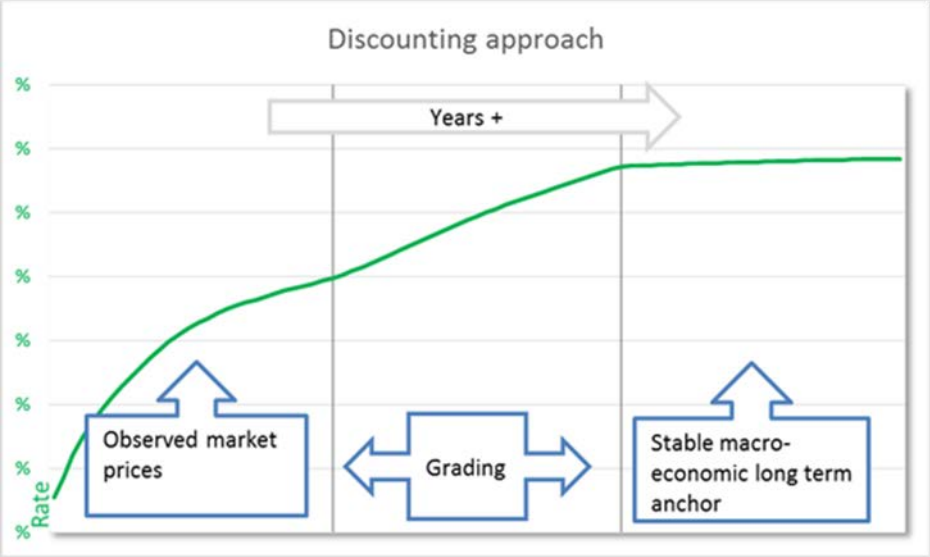
the yield curve after the 30-year point (ie the "flat after 30 years" assumption). The design of the base yield curve evolved into a three-segment design ie

a. Segment 1: Liquid segment based on market information, which ends at the Last Observed Term (LOT);

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

c. Segment 3: (convergence): Long Term Forward Rate (LTFR), for which the forward curve implicit in the yield curve converges. The LTFR is determined using a macroeconomic approach.

Figure 3: Current design of the base yield curve



99. This approach received support in the 2016 ICS consultation and continues to apply for 2018 Field Testing and ICS Version 2.0 (Section 6.3.15.1 of the 2018 Field Testing Technical Specifications).

100. For 2018 Field Testing and ICS Version 2.0, the IAIS has further specified the methodology for the determination of the base yield curve. This methodology has been released as a separate document ((Section 6.3.15.2 of the 2018 Field Testing Technical Specifications and *IAIS Base Yield Curve Methodology for ICS Version 2.0*[17]) and includes some changes compared to the approach used until 2017:

a. A set of criteria was proposed to inform the choice of instrument for Segment 1, enabling sufficient flexibility for jurisdictional supervisors to select the instrument that better reflects the characteristics of the local financial markets;

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

b. The LOT which sets the end of Segment 1, is no longer capped at 30 years but reflects the last maturity for which the market of the chosen instrument is deemed to be deep, liquid and transparent;

c. The length of Segment 2 is no longer set to finish at 60 years for all currencies. Instead, a formula is introduced, to ensure that (1) the convergence period lasts for a sufficiently long period of time (minimum of 30 years) and that (2) the convergence point does not occur too early in the yield curve (minimum maturity of 60 years);

d. The determination of the LTFR still follows a macroeconomic approach, but its components have been changed, as well as the manner in which they are determined. Previously, the LTFR components were long-term economic growth expectations and long-term inflation expectations, both taken from an OECD study.[18] Under the revised methodology, long-term growth expectations have been replaced by expected real interest rates, as this is deemed to be a better proxy for future asset returns. Also, the methodology to determine both LTFR components is now data-driven, rather than relying on an external study. Due to lack of available data for all 35 currencies covered by IAIS in field testing, averages were used for the real interest rate parameter;

e. The methodology to reflect LTFR updates has also been established in the new methodology. Previously, it was not clear how the IAIS would reflect any change in the LTFR components in the base yield curves. The new methodology establishes limits for annual fluctuation of the LTFR, ensuring the stability of this parameter, which is one of its key features.

101. The revised methodology aims, above all, to bring transparency to IAIGs and stakeholders regarding the manner in which the base yield curves are determined by the IAIS. It will also enable IAIGs to determine base yield curves for currencies not included in the group of 35 included in field testing, in a consistent manner.

Question 16. Is the set of criteria appropriate to support the choice of instrument for Segment 1 of the base yield curve? If "no", please provide details.

Question 17. Is the LOT defined for each of the 35 currencies appropriate? If "no", please provide details.

Question 18. Is the methodology to determine the convergence point (end of Segment 2) appropriate for ICS Version 2.0? If "no", please provide details.

Question 19. Is the revised methodology to determine the LTFR appropriate for ICS Version 2.0? If "no", please provide details.

Question 20. Is the methodology to reflect LTFR updates in the IAIS base yield curves appropriate for ICS Version 2.0? If "no", please provide details.

Question 21. Are there any further comments regarding the base yield curve methodology that the IAIS should consider in the development of ICS Version 2.0? If "yes", please explain with sufficient detail and rationale.

[18] https://www.oecd.org/eco/outlook/2060%20policy%20paper%20FINAL.pdf

5.1.1.2 Adjustments to the base yield curve

102. 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.

103. Starting from 2014 Field Testing, the IAIS has tested a wide range of technical solutions for the possible definition of the adjustment. These methodologies ranged from the use of only the base yield curve (no adjustment) to the consideration of own asset spreads for all liabilities of the IAIG.

104. This wide array of possibilities reflected the range of views from supervisors and stakeholders, as well as the diversity in the nature of insurance liabilities which can be found in insurance markets around the world.

105. For 2018 Field Testing and ICS Version 2.0 the IAIS is focusing its work on the development of the Three-Bucket Approach, which aims to combine features of different methodologies tested during the recent years, to provide a balanced solution addressing both supervisory and industry concerns, to the extent possible (Sections 6.3.15.3 and 6.4 of the 2018 Field Testing Technical Specifications).

106. As the name indicates, the Three-Bucket Approach is composed of three buckets which allow for the segmentation of insurance liabilities in three different categories, to which different adjustment methodologies are applied, depending on their features:

- The Top Bucket is the most entity-specific, as it relies on the group's asset structure and specific spreads. It should be applied only for those liabilities which meet the most restrictive set of criteria, creating some degree of assurance that the IAIG will actually be able to hold its own assets to maturity, therefore earning the spreads which are being used to discount insurance liabilities. The criteria is defined in the 2018 Field Testing Technical Specifications;
- The Middle Bucket aims to strike a balance between the Top and the General Buckets. It still requires liabilities to meet a set of criteria for it to be applicable, but this criteria is, in many aspects, more relaxed by comparison with the Top Bucket. The Middle Bucket mixes market and group-specific inputs, by using market spreads weighted on the basis of the own asset structure of the IAIG;
- The General Bucket is the catch-all bucket which can be used for insurance liabilities that do not meet the criteria which is set for the other buckets. It is therefore calculated on a market-wide basis, using both spreads and portfolio structure which are determined for the entire IAIG market (for the relevant currency).

Question 22. Are any practical difficulties foreseen in the implementation of the proposed multi-bucket approach (eg issues with products that are close to the boundaries of the buckets)? If "yes", please explain.

Question 23. Are the eligibility criteria defined for the Top Bucket appropriate for ICS Version 2.0? If "no", please explain.

Question 24. Are the eligibility criteria defined for the Middle Bucket appropriate for ICS Version 2.0? If "no", please explain.

107. The adjustment for the Top Bucket is calculated for the portfolios which meet the prescribed eligibility criteria, based on the own asset holdings of the IAIG and the respective spreads.

108. The adjustment is applied as a parallel shift to the base yield curve, up to the run-off of the insurance liabilities, even where this is beyond the LOT.

109. The Top Bucket applies the concept of eligible assets, which means that only assets in specified categories (mainly, fixed return assets) contribute to the calculation of the spread adjustment. Assets rated below ICS Category 4 are assigned the spread of ICS Category 4 assets.

110. An application ratio[19] of 100% is used in the Top Bucket.

Question 25. Is it appropriate for the Top Bucket to consider the application of an adjustment based on own spreads until the run-off of the insurance liabilities, whereas the cash flow matching requirements are only assessed up to the LOT? If "no", please explain.

Question 26. Is the application ratio considered for the Top Bucket appropriate for ICS Version 2.0? If "no", please explain.

Question 27. Are there any further comments regarding the Top Bucket methodology? Please explain with sufficient detail and rationale.

111. The Middle Bucket adjustment is calculated for the portfolios which meet the prescribed eligibility criteria, based on market spreads weighted by the own asset holdings of the IAIG (Weighted Average of Multiple Representative Portfolios (WAMP) methodology).

112. It allows for the consideration of spreads earned from foreign-denominated currencies, provided that these assets are hedged and the cost of hedging is deducted.

113. The Middle Bucket applies the concept of eligible assets, which means that only assets in specified categories (mainly, fixed return assets) contribute to the calculation of the spread adjustment. Assets rated below ICS Category 4 are assigned the spread of ICS Category 4 assets.

114. To reflect the less strict nature of its eligibility criteria, as well as the higher basis risk in the spread calculation, the Middle Bucket uses a 90% application ratio.

Question 28. Is the application ratio considered for the Middle Bucket appropriate for ICS Version 2.0? If "no", please explain.

[19] Application Ratio is the percentage of the risk-corrected spread, calculated according to the relevant methodology, that is added to the base yield curve.

Question 29. Is the list of eligible Assets specified for the Middle Bucket (which also applies to the Top and General Buckets) appropriate for ICS Version 2.0, taking into consideration the objective of the MAV spread adjustment? If "no", please provide sufficient detail and rationale.

Question 30. Are there any other comments regarding the Middle Bucket methodology? Please explain with sufficient detail and rationale.

115. The General Bucket is calculated based on market-wide spreads and a representative portfolio, therefore incorporating a higher degree of basis risk when applied by specific IAIGs.

116. The General Bucket should be applied to all insurance liabilities which do not meet either the Top of Middle Bucket eligibility criteria, without any restriction, subject to an 80% application ratio.

117. To mitigate the potential basis risks arising from its construction methodology, it incorporates two basis risk mitigation mechanisms, which aim to reflect in the adjustment material impacts of (1) the holding of assets denominated in a different currency from that of the liability and (2) substantial discrepancies between the average adjustments calculated for currency unions when compared to the spread levels observed in each of its constituting jurisdictions.

118. The General Bucket applies the concept of eligible assets, which means that only assets in specified categories (mainly, fixed return assets) contribute to the calculation of the spread adjustment. Assets rated below ICS Category 4 are assigned the spread of ICS Category 4 assets.

Question 31. Is the design of the shared currency basis risk mitigation mechanism appropriate for ICS Version 2.0? If "no", please explain.

Question 32. Is the design of the foreign assets basis risk mitigation mechanism appropriate for ICS Version 2.0? If "no", please explain.

Question 33. Is the application ratio considered for the General Bucket appropriate for ICS Version 2.0? If "no", please explain.

Question 34. Are there any further comments regarding the General Bucket methodology? Please explain with sufficient detail and rationale.

119. Further, the IAIS is considering the calibration of the spread adjustment at the level of the LTFR.

120. In the past, and also for 2018 Field Testing, a placeholder calibration of 10 bps is being used. There are different views as to the appropriateness of the placeholder calibration.

121. In 2017, a subset of Volunteer Groups proposed to the IAIS that this placeholder be abandoned and instead an adjustment to the LTFR be calibrated based on historical data.

122. Based on the methodology described below, the following spread adjustments were determined for a sample of currencies, to be applied to the LTFR (in basis points).

Table 3: Spread adjustment for selected currencies

Currency	All data (1997 – 2017)	Excluding Financial Crisis (06/2008-06/2009)
CAD	85	69
CNY	68	N/A
EUR	41	37
GBP	66	60
JPY	7	6
KRW	46	39
MYR	143	142
SGD	35	N/A
THB	48	N/A
USD	106	98

123. The spread adjustments in Table 3 were derived, on a per currency basis, using the following steps:

a. Historical spread data by credit rating (eg AAA, AA, A, BBB and lower) and maturity (eg 1-3 years, 3-5 years, 7-10 years, 10-15 years, 15+ years) were obtained from public data sources.

b. The IAIS prescribed risk-adjustment by credit rating was applied in order to arrive at the risk-adjusted historical corporate spreads by maturity and credit rating.

c. Historical corporate spreads by maturity and credit rating (for all years under review and alternatively excluding the financial crisis period from June 2008 to June 2009) were then averaged.

d. The average historical corporate spread by credit rating was determined, making an assumption as to the short/medium/long term bond allocation (eg 5% for 1-7 years, 45% for 7-15 years and 50% for 15+ years in the case of the USD).

e. The overall spread was then calculated by applying the risk-adjusted spreads determined in the previous step to a representative mix of corporate bonds, where the representative mix is based on the WAMP methodology, as specified for the Middle Bucket of the Three Bucket Approach in the 2018 Field Testing Technical Specifications.

124. Some IAIS Members support this approach, because in their view:

a. The fact that spreads above the risk-free rate have been observed in financial markets over reasonably long periods of time (studies available go back for about 1 century) provides sufficient comfort to allow IAIGs to assume that such spreads can be earned to infinity, through reinvestment as the existing assets mature;

b. The requirement to assume risk-free returns for very long term maturities leads to an overly prudent valuation, which will exceed a current estimate and no longer reflect an economic valuation of insurance liabilities;

c. The calibration of the LTFR adjustment on the basis of observed spot rates is appropriate because, although it is expected that there will be year-to-year variation in how long-term forward rates compare to spot rates, average forward rates will be equivalent to average spot rates. This means that the use of spot rates in performing the historical analysis is consistent with the Smith-Wilson method, which is the extrapolation method applied in the ICS.

d. The ICS should make use of all available historical data for calibration, whenever it is available.

125. Other IAIS Members disagree with this proposal, rather supporting that no spread adjustment at all (0 bps) should be added to the LTFR, because in their view:

a. The proposed approach is in direct contradiction with the underlying design of the Three-Bucket Approach used for MAV discounting. Under this approach, spread adjustments are linked to the predictability of insurance liabilities and the ability of IAIGs to back them with existing assets and hold them to maturity (therefore earning the respective spreads). By definition, this is not possible at the convergence point (where the forward rate converges to the LTFR);

b. The assumption that the past will replicate itself to infinity is not in line with the supervisors mandate to ensure a high degree of policyholder protection;

c. The proposal is technically flawed, because it uses average historic data of spot rate spreads for bonds with varying maturities to calibrate an addition to a parameter (LTFR), which represents a 1-year forward rate. In the proposed methodology, a 95% weight of the portfolio is assigned to bonds with maturities of 7 years or more, inflating the result in an unjustified manner;

d. The IAIS applied judgment on the use of available historical data in other cases (eg Interest Rate risk calibration). Similar data to that proposed here was rejected in the context of Non-default Spread risk calibration, based on the argument of substantial differences in economic conditions over time.

126. The two positions outlined above (full recognition of the industry proposal versus no recognition of a spread) represent two extreme views of the discussion on spread adjustments to the LTFR. The IAIS will continue exploring ways to reconcile the differing views.

Question 35. Should the ICS include an adjustment above the base yield curve at the LTFR maturity? If "yes", how should it be calibrated? Please provide sufficient detail and rationale.

5.1.1.3 Potential for overshooting of the adjustment to the base yield curve

127. The development of the MAV discounting adjustment is a complex process, given the multitude of objectives and incentives which are under consideration.

128. The general objective of the adjustment is to mitigate the potential excessive volatility in capital resources due to periods of exaggeration of credit spreads in financial markets. It also aims to strike a good balance between simplicity and accuracy (eg less basis risk). At the

same time, the adjustment incorporates a number of guardrails to avoid the introduction of incentives for investment in higher yielding (and therefore riskier) assets.

129. The Three-Bucket Approach aims to achieve a good balance between these conflicting objectives, through a combination of three different methodologies (the buckets) and a set of quantitative and qualitative restrictions (eg the eligibility criteria for the Top and Middle Buckets, the asset eligibility concept, the ICS Rating Category 4 guardrail or the application ratios).

130. One of the most common criticisms pointed to the General Bucket of the Three-Bucket Approach is the degree of basis risk that is introduced, due to the use of a currency-wide representative portfolio, which may materially deviate from the specific asset holdings of each IAIG. This may lead to situations where the reactions of assets and liabilities to spread stresses are not aligned, generating counterintuitive results such as the emergence of gains in periods of stress (overshooting) or cases where the losses are deemed too high (excessive capital resource volatility or undershooting).

131. The 2017 Field Testing results showed that for a substantial number of Volunteer Groups, capital resources increase when spreads widen. In these cases, the decrease in the value of liabilities exceeds the decrease in value of assets, meaning the credit spread adjustment mechanism is actually 'overshooting'. Since the Top Bucket is based on a close link between assets and liabilities, the overshooting was caused by the design of the General Bucket.

132. Theoretically, there can be two drivers for this overshooting effect. First of all, it can be driven by the fact that the specific firm holds a relative safe bond portfolio compared to the representative portfolio. This can mean that the change in spread on the assets is smaller than the change in spreads – even after a risk correction and an application ratio - used to compute the change in the value of liabilities. Secondly, overshooting can be driven by the fact that the liabilities of a firm have a (substantially) longer duration than its spread assets.[20] Since the adjustment is applied on the entire curve to discount the liabilities the adjustment can overshoot even if the credit quality of the firm's bond portfolio is exactly the same as the credit quality of the representative portfolio.

133. Although the IAIS considers that a representative portfolio approach is deemed to be appropriate for the General Bucket, since it avoids an incentive to invest in higher yielding assets, there are concerns about the potential incentives introduced by the methodology.

134. More specifically, when the credit spread adjustment overshoots because liabilities are (substantially) longer than assets, a firm can actually reduce the volatility in capital resources by investing in higher yielding assets. In this way the regulatory framework can incentivise firms to increase its exposure to higher yielding assets, where the valuation impacts exceed the increased risk charges that would result from a lower credit quality of the asset portfolio.

Question 36. What is the most appropriate technical approach to address the issue identified? Please provide sufficient detail and rationale.

[20] Only assets that are sensitive to spread movements are relevant in determining the impact of spread movements on a firm's capital resources.

5.1.2 General comments

Question 37. Are there any other comments on the MAV discounting methodology, taking into account, for example, the data collection on additional methods for the base yield curve adjustments, which the IAIS should consider in the development of ICS Version 2.0? If "yes", please explain with sufficient detail and rationale.

Question 38. Are there any further comments on MAV that the IAIS should consider in the development of ICS Version 2.0? If "yes", please explain with sufficient detail and rationale.

5.2 Margin over current estimate (MOCE)

135. In many valuation contexts (eg GAAP regimes, actuarial guidance), margins in addition to the current estimate are included in the valuation of insurance liabilities. Differences in how margins are calculated is one of the key reasons for the lack of global comparability in the valuation of insurance liabilities. For the purposes of the ICS, the introduction of a consistent and comparable margin over current estimate (CC-MOCE) is being considered and tested. A CC-MOCE could be incorporated under both MAV and GAAP Plus valuation approaches.

136. Insurance Core Principle (ICP) 14 includes two standards referencing the MOCE :

- 14.7 - The valuation of technical provisions exceeds the current estimate by a margin (MOCE).
- 14.9 - 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.

137. Practitioners recognise different possible objectives for a margin, such as to ensure that the promises made by an insurer to its policyholders will be kept, or to provide for the cost or price for bearing risk (including but not restricted to an exit value approach).[21] These different objectives are not unrelated, but could lead to different designs or calibrations.

138. 2018 Field Testing includes two approaches for the CC-MOCE, as described below. The IAIS is continuing to field test and consult on the CC-MOCE in order to achieve convergence in the approach for a CC- MOCE for ICS Version 2.0.

5.2.1 Options being field tested in 2018

139. The IAIS is testing two approaches to define a CC- MOCE, ie:

- A margin to recognise the market value of liabilities specified as a cost of capital approach with both:
    - a fixed cost of capital rate of 5%; and
    - a variable cost of capital rate set at 3% plus the risk-free rate (more details are provided below).
- A margin for prudence

140. The IAIS has sought feedback on these two approaches through the 2014 and 2016 ICS consultations. Variants of these approaches have also been considered in 2015, 2016 and 2017 Field Testing.

5.2.1.1 Cost of capital MOCE (C-MOCE)

141. A key principle underpinning the C-MOCE is the necessity to include a MOCE in the valuation of the insurance liabilities to achieve a risk adjusted valuation of insurance liabilities. Such risk adjustment could be seen as a way to ensure consistency and symmetric treatment of assets and insurance liabilities; in particular, where assets are reflected at fair value. Indeed, the fair value of assets is a risk adjusted valuation (eg the price of bonds reflects the risk of

[21] For instance the research paper published by the International Actuarial Association – Measurement of Liabilities for Insurance Contracts: Current Estimates and Risk Margins – April 2009

default). In the absence of a MOCE, asset values will reflect the cost of the risk associated with the assets, while insurance liabilities will not.

142. As part of a prudential framework, the purpose of a risk adjusted valuation of insurance liabilities is to bring the value of the insurance liabilities (ie current estimate + MOCE) to an amount sufficient to allow the transfer of the insurance obligations to a willing third party or to allow the own fulfilment of these insurance obligations within the originating insurer.

143. The cost of capital design is a practical way to achieve the purpose (eg the ability to transfer the insurance obligations to a willing third party, if needed). In particular, the margin necessary to allow transfer or own fulfilment is defined as the amount necessary to cover the cost of recapitalising to a level that satisfies the relevant prudential framework (eg an ICS ratio of 100%). This allows for an insurance entity to fulfil its obligations to policyholders as a going concern in the event of a 1 in 200 year stress.

144. 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.

145. 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 C-MOCE allows the IAIG to raise sufficient capital to maintain the original ICS-prescribed level of policyholder protection.

146. The C-MOCE is expressed as the sum of discounted current and future capital requirements multiplied by the cost of capital parameter:

$$C-MOCE = Cost\ of\ capital \cdot \sum_{t\geq 0} \frac{Capital\ requirement\ (t)}{(1+discount\ rate)^t}$$

147. The cost of capital parameter is the additional rate, above the relevant risk-free rate, that an investor would require in order to take on the risk associated with the insurance liabilities. In 2018 Field Testing, two approaches to determine the cost of capital parameter are being tested:

- A fixed cost of capital set at 5%; and
- An adjusted cost of capital linked to the level of the risk-free interest rate: cost of capital = 3% + 10 year risk-free rate, subject to an absolute cap of 10% and an absolute floor of 3%. This approach aims to reflect differences in the cost of capital in different economic environments at a given point in time and over time.

148. Much of the Non-Life risk charge is driven by policies that are not on the balance sheet at the reference date. This leads to the issue of whether a margin is intended to be held for risks as measured by the risk charge and/or risk on recognised policies. This distinction matters for the margin held for premium liabilities. For P-MOCE, a margin is only calculated for policies

that are recognised as at the balance date. For C-MOCE, the approach depends on the type of risk. For Premium risk, an adjustment is made so that the margin is only held for the portion of the risk associated with premium liabilities that are currently on the balance sheet. For Catastrophe risk, the full risk charge (whether or not it is for policies that are on the balance sheet) contributes to C-MOCE.

Question 39. Is the treatment of Premium and Catastrophe risk in C-MOCE appropriate? If "no", please provide justification and specific recommendations.

Question 40. Are there any modifications or simplifications to the methodology for the C-MOCE that would make it more appropriate for the intended purpose? If "yes", please explain with sufficient detail and rationale.

5.2.1.2 Prudence MOCE (P-MOCE)

149. From ICP 14.9: "*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.*"

150. The P-MOCE is intended to be a simple and comparable way to calculate a consistent margin to ensure policyholder protection. In particular it does not require any assumptions about the insurer's capital requirements beyond the specified time horizon or the capital required by any entity to which the insurance liabilities may be transferred.

151. 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 risk charges relating to Premium/Catastrophe risk on one year of future business; Life risk charges only relate to business that has already been written).

152. For 2018 Field Testing, the P-MOCE construction for life obligations measures the uncertainty of cash flows associated with life insurance obligations using the confidence interval approach and a normal approximation. The P-MOCE is calculated as a percentage of the standard deviation for the current estimate, providing a risk sensitive measure reflecting the IAIG's particular insurance portfolio. The original calibration of the P-MOCE was based on analysis that it was broadly consistent with the overall level of margins observed in the financial statements of Volunteer Groups under local jurisdictional requirements where this was possible.

153. For non-life obligations, the approach is based on avoiding the recognition of future profits. Given the different nature of the claims and premium liabilities, the P-MOCE

components related to these two different liabilities are calculated separately. Both are subject to a floor of zero.

- For claims liabilities, where profits take the form of investment income on reserves, the P-MOCE takes the form of a discounting approach. The effect of discounting rises with the length of the cash flows, which is a proxy for estimation uncertainty.
- For premium liabilities, the P-MOCE is the difference between liabilities as implied by a combined ratio of 100% and liabilities calculated using current estimate assumptions.

154. ICP 14.9 establishes that MOCE reflects the inherent uncertainty related to all relevant future cash flows that arise in fulfilling insurance obligations over the full time horizon thereof. It has been posited that the definition of the P-MOCE for non-life is not a measure of the uncertainty as defined above but a change of basis to a GAAP valuation approach.

Question 41. Is the current design of the non-life P-MOCE consistent with ICP 14.9? Please explain.

Question 42. Are there any modifications or simplifications to the methodology for the P-MOCE that would make it more appropriate for the intended purpose? If "yes", please explain with sufficient detail and rationale.

5.2.2 Interaction with the balance sheet

155. Using the definition of the P-MOCE given above, for field testing purposes, the P-MOCE is assumed to be fully deducted from the capital requirement.

156. This definition is on the basis that P-MOCE is an own-fulfilment view with P-MOCE and capital requirements jointly providing an overall level of policyholder protection in a straightforward manner. To the extent that the same risks are included in both calculations, there could be double counting between MOCE and capital requirements. One view is that through the joint calibration of the P-MOCE and the ICS capital requirement, it is possible to achieve the ICS overall target level of policyholder protection (99.5% VaR over a one-year time horizon). Under this view, MOCE and capital requirements together form an overall loss absorbing layer; the greater the margin, the less the requirement for capital and the lower the margin the greater the capital requirement.

Question 43. Is the treatment of the P-MOCE, as defined in the Technical Specifications with full deduction from the capital requirement, appropriate? If "no", please explain with sufficient detail and rationale.

157. For the C-MOCE, there is no deduction from the capital requirement as it performs a different function in the balance sheet compared to the capital requirement and there is no overlap with the capital requirement.

158. This approach is taken because the construct of a market adjusted balance sheet requires the inclusion of liabilities at their market value and the C-MOCE provides the bridge between the current estimate of the liability cash flows and their market value. In stress, the

requirement remains that the market value of assets must continue to meet the market value value of liabilities.

159. The ICS risk charges for MAV are defined as the change in the market adjusted balance sheet due to the ICS stresses. This capital requirement must be held in addition to the market value of the liabilities on the base balance sheet (ie current estimate plus C-MOCE). For this reason, the C-MOCE performs a different role to the capital requirement and there is no overlap between these concepts.

Question 44. Is the treatment of the C-MOCE, as defined in the Technical Specifications with no deduction from the capital requirement, appropriate? If "no", please explain with sufficient detail and rationale.

5.2.3 Feedback on the 2016 ICS CD and ICS Version 1.0 for extended field testing

160. The feedback on the 2016 ICS CD and ICS Version 1.0 for extended field testing indicated that views on MOCE-related issues amongst stakeholders are disparate. Specifically:

- Some stakeholders supported the inclusion of a margin to supplement the current estimate. Others (eg industry participants and representatives) stated that the MOCE is not required at all.
- Some stakeholders commented that the purpose of the MOCE overlaps with that of the capital requirement. Some also commented that it is loss absorbing and therefore should be counted as capital resources. Some views depend on the purpose and construct of the MOCE, with the P-MOCE sometimes seen as more directly overlapping with capital requirements than the C-MOCE.
- Questions were asked regarding some specific aspects of the designs and calibration tested during 2016 Field Testing (for both C-MOCE and P-MOCE). Some stakeholders expressed clear preferences for one or the other design. Different views were expressed on the technical aspects of the constructs (such as cost of capital parameter and projection of future capital requirements for the C-MOCE).
- There were different views on how the MOCE should interact with the balance sheet and a number of such options were included in 2017 Field Testing.

5.2.4 Issues for consultation

161. Through this consultation, the IAIS would like further input on how to refine the approaches under consideration for the CC-MOCE.

Question 45. Are there any other methodologies that would be better suited to calculating a CC-MOCE in the ICS? If "yes", please explain with sufficient detail and rationale.

Question 46. Are there any other policy measures or supervisory tools that may serve a similar purpose to the CC-MOCE and resolve perceived issues relating to the purpose, construct of the CC-MOCE or its interactions with the capital requirement? If "yes", please explain with sufficient detail and rationale.

Question 47. Are there any further comments on MOCE that the IAIS should consider in the development of ICS Version 2.0? If "yes", please explain with sufficient detail and rationale.

6 Reference ICS: Capital Resources

6.1 Background

162. The overall structure of the capital resources framework proposed for ICS Version 2.0 is similar to that described in the document on ICS Version 1.0 for extended field testing, published by the IAIS in July 2017. It identifies two tiers of capital:

- 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 capital resources comprise qualifying financial instruments and capital elements other than financial instruments that absorb losses only in winding-up.

163. The ICS classifies financial instruments into two tiers to reflect their quality and suitability, based on consideration of a number of criteria focused on five key principles: loss absorbing capacity (on a going concern basis and/or in winding-up), subordination, availability to absorb losses, permanence, and absence of both encumbrances and mandatory servicing costs. Within each tier, the IAIS is considering allocating financial instruments into two categories with differing qualifying criteria:

- Tier 1:
    - Tier 1 financial instruments for which there is no limit (Tier 1 Unlimited)
    - Tier 1 financial instruments for which there is a limit (Tier 1 Limited)
- Tier 2:
    - Tier 2 Paid-Up financial instruments (Tier 2 Paid-Up)
    - Tier 2 Non-Paid-Up financial instruments (Tier 2 Non-Paid-Up)[22]

164. Table 4 provides a high-level overview of the features being considered for each tier/category of capital with respect to the classification of financial instruments against the five key principles:

[22] For ICS Version 2.0 the IAIS proposes to limit recognition of non-paid up capital items to mutual IAIGs.

Table 4: Overview of tiering in capital resources

Key Principles	Tier 1 Unlimited	Tier 1 Limited	Tier 2 Paid-Up	Tier 2 Non-paid-Up[23]
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	In its paid-up form, absorbs losses in going concern and/or winding-up
Level of subordination	Most subordinated (ie is the first to absorb losses); subordinated to policyholders, other non-subordinated creditors, holders of Tier 2 capital instruments, and holders of Tier 1 Limited capital instruments	Subordinated to policyholders, other non-subordinated creditors and holders of Tier 2 capital instruments	Subordinated to policyholders and other non-subordinated creditors The form of subordination can be either contractual or structural, subject to certain conditions.	In its paid-up form, meets subordination requirements for either Tier 1 or Tier 2 paid-up capital resources
Availability to absorb losses	Fully paid-up	Fully paid-up	Fully paid-up	In its paid-up form, fully paid-up
Permanence	Perpetual	Perpetual; for mutuals, this requirement is considered to be met if redemption at maturity (for a dated instrument) can be deferred subject to supervisory approval or a lock-in feature, subject to an initial maturity of at least ten years No incentives to redeem permitted Issuer may redeem after a minimum period of five years after issuance or repurchase at any time, subject to prior	Initial maturity of five years – may have incentives to redeem but first occurrence deemed to be "effective maturity date"	In its paid-up form, meets permanence requirements for either Tier 1 or Tier 2 paid-up capital resources

[23] The features of Tier 2 Non-Paid Up items outlined here are the features expected of an item in its paid-up form. When a non-paid-up item becomes paid-up, the resulting financial instrument or capital element other than financial instruments must possess the features required of Tier 1 or Tier 2 paid up capital resources.

Key Principles	Tier 1 Unlimited	Tier 1 Limited	Tier 2 Paid-Up	Tier 2 Non-paid-Up[23]
		supervisory approval		
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	In its paid-up form, meets requirements for either Tier 1 or Tier 2 paid-up capital resources

165. Qualifying capital resources are determined on a consolidated basis for all financial activities and are subject to adjustments, exclusions and deductions described further in this section.

166. A number of key capital resources issues were still open for consideration in 2017 Field Testing. Since then the IAIS has made progress in reaching decisions on most of those issues for 2018 Field Testing purposes. The remainder of this section describes the proposed capital resources framework for ICS Version 2.0, highlights the proposed changes compared to ICS Version 1.0 for extended field testing and the 2016 ICS CD, and explains the rationale for those proposals.

6.2 Classification of financial instruments as ICS capital resources

167. The assessment criteria for the classification of financial instruments proposed for ICS Version 2.0 are set out in detail in the 2018 Field Testing Technical Specifications. The following sub-sections highlight the proposed changes to the criteria for the various tiers of capital resources compared to those consulted on in the 2016 ICS CD.

168. For ICS Version 2.0, the assessment of financial instruments against the qualification criteria will largely follow a substance-over-form approach. However, some criteria have been drafted to take into account the specificities of certain instruments, IAIG structure (eg mutual IAIGs) and the features of regulatory regimes.

6.2.1 Tier 1 Unlimited capital resources

169. Compared to the financial instrument criteria consulted on in the 2016 ICS CD, the IAIS proposes changes to two Tier 1 Unlimited criteria: removal of the requirement for supervisory approval prior to discretionary repurchases from criterion e), and a consequential change to criterion f) to delete reference to “prior supervisory approval”.

170. The reason for these proposed changes is to reflect that such a requirement does not feature in the regulatory regimes of all IAIS members and is therefore not appropriate to include within a minimum harmonising standard. Retention of that requirement would inappropriately lead to the disqualification as ICS capital resources of ordinary share capital (ie the highest

quality capital) of some IAIGs from different jurisdictions. In addition, it has been proposed that removing the supervisory approval requirement from Tier 1 Unlimited should be balanced against a supervisory power and process requirement at the group-wide level in ComFrame.

Question 48. Are the changes to the Tier 1 Unlimited capital resources criteria appropriate for ICS Version 2.0? Please explain.

Question 49. Are the criteria for Tier 1 Unlimited capital resources, as set out in the 2018 Field Testing Technical Specifications, appropriate for ICS Version 2.0? Please explain.

6.2.2 Tier 1 Limited capital resources

171. The IAIS is considering including within ICS Version 2.0, scope to recognise financial instruments issued by mutual IAIGs in Tier 1 Limited capital resources. This approach requires consideration of how the classification criteria should be applied to financial instruments issued by mutual IAIGs. In particular, the IAIS proposes that the Tier 1 Limited requirement for an instrument to be perpetual (criterion c) in the 2016 ICS CD) may be considered to be met for mutual IAIGs if redemption at maturity (for a dated) instrument can be deferred subject to supervisory approval or a lock-in feature, and where an instrument has an initial maturity of at least ten years. This proposal is reflected in the additional text included in criterion c). The IAIS also proposes a new approach to applying capital composition tiering limits to mutual IAIGs in ICS Version 2.0 (see Section 6.6).

172. The rationale for these proposals is two-fold:

- to expand the scope for mutual IAIGs to issue Tier 1 qualifying financial instruments during a financial stress, taking into consideration that mutuals cannot issue ordinary shares; and
- to recognise regulatory controls that exist within some jurisdictions that may prevent any and all distributions of both interest and principal (potentially on a permanent basis) of certain types of financial instruments, and how those controls may interact with the terms and conditions of a financial instrument.

Question 50. Are the changes to the Tier 1 Limited capital resources criteria appropriate for ICS Version 2.0? Please explain.

Question 51. Are the criteria for Tier 1 Limited capital resources, as set out in the 2018 Field Testing Technical Specifications, appropriate for ICS Version 2.0? Please explain.

173. The IAIS is considering whether to set an additional criterion requiring Tier 1 Limited instruments to have a principal loss absorbency mechanism (PLAM). Such mechanisms would provide a means for financial instruments to absorb losses on a going-concern basis through reductions in the principal amount and cancellation of distributions. Without such mechanisms these instruments might only provide going concern loss absorbency through cancellation of distributions.

Question 52. Is a PLAM an appropriate requirement for Tier 1 Limited financial instruments? Please explain any advantages and disadvantages of requiring a PLAM.

Question 53. If a PLAM requirement is not introduced, what amount should be included in ICS capital resources for instruments that qualify as Tier 1 Limited, to reflect going concern loss absorbency? Please explain.

Question 54. Are there other criteria that could be added to enhance the ability of financial instruments to absorb losses on a going concern and / or on a gone concern basis? Please explain.

6.2.3 Tier 2 Paid-Up capital resources

174. The IAIS is proposing to introduce several changes to Tier 2 Paid-Up qualifying criteria for ICS Version 2.0.

175. One of the proposed changes is to criterion b) on subordination so that it explicitly acknowledges that instruments with either contractual or structural subordination will be considered for inclusion within Tier 2 Paid-Up capital resources. Structural subordination of debt refers to a situation where a holding company issues a financial instrument and down-streams the proceeds into insurance subsidiaries. Recognition of structurally subordinated debt instruments would be subject to the following additional conditions (as set out in the 2018 Field Testing Technical Specifications):

- The debt instrument has been issued by a clean holding company, ie one that does not have policyholder liabilities on its stand-alone balance sheet.
- The IAIG and the supervisor have determined that the proceeds of the instruments, which have been down-streamed into insurance subsidiaries, are being tracked and reported appropriately.
- Amounts from the instrument issuance have been down-streamed into an insurance subsidiary of the holding company and the insurance subsidiary is located in a jurisdiction whose regulatory regime proactively enforces structural subordination through appropriate regulatory/supervisory controls over distributions from insurance subsidiaries.[24]

176. The rationale for this proposal is to recognise the loss-absorbing capacity of structurally subordinated debt in a gone concern scenario, in particular where there is a sufficiently high level of regulatory/supervisory controls over subsidiary insurer distributions. The additional conditions above are proposed to ensure that structural subordination provides comparable outcomes to contractual subordination in terms of loss absorbency and policyholder protection.

[24] Supervisory controls over distributions from insurance subsidiaries refers to the supervisory review and/or prior supervisory approval of all distributions, including the ability for the supervisor to limit, defer and/or disallow the payment of any distributions should it find that the insurer is presently, or may potentially become, financially distressed. As part of its review and/or prior approval of distributions, the relevant supervisor considers surplus adequacy, financial flexibility, the quality of earnings, and other factors deemed to be pertinent as they relate to the financial strength of the insurer and policyholder protection.

Question 55. If the proposed approach for the recognition of structurally subordinated financial instruments is adopted for ICS Version 2.0, are there any practical difficulties that the IAIG and its GWS may encounter in implementing this approach? Please explain.

177. Consequential changes are proposed for criteria e) and f) to elaborate on how supervisory approval of redemption and repurchase apply in the case of structurally subordinated instruments.

178. Changes to criterion e) (which deals with callability, minimum term and supervisory approval prior to redemption) are also proposed whereby a footnote in the 2018 Field Testing Technical Specifications explains how the criterion can be satisfied in cases where supervisory approval is not a feature of a jurisdiction's regulatory regime. In this case, the following additional conditions are proposed:

- the terms of the financial instrument include a lock-in feature that prevents redemption when a firm does not comply with its regulatory capital requirement (or where redemption would lead to non-compliance);
- either:
    - the supervisor receives prior notification upon redemption, or
    - call dates are fixed and known and the supervisor monitors potential redemption; and
- the supervisor has the power to prevent redemption of the instrument.

179. This change is proposed in order to recognise the different regulatory/supervisory controls that operate in different jurisdictions to provide adequate quality of regulatory capital (eg supervisory approval and/or lock-in) that are suitable for a minimum harmonising standard such as the ICS.

180. The IAIS is considering the extent to which acceleration clauses could be permitted for Tier 2 Paid-Up financial instruments. Acceleration clauses are features which provide for acceleration of payments (eg distributions, redemption amounts) owed in respect of a financial instrument. In some cases acceleration clauses may be triggered while the issuer is a going concern; in other cases the right to accelerate payments may only apply in the event of a winding-up of the issuer.

181. Within 2018 Field Testing, qualifying ICS Tier 2 capital resources will be calculated on two separate bases: one for which acceleration clauses that may be triggered in going concern are permitted and another for which they are not. This is reflected in the wording and application of criterion i) within the 2018 Field Testing Technical Specifications, which requires that financial instruments do not give holders of those instruments the right to accelerate the repayment of future scheduled principal or coupon payments, except in winding-up. That criterion only applies in the capital resources calculation that does not permit acceleration clauses that may be triggered in going concern.

Question 56. If ICS Version 2.0 Tier 2 Paid-Up capital resources includes financial instruments with acceleration clauses that may be triggered outside of a winding up,

please explain how policyholder protection is maintained and how other Tier 2 criteria can still be met (eg subordination, priority of claims, etc.).

Question 57. Are the changes to the Tier 2 Paid-Up capital resources criteria appropriate for ICS Version 2.0? Please explain.

Question 58. Are the criteria for Tier 2 Paid-Up capital resources, as set out in the 2018 Field Testing Technical Specifications, appropriate for ICS Version 2.0? Please explain.

6.3 Non-Paid-Up capital resources

182. For ICS Version 2.0, the IAIS proposes that recognition of non-paid-up capital within Tier 2 capital resources be restricted to mutual IAIGs only. This differs from the position in the 2016 ICS CD, where the IAIS consulted on whether or not non-paid-up capital should be included in qualifying ICS capital resources, and consideration was not restricted to mutuals. The rationale for this proposal is that mutual IAIGs are currently the only insurers that have access to non-paid-up capital that is external to the group (eg in the form of non-paid-up mutual members calls). The qualifying criteria proposed for non-paid-up capital for ICS Version 2.0 are the same as those consulted on in the 2016 ICS CD (no changes are proposed to the criteria).

Question 59. Is the proposal to restrict the recognition of Tier 2 non-paid-up capital resources to mutual IAIGs appropriate for ICS Version 2.0? Please explain.

6.4 Capital elements other than financial instruments

6.4.1 Tier 1 capital elements

183. Tier 1 capital elements other than financial instruments include items such as retained earnings, share premium (associated with Tier 1 instruments), accumulated other comprehensive income (AOCI), unrestricted reserves, etc. The full list of Tier 1 capital elements are set out in detail in the 2018 Field Testing Technical Specifications. The main changes proposed compared to capital elements consulted on in the 2018 ICS CD are mainly presentational, to clarify how the various lines in the equity section of the ICS balance sheet feed into capital elements.

184. For proposed changes to the GAAP Plus AOCI adjustment for ICS Version 2.0, please see Section 9.1.

6.4.2 Tier 2 capital elements

185. Tier 2 capital elements other than financial instruments include items such as share premium associated with Tier 2 instruments, restricted reserves, the value of encumbered assets deducted from Tier 1 and a Tier 2 basket, comprised of three other deductions from Tier 1 capital resources. The list of Tier 2 capital elements are set out in detail in the 2018 Field Testing Technical Specifications. The main changes to the Tier 2 elements proposed for ICS Version 2.0 compared to ICS Version 1.0 for extended field testing are to the Tier 2 add-back of the value of encumbered assets deducted from Tier 1 and the Tier 2 basket of add-backs.

186. ICS Version 1.0 for extended field testing proposed a deduction from Tier 1 capital resources in respect of encumbered assets. The definition of encumbered assets for ICS Version 2.0 is set out in the 2018 Field Testing Technical Specifications: an encumbered asset is one that an IAIG pledges as collateral to a counterparty to either meet regulatory requirements or in order to participate in certain activities, such as centrally cleared or OTC derivatives, mortgage borrowing, on-balance sheet repurchase agreements / securities lending and reverse repurchase agreements /securities lending, etc. The deduction from Tier 1 in respect of encumbered assets is also unchanged: the value of encumbered assets in excess of the on-balance sheet liabilities secured by the encumbered assets and incremental ICS capital requirements in respect of those assets and liabilities.

187. The proposal for ICS Version 2.0 is to preserve the full add-back to Tier 2 of amounts deducted from Tier 1 in respect of encumbered assets (subject any limit that applies to Tier 2 capital). The full add-back recognises that pledged/encumbered assets do contribute to loss absorbency in a winding-up, namely they extinguish the liabilities for which they were pledged. The IAIS also proposes that ICS Version 2.0 includes a proxy calculation for incremental capital requirements for encumbered assets and secured liabilities, in response to feedback that the full calculation is complex and onerous. Additional information on the proxy calculation of incremental capital requirements is provided in Section 6.5.1.

188. The IAIS is considering including within ICS Version 2.0 a Tier 2 basket of add-backs. The basket would combine three separate Tier 1 deductions and add-backs in the following manner:

- 50% of the value of each net defined benefit pension fund that is an asset on the IAIG's balance sheet, net of any eligible Deferred Tax Liability (DTL) that has been deducted from Tier 1 capital resources.
- Current realisable value of net deferred tax asset (DTA) that relies on the future profitability of the IAIG and that has been deducted from Tier 1 capital resources.
- 50% of the value of computer software intangibles (as reported on the IAIG's balance sheet, net of amortisation and any eligible DTL) deducted from Tier 1 capital resources.

189. The IAIS also proposes to limit the overall basket's contribution to Tier 2 capital resources to 10% of the ICS capital requirement. The rationale for this proposal for 2018 Field Testing is to limit the inclusion of lower quality capital items in Tier 2, but in a flexible manner that aims to recognise that the importance of different basket components may vary by jurisdiction.

Question 60. Are the changes to Tier 1 and Tier 2 capital elements other than financial instruments appropriate for ICS Version 2.0? Please explain.

Question 61. Are the Tier 1 and Tier 2 capital elements other than financial instruments, as set out in the 2018 Field Testing Technical Specifications, appropriate for ICS Version 2.0? Please explain.

6.5 Capital adjustments and deductions

190. ICS Version 2.0 will include a number of adjustments and deductions from Tier 1 and Tier 2 capital. The full list of proposed deductions is set out in the 2018 Field Testing Technical

Specifications and the majority of them remain unchanged from those included in previous field testing exercises. The two main proposed changes are in respect of the Tier 1 deduction for encumbered assets and a potential limit on the inclusion of capital resources arising from a consolidated subsidiary of an IAIG attributable to third party investors (ie third party capital).

6.5.1 Treatment of encumbered assets

191. ICS Version 1.0 for extended field testing introduced the idea of applying a proxy to calculate the incremental capital requirement for encumbered assets and the corresponding secured liabilities in order to derive the value of the Tier 1 deduction and Tier 2 add-back.

192. In 2018 Field Testing, IAIGs have the option of calculating the incremental capital requirement for encumbered assets and secured liabilities themselves using the full ICS calculation, or providing some additional information that is used to estimate the figure based on an automated proxy calculation. For the avoidance of doubt, the incremental ICS capital requirement is equal to the difference between the ICS capital requirement of the IAIG, and the ICS capital requirement of the IAIG excluding the encumbered assets and secured liabilities.

193. The proxy calculation allocates the total ICS capital requirement to the assets and liabilities related to the Tier 1 deduction and Tier 2 add-back. The calculation approximates the incremental capital requirement by estimating the risk charges for the main risk categories (Non-Life risk, Life risk, Catastrophe risk, Market risk and Credit risk). The proxy calculation can be described as follows:

- Step 1: calculate the ICS capital requirement (pre-Operational risk and deferred taxes) and allocate the inter-risk diversification benefits to the ICS standalone risk charges.
- Step 2: allocate shares of the standalone risk charges to the encumbered assets and associated liabilities.
- Step 3: combine the results from Step 2 to determine the proxy incremental ICS capital requirement for encumbered assets and associated liabilities.

6.5.2 Recognition of capital resources arising from a consolidated subsidiary of an IAIG attributable to third party investors

194. The IAIS is considering an approach to limit the inclusion in qualifying capital resources of financial instruments issued by a consolidated subsidiary of an IAIG and held by third party investors, and of capital elements other than financial instruments attributable to non-controlling interests. This limit would be implemented to reflect the lack of availability of those items to absorb losses at the consolidated group level.

195. In 2018 Field Testing, the IAIS is collecting some subsidiary-level data to test an approach to limit third party capital. As the ICS is a consolidated group standard and does not apply at legal entity level, the additional information from which the limit (one limit for each relevant subsidiary) will be calculated will be based on amounts determined under local standards.

196. For a subsidiary of an IAIG that has issued capital to a third party, the proposal is to limit the subsidiary's capital included in the IAIG's qualifying capital resources to:

Third Party Capital limit = capital elements of the subsidiary held by third parties as a % of total capital elements of the subsidiary x total liabilities of the subsidiary x Y%,

where the parameter Y represents the average ratio of ICS capital requirement to total liabilities for all IAIGs (in 2018 Field Testing the value of Y proposed is 10%). The rationale for this calculation is that it should provide a simple yet representative proxy for estimating the amount of capital of a subsidiary that contributes to the group's loss absorbency, that is up to the amount of risk that the subsidiary contributes to the IAIG (as measured by the total liabilities of the subsidiary).

Question 62. Is the proposal to limit third party capital appropriate for ICS Version 2.0? Please explain.

Question 63. In relation to the proposed limit on third party capital within ICS capital resources, what approach should the IAIS take if the information required to calculate and apply the limit is not available? Please explain.

6.6 Capital composition limits

197. Capital composition limits are used within a capital resources framework to appropriately reflect the quality of capital resources and the ability of those resources to absorb losses. ICS Version 1.0 for extended field testing did not include explicit capital composition limits due to the high degree of optionality included within that framework.

198. The IAIS is considering applying the following set of capital composition limits for ICS Version 2.0. These are the same limits as set out in the 2018 Field Testing Technical Specifications. Note that the values of the limits are still under consideration. In practice the capital composition limits can only be set once the capital resources framework is finalised and the features and qualifying criteria for each tier of capital resources have been determined.

199. For non-mutual IAIGs, the following limits are being considered:

- Tier 1 Limited capital resources will be limited to 10% of the ICS capital requirement;
- Tier 2 capital resources will be limited to 50% of the ICS capital requirement; and
- no allowance for Tier 2 Non-Paid-Up capital.

200. For mutual IAIGs, the following limits are being considered:

- Tier 1 Limited capital resources will be limited to 30% of the ICS capital requirement;
- Tier 1 Limited + Tier 2 capital resources will be limited to 60% of the ICS capital requirement; and
- Tier 2 Non-Paid-Up capital resources will be limited to 10% of the ICS capital requirement.

201. In addition, the IAIS also proposes to specify in ComFrame that supervisors could apply temporary supervisory forbearance on the limit on Tier 1 Limited capital resources for mutual IAIGs. Such action would be conditional on agreement within the supervisory college and would require the mutual IAIG to submit a plan to restore its capital position.

202. In both cases, any capital resources from financial instruments that qualify as Tier 1 Limited that are in excess of the limit on Tier 1 Limited will be eligible for inclusion within Tier 2 capital resources (subject to the limit on Tier 2 capital resources for non-mutuals and the combined Tier 1 Limited + Tier 2 limit for mutuals).

Question 64. Are the proposed capital composition limits appropriate for ICS Version 2.0? Please explain.

6.7 Future refinements of the ICS

203. The following capital resources issue has been de-prioritised for ICS Version 2.0 and will be considered further in subsequent ICS developments:

- Holistic approach to the fungibility of capital within the ICS.

6.8 General comments

Question 65. Are there any further comments on capital resources that the IAIS should consider in the development of ICS Version 2.0? If "yes", please explain with sufficient detail and rationale.

7 Reference ICS: Capital Requirement - The Standard Method

7.1 Risks

204. 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.

205. There are risks to which an IAIG is exposed other than the key risks set out in Table 5 below, such as Group 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, specifically in the ERM-related material. However, it is noted that some aspects of group risk, such as fungibility and minority interests, may be addressed within qualifying capital resources.

206. 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 5. 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 5. 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 (life)	Unexpected changes[25] in the level, trend or volatility of mortality rates
	Longevity risk (life)	Unexpected changes[25] in the level, trend or volatility of mortality rates
	Morbidity/Disability risk (life)	Unexpected changes[25] in the level, trend or volatility of disability, sickness and morbidity rates
	Lapse risk (life)	Unexpected changes[25] in the level or volatility of rates of policy lapses, terminations, renewals and surrenders
	Expense risk (life)	Unexpected changes[25] in liability cash flows due to the incidence of expenses incurred
	Premium risk (non-life)	Unexpected changes[25] in the timing, frequency and severity of future insured events (to the extent not already captured in Morbidity/Disability risk)
	Claim reserve risk (non-life)	Unexpected changes[25] in the expected future payments for claims (to the extent not already captured in Morbidity/Disability risk)
	Catastrophe risk	Unexpected changes[25] in the occurrence of low frequency and high severity events

[25] Expected impacts are assumed to be incorporated in valuation methodologies

Market risk	Interest Rate risk	Unexpected changes[25] in the level or volatility of interest rates
	Non-default spread risk	Unexpected changes[25] in the level or volatility of spreads over the risk-free interest rate term structure, excluding the default component.
	Equity risk	Unexpected changes[25] in the level or volatility of market prices of equities
	Real Estate risk	Unexpected changes[25] 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[25] in the level or volatility of currency exchange rates
	Asset Concentration risk	The lack of diversification in the asset portfolio
Credit risk		Unexpected changes[25] in actual defaults, as well as in the deterioration of an obligor's creditworthiness short of default, including migration risk and spread risk due to defaults.
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

207. 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.[26] 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).

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 risk charge 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 risk charge with respect to each individual stress.

208. 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

[26]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.

item. However, particularly in the case of natural Catastrophe risk, a 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 risk charge 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 Premium and Claims Reserve risk calculation.

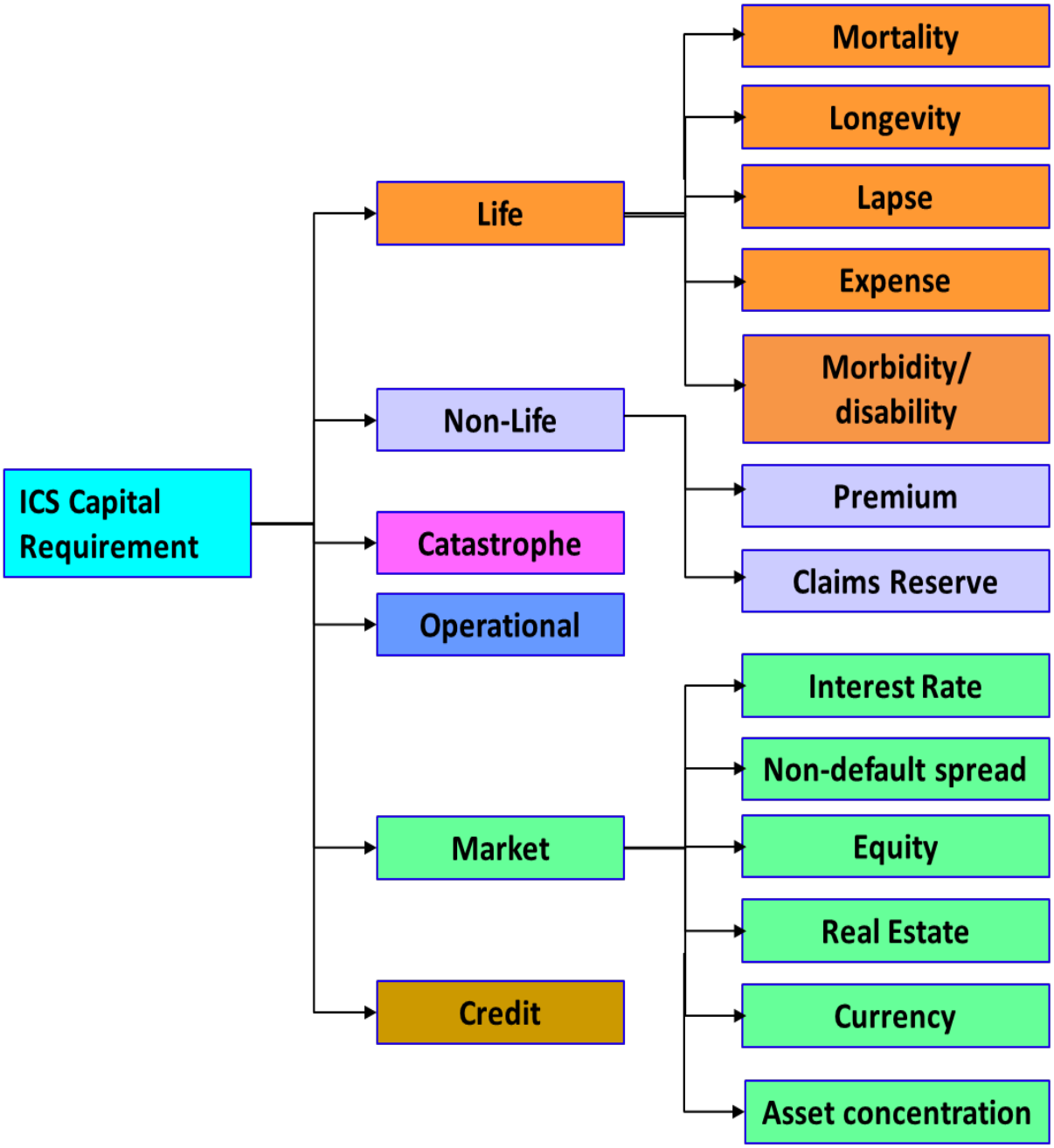
209. Table 6 below provides a summary of the risk measurement methods in the standard method as set out in the 2018 Field Testing Technical Specifications.

Table 6. Summary of risk measurement methods proposed in the standard method

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

210. Figure 4 provides an overview of the structure of the standard method for 2018 Field Testing.

Figure 4: Overview of standard method for the purposes of 2018 Field Testing



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

7.2 Target criteria

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

- A risk measure (eg VaR,[27] Tail-VaR,[28] etc.)
- A time horizon (eg one-year, run-off to ultimate, etc.)
- A confidence level (eg 99.5%, 99%, etc.).

213. The IAIS has agreed that development for ICS Version 2.0 will be on the basis of the target criteria of 99.5% VaR over a one-year time horizon. Further details on each of the three key aspects of the target criteria are described below.

7.2.1 Risk measure

214. In comments received on the 2014 and 2016 ICS CDs, 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.

215. Through field testing, the IAIS learned that Volunteer Groups 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 agreed to focus on only a VaR risk measure for ICS Version 2.0.

7.2.2 Time horizon

216. 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.

217. For ICS Version 2.0 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.

218. In addition, the IAIS will proceed with the assumption that the IAIG will carry on only existing business[29] for the one year time horizon as a going concern.

7.2.3 Confidence level

219. 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.

220. Over the last few years the IAIS attempted to calibrate all risks at 99.5% VaR over a one-year time horizon. Calibrations set out for 2018 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

[27] 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.
[28] 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.
[29] 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.

Rate risk, partially non-life and life risks, and Credit risk), whereas the remainder of calibrations have 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 continues to seek inputs on the most appropriate methodologies and data to be used to further refine the calibrations.

7.3 Risk mitigation

7.3.1 Background

221. In order to promote good risk management and achieve an appropriate level of risk sensitivity, ICS Version 1.0 for extended field testing took account of the effect of risk mitigation techniques provided certain conditions were met. These criteria were set out in the Field Testing Technical Specifications and were designed to ensure that the risk mitigation techniques were accurately and appropriately reflected within the risk charges.

222. The effect of market risk mitigation techniques that were in force for a period shorter than 12 months was 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.

223. An example of risk mitigation arrangements covering a market risk that is in-force for a period of less than 12 months is the hedging of Currency risk where some firms use a rolling program of short term currency forwards that are then regularly renewed.

7.3.2 Observations from 2017 Field Testing

224. Overall the response to the approach taken for 2017 Field Testing was seen as a step in the right direction with the greater recognition of renewals for market risk mitigation. As communicated during the 2017 Field Testing, the IAIS continued to refine the approach to the recognition of such renewals and as part of this strategy, some changes have been made for 2018 Field Testing.

225. 2017 Field Testing showed that recognising renewals had a significant impact on the risk charges for market risks for some Volunteer Groups, but other Volunteer Groups raised issues with the application of the cap and the criteria required to be met.

226. The IAIS is continuing to review the approach to recognition of renewal of risk mitigation techniques and made some refinements to the approach for 2018 Field Testing. Further refinements are expected for 2019 Field Testing.

7.3.3 Market risk mitigation

227. For 2017 Field Testing, Volunteer Groups were also allowed to recognise the renewal of the arrangements for market risks by increasing the proportion of the in-force arrangements. Volunteer Groups were only allowed to reflect this increase if the renewal met a set of criteria. The total benefit that could be recognised was also subject to a limit to reflect the difficulty and uncertainty in quantifying the associated risks.

228. The criteria for the recognition of the renewal of risk mitigation arrangements for market risks required an established process for renewal to be in place, as well as strong governance and a history of effective renewal. The IAIG needs to be able to demonstrate that it has a strong risk framework and understands the risks to which it is exposed and how these might

react in stress scenarios. Importantly, IAIGs should be incorporating realistic and justifiable assumptions for the expected costs and effectiveness of renewal in the relevant stress scenario.

229. Where these criteria are met, the recognition of the renewal of the risk mitigation arrangement will be limited such that the value attributed to the renewal element, net of all the potential costs that may be incurred from the implementation of the strategy, will not be more than 80% of the difference between applying a proportional recognition and a full recognition of the arrangement after allowing for the costs already captured.

230. This limitation has been introduced to require a minimum allowance for potential costs that might be incurred in renewing the instrument(s) in a stress scenario. Quantifying these costs is difficult given the uncertainty of the circumstances of a particular stress event. Therefore, a level of prudence is required when setting these assumptions.

231. The limitation applied in 2017 and 2018 Field Testing is deliberately simplistic and calibrated at the same level for all types of risk mitigation arrangements. It was intended to balance the recognition of the risk mitigating properties whilst ensuring that all the risks and costs associated with renewal are adequately captured.

232. The criteria for recognising the renewal for 2018 Field Testing are similar to those from 2017 Field Testing, but with the introduction of the following amendments to criteria b) and c) (additions in bold):

> b) The replacement of the risk-mitigation instrument shall not take place more often than every three months **except for Currency risk or Equity risk where the replacement of the risk-mitigation instrument shall not take place more often than every month**;
>
> c) The risk that the risk mitigation arrangement cannot be replaced due to an absence of liquidity in the market is not material under different market conditions and there is no material basis or Operational risks compared to the risk mitigation effect. **If the instruments mitigating Currency or Equity risk are replaced more frequently than every three months then the Volunteer Group should be also able to justify to their supervisor that:**
>
> **i. the market for these instruments is sufficiently liquid at this tenor; and**
>
> ii. **these instruments do not pose a materially greater risk than those replaced less frequently than every three months.**

233. These changes have been made in response to feedback and evidence received supporting the view that some markets are sufficiently liquid to recognise renewals which are replaced more frequently than every three months.

234. Therefore, subject to meeting the additional criteria, Volunteer Groups may recognise renewal for arrangements which are replaced monthly and are used to mitigate either Equity or Currency risks.

235. The application of the limitation to the benefit of renewal is being retained for 2018 Field Testing and will be applied on the same way as in 2017 Field Testing. This approach has been take for the following reasons:

a. To provide consistent data to evaluate the impact of introducing the recognition of monthly renewals in comparison to the 2017 Field Testing results.

b. To gather more data to further the calibration of the limit for the next field testing exercise. The data provided in 2017 Field Testing was not sufficient to produce a new calibration of the limit or to justify removing the limit completely.

236. Therefore, any additional information or data is welcomed in 2018 and will be reviewed ahead of the next field testing exercise to determine how the limitation should be adjusted, if at all.

Question 66. Should the effect of the renewal be recognised for any other risk mitigation arrangements? If "yes", please also provide specific examples of such arrangements that should qualify.

Question 67. Should any changes be made to the criteria for recognition? Please explain. If "yes", please also provide:

- Suggestions for how the criteria could be amended; and
- Specific examples of risk mitigation arrangements that would qualify if these changes were made.

Question 68. Should there be any change to the calibration and application of the limitation of value? If "yes", please also provide suggestions on how else the future costs and uncertainty could be adequately captured in the ICS.

7.3.4 Non-Life risk mitigation

237. Beyond market risk, some non-life exposures to premium and natural catastrophe risks include business to be earned over the next year. This is different from other risks where capital is only required for assets and liabilities that exist at the reference date. It is general market practice to manage these risks using risk mitigation arrangements (ie reinsurance protection) generally on a losses occurring during or risks attaching 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. Further, renewals may cover risk from policies that do not exist at the reference date.

238. The IAIS decided that it would recognise the renewal of these reinsurance arrangements subject a further set of criteria being met which are set out in the 2018 Field Testing Technical Specifications.

239. For non-life, additional data were collected on projected ceded earned premiums and the cost of reinsurance coverage. These will provide further detail towards the refinement of the renewal criteria.

240. There are different types of reinsurance where the exposure period under the contracts is not aligned with the underlying direct insurance contracts. This can create questions as to how to account for the contracts in order to ensure consistency between the direct business

(included in current estimates) and ceded reinsurance. Some examples of particular situations that can result in questions are as follows:

- Reinsurance contracts in force that cover policies included in the current estimates and those that have not been written and not included in the current estimate. In this case, the reinsurance contract results in an incurred expense while there are direct policies that would not be considered in the ICS current estimate.
- Expected reinsurance renewals that result in a future expense but are considered risk mitigants for direct in-force policies and policies that are included in future premiums included in the current estimate.

241. The expectation is to match the reinsurance contracts (including costs) with the underlying contracts that are included in the current estimate (ie, include a reinsurance recoverable only when included in the current estimate for premium or claims); however, if a reinsurance contract has been entered into that will cover future business not within the current estimates, and the firm is obligated to pay the full premium, then the full expense of the contract should be reflected on the ICS Balance Sheet. For future renewals, the firm should perform an allocation to reflect the reinsurance associated with those underlying direct contracts included in the current estimate.

Question 69. How should the associated expenses and other aspects of the reinsurance contracts be accounted for within the ICS?

Question 70. With regard to non-life premium and natural catastrophe risk, are there any changes that should be made to the criteria used for the recognition of renewal of risk mitigation arrangements?

7.3.5 Dynamic hedging

242. The ICS currently does not make allowance for the effect of market risk mitigation techniques in the capital requirement beyond the basis of assets and liabilities existing at the reference date of the ICS calculation.

243. The principles of the ICS standard method ensure that the only risk mitigation arrangements recognised are those that mitigate risk borne by the IAIG as at the reference date of the calculation.

244. In all field testing exercises to date, dynamic hedging arrangements have not been recognised for their risk mitigating properties as this would conflict with this principle for the standard method. This is because the risk charges in the standard method are calculated using instantaneous shocks which, by their construction, do not capture any mitigating effects of subsequent hedging adjustments.

245. However, this issue is being considered as part of the development of ICS Version 2.0. The IAIS is examining whether there are any other methods for valuing these arrangements that could better reflect the risk exposures of IAIGs and be incorporated into the ICS, rather than using the standard method for specific products and risks.

246. As part of 2018 Field Testing, the IAIS is collecting information on how dynamic hedging is currently recognised by supervisory authorities and Volunteer Groups for economic capital,

regulatory capital requirements or other purposes. The collection will provide information on how these approaches are defined, modelled and quantified.

247. The data gathered will be used to assess alternative options as to how dynamic hedging might be incorporated into the ICS as an other method.

Question 71. Should dynamic hedging arrangements be included in the scope of recognised market risk mitigation techniques for ICS Version 2.0? If "yes", please also comment on:

- The approaches currently used in local jurisdictions or internally within insurance groups to assess the risk mitigation properties of dynamic hedging programmes for the purposes of regulatory or economic capital.
- How these could be incorporated into the ICS as an other method for calculating the ICS capital requirement; and
- The criteria required to be met to allow the use of these other methods.

7.3.6 General comments

Question 72. Are there any further comments on risk mitigation that the IAIS should consider in the development ahead of ICS Version 2.0? If "yes", please explain with sufficient detail and rationale.

7.4 Look-through

248. In ICS Version 1.0 for extended field testing, the look-through approach was applied on the following basis:

- The look-through approach should apply whenever and to the extent possible on the basis of the underlying currency exposures at a point in time inherent in the indirect investment or insurance arrangement.
- Partial look-through may be applied when a full look-through is not possible. For example, for an investment fund it could be 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.
- However, when look-through is not possible, the full investment should be considered as unlisted equity.

249. The look-through approach from ICS Version 1.0 for extended field testing has been maintained for 2018 Field Testing.

Question 73. Are there any comments on the look-through approach that the IAIS should consider in the development of ICS Version 2.0? If "yes", please explain with sufficient detail and rationale.

7.5 Management actions

7.5.1 Background

250. The general approach to management actions was the same in previous field testing exercises. Specifically, 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. In addition, a cap on the credit for participating/profit sharing and adjustable products was set at the total amount of insurance liabilities for future bonuses or other discretionary benefits. The cap was applied after aggregating the total of management actions post-diversification across the risks.

251. In 2017, the definition of management actions was confined to reductions in liabilities for future bonuses or other discretionary benefits. The Technical Specifications further clarified that management actions should be realistic and cannot be contrary to the Volunteer Group's obligations to policyholders or to legal provisions applicable to the Volunteer Group.

7.5.2 Feedback from field testing

252. There is support from Volunteer Groups for an extension of management actions to include limited premium increases for certain business and product types, including Health business. Examples provided of other instances where the recognition of premium adjustments should be considered included yearly renewable term (YRT) premiums in certain long-term life reinsurance agreements, cost of insurance (COI) charges in certain long-term life insurance contracts, including universal life, and adjustable premiums on adjustable premium term life insurance. It was noted, though, that premium increase could lead to other policyholder actions such as increased lapses and possibly reputational risk.

7.5.3 2018 Field Testing

253. The general approach to management actions from previous field testing exercises has been maintained for 2018 Field Testing. The cap on the overall credit allowed in the ICS has been maintained at the IAIG's total insurance liabilities for future bonuses or other discretionary benefits.

254. In addition, management actions should be substantiated in order to be taken into account. For example, management actions should be:

- Documented in a formal plan with an approval process at the right level of authority, including regulatory approval, where required; and
- Supportable through an objective review over prior periods, where applicable.

Question 74. 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.

Question 75. How should the cap on management actions be applied across risks?

Question 76. Are there any further comments on management actions that the IAIS should consider in the development of ICS Version 2.0? If "yes", please explain with sufficient detail and rationale.

7.6 Mortality and Longevity risks

7.6.1 Background

255. Mortality and Longevity risks are the risks of adverse change in the value of capital resources due to unexpected changes in the level, trend or volatility of mortality rates.

256. The Mortality risk calculation and the Longevity risk calculation apply only to those policies subject to Mortality risk and Longevity risk, respectively. Catastrophe Mortality risk is addressed as part of Catastrophe risk.

257. The 2018 Field Testing approach to Mortality risk and Longevity risk used a combined stress whereby the risk charge is determined by a stress to the level of mortality and the level of longevity, respectively.

258. The stress for Mortality risk is a 12.5% 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 (1.125) x base mortality assumptions.

259. The stress for Longevity risk is a 17.5% 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 (0.825) x base mortality assumptions.

260. Volunteer Groups are asked to determine the change in NAV both before and after management actions for both Mortality and Longevity risk. Mortality and Longevity risk stresses are not differentiated by geographical regions in 2018 Field Testing.

261. For the Mortality risk, the IAIS has tested the same design of this component over past 3 field testing exercises from 2015, while Mortality risk factor changed from 15% in the 2015 Field Testing, 10% in the 2016 Field Testing to 12.5% in 2017 based on the calibration of the Mortality risk factors. On the other hand, for the Longevity risk, the IAIS has tested different variations in the design of this component over the past 3 field testing exercises:

- In 2015 Field Testing, the Longevity risk design used a simple stress approach whereby the risk charge was determined by applying a combined level and trend longevity stress of 20%;
- In 2016 Field Testing, the Longevity risk design split the level and trend components applying 15% shock for the level component and 1% per annum longevity stress for trend component ; and,
- In 2017 Field testing, as for the 2015 Field Testing, the Longevity risk charge was determined by applying a combined level and trend stress but recalibrated to 17.5%.

262. In 2017 Field Testing, the IAIS sought feedback from Volunteer Groups on the appropriateness of Mortality risk design and Longevity risk design. The majority of responses received agreed on the designs, while some responses suggested splitting the level component and trend component.

Question 77. The design for Longevity risk in 2017 Field testing balances the need for a risk-sensitive approach and a practical design of the risk charge. Are there any changes to the current design and calibration of the Longevity stress that would

significantly improve the reflection of the underlying risk in the ICS? If "yes", please explain and provide examples and/or rationale to support the proposal.

7.6.2 2018 Field Testing and ICS Version 2.0

263. For 2018 Field Testing, the IAIS has maintained the design and calibration of Mortality and Longevity risks. For ICS Version 2.0, the IAIS expects to maintain the same design and calibration unless 2018 Field Testing results indicate that a change is necessary.

7.6.3 General comments

Question 78. Are there any further comments on Mortality and Longevity risk that the IAIS should consider in the development of ICS Version 2.0? If "yes", please explain with sufficient detail and rationale.

7.7 Morbidity/Disability risk

7.7.1 Background

264. Morbidity/Disability risk is the risk of adverse change in the value of capital resources due to unexpected changes in the level, trend, or volatility of disability, sickness, and morbidity rates. It factors in unexpected changes in the level of claim payments and includes risk events that are caused by accident as well as by sickness.

265. Past field testing exercises in 2015 through 2017 presented different approaches for assessing Morbidity/Disability risk in the ICS.

- In 2015, the approach involved the simultaneous occurrence of a relative increase of 30% of the incidence (inception) rate; a relative decrease of 20% of the recovery rate; and a relative increase of 5% for the medical claim payments combined with an absolute increase of the inflation rate reflective of a given geographical region. Morbidity/Disability risk was applied to "similar to life" type products; therefore, only those products were included in the scope of Morbidity/Disability risk.[30]
- In 2016, two approaches for assessing Morbidity/Disability risk had been presented for field testing analysis and consultation: the Health Risk and Morbidity/Disability Risk approaches.
    - The Health Risk approach, also known as Option 1 or the default approach, contained the following key features:
        - The distinction between "similar to life" and "not similar to life", which had been part of 2015 Field Testing, was removed.
        - A separate Health risk charge was created such that a stress was applied to the level of claims rather than incidence rates, recovery rates, and payment levels. All insurance risks related to health business were,

[30] Additional details of the approach are contained in the 2015 Field Testing Technical Specifications.

therefore, captured by a new Health Risk module and were no longer included in the life and non-life modules and associated risk charges.

- The Health risk charge consisted of an underwriting risk charge and a Lapse risk charge.
- Four health segments (benefit categories) were defined and the health underwriting shock varied among the different segments.

- The Morbidity/Disability Risk approach, also known as Option 2 or the alternative approach, was similar to the approach used in 2015 Field Testing. This approach maintained the distinction between those products that were considered "similar to life" and "not similar to life". The key difference compared to the 2015 Field Testing approach was that "similar to life" insurance obligations were split into two mutually exclusive segments that received different stresses.[31]

- In 2017, given the issues and concerns expressed by stakeholders in the 2016 Consultation, a newly constructed approach for assessing Morbidity/Disability risk was developed for ICS Version 1.0 for extended field testing. This approach was a hybrid of the two options from 2016 Field Testing. The 2017 approach combined the 2016 Health Risk segmentation with the risk-based design of stresses of the alternative Morbidity/Disability module. In addition, differentiation by contract term segments was introduced and the distinction between "similar to life" and "not similar to life" type health products was restored. Thus, other underwriting risks were covered by existing life risk modules and the need for a separate Health Risk module was removed. The new design necessitated a placeholder calibration to be established for ICS Version 1.0 for extended field testing, with the aim to refine the calibration for 2018 Field Testing.

Table 7: Morbidity/Disability risk shocks under 2017 placeholder calibration

Benefit category (i)	Short term	Medium term	Long term
(1) Medical expense	20%	15%	10%
(2) Lump sum in case of a health event	25%	20%	13%
(3) Short-term recurring payments	20%	15%	10%
(4) Long-term recurring payments	inception rate shock = 20% recovery rate shock = 20%	inception rate shock = 15% recovery rate shock = 20%	inception rate shock = 10% recovery rate shock = 20%

[31] Full details of the Health Risk and Morbidity/Disability Risk approaches can be found in the Health Risk and Morbidity/Disability Risk sections, respectively, of the 2016 Field Testing Technical Specifications.

7.7.2 Observations and feedback from 2017 Field Testing

266. The large majority of Volunteer Groups had a positive view of the approach taken in 2017 for assessing Morbidity/Disability risk.

267. Concerns from Volunteer Groups primarily focused on the complexity of segmentation by contract term and the stress factors used in the methodology.

268. The analysis of data from the 2017 Field Testing and the supplemental data request revealed calibration limitations due to the dominance of policies with long-term contract terms as well as the lack of data for most regions.

7.7.3 2018 Field Testing and ICS Version 2.0

269. Based on Volunteer Group feedback received and the data analyses performed in 2017, 2018 Field Testing is testing an updated design of the 2017 approach for consideration in ICS Version 2.0.

- The 2018 design simplifies the number of contract segments to only two—Short Term and Long Term by merging the 2017 Short-Term and Medium-Term contract buckets—and establishes new calibrations for the Long-Term contract bucket and for the Long-Term-Recurring Payments benefit category in the Short-Term contract bucket. Please note that the contract duration (long or short) refers to the original term of the contract rather than the remaining duration.
- The 2018 design maintains the 2017 placeholder calibration for the Short-Term contract bucket for the newly merged Short-Term contract segment for benefit categories 1 through 3.

Table 8: 2018 calibration of Morbidity/Disability risk

Benefit Category (i)	Short term	Long term
(1) Medical expenses	20%	8%
(2) Lump sum	25%	20%
(3) Short-term recurring payments	20%	12%
(4) Long-term recurring payments	inception rate shock = 25% recovery rate shock = 20%	inception rate shock = 20% recovery rate shock = 20%

270. Thus far, data analyses from the 2015 through 2017 Field Testing exercises have not supported the differentiation of stress levels by geographic region for ICS Version 2.0. Geographic differentiation, however, has not been precluded from further consideration in future analyses, provided that adequate data in terms of quality and time series become available.

7.7.4 Issues for consultation

271. The issues for which the IAIS seeks input are as follows:

- Design of the approach
- Calibration of stresses

Question 79. Is the simplified segmentation by contract term for Morbidity/Disability risk appropriate? Please explain.

Question 80. Should any other modifications be made to the design? Please describe.

Question 81. Are the stress levels appropriate for the Long-Term contract segment? Please explain. If "no", please provide supporting evidence and rationale for a different stress level.

Question 82. Are the stress levels appropriate for the Short-Term contract segment? Please explain. If "no", please provide supporting evidence and rationale for a different stress level.

Question 83. Are there any further comments on Morbidity/Disability risk, which the IAIS should consider in the development of ICS Version 2.0? If "yes", please elaborate with sufficient detail and rationale.

7.8 Lapse risk

7.8.1 Background

272. Lapse risk is the risk of adverse change in the value of capital resources due to unexpected changes in the level and trend of exercise rates of policyholder options. The risk charge takes into account all legal or contractual options that can change the value of future cash flows. This risk is applicable only to Life business and 'Similar to Life' health business.

273. In the past three field testing exercises conducted from 2015 to 2017, Lapse risk is taken as the larger of 2 components, ie the Level and Trend component and the Mass Lapse component.

274. The design and calibration of the Level and Trend component has remained unchanged over the past three field testing exercises, ie ±40% of the assumed option take-up rates in all future years.

275. For the Mass Lapse component, the IAIS has tested different variations in the design of this component over the past 3 field testing exercises:

- In 2015 Field Testing, immediate surrender of 30% of retail policies with positive surrender strain, immediate surrender of 50% of non-retail policies with positive surrender strain, and zero surrender for all other policies
- For 2016 Field Testing, the stresses remained unchanged from 2015. However the key change was made to this component which no longer differentiated between products

with positive and negative surrender strain, and applicable to all surrenderable products.

- For 2017 Field Testing and ICS Version 1.0 for Extended Field Testing, the IAIS tested a design where the Mass Lapse stress is applied to homogeneous risk groups instead of individual policies. This design was selected to mitigate the concerns of the Mass Lapse charge allowing significant cross subsidisation (which is perceived to be present in 2016 Field Testing) and the Mass Lapse charge being too onerous (which is perceived to be present in 2015 Field Testing). Under this design, cross subsidisation is limited to within each homogeneous risk group[32].

276. Table 9 summarises the design of the Mass Lapse component as specified in the past three field testing exercises leading to ICS Version 1.0 for extended field testing.

Table 9: Design of mass lapse component

	2015 Field Testing	2016 Field Testing	ICS Version 1.0 for extended field testing
Design of Lapse Risk	Max (Level & Trend, Mass Lapse) by region		
Calculation of Mass Lapse	On policies with positive surrender strain	On all surrenderable policies	On all homogeneous risk groups
Floor of Mass Lapse Charge	ML ≥ 0 for each policy	ML ≥ 0 for region	ML ≥ 0 for each HRG

277. In 2017 Field Testing, the IAIS had sought feedback from Volunteer Groups on the appropriateness of specifying the Mass Lapse charge on homogeneous risk groups. The majority of responses received agreed that the use of homogeneous risk group is appropriate. The respondents that disagreed had provided the same responses in 2016 Field Testing, ie the decision to lapse would be based on policyholder circumstances instead of potential losses to the IAIG.

7.8.2 2018 Field Testing and ICS Version 2.0

278. For 2018 Field Testing, the IAIS has maintained the design and calibration of Lapse risk. For ICS Version 2.0, the IAIS will maintain the same design and calibration unless 2018 Field Testing results indicate that a change is necessary.

Question 84. Are there any comments on Lapse risk that the IAIS should consider in the development of ICS Version 2.0? If "yes", please explain with sufficient detail and rationale.

[32] A homogeneous risk group encompasses a collection of policies with homogeneous risk characteristics on a level of granularity most appropriate for the business of the IAIG. The 2017 Field Testing Technical Specifications provided guidance on the construction of homogeneous risk groups.

7.9 Expense risk

7.9.1 Background

279. The Expense risk charge covers both unit expense risk and expense inflation risk. Unit expense risk is the risk of adverse change in the value of qualifying capital resources due to unexpected changes in the level of expenses incorporated within the insurance liabilities. Expense inflation risk is the risk of expenses inflating at a higher rate than assumed in the calculation of insurance liabilities due to adverse changes in factors relating specifically to the insurance sector. This risk is applicable only to life business and 'Similar to Life' health business.

280. In the past three field testing exercises conducted from 2015 to 2017, Expense risk utilised 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.

281. In 2015 Field Testing and 2016 Field Testing, the IAIS had specified a stress of 2% for Other Developed Markets, and 3% for China and Emerging Markets for expense inflation risk. Some stakeholders and Volunteer Groups had provided feedback that the high expense inflation stresses for regions such as China and Emerging Markets, which is applied until the maturity or expiry of insurance contracts, was too high and unreasonable. This does not take into account that the growth of firms in emerging markets would serve to moderate the effects of expense inflation and developing countries are also likely to implement measures to control prolonged inflation. These stakeholders had suggested grading the expense inflation assumption down over time.

282. Taking into account the feedback received, for ICS Version 1.0 for extended field testing, the IAIS has modified the design of the expense inflation stress to grade down to 1% after a specified number of years. For China and Emerging Markets, the expense inflation stress was reduced by 1% every 10 years, where the final applicable inflation stress is 1% after 20 years. Similarly for Other Developed Markets, the expense inflation stress was reduced to 1% after 10 years. For other regions, the stress was kept constant at 1% for all years.

7.9.2 2018 Field Testing and ICS Version 2.0

283. For 2018 Field Testing, the IAIS has maintained the design and calibration of Expense risk. For ICS Version 2.0, the IAIS will maintain the same design and calibration unless 2018 Field Testing results indicate that a change is necessary.

Question 85. The Field Testing Technical Specifications specify expense inflation stresses that grade down to 1% for China, Emerging Markets and Other Developed Markets. Is this appropriate?

If "no", please provide suggestions on the appropriate stresses and grading period together with the supporting rationale. Please explain with sufficient detail and rationale.

If "yes", please comment whether this design is consistent with the approach used to determine the LTFR, where differentiated long-term inflation assumptions are used between jurisdictions, without any convergence.

Question 86. Are there any further comments on Expense risk that the IAIS should consider in the development of ICS Version 2.0? If "yes", please explain with sufficient detail and rationale.

7.10 Premium and Claims Reserve risks

284. 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.

285. 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. The reserve factors also include effects of the 'latent liability' risk.

286. Premium risk and Claims Reserve risk in the ICS are captured by a factor-based approach. The exposures used are projected net earned premiums and net current claims estimates.

287. Based on the analysis of the 2015-2017 Field Testing and the feedback received on the 2014 and 2016 ICS CDs, the IAIS largely maintained the approach for 2018 Field Testing, with the exception of a few key changes that are outlined below.

7.10.1 Previous Field Testing results

288. Results from 2017 Field Testing indicated that predominantly non-life Volunteer Groups have non-life risk exposures that are approximately equal between Claims Reserve risk and Premium risk, whereas composite Volunteer Groups have a greater exposure to Claims Reserve risk.

289. On average, the largest component of the total non-life risk charge is the liability-like category for both composite and predominantly non-life Volunteer Groups. For business written in North America, the predominant non-life risk is liability-like. For business written in Asia (excluding Japan), the predominant non-life risk is motor-like. For business written in Japan, Europe and other regions, Volunteer Groups have a non-life risk charge that is almost equally comprised of liability-like, motor-like and property-like risks.

7.10.2 Issues for consultation

290. The issues for which the IAIS seeks input are:

- Changes in reporting segments and in categories;
- Diversification within Non-Life risks;
- Level of factors;
- Adjustments needed when calibrating data; and
- Latent liability component of the Reserve risk charge

7.10.2.1 Changes in reporting segments and in categories

291. Exposures to Premium and Claims Reserve risks should be reported based on the location of the risks. Each exposure should be mapped to the jurisdictional line of business in

the area where the risk is located. The use of these segments is intended to ensure the practicality and accuracy of reporting.

292. Each reporting segment is assigned to one of six IAIS categories for the purpose of aggregation: *property-like*, *liability-like*, *motor-like*, *other*, *mortgage* and *credit*. Only the first four categories are aggregated to calculate the non-life risk charges. The categories *mortgage* and *credit* are aggregated with Real Estate risk and Credit risk, respectively. See Section 7.10.2.2 for details about diversification within non-life risks.

293. For 2018 Field Testing, the segmentation for 'other developed' or 'emerging' markets has been changed by merging some of the segments. Similarly, a *short tail medical expenses* segment has been added to some geographical areas (see Section 13.3.7.1 of 2018 Field Testing Technical Specifications for further details). In 2017 Field Testing, the 2016 Field Testing category *Non-traditional other* used was transformed into a *motor-like* category to better reflect IAIGs' portfolios.

Question 87. Do the changes described above in the ICS jurisdictional segments and categories properly reflect business specificities within each region? If "no", please provide rationale and alternative suggestions supported by evidence.

7.10.2.2 Diversification within Non-Life risks

294. The correlation factors applied within the Non-Life risk component aim at striking the right balance between simplicity and accuracy by appropriately capturing any tail correlation and non-linear dependencies between subcategories of Non-Life risks.

295. For 2018 Field Testing, diversification is applied between Premium and Claims Reserve risks, between each of the four IAIS categories, and between geographical regions. No diversification is applied within an IAIS category, and no geographic diversification is applied within a single geographic region. The multi-step aggregation is performed in the following order:

- Premium risk and Claims Reserve risk are aggregated for each segment using a 25% correlation for all segments;
- Each segment is then allocated to one of the ICS 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. Risk charges within these four ICS categories are added and then aggregated across the four ICS categories within a region, using a 50% correlation for all categories and all regions;
- Risk charges within the non-life component are then aggregated across the geographical regions, using a 25% correlation for all regions. The mortgage and credit categories are added across the regions and to the Real Estate and Credit risk charges, respectively.

Question 88. Is the aggregation approach described above appropriate for the determining the non-life risk charge for ICS Version 2.0? If "no", please provide

evidence, rationale, such as studies or impact assessments that could support an alternative approach.

7.10.2.3 Level of factors

296. To determine Premium and Claims Reserve risk, Premium and Claims Reserve exposures are applied a factor for each segment based on the level of unexpected losses at 99.5% VaR.

297. A goal for the ICS standard method is to have factors that reflect a consistent understanding of risks for each segment. Premium and Claims Reserve risk factors used in 2015 and 2016 Field Testing were partially refined in 2017 Field Testing using initial calibration work performed on non-life data available to supervisors.

298. As part of 2018 Field Testing, and in order to refine the calibration of factors for ICS Version 2.0, supervisors and Volunteer Groups have been encouraged to provide historical premium and loss data for non-life business.

299. The IAIS is seeking views on the appropriateness of the factors applied to Premium and Claims Reserve risk that are detailed Table 25 of the 2018 Field Testing Technical Specifications.

Question 89. Do the factors applied to Premium and Claims Reserve exposures properly capture the unexpected loss, at a 99.5% VaR over a one-year time horizon, for each segment? If "no", please provide rationale, evidence and materiality assessment of the potential impact on the non-life risk charge.

7.10.2.4 Adjustments needed when calibrating data

300. The ICS capital requirement is based on a total balance sheet approach and is intended to cover risk as measured at a 99.5% VaR. This means that, should capital resources be positive above the capital requirement at the reporting date, there should be less than a 0.5% probability that capital resources will become negative over the coming year.

301. In order to strike the right balance between materiality of the impact and complexity of the method, calibration work requires some choices to be made. In addition, available data do not, in all cases, naturally lend itself to the categories and definitions used.

302. For instance, in the calibration work performed in the past years, as a simplification and due to data constraints, assumptions were made about how the balance sheet will change over one year. The current Premium risk factors assume that this change is driven by the unexpected loss on the premiums earned during the year. The current Claims Reserve risk factors assume that the change is caused by reserve development on existing claims. Moreover, some risks are not currently captured such as those arising from premiums due not being paid, increases in expenses, and from premiums earned after one year. More detailed assumptions are below:

- Premium risk: Expected combined ratio is 100%; losses are uncertain but net earned premiums and expenses are known with certainty. Whenever data is sufficient, a one-year time horizon is used. New business is written, but there is no gain at issue.

- Claims Reserve risk: Discount rate and exchange rates, as a % of unpaid loss, are constant over time. Where data is unavailable, expected reserve development is assumed to be zero. Where full data is available, a model adapted from Markov chain Monte Carlo methodologies is used.[33]

303. Some of those assumptions may be reviewed this year as part of the 2018 non-life calibration exercise.

Question 90. Are there some assumptions, such as those aforementioned, which should be reviewed in the coming calibration exercise? If "yes", please provide details, rationale and detailed methodology to apply.

Question 91. More specifically, is the simplification of assuming a combined ratio of 100% for Premium risk appropriate? If "no", please comment on whether it is materially different from internal assumptions. Further, please suggest a methodology to refine the calibration and the information needed to do so. If deemed material, but without a methodology suggestion, are there other ways to address the difference?

Question 92. Are the assumptions above consistent with the valuation on the balance sheet? Please provide details, rationale and detailed methodology to apply.

304. As part of 2018 Field Testing, the possibility of a profitability adjustment to the Premium risk is being investigated. This adjustment to non-life Premium risk charges would aim at dealing with non-life valuation assumptions in the calibration. For instance,

- While future premiums are part of the current estimate, some risks arising from these premiums are not taken into account in the non-life risk charge. Namely, some of the future profits included on the balance sheet might not be realised due to reimbursement of cancellable policy premiums or non-payment of premiums.
- Expected future profitability may be more (or less) than a 100% combined ratio.
- While the premium exposure only includes one year of earned premium, a stress could increase the expected losses on premiums that are earned more than one year in the future.
- Timing differences between (1) earning of premiums (2) recognition of premium cash flows and (3) recognition of expense cash flows. Note: current estimate includes an allocation of all overhead and underwriting expenses for the coming year to policies on the balance sheet. That is, timing is usually (3) then (2) then (1).

305. Currently, the non-life risk charge only includes Premium and Claims Reserve risks, which means that the Premium risk focuses only on risk arising from the volatility of the loss ratio. A profitability adjustment would mean further adjustments to the factors and/or risk charge for issues such as those listed above.

[33] Meyers, Glenn. Stochastic Loss Reserving Using Bayesian MCMC Models. CAS Monograph Series Number 1. 2015. The IAIS appreciates the input from Glenn Meyers, which included providing code and advice on running these models.

Question 93. Is it necessary to make profitability adjustments to the design of Premium risk to better align it with the ICS balance sheet? If "yes", please provide details and rationale that support the response. If "no", explain how the current design aligns with the Premium risk on the ICS balance sheet as measured using a total balance sheet approach and a one-year time horizon.

Question 94. If there were to be a profitability adjustment included, how could it be designed? Please provide details, rationale and an example of a possible design for this adjustment.

7.10.2.5 Latent liability component of the Reserve risk charge

306. For 2018 Field Testing, some Claims Reserve risk segment's factors have been updated to include the effect of Latent Liability risks due to mass tort.

307. The purpose of this charge is to capture risk on liability exposures that is not adequately captured by historical claims experience. Latent liability exposure can develop over many years and can also affect written business that has already been fully earned.

308. The factors have been calibrated such that the 2018 Field Testing design produces a similar risk charge to that of 2016 Field Testing, where latent liability was part of Catastrophe risk. The Claims Reserve factors affected by the change can be found in the Table 25 of the 2018 Field Testing Technical Specifications.

Question 95. Are there any additional amendments to the latent liability design or calibration that are necessary to make it more suitable for the ICS standard? In particular, please address whether the latent liability component better reflects the underlying risks when situated within the Claims Reserve risk component. If "no", please provide rationale and alternative suggestions supported by evidence.

7.10.3 Other methods for calculating the Non-Life risk charge

309. As part of the development of other methods of calculating the ICS capital requirement during the monitoring period, the IAIS is investigating the possibility of allowing IAIGs to replace specific factors of the ICS standard method for non-life risk, under defined conditions and using specified methodologies. Those factors would be called *IAIG specific factors* (ISF).

310. During the monitoring period, the ISF could be applied to Claims Reserve and Premium risk exposures to calculate a different non-life risk charge, as part of additional reporting at the option of the GWS. The use of ISFs would not alter the structure of the ICS. The reference ICS would continue to use the standard method factors for Premium and Claims Reserve risk.

311. The aim of ISF is to reflect entity specific experience in the calculation of the ICS capital requirement, through limited adjustments. Introducing ISF would allow the ICS capital requirement to better capture the risk profile of each individual IAIG.

312. These factors would be calculated based on a prescribed methodology. The aim of a prescribed methodology is to facilitate understanding and promote the level playing field among IAIGs. During the monitoring period, appropriate application of the methodologies will

be reviewed by supervisors. Supervisory approval of ISFs will only be required if the IAIS decides to include ISFs in the implementation of ICS Version 2.0 as a PCR. Methodologies will consist of fitting a statistical distribution to non-life experience data such as historical loss ratios or one-year reserve development. An example of a possible methodology is provided in Annex 1.

313. The data to be provided for the calculation of the ISF will vary depending on the final prescribed methodologies. Possible data could be time series of current estimates, time series of premiums and associated losses (paid losses, incurred losses, ultimate losses and LAE), and loss triangles (paid loss, RBNS reserves, IBNR reserves).

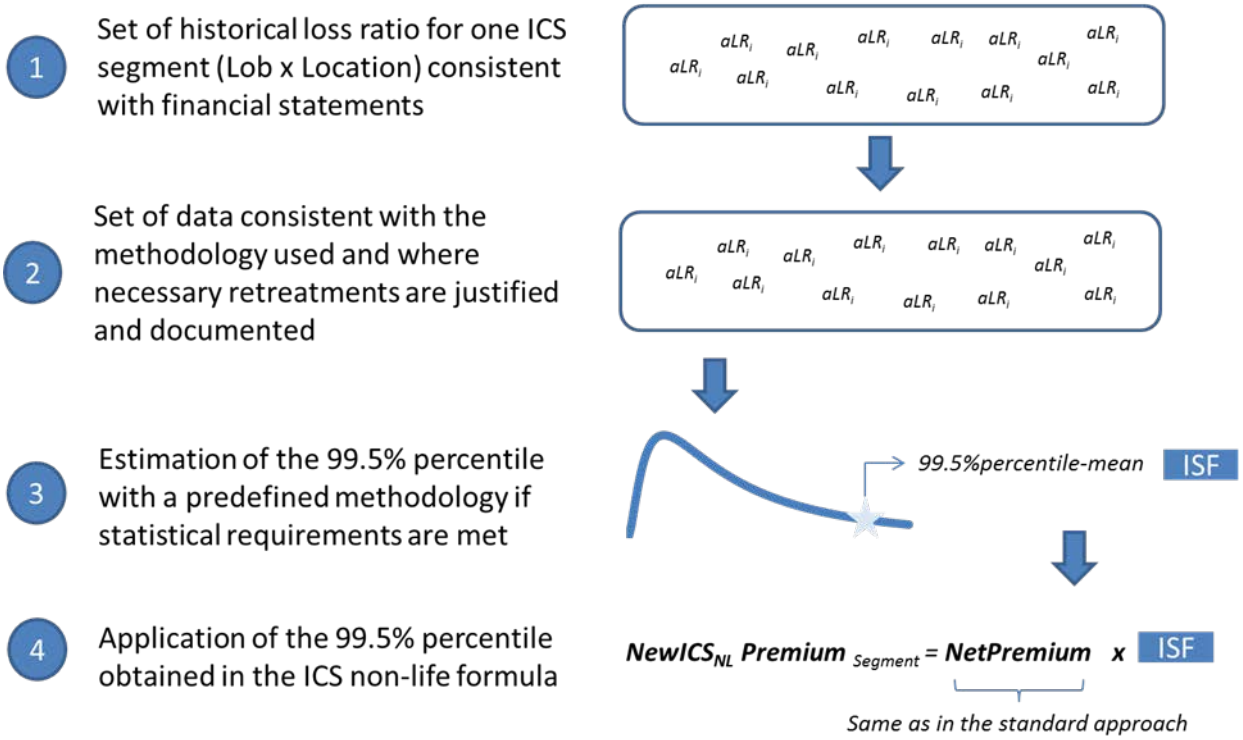
314. The time series of available data should be sufficient to provide credible inputs for the calculation. It is expected that data will be collected to ensure the ISF calculation is appropriate to the risk for each segment it is utilised (ie any proposed ISF methodology will be tested using appropriate data sets, such as those used for the non-life calibration exercise).

7.10.3.1 Prerequisites for the use of ISF during the monitoring period

315. Additional reporting of the ISF during the monitoring period would only be allowed if the IAIG meets specified prerequisites. The following is a list of possible prerequisites:

- The IAIG can provide sufficient data that is representative of risks arising in the coming year to justify the use of a different factor. For instance:
    - Data does not contain material errors
    - Data should not be smoothed nor outliers removed
    - Effects of catastrophe, salvage and subrogation, where retreated, should be documented and justified
    - Reporting of data is consistent over time and reported in a timely manner
    - Data reporting should allow a reconciliation to the financial statements of the IAIG
    - Data are coherent with the underlying assumptions of the applied methodology
- The processes for data management and data production should be adequately documented. This should include, at a minimum, validation, sources, data collection processes, as well as criteria for, and assessment of, data quality
- Where IAIG's report an ISF for a segment in one year, it should also be reported in subsequent years.

Figure 5: Illustrative example of the use of an ISF for non-life Premium risk of one ICS Segment



Question 96. Are the prerequisites for the reporting of ISFs during the monitoring period appropriate? Please explain with sufficient detail and rationale, including any other prerequisites that should be considered.

Question 97. Are there specific examples of prescribed methodologies that could be used for the determination of ISF for Premium and/or Claims Reserve risk? Please explain with sufficient detail of the methodology, including the data that would be needed and the formulae that would be used.

Question 98. Are there any further comments on Premium and Claims Reserve risks that the IAIS should consider in the development of ICS Version 2.0? If "yes", please explain with sufficient detail and rationale.

7.11 Catastrophe risk

316. 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 originating 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. This risk is applied to both life and non-life business.

317. 2018 Field Testing includes the following perils:

- Natural catastrophe
    - Tropical cyclone, hurricane, typhoon
    - Extra-tropical windstorm / winter-storm
    - Earthquake
    - Other material natural perils such as:
        - Flood
        - Tornado, hail, convective storms
        - Other risks
- Other catastrophe scenarios
    - Terrorist attack
    - Pandemic
    - Credit and surety

318. Based on the analysis of the 2015, 2016 and 2017 Field Testing and the feedback received on the 2014 and 2016 ICS CD, the IAIS largely maintained the approach for Catastrophe risk for 2018 Field Testing, with the exception of a few key changes that are outlined below.

7.11.1 Previous Field Testing results

319. 2017 Field Testing results show that the most material Catastrophe risk across the population of Volunteer Groups is natural catastrophe. However the materiality of perils varies by Volunteer Group and geographical regions. For composite Volunteer Groups, cyclone and earthquake are equally material, both representing a large proportion of the Catastrophe risk charge. For predominantly non-life Volunteer Groups, cyclone is the most material natural catastrophe peril. Among Catastrophe risks other than natural catastrophe, pandemic is, on average, the largest peril.

7.11.2 Issues for consultation

320. The issues for which the IAIS seeks input are:

- List of perils;
- Other catastrophe scenarios;
- Use of natural catastrophe models as part of the standard method;

- Diversification within Catastrophe risks.

7.11.2.1 List of perils

321. The list of perils for 2018 Field Testing has been changed compared to 2017 Field Testing. In particular, marine and aviation collision scenarios are no longer captured in Catastrophe risk. Instead, a corresponding increase was made to the appropriate Premium risk factors to account for these risks.

322. Furthermore, new risks may emerge, such as cyber risk, and additional Catastrophe risks could emerge from the development of existing products, such as the development of driverless cars, which could result in changes in motor insurance.

323. As such, 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.

Question 99. Is the list of perils for Catastrophe risk appropriate for ICS Version 2.0? If "no", please provide a list of amendments, including a definition of the peril to include or exclude and any other specific details to support the suggestion(s).

7.11.2.2 Catastrophe scenario

324. The catastrophe scenarios have been defined, in the context of the standard method, to measure a loss at the 99.5% VaR over a one-year time horizon for each individual IAIG.

325. This 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. For instance, the calculation of the contingent credit risk proposed for field testing is a simplified approach (see 2018 Field Testing Technical Specifications for further details).

326. Furthermore, the definition of some catastrophe scenarios has been amended for 2018 Field Testing, eg the terrorist attack scenario (see 2018 Field Testing Technical Specifications for further details).

Question 100. Are the catastrophe scenarios, as defined in the 2018 Field Testing Technical Specifications, appropriate for ICS Version 2.0? If "no", please provide specific suggestions supported by rationale and evidence to amend the scenario(s).

7.11.2.3 Use of natural catastrophe models as part of the standard method

327. For the assessment of natural catastrophe, the IAIS allows Volunteer Groups to use natural catastrophe models in field testing. Allowing the use of natural catastrophe models as part of the standard method during 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. Although there are some concerns inherent in the use of such models, under certain conditions these concerns could be mitigated to an acceptable level.

328. The first area of supervisory concern relates to the quality of the model itself and the second area of supervisory concern relates to the use of the models by IAIGs.

329. Allowing the use of natural 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, such as 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, justification of the choice of a particular model over others and information on the way the model has been used (eg adjustments made). This should demonstrate that the outcome of the model is understood by the IAIG and that model chosen fits the risk profile of the IAIG.
- requiring or receiving agreement, if concerns emerge from the supervisor, from the IAIG to provide information about the governance of the model, how data quality is assessed, or about the process followed to update and change models.
- setting some restrictions, if any, to the way the models have been used (eg regarding the use of some options or parameters provided by vendor models, and/or regarding potential adjustments).
- requesting the IAIG to perform a self-assessment (eg self-validation, tests, impact assessment), an appropriate sign-off by the appropriate senior management on the use of the model or by receiving agreement from the IAIG that such self-assessment could be performed if concerns emerge from the supervisor. Tests performed in the self-assessment should more specifically target the key assumptions of the model.

Question 101. What should be the safeguards for using natural catastrophe models as part of ICS Version 2.0? In particular, please address the extent to which the aforementioned list should be expanded. Please also comment on the requirements that should be included, as well as any alternative approach that could be taken if an IAIG were unable to meet the requirements.

7.11.2.4 Diversification within Catastrophe risks

330. The contribution to the Catastrophe risk charge and ultimately to the ICS capital requirement from other Catastrophe components of the risk charge are considerably reduced by the effect of diversification.

331. For the purpose of calculating the Catastrophe risk charge, the other catastrophe scenarios are assumed to be mutually independent and independent of the natural catastrophe perils. Consequently, the total ICS Catastrophe risk charge is calculated as follows:

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

Question 102. For the purposes of the ICS standard method, is the approach taken in 2018 Field Testing adequate to account for diversification effects between Catastrophe 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.

7.11.3 General comments

Question 103. Are there any further comments on Catastrophe risk that the IAIS should consider in the development of ICS Version 2.0? If "yes", please explain with sufficient detail and rationale.

7.12 Interest Rate risk

7.12.1 MAV approach

332. Interest rate risk is defined as the risk of adverse change in the value of capital resources due to unexpected changes in the level or volatility of interest rates. It is calculated as the aggregate of gains or losses under a set of scenarios, arising from independent sources, stressing the level and shape of the yield curve.

333. The five scenarios used to measure Interest Rate risk are determined using the Dynamic Nelson-Siegel (DNS) yield curve model. The first scenario represents the expected mean reversion over the next year as forecast by the model. The remaining four scenarios consist of two symmetric pairs of independent stresses: a level upward (downward) stress, and a twist stress from up to down (down to up).

334. The total Interest Rate risk charge[34] is:

$$\text{Gain or loss under mean reversion scenario} + \sqrt{\text{Max loss (level up, level down)}^2 + \text{Max loss (twist up to down, twist down to up)}^2}$$

335. Assuming the level and twist scenarios are independent, their impact is aggregated. In order to capture convexity, optionality, and other nonlinear aspects of assets and liabilities, both the gain and loss under the pairs of symmetric level and twist stresses are evaluated. For the shocks under the square root, any gain is set to zero. However, if there is a gain under the mean reversion scenario then this amount is subtracted from the requirement.

336. The DNS model is a pure statistical model whose main focus is to explain the past movements of the interest rate term structure and forecast its future movements. The Arbitrage-Free Dynamic Nelson-Siegel (AFNS) model has been developed to reflect arbitrage-free condition into the DNS model. One view is that the AFNS model may be theoretically more rigorous, and better positioned to produce interest rate shocks. Another view is that arbitrage-free models are not suitable for capital requirement calculations as they are "risk neutral" models and not "real world" models, and that the AFNS has not been sufficiently studied, tested and used. In addition, the lack of sufficiently detailed market data for some jurisdictions (especially for small and/or less mature markets) may not support the arbitrage-freeness for AFNS, resulting in calibration instability.

Question 104. Should the IAIS consider employing the AFNS model for ICS Version 2.0? Please explain. If "no", please indicate if the IAIS should continue using the DNS model or suggest an alternative model to the DNS.

Question 105. Should the IAIS apply the AFNS model to countries where the AFNS model is applicable, and apply the DNS model to the rest of countries? Please explain.

337. The modelling approach used is based on a model of the yield curve as a whole. Limited changes to the approach were made for 2018 Field Testing:

[34] Floored at zero

- The stress approach stays aligned with the three segment approach used for valuation, with the result that the risk model only impacts the first segment of the yield curve fully.
- The datasets used for calibration of the stresses to the first segment are similar weekly interest rate observations starting at 1 January 2010.
- The grading of the stress between the end of the first segment and the start of the third segment is unchanged, and relies on the automatic grading that is part of the Smith-Wilson method used to interpolate and extrapolate yield curve point estimates.
- The magnitude of the level stress on the third segment has been maintained at 10%.

338. For current estimate valuation purposes, the IAIS Base Yield Curve Methodology limits the annual change of the LTFR to 15 bps/year, while the long-term shock is set at 10% of the LTFR. The ICS capital requirement aims to capture unexpected changes in the value of the LTFR, whereas current estimates aim to reflect the expected value of insurance liabilities. The two concepts are linked, as both are IAIS determined constraints on the LTFR and at that, represent a different level of constraint. On the other hand, currently the calibration of ICS shocks for any risk drivers is not in any way constrained by the assumptions used to calculate the current estimates.

Question 106. Should the IRR stress on LTFR and the maximum LTFR annual change for current estimate valuation purposes continue to be independently determined by the IAIS, or should both be subject to the same cap? Please explain with sufficient detail and rationale.

339. IAIGs operating in multiple jurisdictions are exposed to Interest Rate risk in more than one currency. The Interest Rate risk charges for each currency (excluding the mean reversion components) are aggregated using a correlation matrix, using a 75% correlation between each pair of currencies that have net long or net short duration in both currencies, and a negative 75% correlation in each pair of currencies for which one of the durations is net long and the other is net short. The risk charge is the total of the square root requirements using the correlations, and the sum of all mean reversion requirements.

Question 107. Is the method used to aggregating the Interest Rate risk in multiple currencies appropriate? If "no", please suggest an alternative methodology.

7.12.2 Assets and liabilities subject to the stress

340. The stress calculations should capture changes in the values of all assets and liabilities that are sensitive to changes in interest rates. Subordinated debt and preferred shares are treated as interest-sensitive assets for the Interest Rate risk calculation.

341. For insurance liabilities valued with a dynamic lapse function that uses the interest rate as an input variable, the base lapse assumption should stay unchanged, while allowing lapses to increase or decrease in reaction to interest rate movements.

7.12.3 GAAP Plus approach

7.12.3.1 Background

342. The IAIS is field testing an approach for valuing liabilities under the interest rate stress that is compatible with the way in which they are valued under GAAP Plus. Different approaches to liability discounting are used, depending on the jurisdiction and product type. For example, in the U.S., the valuation of long-term insurance current estimates utilises a discount rate that is a blend of the portfolio return rate and a reinvestment rate based on current market assumptions. Assets backing those liabilities are essentially reported at amortised cost via the AOCI adjustment, which is an adjustment to capital resources. In other jurisdictions, eg EU, insurance liabilities are valued using market yield curves, with certain adjustments, and all assets are measured at fair value.

343. A shock to a market based curve does not result in a change in value for assets valued at cost, nor does it impact the book yield used to discount liabilities. For this reason, different methodologies are used to calculate the GAAP Plus Interest Rate risk charge, depending on how insurance liabilities and assets are measured in different GAAP Plus regimes.

7.12.3.2 Liabilities

344. For those insurance liabilities where the value is calculated using yield curves based on current market information, the Interest Rate risk is calculated using the MAV approach. For example, the MAV interest rate stress approach is applicable for all products under the EU GAAP Plus. It is also applicable for variable annuity guarantees under U.S. GAAP Plus where market based curves are used in the valuation of such guarantees.

345. Where insurance liabilities are discounted using a portfolio earned rate/curve, long-term insurance liabilities are shocked using a discount rate that is a blended rate of the portfolio earned rate on existing investments and the stressed IAIS yield curves for reinvestments at each tenor and currency.

7.12.3.3 Assets

346. For assets measured at market value, the stress is the same as that used in the standard method for MAV.

347. For assets measured at amortised cost, the balances are not impacted by the market value-based stress scenario: the stress impact is assessed through the AOCI adjustment instead of through direct estimation of the change in asset value.

348. The assets included in the AOCI adjustment are measured at market value. However, the change in value due to the stress would be offset by the change in value of the AOCI adjustment. Therefore, the net impact of the stress for these assets would be zero, or the same as for assets measured at cost.

7.12.3.4 Calculation and reporting

349. Where an IAIG applies more than one interest rate stress method, the risk capital assessment for each of those components is required to be calculated if material. In such cases, the results of the different methodologies is reported separately, and the total GAAP Plus risk charge for Interest Rate risk will be the sum of the charges calculated for those liabilities, using the different methodologies.

7.12.4 Effect of management actions

350. The effect of management actions is determined in a two step process. First, the selection of the shocked scenarios among the level pair (up or down) or the twist pair (up to down or down to up) is done without reflecting management actions (ie liabilities for future discretionary benefits should not be recalculated under the stress scenarios, and the gain or loss for each scenario should not assume any change in the liability for future discretionary benefits). In a second step, the scenarios selected in the first step are evaluated allowing for the effect of management actions.

Question 108. Is the treatment of management actions and the current choice of scenarios based on impact before the management actions within the Interest Rate risk charge appropriate? If "no", please explain with sufficient detail and rationale.

Question 109. Are there any further comments on Interest Rate risk that the IAIS should consider in the development of ICS Version 2.0? If "yes", please explain with sufficient detail and rationale.

7.13 Non-Default Spread risk

7.13.1 Background

351. At the onset of the ICS development work, one of the first decisions which had to be made concerned the scope and definition of the risks to be captured by the Standard.

352. The approach which was adopted aimed to reflect a balanced solution, taking into consideration the range of approaches which could be observed among IAIS Member jurisdictions, as well as the approaches adopted in other sectoral global requirements (eg Basel II).

353. One of the points under discussion concerned the potential inclusion of Spread risk as an explicit risk under the ICS capital requirement. The 2014 ICS Consultation Document defined Spread risk as the risk of "*unexpected changes in the level or volatility of credit spreads over the risk-free interest rate term structure*".

354. In the same consultation document, the possible links between Spread risk and Credit risk were further expanded. "*The definition of credit risk used for the ICS may be broadened to include spread risk, and may also subsume risks besides default risk that can adversely affect the value of credit-sensitive assets, such as migration risk and obligor-specific risk. If spread risk is included within the ICS credit risk category then it will not be included as a component of the ICS market risk category. Additionally, the ICS definition of credit risk may be expanded to cover risks arising from all credit-sensitive obligations due to an insurer, which would include obligations due from counterparties as a subcategory.*"

355. Following this consultation process, a decision was made to include Spread risk as part of Credit risk, leading to its exclusion from the ICS standard method as a standalone risk charge.

356. This led to the inclusion, in the 2016 ICS CD, of the following definition of Credit risk: "*Unexpected changes in the actual default as well as in the deterioration of an obligor's creditworthiness short of default, including migration and spread risks.*"

357. However, when reviewing 2016 and 2017 Field Testing results and revising the technical documentation outlining the calibration approach used to derive the Credit risk charges, the IAIS concluded that the Credit risk factors do not incorporate the full Spread risk but only the default component of the total spread.

358. The current specification of Credit risk in the ICS standard method only takes into account the default element of spreads over the risk-free base yield curve, disregarding other relevant components of such spreads (eg liquidity, taxes) which will also affect the capital resources position of an IAIG. This is a material issue, in particular in the context of valuation approaches which are sensitive to market developments, such as the MAV approach which forms the basis for the reference ICS. Academic literature assessing the composition of credit spreads mostly attributes around 20% to 40% of total spread to the default component (on average, across rating categories and maturities).

359. Against this background, several possibilities were considered:

- Disregard the omitted part of Spread risk from the ICS;

- Re-introduce Spread risk in full as part of Market risks in the ICS, modifying the specification of Credit risk to avoid any overlap;
- Keep the specification of Credit risk unchanged, introducing a Non-default Spread risk as part of Market risks to capture the part of the risk which is currently missing.

360. All options considered have inherent advantages and disadvantages. After internal discussion at IAIS, it was decided to move forward with the third option, for the purpose of 2018 Field Testing.

361. Therefore, work on the design and calibration of Non-default Spread risk started in the second half of December 2017. An initial approach has been designed and is currently being tested as part of 2018 Field Testing.

362. The following sections present the work done so far and seek stakeholder feedback to inform the next steps in the development of Non-default Spread risk.

Question 110. Is the definition of Non-Default Spread risk appropriate for ICS Version 2.0? If "no", please provide rationale and details.

Question 111. Is the current approach selected to capture Non-Default Spread risk appropriate (the third option, as defined above) for ICS Version 2.0? If "no", please provide details supporting another option.

7.13.2 MAV 2018 Field Testing approach

363. Non-default Spread risk aims to capture unexpected changes in the level or volatility of spreads over the risk-free interest rate term structure, excluding the default component (which is captured in Credit risk).

364. Conceptually, the Non-Default Spread risk charge could be applied in different ways. When comparing an asset-only spread upward shock with a bi-directional shock on assets and liabilities, there are different views on what is the most appropriate approach. The first approach takes as a starting point that only assets, and more specifically fixed-income assets, are sensitive to spread movements and it is therefore appropriate to link the charge to assets only, in line with the approach taken for the Credit risk charge for this type of assets. The second approach takes into account that in the ICS framework itself the valuation of liabilities is also linked to movements in spreads.

365. For the purpose of 2018 Field Testing, the calculation is based on a bi-directional stress applied to assets and liabilities, which aims to capture the potential exposure of IAIGs to this risk driver under different ALM positions.

366. The risk charge is based on the maximum of the Up or Down stresses, subject to a floor of zero.

367. The Up and Down stresses use a combination of absolute basis points and relative percentage shocks, from which the minimum is taken into consideration. This feature was introduced as a consequence of the observed data limitation which prevented the IAIS from calibrating a spread stress to 99.5% VaR over a one-year time horizon for all the 35 currencies for which base yield curves are published for the ICS.

368. In light of these data limitations, an average stress was defined for most currencies, leading to situations of potentially material over- or underestimations of the target confidence level. This may be particularly problematic in the case of currencies for which the starting spread adjustment is rather low (leading to a very small figure for the relative percentage shock), compared to the average spread shocks defined in absolute terms.

369. In other cases, the introduction of relative limits enhances the coherence between the Non-Default Spread risk stresses and the starting adjusted base yield curves, for the universe of currencies under consideration, potentially avoiding the application of disproportionately high (or low) shocks.

Question 112. From a conceptual perspective, which design is more appropriate, an asset only spread upward shock or a bi-directional shock applied on assets and liabilities? Please explain.

Question 113. Is the 2018 Field Testing design of the Non-Default Spread risk charge appropriate for ICS Version 2.0? If "no", please explain.

370. 2018 Field Testing relies on a placeholder calibration for Non-Default Spread risk, which will be subject to refinement.

371. Initial calibration work of a 99.5% VaR over a one-year time horizon led to the identification of the data limitations described above. These issues are not dissimilar to those which were faced when calibrating the MAV spread adjustments used for discounting insurance liabilities, for which a data-based specification could only be completed for three currencies, plus a World Bucket.

372. Against this background, the proposed absolute calibration reflects an expert judgment assessment of the average results which were obtained for the currencies where data is available.

373. The calibration of the relative shocks was based on the work and methodologies which the IAIS has developed for past field testing exercises to assess the impact of severe stress spreads on the MAV balance sheet (the stress scenario used for comparing discounting methodologies).

374. The IAIS will continue working on the calibration of Non-Default Spread risk, in parallel with this public consultation and 2018 Field Testing. The findings and feedback from these initiatives will be incorporated in the work, once available.

Question 114. Is the calibration of the Non-Default Spread risk charge appropriate for ICS Version 2.0? If "no", please explain.

Question 115. Are there publicly available data sources which the IAIS could use to calibrate Non-Default Spread risk? If "yes", please provide details.

7.13.3 GAAP Plus 2018 Field Testing approach

375. The approach to Non-Default Spread risk under GAAP Plus depends on the jurisdictional specificities of the GAAP Plus valuation of assets and insurance liabilities.

376. On the asset side, the approach can be similar to that of MAV, where assets are measured at fair value, or the shock may not be applicable, where assets are valued at cost. Where the AOCI adjustment is used, the shock is applied, but then its impact on capital resources is neutralised for those assets included in the AOCI adjustment.

377. On the liability side, the approach is also linked to the discounting methodology used for GAAP Plus. Where discounting is based on market information, the MAV specification applies, but where liabilities are undiscounted or discounted based on portfolio earned rates plus a government bond reinvestment assumption, the shock is not applied. Where there is a combination of portfolio earned rates plus a reinvestment rate not based on government bond rates, the shock applies only to the reinvestment rate assumption.

378. Where IAIGs use a combination of GAAP Plus specifications to arrive at their consolidated ICS balance sheet, different methodologies to calculate Non-Default Spread risk will need to be applied for different portions of the business, as appropriate.

Question 116. Is the design of the Non-Default Spread risk charge for GAAP Plus appropriate for ICS Version 2.0? If "no", please explain.

7.13.3.1 GAAP Plus aggregation where different GAAP Plus specifications apply

379. The specificity of the design of Non-Default Spread risk for GAAP Plus in 2018 Field Testing raises a particular challenge, which does not occur in the MAV calculation due to the design which has been adopted for 2018 Field Testing.

380. This is due to the possibility that the risk charge is separated in different parts, relying on different technical approaches, depending on the methodology used to value the underlying assets and liabilities.

381. Therefore, the general principle of only taking the maximum of the Up or Down risk charge, which is applied in the MAV calculation, is applied to each of the GAAP Plus individual components, but may not be verified for the IAIG as a whole.

382. In practical terms, this means that, where an IAIG calculates Non-Default Spread risk using different GAAP Plus specifications due to the different underlying valuation methods (eg the U.S. and the EU GAAP Plus specifications), different shocks may result in the highest charge for each of these parts of its business (eg the Down shock for the U.S. part and the Up shock for the EU part).

383. This raises a specific issue with regard to the subsequent aggregation of the different components of the risk charge, to arrive at the overall result for the IAIG.

384. In 2018 Field Testing, the calculation is performed independently for each of the parts of the business, and subsequently the components of the risk charge are added together,

independently of the direction of the shock which triggered the highest charge for each of the parts of the business.

Question 117. Is the approach used in 2018 Field Testing to determine the overall Non-Default Spread risk charge for GAAP Plus, where different GAAP Plus specifications are applied to different parts of the business, appropriate for ICS Version 2.0? If "no", please explain.

7.13.4 Issues for consultation

385. The first issue for consultation concerns the definition of Liquidity risk and the manner in which it should or should not affect the design and calibration of Non-Default Spread risk.

386. At the same time that the decision was made to merge Spread risk with Credit risk, it was also decided by the IAIS that Liquidity risk would be excluded from the quantitative ICS capital requirement and addressed through other supervisory tools and instruments.

387. Against this background, there is a view supporting that this decision materially overlaps with the discussion currently taking place on Non-Default Spread risk.

388. According to the proponents of this view, spreads are mainly driven by default and market liquidity considerations. As the default part is excluded to avoid overlap with Credit risk, the IAIS decision to exclude Liquidity risk should lead to the deduction of the liquidity component of spreads from Non-Default Spread risk, leaving very little risk (if anything) to be captured.

389. Another view highlights that the initial risk definitions established the exclusion of Liquidity risk but also that the full Spread risk should be included in the ICS as part of Credit risk, advocating that there are two notions of liquidity being mixed up in the current discussion.

390. On the one side, there is the risk that IAIGs will not have sufficient liquid assets generating cash in-flows to meet the cash out-flows required to meet the liabilities as they fall due. As defined in the IAIS Glossary, this is "*the risk that an insurer is unable to realise its investments and other assets in a timely manner in order to settle its financial obligations as they fall due*". There is agreement that this risk has been excluded from the ICS because, in an insurance context, such risk is better captured through other supervisory tools and instruments (eg stress testing).

391. However, what is under consideration for the definition of Non-Default Spread risk is the risk of adverse change in the value of capital resources due to unexpected changes in the level or volatility of spreads over the risk-free interest rate term structure, excluding the default component (which is captured in Credit risk). What is meant to be captured is the fact that, independent of the fact that assets are sold or not, their market value will be affected by changes in market spreads, having an impact on the capital resources position of the IAIG (irrespective of the discounting adjustment methodology being used).

392. For the proponents of this view, no further spread component should be disregarded when defining and calibrating Non-Default Spread risk, apart from the default component, as this is a material and quantifiable risk which should not be mixed with Liquidity risk. This interpretation would also be consistent with the initial IAIS agreement to exclude Liquidity risk, while capturing the full Spread risk in the ICS.

393. For those who support this latter position, another argument in favour of capturing the liquidity component of spreads in the Non-Default Spread risk charge is to ensure consistency with the approach used to discount insurance liabilities. This is because, under the MAV approach, an adjustment is introduced in addition to the base yield curve, precisely with the aim to "*mitigate potential excessive volatility in capital resources (by avoiding reflecting changes in market conditions that do not affect the solvency of the IAIG)*". The objective of this adjustment is precisely to mitigate the impact on capital resources of changes in market spreads, which are often linked to liquidity considerations.

394. Against this background, it would be rather inconsistent to state, on the one side, that an adjustment for market liquidity is necessary on the valuation of current estimates to avoid material impacts on the capital resources of IAIGs and, on the other, to state that unexpected changes in that very same liquidity component of spreads does not pose a risk to IAIGs.

Question 118. Should the liquidity component of spreads be excluded when designing and calibrating Non-Default Spread risk? Please explain. If "yes", please also provide suggestions about the practical approach to perform the split of the total spread.

Question 119. If the liquidity component of spreads would be excluded from Non-Default Spread risk, should the IAIS modify (ie reduce) the MAV discounting adjustments which are considered for discounting of insurance liabilities (the Three-Bucket Approach) to ensure consistency in the ICS? If "no", please explain, in particular, the issue of consistency across different ICS elements. If "yes", please explain with sufficient detail.

395. The second issue for consultation relates to the calculation of the Non-Default Spread risk charge, namely concerning the degree of diversification which is allowed across currencies. This is an issue which affects MAV, where the up and down stresses are applied across all currencies. The relevance for GAAP Plus depends on the number of GAAP Plus methodologies used. The issue is relevant whenever the assessment of the highest shock (up or down) is performed for several currencies simultaneously.

396. The current specifications define the risk charge as the maximum of the calculation of two shocks (Up and Down), subject to a minimum floor of zero to avoid negative risk charges.

397. Each of the two shocks is applied simultaneously across all currencies. The assessment of the higher shock is performed in aggregate, meaning in practice that an offset is possible between currencies exposed to the stress in opposing directions (due to different ALM mismatches).

398. The practical consequences of this approach can be illustrated with a simple example. Consider an insurer operating in two currencies (A and B). The Up shock generates a +10 risk charge for currency A and a -10 risk charge for currency B. The Down shock generates symmetric risk charges from those described above. This insurer would report a total risk charge of 0, even though there is a risk charge of 10 in each of the currencies in which it operates, when considered individually.

399. This issue is similar to the debate which is taking place for Interest Rate risk (please refer to Section 7.12).

400. One possible solution to address this issue would be to change the design of the calculation of the risk charge, by making the decision on the relevant scenario (expressed by the formula *MAX (Up stress; Down Stress; 0)*) at the level of each individual currency.

Question 120. Should the design of Non-Default spread risk be modified to address the issue identified in this section? If "yes", please provide details about the technical solution to be adopted (which could be the proposed approach or an alternative one).

7.13.5 General comments

Question 121. Are there any further comments on Non-Default Spread risk that the IAIS should consider in the development of ICS Version 2.0? If "yes", please explain with sufficient detail and rationale.

7.14 Equity risk

7.14.1 Background

401. Equity risk is defined as the risk of adverse changes in the value of capital resources due to unexpected changes in the level or volatility of market prices of equities.

402. Equity risk should capture all direct and indirect impacts of a stress on the value of equities, including on all financial resources whose value is sensitive to a change in the level or volatility of equity prices.

403. Measuring Equity risk in the ICS has undergone several changes since the first year of field testing; the number of segments has been reduced from five to four, the number of stress scenarios from four to one, correlation effect between the segments has been added, and how countries are split between developed and emerging.

7.14.2 2016 consultation document

404. The IAIS solicited feedback in the 2016 ICS CD on a broad range of considerations in order to improve the Equity risk charge, including:

- the segmentation of equities into four buckets:
    - Listed equity in developed markets;
    - Listed equity in emerging markets;
    - Hybrid debt and preference shares; and
    - Other equity.
- should correlation effect between the equity segments be taken into account
- the appropriateness of stressing equity volatilities and the design of the volatility stress
- whether the multiplicative approach is appropriate
- should equity investments that are strategic, or in infrastructure, get a different risk charge
- should the Equity risk charge include a countercyclical measure
- whether the approach is appropriate for products with path dependent valuations

405. This feedback resulted in changes in the technical specifications on correlation between the equity segments and the multiplicative approach.

7.14.3 Changes in Equity risk since ICS Version 1.0 for extended field testing

406. Since 2016 Field Testing, only one equity market shock scenario has been used (prices down, volatility up), which typically produces the most adverse results. This shock scenario applies to all segments except hybrid debt and preference shares.

407. The risk charge for hybrid debt and preference shares is calculated based on a relative drop in value depending on their credit rating.

408. Calibrations for listed equities are based on the FTSE Developed Index. Any country not included in the FTSE Developed Index is considered an emerging market.

409. The equity shock is an instantaneous relative decrease for market prices of all listed shares by 35% in developed markets, 48% in emerging markets, and 49% decrease in other equity.

410. The shock for hybrid debt and preference shares is an instantaneous relative decrease of the market prices by x%, determined by the credit rating as indicated in the following table:

Table 10: Stresses for hybrid debt/preference shares

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

411. Implied volatility shocks differ for different tenors. The implied volatility shock for all equity assets is an increase in accordance with the following table. Linear interpolation is used for maturities not specified.

412. The calculation of the volatility shock was also revised. Instead of multiplying the current volatility by the shock, the shock is added to the current implied volatilities, reducing the procyclicality.

Table 11: Absolute stresses for implied volatilities

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

7.14.4 2018 Field Testing

413. Based on feedback received and IAIS deliberations, some changes were made for 2018 Field Testing. The Equity risk calculation now considers correlation between segments. Aggregating Equity risk consists of two steps: using the equity correlation matrix (below) to determine the diversification effect between the equity segments, and summing the total level risk and the impact of the stress under the volatility scenario.

Table 12: Equity correlation matrix

Equity segment	Developed	Emerging	Hybrid/preferred	Other
Developed	100%	75%	100%	75%
Emerging	75%	100%	75%	75%
Hybrid/preferred	100%	75%	100%	75%
Other	75%	75%	75%	100%

7.14.5 Issues for consultation

414. The issues for which the IAIS seeks input are:

- Segmentation of equities
- Aggregation and diversification
- Long-term equity investments
- Stressing equity volatility
- Applying equity stress simultaneously

Question 122. Is the four-bucket approach to the segmentation of equities appropriate? Please explain. If "no", please provide an alternative suggestion and rationale.

Question 123. Is the approach taken to calculate the aggregation and diversification for Equity risk appropriate? Please explain. If "no", please provide an alternative suggestion and rationale.

Question 124. Is the treatment of long-term equity investments (such as strategic and infrastructure 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).

Question 125. Is the current method of adding the shock to the current volatility appropriate? If "no", please provide an alternative suggestion with rationale.

Question 126. Are there any further comments on Equity risk that the IAIS should consider in the development of ICS Version 2.0? If "yes", please explain with sufficient detail and rationale.

7.15 Real Estate risk

7.15.1 Background

415. Real Estate risk is defined as the risk of adverse changes in the value of capital resources due to unexpected changes in the level or volatility of market prices of real estate or from the amount and timing of cash flows from investments in real estate.

416. The calculation of the shock scenario for Real Estate risk has remained simple throughout the ICS development. The ICS Real Estate risk charge is determined by applying a shock of a 25% simultaneous decrease in the value of all direct or indirect property exposures. Mortgages are excluded from Real Estate risk and included as part of Credit risk. When aggregated with other Market risks, the Non-Life risk charge for mortgage insurance is added to Real Estate risk.

7.15.2 2016 consultation document

417. The IAIS solicited feedback in the 2016 ICS CD in order to consider further developing the Real Estate risk charge. The topics discussed in the consultation document included advantages and disadvantages of adopting a factor-based approach or a stress approach, treatment of real estate held for own use, and the possible consequences for the design of the ICS of different characteristics (eg location, type) and different use (eg tenant credit, in-force lease agreement). Feedback was solicited for the following:

- the appropriateness of using a stress approach to determine the risk charge;
- if a stress approach were to be selected, which components should be included in the risk charge:
    - Level of market prices;
    - Volatility of market prices;
    - Amount and timing of cash flows from investment in real estate; and
    - Treatment of property held for own use.

418. Useful feedback was provided on a number of Real Estate risk design issues as a result of the 2014 and 2016 ICS CDs, as well as the ICS field testing exercises. As a result of this feedback, the current design of Real Estate risk incorporates the following:

- The clear preference for a simplified approach
- In 2016, for MAV, property held for own use was adjusted to fair value as determined in IFRS or GAAP valuations to be consistent with the treatment of investment property and to avoid inappropriate risk charges (ie the risk charge for property held for own use being sometimes greater than the balance sheet value).
- In 2016, for GAAP Plus, the risk charge calculation was adjusted to the balance sheet value less a percentage (1 – 25% shock) of the property's fair value. If the fair value of the property is not available, the risk charge is the shock applied to the property's book value. The risk charge is determined on a property-by-property basis.

7.15.3 2018 Field Testing

419. For 2018 Field Testing, no changes were made to the calculation of the Real Estate risk charge compared to 2017 Field Testing.

Question 127. Are there any comments on Real Estate risk that the IAIS should consider in the development of ICS Version 2.0? If "yes", please explain, with sufficient detail and rationale.

7.16 Currency risk

7.16.1 Background

420. Currency risk is the risk of adverse change in the value of capital resources due to unexpected 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 may be partially or totally offset by changes in value of other items on the balance sheet.

421. The Currency risk section of the 2016 ICS CD consulted on the proposed methodology, including stresses, single correlation factor for all currencies in a time of stress, treatment of investments in foreign subsidiaries, treatment of currency pegs and treatment of currency exposures with a maturity of less than one year.

422. No substantial concerns were raised by stakeholders on the overall methodology. In turn, stakeholders welcomed the granular pairwise currency stresses and also generally agreed that the treatment of currency pegs is appropriate.

423. Some concerns were raised by certain respondents regarding the treatment of investments in foreign subsidiaries and in particular the use of a 10% proxy as well as the single correlation factor. However, the alternatives proposed to these approaches would significantly increase the complexity of this module.

7.16.2 2018 Field Testing

424. Building on the 2017 Field Testing approach to Currency risk, 2018 Field Testing maintains the granular pairwise currency stresses and the exemption for a portion of an investment in a foreign subsidiary, as well as the pair-wise correlation factor of 50%. The full approach to can be found in the Currency risk section of the 2018 Technical Specifications.

- Pair-wise volatility since 1 January 1999 is calculated for each pair of currencies for 35 predefined currencies. A World Bucket is provided for exposures in any currency not included in the predefined list.
- A diversification allowance (ie pairwise correlation of 50%) is assumed for each pair of currencies
- Pegged currencies are treated the same as other currencies, relying on historical data.
- The net open position is determined after giving an exemption to a portion of investments in foreign subsidiaries. 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.

Question 128. Is the approach to Currency risk (eg level of the stresses, correlation factor, treatment of currency pegs, partial exemption for investments in foreign subsidiaries) appropriate for ICS Version 2.0? Please explain.

7.17 Asset Concentration risk

7.17.1 Background

425. The Asset Concentration risk charge covers the risk of adverse changes in the value of capital resources due to a lack of diversification in the asset portfolio.

426. Standard risk charges are generally developed under the assumption that portfolios are well diversified. In situations of poorly diversified portfolios, an incremental risk charge for asset concentration is assessed within the ICS framework.

427. Since its initial design, the Asset Concentration risk approach has employed simple factors to determine incremental risk charges for large risk counterparty and/or property exposures exceeding a specified exposure threshold, where the applicable factors progressively increase with higher risk exposure levels.

428. Asset Concentration risk can take the form of excessive exposures under various perspectives, including to single counterparty names, connected-groups, industry sectors, or geographies. The extent to which exposures may be considered excessive is typically a function of the prudential limits and thresholds developed to manage and control Asset Concentration risks, with a particular focus on limiting impacts from idiosyncratic risks.

429. Given that the purpose is to cover risks that are idiosyncratic in nature, finding appropriate data to support incremental risk charge factors has been a challenging endeavour. As such, the development of risk factor calibrations has thus far been based on supervisory judgment.

430. The following sections present the recent field testing experience and the current design of Asset Concentration risk within the ICS framework. Issues for which the IAIS seeks feedback for ICS Version 2.0 are interspersed throughout the sections.

7.17.2 Observations and feedback from 2017 Field Testing

431. In 2017 Field Testing, it was observed that Asset Concentration risk was immaterial for most firms; however, for those Volunteer Groups that were affected, the impact was significant.

432. For those affected Volunteer Groups, the impact stemmed largely from counterparty exposures, most of which were generated from developing asset markets where good investment opportunities are likely limited.

433. Some of those affected Volunteer Groups have assets, in particular, that are highly concentrated in the form of short-term deposits at regulated banks.

Question 129. Due to the difficulties of designing an approach that can take into account those asset concentrations that arise from developing asset markets where investment opportunities may be limited, is there an alternative methodology for evaluating Asset Concentration risk. Please explain.

Question 130. Under the current ICS Credit risk design, short-term obligations at regulated banks (including demand deposits and other short term obligations) receive a stress factor of 0.4%, reflecting the low default risk of such investments. In order to address the potentially significant impact generated by the concentration of such investments in developing asset markets, would it be appropriate to

similarly allow for a single low risk charge under the Asset Concentration risk framework? If "no", please provide details.

434. Most impacted firms had greater and lower rated (drawing higher risk changes) counterparty exposures that exceeded the risk threshold.

435. Feedback received through past field testing exercises and ICS consultations have indicated that Volunteer Groups largely support the approach; however, concerns that the risk is inappropriate to apply to developing asset markets and that calibrations are excessive have been the key issues cited.

436. Due to the relatively small impact of Asset Concentration risk for most Volunteer Groups, which in turn has made it less of a material component of the ICS capital requirement, the 2015 approach for Asset Concentration risk in the ICS was maintained for ICS Version 1.0 for extended field testing.

7.17.3 2018 Field Testing and ICS Version 2.0

437. The design of Asset Concentration risk remained unchanged from 2017 Field Testing for 2018 Field Testing.

438. No common global approach for assessing Asset Concentration risk presently exists. Given the range of different approaches to Asset Concentration risk being used internationally by insurance regulators, the approach for the ICS treatment of Asset Concentration risk may be further explored before determining whether the current design is reasonable for ICS Version 2.0.

Question 131. Should any modifications be made to the current approach for assessing Asset Concentration risk within the ICS? If "yes", please elaborate.

439. A proposed alternative for assessing Asset Concentration risk is to adopt a Credit risk granularity adjustment, as described in the September 2013 paper "Granularity Adjustment for Regulatory Capital Assessment" by Michael Gordy and Eva Lutkebohmert in the International Journal of Central Banking. Such a requirement could take the following form:

$$GA = \frac{0.71675 \sum {s_i}^2 K_i}{\sum s_i K_i}$$

where, s_i is the proportion of total assets that is due from a connected group or the proportion of total property located in close proximity, and K_i is the Credit or Market risk factor for the assets. This approach could address the requirement stemming from large deposits at regulated banks, as the low requirement for these deposits would be reflected in the formula.

Question 132. Would this proposed approach be an improvement over the current Asset Concentration risk requirement? Please explain.

440. The following key elements comprise the current design of Asset Concentration risk within the ICS framework:

- The Asset Concentration risk charge only applies to net exposures in excess of the risk threshold. The threshold is calculated using total insurance business assets, excluding assets in separate accounts or where investment risks fully flow through[35] to policyholders, and based upon the applicable valuation basis (MAV or GAAP Plus approach).
- Counterparty-related net exposures should be determined on the basis of non-affiliated single counterparties or a connected group of counterparties (including for reinsurers) by applying the BCBS definition.[36] Specifically, the BCBS has established criteria for assessing whether control or economic interdependence exists among two or more natural or legal persons in order to deem them as connected.[37]
- Net exposures for property should be based upon single property, or a group of properties in very close proximity to each other (for example, two properties within 250 metres of each other), including exposures from both direct and indirect (such as funds of properties and mortgage) holdings.
- Gross counterparty and property exposures are determined on the following basis:
    - Exposures relating to: both on- and off-balance sheet positions, sub-national governments (eg states, provinces), guarantees made, commitments given, bank deposits, receivables and any other item subject to the possibility of financial loss due to counterparty default are included;
    - Exposures relating to central counterparty clearinghouses, national governments, contingent credit risk arising from the application of catastrophe scenarios are excluded;
    - Over-the-counter (OTC) derivatives exposures must be evaluated on a credit-equivalent basis as applicable; and
    - A look-through for investment funds, structured products etc. when the issuer of a security is a trust (SPV or a similar entity) that has no material creditworthiness; the source of payments is the assets in the trust' and there is no guarantor for the payments is applied.[38]
- Net counterparty and property exposures are determined on the following basis:

[35] Does not consider any guarantee to policyholders that may exist on the value of the overall investment fund(s) such as on variable annuity products.
[36] As specified in the BCBS publication *Supervisory framework for measuring and controlling large exposures* (April 2014), which also outlines criteria for assessing whether 'control' or 'economic interdependence' exists.
[37] For additional details, refer to the 2018 ICS Field Testing Specifications as contained in *Instructions for the May 2018 Quantitative Data Collection Exercise of the Field Testing Project*, Section 13.4.6, 16 May 2018.
[38] When there is a guarantor that is responsible for maintaining sufficient assets in the trust for interest and principal payments, or directly guarantees those payments, the exposure is the guarantor (such as a government-sponsored entity) and the assets in the trust provide additional credit support should the guarantor not be able to honour its obligations.

- Exposures from assets held in separate accounts or in respect of life insurance contracts where the investment risks fully flow-through to policyholders should be excluded;
- Asset exposures should only be netted against liability exposures to the extent that they are subject to a legally enforceable right of offset;
- For collateral and for unconditional and irrevocable guarantees, the substitution approach specified within the ICS Credit risk section may be used, if favourable, for the portion of exposure that is covered by the collateral and guarantees.[39]

- Aggregate net exposure amounts by counterparty (or connected counterparties) or property in excess of the risk thresholds should be further segmented by the applicable weighted-average credit quality for purposes of applying the relevant risk factor.

441. The following table outlines the applicable thresholds and incremental risk charge factors:

Table 13: Thresholds and incremental risk charges for Asset Concentration risk

Asset Concentration Risk Charge Category	Applicable Threshold (% of total insurance assets)	Incremental Risk Charge Factor
Counterparty Related (weighted average)		
in ICS rating category 1 and 2	3%	15%
in ICS rating category 3 and 4	3%	25%
in ICS rating category 5, 6 and 7	1.5%	50%
Property	3%	25%

Question 133. Are the current incremental risk charge factors appropriate for ICS Version 2.0? If "no", please clarify.

Question 134. Are there any further comments on Asset Concentration risk that the IAIS should consider in the development of ICS Version 2.0? If "yes", please elaborate.

[39] No reduction in gross exposure should be made for amounts of over-collateralisation. Where national government exposures are substituted for corporate exposures, such amounts are excluded from the determination of Asset Concentration risk charges.

7.18 Credit risk

7.18.1 Background

442. Credit risk is the risk of adverse changes in the value of capital resources due to unexpected changes in actual defaults, as well as in the deterioration of an obligor's creditworthiness short of default, including migration risk and spread risk due to defaults.

443. The approach for Credit risk within the ICS has evolved over three separate field testing exercises, beginning with an asymptotic single-risk factor model in 2015 that was applied to the asset side of the balance sheet. Each year since, the approach has built upon the previous year's data analysis of field testing results and the feedback received from ICS consultations.

444. In 2017 Field Testing, significant refinements were made from 2016, including but not limited to the following changes:[40]

- Credit risk stress factors were extended out to 15 years for investment-grade rating categories for the five categories of credit exposures where stress factors are dependent upon maturity (Public Sector entities, Corporate holdings, Reinsurance, Securitisations, and Resecuritisations).
- Consistent with the BCBS model for the banking industry, and rescaled for ICS purposes, the approach for mortgage credit risk separated residential and commercial mortgages into two repayment categories—those where repayment was dependent on property income and those where repayment was not. Key features of the new approach for mortgage credit risk included the following:[41]
    - Rather than imposing a single factor across all residential mortgages as in 2016, stress factors in 2017 varied by loan-to-value for both categories of repayment, with increased factors applied to those residential mortgages dependent on property income.
    - For commercial mortgages where repayment was dependent on property income, the IAIS continued to apply the approach employed by the NAIC in the U.S. with the application of the specific stress factors determined by the availability of loan-to-value and debt service coverage data. The fewer the data points, the greater was the stress factor applied. When loan-to-value and debt service coverage data were both unavailable, a flat 8 percent stress factor was applied.
    - Stress factors for residential mortgages were calibrated in line with BCBS risk weights and rescaled for ICS purposes.
    - Stress factors for commercial loans were increased to align more consistently with those developed by the BCBS, rescaled to ICS target criteria.

445. Taking into account the ICS work to-date, the design of Credit risk for ICS Version 1.0 for extended field testing was comprised of the following primary components:

[40] Refer to the 2017 ICS Field Testing Specifications for additional details on changes from 2016 Field Testing.

[41] The approach for mortgage credit risk was changed due to the unexpected outcome in 2016 of lower credit risk charges for commercial mortgages compared to residential mortgages.

- Application of a factor-based stress to the entire balance sheet to allow for management actions through the liabilities;
- Use of the external credit rating agencies, including A.M. Best for reinsurance exposures, agencies recognised by their home insurance regulators for local capital determination purposes, and those that have received explicit acceptance of their use by the IAIS;
- Assessment of a Credit risk charge on all direct and indirect senior debt obligations to specified exposure classes of issuers and borrowers;[42]
- Categorisation of Credit risk exposures into seven asset classes for the ICS—Public sector entities, Corporate holdings, Reinsurance, Securitisations, Resecuritisations, Mortgage Loans (divided into commercial and residential/agricultural), and Miscellaneous assets;[43,44]
- Inclusion of the 2017 approach for residential and commercial mortgage loans, employing stress factors consistent with the BCBS model for the banking industry;
- Assessment of a zero Credit risk charge on credit exposures to national governments and their central banks, central counterparty clearing houses, multinational development banks, and supranational organisations.

446. The Credit risk charge is determined by applying specified stress factors relative to exposure class, rating category and maturity to the net exposure amounts. Management actions are then taken into account in determining the final risk charge. In addition, the Non-Life risk charge for credit business is added to Credit risk.

7.18.2 Observations and feedback from 2017 Field Testing

447. As in previous years, Credit risk continued to be one of the more material risks within the ICS.

448. The Credit risk charge continued to be driven primarily by corporate debt holdings and securitisations.

449. As observed in 2016 Field Testing, the impact to the Credit risk charge was material for those Volunteer Groups that applied NAIC Designations.

450. Because total exposures from securitisations were considerably lower than those from corporate holdings and because securitisations attract relatively higher risk charges, the share of Credit risk to securitisation exposure was substantially higher, noticeably impacting Volunteer Groups with significant securitisation holdings.

[42] Preferred shares, hybrid obligations, and subordinated debt are excluded from the Credit risk charge, being subject to the Equity risk charge instead.
[43] Miscellaneous assets include policy loans (zero risk charge), short-term obligations of regulated banks (demand deposits and other obligations that have original maturities of less than three months), outstanding premiums, amounts due from agents and brokers, other receivables, and prepaid expenses. For descriptions of other risk exposure classes, refer to 2018 Field Testing Specifications, Section 13.5.1.
[44] Risk factors that vary by rating category and maturity are applied to Public sector entities, Corporate holdings, Reinsurance exposures, Securitisations, and Resecuritisations; whereas, a single stress factor is applied for each type of exposure captured in the category of Miscellaneous assets.

451. For residential mortgages, the average Credit risk charge decreased from 2016 Field Testing. For commercial mortgages, the average Credit risk charge increased from the year before. In addition, concerns from Volunteer Groups focused on the approach and calibration of Credit risk.

7.18.3 2018 Field Testing and ICS Version 2.0

452. For 2018 Field Testing, the IAIS has maintained the 2017 Field Testing approach for Credit risk. Further, the IAIS has decided that ICS Version 2.0 will not include a Credit risk charge for sovereign exposures.

453. For 2018 Field Testing, data is being collected both with and without NAIC Designations, as part of supervisor-owned and controlled credit assessment (SOCCA) processes. A SOCCA process is defined to be an independent and objective process for assessing Credit risk, owned and controlled by a financial supervisory authority, and which relies upon credit assessment methodologies deemed suitable by the supervisory authority in determining the regulatory capital requirement for Credit risk of supervised institutions.

454. The decision of whether SOCCA processes will be part of the ICS standard method as a national discretion or included in other methods[45] will be made by the end of the monitoring period, provided that certain specified criteria are met. The criteria being considered for SOCCA processes are listed in Section 7.18.4.

455. If it is decided that SOCCA processes are to be included in the standard method, then IAIGs would be required to apply the standard method when a rating is available.[46] If SOCCA processes are determined to reside with other methods, then IAIGs would be able to use the SOCCA designations, regardless of the availability of other ratings.

456. The IAIS continues to monitor developments at the BCBS, as it relates to the treatment of sovereign risk exposures within the Credit risk framework.

7.18.4 Issues for consultation

457. The issues for which the IAIS seeks input for ICS Version 2.0 are as follows:

- Design of the Credit risk approach
- Treatment of collateralised reinsurance
- Calibration of stresses
- Use of supervisor-owned and controlled credit assessment processes
- Treatment of infrastructure investments

[45] Other methods refer to alternative methods of calculating the ICS capital requirement, outside of those under the standard method. Other methods of calculating the ICS capital requirement will be reviewed and considered for inclusion in the ICS by the end of the monitoring period.

[46] Under the standard method, if more than one rating is available for the same exposure (which implies different ICS Rating Categories), then the second highest resulting ICS Rating category would be used. In order to be comparable, ratings must be based on par value of the instrument and not purchase price. If it is an unrated security, then the designation from the supervisor-owned and controlled credit assessment process would be used.

7.18.4.1 Design of Credit risk

Question 135. Is the current design of Credit risk appropriate for ICS Version 2.0? If "no", please explain with sufficient detail and rationale.

Question 136. Should any modifications be made to the approach for assessing Credit risk within the ICS? If "yes", Please describe.

7.18.4.2 Treatment of collateralised reinsurance exposures

458. The treatment of collateralised reinsurance under the Credit risk framework applies the substitution approach whereby the Credit risk factor of the reinsurer is replaced by the Credit risk factor of the collateral. From a technical point of view, it could be seen as assuming that the reinsurer has already defaulted in full on its obligation, which may result in a risk charge beyond VaR 99.5%.

459. As an alternative, the IAIS is considering a haircut approach for the treatment of reinsurance exposures in ICS Version 2.0, which in formulaic terms would correspond to:

$$\begin{aligned} &Adjusted\ reinsurance\ exposure \\ &\quad = (Original\ reinsurance\ exposure \\ &\quad - Collateral\ x\ (1 - Risk\ Charge\ for\ reinsurance\ collateral)) \end{aligned}$$

$$\begin{aligned} &Reinsurance\ Credit\ risk\ charge \\ &\quad = Adjusted\ reinsurance\ exposure\ x\ Reinsurance\ Credit\ risk\ factor \end{aligned}$$

460. In the above formulae, the risk charge for the reinsurance collateral is calculated by applying the relevant ICS Market and Credit risk shocks for the collateral.

Question 137. Is the treatment of collateralised reinsurance (ie the substitution approach) reasonable from a Credit risk perspective? If "no", please discuss and propose ways to address concerns.

Question 138. Does the haircut approach capture the underlying risk of collateralised reinsurance exposures more accurately? Please explain with sufficient detail and rationale.

7.18.4.3 Calibration of stresses

Question 139. Is the current approach adopted for mortgage credit risk appropriate for ICS Version 2.0? If "no", please explain with sufficient detail and rationale.

Question 140. Alternatively, would it be more appropriate for the Credit risk charge to be based on local calibrations of mortgage loans, if reliable local data were available to support geographical differentiation of calibrations? Please explain with sufficient detail and rationale, including potential data sources to enable the calibration.

7.18.4.4 Supervisor-owned and controlled credit assessment processes

461. The use of external credit ratings is permitted in the ICS, provided that the rating agency has published publicly available default and transition statistics extending back at least seven years, and must satisfy six criteria relating to: objectivity, independence, international access/transparency, disclosure, resources and credibility. The specific criteria are defined in Section 13.5.2 of the 2018 Field Testing Technical Specifications.

462. As SOCCA are different from external credit rating agencies, criteria were developed to recognise SOCCA in the ICS. The following table describes the criteria.

Table 14: Criteria for SOCCA

Criteria	Description of Criteria
Objectivity	The SOCCA's methodology for assigning credit assessments must be rigorous, systematic, and subject to some form of validation. Moreover, assessments must be subject to ongoing review and responsive to changes in financial condition.
Independence	The supervisor-owned and controlled credit assessment process must be aligned with the regulatory objectives of the supervisor, evidenced by the supervisor's approval of the credit assessment process. Any outsourcing arrangement of the credit assessment must be held to the same standards of competency and independence as the in-house credit assessment processes.
International access/transparency	IAIGs with operations outside the jurisdiction of the supervisor-owned and controlled credit assessment process should have access to request designations/ratings be assigned to securities they own. Public access to the credit assessment is available through third-party platforms.
Disclosure	Default statistics over time should be developed for each designation/rating so that three-year cumulative default rates (CDRs) can be derived from published statistics.
Resources	Staff must have appropriate qualifications and experience to undertake the credit assessment process. The supervisor-owned and controlled credit assessment process must have adequate resources to carry out the credit assessments required by the supervisor.
Credibility	To some extent, credibility is derived from the criteria above. In addition, the reliance on a supervisor-owned and controlled credit assessment process by the supervisor is evidence of the credibility of its assessments. The credibility of a supervisor-owned and controlled credit assessment process is also underpinned by the existence of internal procedures to prevent the misuse of confidential information.

	The supervisor-owned and controlled assessment process should have at least 10 years of demonstrable business history in assessing the Credit risk of a large number of securities such that statistical performance data can be derived. All designations/ratings should be updated on at least a yearly basis or when a significant event occurs that may affect the designation/rating.
Alignment of interests with the purposes of prudential supervision	The entity performing the credit assessment is fully owned and controlled by a supervisory authority. There are policies approved by the supervisory authority as to how the credit assessment process is to be applied (principle-based requirements about the content of these policies would need to be developed).

Question 141. Is the inclusion of supervisor-owned and controlled credit assessment processes as a national discretion in the standard method appropriate? Please explain, including any rationale.

Question 142. As 2018 Field Testing involved the collection of data with and without the application of NAIC Designations, are the criteria for supervisor-owned and controlled credit assessment processes appropriate for ICS Version 2.0? Please explain with sufficient detail and rationale.

7.18.4.5 Treatment of infrastructure investments

Question 143. Is the current segmentation and definitions of infrastructure investments, as set out in the 2018 Field Testing Technical Specifications, appropriate for ICS Version 2.0? If "no", please explain with sufficient detail and rationale.

Question 144. Are the calibrations for infrastructure investments, as set out in the 2018 Field Testing Technical Specifications, appropriate for ICS Version 2.0? If "no", please explain with sufficient detail and rationale.

Question 145. Are there any further comments on Credit risk, which the IAIS should consider in the development of ICS Version 2.0? If "yes", please explain with sufficient detail and rationale.

7.19 Operational risk

7.19.1 Background

463. Operational risk is defined as the risk of adverse change in the value of capital resources due to operational events including inadequate or failed internal processes, people and systems, or from external events. Operational risk includes legal risk but excludes strategic and reputational risk.

464. The 2016 ICS CD focussed on a factor-based approach for the Operational risk charge. Under the proposal described in the 2016 CD, the Operational risk charge was determined by applying factors to a predetermined set of exposure measures. Three sets of exposure 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 (a) and (b).

465. The approach to Operational risk for ICS Version 1.0 for extended field testing was unchanged from the factor-based approach used in 2016 and 2017 Field Testing.

466. Stakeholders expressed support for a factor-based approach and the recognition of the increased risk associated with excessive growth. Excessive 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. The factor-based approach, option b) above, was widely, but not exclusively, supported.

467. While a factor-based approach will be maintained for 2018 Field Testing, the choice of exposure measures and factors may be reconsidered for ICS Version 2.0. See “Issues for consultation” below for more information.

7.19.2 Results from 2017 Field Testing

468. Operational risk as a percentage of required capital:

- Results varied significantly across Volunteer Groups.
- Operational risk is generally lower for pure Life / Health insurers, at least for those who do not have non-risk business, and higher for non-life insurers.

469. Drivers of the Operational risk charge:

- The Operational risk charge has components for gross current estimates, gross written premiums, and growth. Life insurance also has a separate factor for non-risk business where policyholders bear the investment risk.
- For Life / Health insurance, the main driver of the charge tends to be premiums whereas for non-life it tends to be current estimates.

7.19.3 2018 Field Testing and ICS Version 2.0

470. 2018 Field Testing will explore a similar, though simplified, design compared to 2017 Field Testing. The exposures will continue to be gross written premium and gross current estimates but no longer separate charges for direct versus assumed business. One change is that the gross written premium exposure for Life (Risk) will no longer have amounts received for investment components added to it. Further details can be found in the 2018 Field Testing Technical Specifications.

471. While no significant changes are expected to the design of Operational risk, the specification of the exposure measures and reasonableness of the factors will continue to be reviewed. Certain benchmarks have been requested for comparison sake to facilitate this review.

Table 15: Operational risk exposures and factors

	Premium	Liabilities	Growth
Risk from Non-Life Operations			
Exposure	Gross written premium most recent financial year	Gross current estimate	Gross written premium most recent financial year exceeding the growth threshold of 20% compared to the previous year
Factor	2.75%	2.75%	2.75%
Risk from Life Operations			
Exposure	**Life (Risk):** Gross written premium most recent financial year	**Life (Risk):** Gross current estimate **Life (Non-Risk):** Gross current estimate	**Life (Risk):** Gross written premium most recent financial year exceeding the growth threshold of 20% compared to the previous year
Factor	**Life (Risk):** 4%	**Life (Risk):** 0.4% **Life (Non-Risk):** 0.45%	**Life (Risk):** 4%

Question 146. Are the proposed Operational risk exposures appropriate for ICS Version 2.0? Please explain. If "no", please provide specific suggestions for alternatives and the practicality of their application in a standard method.

7.19.4 Issues for consultation

472. The following are issues for which the IAIS seeks input:

- the appropriateness of exposure measures
- the appropriateness of the specified factors

7.19.4.1 Appropriateness of the exposure measures

473. Some issues identified during field testing:

- **Exposure base (Stock vs Flow)** – As shown in the results section, the ICS calculation of Operational risk for non-life business is predominantly driven by the size of current estimates while the Operational risk for life business (at least for those companies without a significant amount of non-risk business) is driven by the amount of written premiums. Current estimates are a stock measure, meaning they represent a quantity at a point in time. Written premiums are a flow measure, meaning they represent an amount measure over an interval of time. While neither is perfect measure, this may not be reflective of industry practice. Life operations are typically measured using stock measures such as assets or liabilities. Non-life operations are less likely to be measured by size of assets/liabilities and are more likely to be measured by flow measures like premium.
- **Impact of premium receivables on Operational risk** – There can be an impact when premium receivables are netted against insurance liabilities. This is generally not material for life insurance but can have a material impact on non-life. This netting reduces the size of the risk charge for Operational risk. Although, typically a larger premium receivable would mean more (not less) Operational risk.
- **Premium growth threshold** – is currently set at 20% for all markets. The insurance market growth of developing markets is often significantly higher than that of developed markets. Some argue that the threshold should therefore be set higher for developing markets than developed. This way the growth charges can reflect an insurer's operational riskiness relative to the market where it operates.

Question 147. Should the IAIS introduce changes to the design of the Operational risk charge to address these issues? Please provide sufficient detail and rationale.

7.19.4.2 Appropriateness of the specified factors

474. The IAIS has received feedback that the factors used for Operational risk need to be justified. Operational risk is "less readily quantifiable" as it "is diverse in composition and depends on the quality of systems and controls in place". As such, "it may suffer from a lack of sufficiently uniform and robust data and well-developed valuation methods".

475. While acknowledging these limitations, research was performed on benchmarking: (1) the factors applied to the exposure measures in the ICS, and (2) total Operational risk as a percentage of required capital. The available data was based on internal model data as reported by companies. While individual internal models may be higher/lower, the underlying assumption is that the capital required using an internal model should, on average, approximate the capital required under a standard method.

476. **Factors:** In 2009, the Committee of European Insurance and Occupational Pensions Supervisors (CEIOPS) published advice on the calibration of Operational risk in Solvency II. As part of this paper, they carried out their own analysis and provided summary of external information on the calibration of Operational risk. Full details can be found at the link in the footnote. A small table comparing CEIOPS selection of factors to the ICS factors can be found below.[47]

[47] https://eiopa.europa.eu/CEIOPS-Archive/Documents/Advices/CEIOPS-L2-Final-Advice-on-Standard-Formula-operational-risk.pdf

Table 16: Comparison of CEIOPS and ICS Operational risk factors

Exposure	CEIOPS Selection	ICS Factor	Notes
Gross Current Estimate -- Life	0.6% *	0.4%	*Includes zero floor on technical provisions; in underlying analysis, the NL CE excluded premium liabilities.
Gross Current Estimate – Non-Life	3.6% *	2.75%	
Gross Premium – Life	5.5%**	4.0%	**Exposure is earned (not written) premium.
Gross Premium – Non-Life	3.8%**	2.75%	

477. **Operational risk as a percentage of required capital:** This can provide a reasonableness check on the overall level of the factors. A 2016 survey from ORIC International asked their member firms to provide their "diversified operational risk capital requirement" as a percentage of their "diversified group capital requirement". While results varied between firms, the average was 7.3% and the median was 6.5%. This is comparable to the average capital requirement for predominantly life companies in 2017 Field Testing, though a bit lower than that for composite/predominantly non-life companies. (See section 7.19.2).

Question 148. Are the proposed Operational risk factors appropriate for ICS Version 2.0, both in terms of size and relativity? If "no", please propose evidence for alternative factors and their practicality for implementation in a standard method.

Question 149. Are there any further comments on Operational risk that the IAIS should consider in the development of ICS Version 2.0? If "yes", please explain with sufficient detail and rationale.

7.20 Aggregation/Diversification of ICS risk charges

7.20.1 Background

478. For the development of the ICS standard method, the IAIS developed an approach for aggregation/diversification using multiple steps, aggregating sub-sets of individual risks, and then aggregating the multiple results from prior steps using a sequence of correlation matrices.

479. Through previous field testing and the ICS CDs, 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.

480. The structure of correlation matrices 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.

7.20.2 Feedback on the 2016 ICS CD

481. The multi-step structure using correlation matrices was largely perceived as a reasonable, pragmatic approach, although a few stakeholders commented that a flat structure would be more able to reflect some correlations between individual risks.

482. Stakeholders recognised the challenge to calibrate the correlations in the context of reflecting a 99.5% confidence level and considering the limitations of available data with some suggestions to consider not only the pair-wise correlations but also the total impact on diversification. Some stakeholders suggested that internal model calibration could be used in particular for correlation between insurance risks.

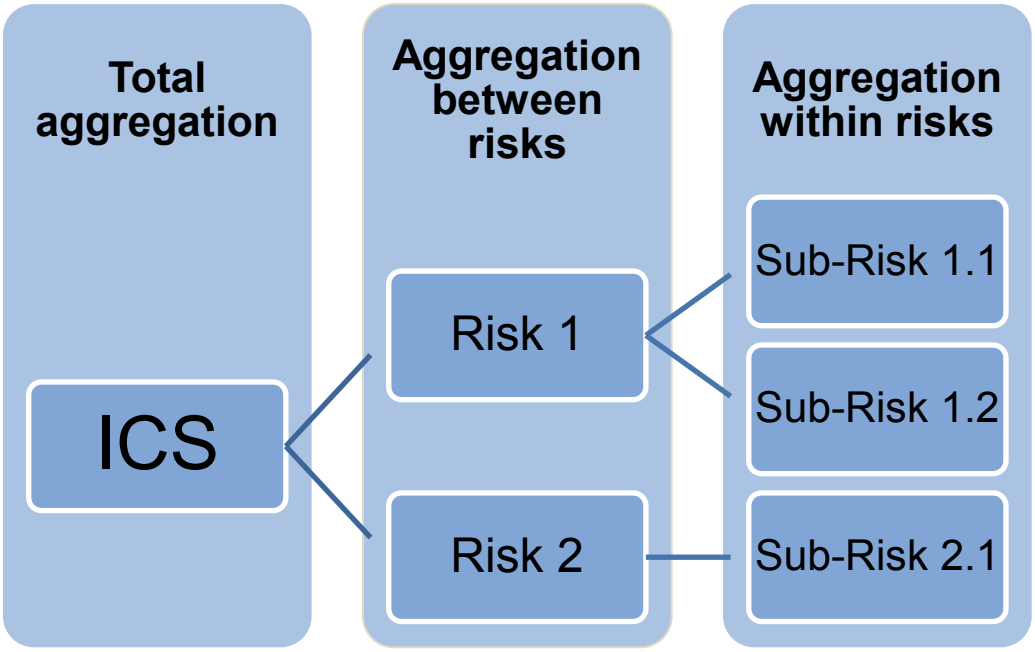
483. Different views were expressed on the calibration of the correlation factors. Some stakeholders viewed some correlations as too high and others viewed some correlations – the same or different – as too low. Several concerns were voiced regarding the limited recognition of diversification between countries.

7.20.3 The approach used in 2018 Field Testing

7.20.3.1 Structure of the aggregation calculation

484. The approach adopted for 2018 Field Testing follows mostly the same approach as for previous field testing exercises. Risks have been aggregated in multiple steps using correlation matrices.

Figure 6: Multiple-step aggregation approach



7.20.3.2 Correlation matrices

485. The correlation matrix for the aggregation within Market risk has been adapted to the changes in the design of the ICS capital requirement. Specifically, the size of the correlation matrix has been expanded to follow the inclusion of Non-Default Spread risk in Market risk and the correlations between Interest Rate risk and the other Market risks, were set by the stress scenario (up/down, steepening/flattening) in the previous field testing, have been unified for 2018 Field Testing. The table below provides correlation coefficients between Market risks used in 2018 Field Testing.

Table 17: Correlation matrix for aggregation within market risk

Market Risks	Interest rate	Non-default spread up	Non-default spread down	Equity	Real estate	Currency	Asset concentration
Interest rate	100%	25%	25%	25%	25%	25%	0%
Non-default spread up	25%	100%	100%	75%	50%	25%	0%
Non-default spread down	25%	100%	100%	0%	0%	25%	0%
Equity	25%	75%	0%	100%	50%	25%	0%
Real estate	25%	50%	0%	50%	100%	25%	0%
Currency	25%	25%	25%	25%	25%	100%	0%
Asset Concentration	0%	0%	0%	0%	0%	0%	100%

Question 150. Is the correlation matrix being used for Market risk aggregation appropriate for ICS Version 2.0? If "no", please provide rationale and alternative suggestions supported by evidence.

486. The correlation matrix for Life risks and that for ICS risk categories have not been changed from the previous field testing. The matrices can be found in the Aggregation/ Diversification section of the 2018 Field Testing Technical Specifications.

Question 151. Are there any further comments on Aggregation and Diversification that the IAIS should consider in the development of ICS Version 2.0? If "yes", please explain with sufficient detail and rationale.

8 Tax Treatment

8.1 Background

487. ICS Version 1.0 for extended field testing specified a placeholder approach for tax. General guidance was provided to evaluate the utilisation of:

a. Reported net Deferred Tax Asset (DTA) on the starting GAAP Valuation balance sheet

b. DTA and deferred tax liabilities (DTL) arising from differences in valuation between the jurisdictional audited GAAP and the ICS Balance Sheets (MAV or GAAP Plus) referred to below as the 'ICS adjustment', and

c. The tax effect on the capital requirement.

488. The IAIS developed a strawman proposal for a more holistic treatment of taxes under the ICS for 2017 Field Testing and requested feedback from Volunteer Groups. The IAIS also had intensive discussions about the strawman proposal with Volunteer Groups at a Tax Volunteer Roundtable held in January 2018. Further, the IAIS conducted data analysis to assess the impact of tax treatment options.

489. For 2018 Field Testing, the IAIS defined the approach for tax treatment that includes a utilisation assessment of the GAAP reported DTA and DTA recognised by the ICS adjustment based on Volunteer Group feedback and data analysis. See Section 14.2 of the 2018 Field Testing Technical Specifications.

8.2 2018 Field Testing

490. The approach for 2018 Field Testing does not require a reassessment of the utilisation of the jurisdictional audited GAAP DTA. Jurisdictional GAAP rules are relied upon for this assessment.

491. DTAs and DTLs recognised through the ICS adjustment are calculated using a group effective tax rate based on the jurisdictional audited GAAP consolidated financial statements.

492. Utilisation of any additional DTA recognised through the ICS adjustment is capped by the net DTL calculated using the following formula:

Add:

- Gross starting jurisdictional audited GAAP deferred tax liabilities; and
- Gross DTL recognised through the ICS adjustment

Subtract:

- Gross starting jurisdictional audited GAAP deferred tax assets; and
- DTL associated with assets subject to the deduction from capital resources

If the calculation result is negative, the increase of DTA recognised by the ICS adjustment should be nil.

493. The tax effect on the capital requirement is calculated as follows: Capital requirement (post diversification and management actions) x Group effective tax rate

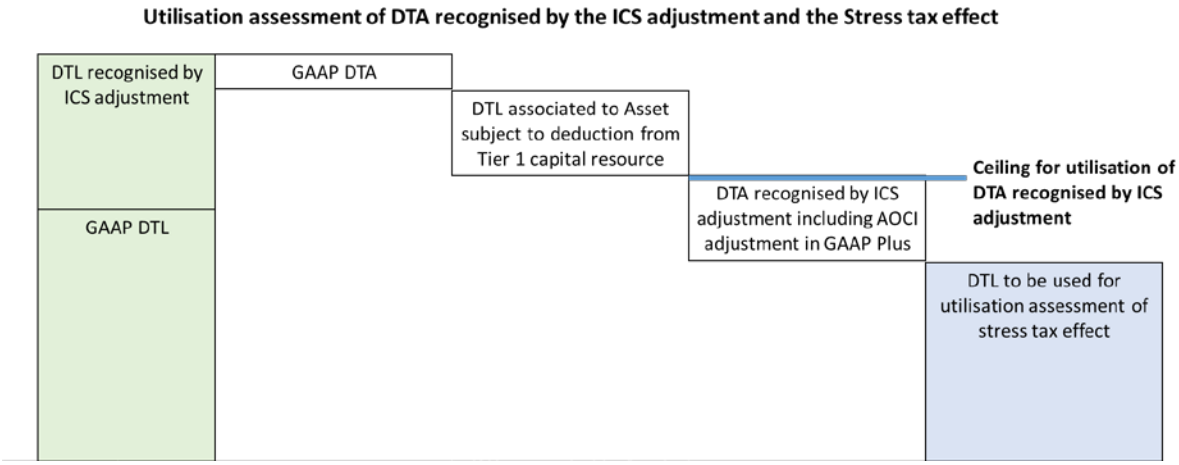
494. Utilisation of the ICS tax effect on the capital requirement is capped by the remaining net DTL which is calculated as a) minus b) defined as follows (the calculation is floored at 0):

a. The ceiling for utilisation of DTAs recognised through the ICS adjustment; and

b. Gross DTA recognised through the ICS adjustment including the AOCI adjustment for GAAP Plus.

495. The utilisable ICS tax effect on the capital requirement should be netted against the gross ICS capital requirement.

Figure 7: Utilisation assessment of DTA recognised by the ICS adjustment and the stress tax effect



8.3 Issues for consultation

496. The IAIS seeks input on the following issues and open design elements:

- Comparability of the DTAs utilisation on a jurisdictional audited GAAP basis
- Using a top-down approach for determining ICS tax treatment
- Determining the Group effective tax rate
- Considering the tax treatment for MOCE
- Classification of the ICS tax effect on the capital requirement

8.3.1 Comparability of the DTA utilisation on a jurisdictional audited GAAP basis

497. For 2018 Field Testing, deferred tax balances as reported on audited GAAP financial statements would generally follow jurisdictional GAAP for purposes of assessing utilisation of any DTA.

498. Under IFRS and U.S. GAAP the application of a probable (IFRS) or more likely than not (U.S. GAAP) assessment of utilisation would be applied. Under both standards the utilisation assessment is generally recognised to be a greater than 50% chance that the DTA would be utilisable.

499. However, there may be IAIGs that report under a more stringent utilisation assessment approach.

Question 152. Should all IAIGs apply the same utilisation criteria for starting GAAP DTAs (eg greater than 50% probability) regardless of whether their GAAP applies a more stringent utilisation assessment approach? If "yes" please explain how IAIGs, that apply a more stringent assessment, could re-perform a utilisation analysis using a common approach given the complexity of the assessment

Question 153. Regarding Question 152, if an IAIG is able to re-perform their GAAP DTA utilisation assessment for the ICS, there is a concern that the estimate would be very difficult to rely on or validate if it was not subject to external audit. Please provide any views on how this calculation could be sufficiently transparent and verifiable by supervisors.

8.3.2 Using a top-down approach for determining ICS tax treatment

500. In principle, DTAs and DTLs recognised through the ICS adjustment and the ICS tax effect on the capital requirement should be calculated at an entity or a jurisdictional tax level using applicable tax rates. Furthermore, the utilisation assessment of the DTA recognised through the ICS adjustment and the ICS tax effect on the capital requirement should be assessed at a similar level based on taxable income projections.

501. As a global group capital standard, the ICS tax approach must consider comparability between insurance groups, practicality, as well as, a prudential viewpoint.

502. The ICS requires insurance groups to prepare an ICS balance sheet and calculate the capital requirement only on a group basis; the capital requirement at a tax jurisdictional level is not calculated. In addition, the ICS balance sheet and the resulting capital requirement may not be subject to independent verification or audit.

503. Considering these limitations, the approach for 2018 Field Testing uses the group effective tax rate for calculation of the DTAs and DTLs recognised by the ICS adjustment and the ICS tax effect on the capital requirement. Furthermore, the DTL is used for an utilisation assessment of DTA recognised by the ICS adjustment and the ICS tax effect on the capital requirement.

Question 154. The utilisation assessment of the DTA resulting from the ICS adjustment and the ICS tax effect on the capital requirement is based on a top-down approach. Is this a reasonable way for determining the ICS tax treatment? If "no", please provide, in sufficient detail, any alternate approach that would consider data limitations, prudence, practicality, and comparability between insurance groups.

Question 155. When the Top-Down approach is applied, is the limitation of the utilisation assessment of the DTA recognised through the ICS adjustment using the net DTL, which is defined in paragraph 492, appropriate? If "no", please provide in sufficient detail any approach that would consider data limitations, prudence, practicality, and comparability between insurance groups.

Question 156. When the Top-Down approach is applied, is the utilisation assessment of the tax effect on the capital requirement using the remaining net DTL, which is

defined in paragraph 494, appropriate? If "no", please provide, in sufficient detail, any approach that would consider data limitations, prudence, practicality, and comparability between insurance groups.

8.3.3 Determining the group effective tax rate

504. The group effective tax rate based on jurisdictional audited GAAP consolidated financial statements is being used for 2018 Field Testing. However, the approach will likely require further refinement.

505. Using the group effective tax rate based on consolidated financial statements may result in volatility from year to year. Some Volunteer Groups suggested using an adjustment for non-recurring items to reduce this volatility in the group effective tax rate. Others suggested using an average of past years' group effective tax rates.

506. Conceptually, when a government announces a new statutory tax rate change after the financial close date, the new tax rate would be used in the future and the new tax rate should be incorporated into group effective tax rate. However, from a practical point of view, it would be difficult to incorporate the new tax rate for one jurisdiction into their group effective tax rate.

Question 157. Is the 2018 Field Testing group effective tax rate calculation based on the jurisdictional audited GAAP consolidated financial statements a reasonable approach for ICS Version 2.0? If "no", please provide any other proposed method for calculating a group effective tax rate with a rationale for the methodology.

Question 158. Should an adjustment for non-recurring items be included in the group effective tax rate calculation? If "yes", please provide the following information:

- Details on the proposed methodology
- Rationale for the methodology
- A definition and listing of non-recurring items.

Question 159. How should issues like newly announced statutory tax rates, negative tax rates and volatile tax rates be addressed in the group effective tax rate calculation? Please provide the following information:

- Details on the proposed methodology
- Rationale for the methodology

8.3.4 Considering tax treatment for MOCE

507. It has not yet been decided whether there will be a deferred tax impact on MOCE in the ICS. As a placeholder for 2018 Field Testing, there will be no tax impact on MOCE.

Question 160. Regardless of the determined MOCE design, should any DTA arising from MOCE be considered for the ICS calculation? Please explain.

Question 161. Should any DTA arising from MOCE be added to capital resources for the ICS ratio calculation? Please explain.

Question 162. Would the response to Question 161 differ depending on classification on the balance sheet and defined purpose of MOCE? Please explain.

8.3.5 Classification of the ICS tax effect on the capital requirement

508. The 2018 Field Testing approach offsets the ICS tax effect on the capital requirement with the gross capital requirement. As an alternative, classifying of the ICS tax effect on the capital requirement as Tier 2 capital resources is being considered as a more conservative approach.

Question 163. Should the ICS tax effect on the capital requirement be offset against the gross capital requirement? If "no", please describe how the capital requirement should be classified including sufficient detail and rationale.

Question 164. Are there any further comments on the ICS tax treatment that the IAIS should consider in the development of ICS Version 2.0? If "yes", please explain with sufficient detail and rationale.

9 Additional Reporting During the Monitoring Period

9.1 GAAP with adjustments

9.1.1 Background

509. The GAAP with adjustments ("GAAP Plus") approach to valuation was developed in response to concerns that a valuation approach relying on balances, systems and processes outside of GAAP and independent audit assurance could pose operational and verification challenges. Discussion and debate by IAIS 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, and processes subject to rigorous controls that support reported GAAP amounts. 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 in October 2014 on the way forward regarding valuation under the ICS.

510. From 2015 to 2017, all ICS Volunteer Groups participated in the field testing of the GAAP Plus valuation approach. As noted in Section 2.5 on the KL Agreement, the IAIS decided that GAAP Plus reporting would be an optional component of ICS confidential reporting for the monitoring period, which is the period that follows 2019 Field Testing and the adoption of ICS Version 2.0 (2020-2024). The KL Agreement stipulated that GAAP Plus remains a viable option under the ICS, but would be included in confidential reporting only at the request of supervisors.

511. Certain accounting rule changes under IFRS and U.S. GAAP will have a significant impact on the design of GAAP Plus. The effective dates for those changes do not align with the ICS timeline that concludes field testing in 2019. In response, the IAIS decided to allow for an extension of field testing for U.S. and IFRS GAAP Plus approaches for two years into the monitoring period (2020 and 2021). This will allow ICS Volunteer Groups reporting under U.S. GAAP and IFRS the time to adopt new accounting rules related to the valuation of insurance liabilities, asset classification/measurement and credit impairment; and for the IAIS to develop a GAAP Plus approach that contemplates these new rules. The Japanese GAAP Plus timeline is not affected and continues to align with the original timeline to conclude field testing in 2019 and begin monitoring and confidential reporting in 2020.

9.1.2 Design and approach

512. The starting point for GAAP Plus is audited general-purpose, consolidated group financial statements whether on an IFRS, U.S. or Japanese GAAP, or statutory basis as appropriate for the respective IAIG[48].

513. The 2018 Field Testing Technical Specifications on GAAP Plus (Section 7.4) outlines the necessary adjustments to arrive at an ICS GAAP Plus Balance Sheet. Adjustments differ based on the underlying jurisdictional GAAP used for purposes of consolidated group reporting. Each jurisdictional GAAP Plus approach was developed based on the following set of principles:

[48] For Groups that do not report consolidated or group level financial statements (eg U.S. Mutual IAIGs) it is necessary to first generate financial statements on an aggregated basis to reflect group level starting balances. This requires taking steps to ensure that all entities under control of the parent organisation are included, double counting is eliminated, and foreign currency translation is applied.

- Like the MAV approach, the adjustments specified under GAAP Plus should address only the most significant or material items on the balance sheet, specifically, insurance-related liabilities and invested assets. The proportionality principle applies.
- 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.
- Invested assets should be valued on a basis that is consistent with reported balances in the IAIG's audited GAAP financial statements.
- 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 14.8 for additional detailed information on current estimate).
- 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.
- Capital resources and deductions – Aside from an adjustment for some jurisdictional GAAPs to address the consistent treatment of assets and liabilities and non-economic volatility, all adjustments related to ICS capital resources should apply equally to GAAP Plus just as they would for other approaches.
- Tax effects – Deferred taxes should follow the same treatment as under the MAV approach.

514. For most GAAP Plus jurisdictional approaches, assets remain unadjusted. Thus, there is no requirement to restate assets carried at amortised cost to a market value. In most instances the assets reported at cost include loans, certain real estate and fixed income investments classified as held to maturity. There is an acknowledgement that this could create some inconsistency between groups and also require adaptations of ICS risk charge calculations that have been designed to work only with assets measured at market value. These potential issues are weighed against concerns that illiquid assets, adjusted to a market value using processes that are not subject to rigorous financial controls and independent audit, can lead to inconsistencies and potentially misleading results. In addition, the way in which assets are valued on a GAAP balance sheet, whether at cost or market value, is tied to the business strategy for holding such assets and thus may be the most appropriate measure.

515. The primary objective of GAAP Plus is to maximise the use of audited figures, processes and systems. Thus despite some differences in how risk charges are calculated, assets should be reported on a local GAAP basis for purposes of GAAP Plus under most jurisdictional approaches.

Question 165. Should all assets under GAAP Plus be restated to market value in order to maximise comparability or should assets be reported unadjusted, as per audited financial statements? Please provide any supporting comments including thoughts on valuation in the context of comparability, business strategy associated with an asset, symmetry in accounting between assets and insurance liabilities, and potential cost of implementation.

516. GAAP Plus seeks to align the measurement approaches for insurance liabilities and the assets that support those liabilities. Under the U.S. GAAP/SAP Plus and Japanese GAAP Plus approaches there is an additional adjustment to ICS capital resources that represents a reversal of unrealised gains and losses reported in Accumulated Other Comprehensive Income (AOCI) related to assets supporting long duration insurance liabilities, where those liabilities are discounted using a rate based on current book yield under the applicable jurisdictional GAAP Plus approach. Said another way, assets are re-measured to amortised cost where corresponding liabilities are measured using a discount rate that is not sensitive to market movements. This creates a symmetry in the valuation of liabilities and related assets such that artificial, accounting generated volatility in capital resources is minimised. Refer to the 2018 Field Testing Technical Specifications (Section 10.3.2) for additional details on the AOCI adjustment.

517. The AOCI adjustment is dependent on highly effective ALM practices. To ensure that solid ALM practices accompany the use of the AOCI adjustment, consideration is being given to developing operational criteria for the assessment of ALM as a prerequisite for use of the AOCI adjustment. One proposal for such criteria would be modelled on the requirements for use of the Held for Insurance Reserves (HFR) asset classification under Japanese GAAP.

518. Under Japanese GAAP, insurance liabilities are measured on a book value basis, while investments are measured at fair value, therefore, without adjustment, there would be a valuation mismatch. To eliminate the mismatch, Japanese GAAP allows insurers to classify bonds as HFR which are valued at amortised cost, when insurers meet required ALM requirements.

519. The ALM requirements for HFR classification are composed of quantitative tests and operational elements. One key quantitative test concerns duration matching between insurance liabilities and HFR investments. Insurers are required to identify insurance portfolio and bonds classified as HFR and calculate the duration mismatch which must be kept within a defined range. Japanese GAAP requires that management has to review this duration matching regularly.

520. To support effectiveness of the ALM for HFR, Japanese GAAP also specifies certain operational criteria. Management is required to design the operation of the ALM, document the policy and review its effectiveness of operation. See Annex 2 for HFR operational criteria.

Question 166. Would the Japanese GAAP Held for Reserves ALM criteria be appropriate for use under GAAP Plus for portfolios included in the AOCI adjustment? Please include a rationale for the response. If 'no', please provide any suggestions for improvement or alternate language.

521. In addition, the AOCI adjustment may incentivise gains trading and selling of investments that were intended to be held to maturity. Therefore, consideration is being given to a method that would defer gain recognition in a similar fashion as under Japanese GAAP and U.S. SAP. Gains on the sale of any assets that have been included under the AOCI adjustment would be deferred, net of tax, and amortised into surplus over the expected remaining life of the asset sold.

Question 167. Would a mechanism adapted from the U.S. SAP Interest Maintenance Reserve or Japanese GAAP to defer gains on the sale of assets that were included under the AOCI adjustment be appropriate for ICS Version 2.0? Please provide a rationale to support the response. Also provide any additional design considerations or suggestions to improve the proposal.

522. Insurance liabilities are adjusted to conform to the definition of a current estimate which is described in Insurance Core Principal 14 – Valuation (ICP 14). The GAAP Plus adjustments serve to remove any margins or provisions for adverse deviations embedded in reserves and update any assumptions to take into account all current information.[49] In contrast to MAV, GAAP Plus does not replace discounting assumptions with a prescribed yield curve or rate. Rather, jurisdictional GAAP rules and industry practitioners (public accountants and actuaries) in each jurisdiction are relied upon to specify how discounting should be performed.

523. There are trade-offs that were considered when deciding to take this approach under GAAP Plus. There may be differences in the way that local GAAPs address discounting that can lead to a lack of comparability between IAIGs applying different accounting rules. However, under GAAP Plus, it is argued that the differences caused by using local discounting approaches are in fact appropriate and may better reflect the nature of the liabilities and overall structure of the balance sheets that are observed in different jurisdictions. It places the responsibility for defining discounting methodologies on accounting standard setters. The application of discounting rules is supported by robust actuarial standards and auditing practices. There is also the consideration of cost and the efficiencies that are gained by maximising the use of a single accounting regime for both public and group statutory reporting.

524. There is an acknowledgement that certain prudential guardrails may be required to constrain overly aggressive discounting assumptions, and this is a necessary next step in development for GAAP Plus. There are a number of questions that follow in this consultation that relate to design and development of such guardrails and other operational criteria which would be integral to the GAAP Plus approach.

525. Although there have not been any significant discussions to date on this topic as the overall design of GAAP Plus was not yet solidified, it may be appropriate at this point to begin to evaluate possible designs for prudential constraints related to discounting and GAAP Plus. The IAIS is evaluating whether possible prescription of long term forward rates that are used either in the context of market based discount curves or reinvestment assumptions in a book yield blended rate would be appropriate or necessary. Consideration is also being given to the

[49] One exception to this would be in the case of U.S. GAAP Plus non-life liabilities which remain unadjusted and undiscounted and thus could contain margins. This design was based on a cost/benefit analysis where the expectation is that the undiscounted non-life liabilities would approximate a current estimate plus a MOCE without requiring IAIGs to perform additional calculations.

need for guidance related to dividend fund crediting rates used in discounting participating contracts under U.S. GAAP Plus, as well as guidance on how a book yield should be blended with a reinvestment assumption under U.S. GAAP Plus. And with respect to IFRS 17 – Insurance Contracts, which is a principles based standard and allows for multiple methods for arriving at a discount rate, the IAIS is assessing whether it will be necessary to provide guidance that would appropriately narrow the range of practice. Specific discussions on these items are contained in the relevant sections on GAAP Plus jurisdictional approaches that follow. However a general question is provided under this section.

Question 168. To ensure that discounting falls within a range of practice that is not overly aggressive under GAAP Plus, guardrails and/or guidelines are being considered to narrow potential ranges of practice and put reasonable constraints on discounting methodologies under jurisdictional GAAP Plus approaches. Specifications would need to strike a balance between prudential concerns and being overly prescriptive. There would also be a need to maintain an alignment with current GAAP practices. Are guardrails and/or constraints necessary under GAAP Plus? Under what specific circumstances might guardrails or additional guidance be necessary? Are there elements of MAV that might be used as a starting point? Please support the answer with discussion and any examples on possible risks or wide range in practice that may exist and how guardrails may minimise those risks or narrow the range of practice appropriately.

9.1.3 Prior consultations

526. Prior consultations focused on the primary design elements of GAAP Plus. The 2016 ICS CD sought input on the initial design and proposal for adjustments to jurisdictional GAAP balances to arrive at a GAAP Plus Balance Sheet. It also evaluated this design in the context of the results of 2015 Field Testing. There were a number of specific design related questions pertaining to the AOCI adjustment which, to that point, had not yet been developed or specified. The responses to these questions were used to inform on the AOCI adjustment specifications that were developed for 2016 Field Testing. Additional questions requested input of a more general nature to highlight any need for future refinements and areas requiring further testing.

9.1.4 Field testing

527. Field testing in 2016 and 2017 evaluated refinements to the design of GAAP Plus and compared balances to the MAV approach in order to identify significant drivers of differences between the two ICS valuation approaches. In general, it was determined that the method applied for discounting insurance liabilities was the source of the most significant differences between the two approaches. Discounting continues to be refined under both approaches so it is difficult at this time to evaluate whether this will continue to create significant differences. A second source of differences resulted from how contract recognition and contract boundaries were specified under each valuation approach. There would seem to be an opportunity to reduce or eliminate these differences with an alignment of definitions based on the new IFRS standard on insurance contracts (IFRS 17) once a careful analysis was performed to ensure that solvency objectives would be met. A third driver of differences was identified as the exclusion of overhead expenses under the U.S. GAAP Plus approach for valuing life liabilities. For 2017, a revision was made to the U.S. GAAP Plus approach to require that overhead expenses be included as an adjustment to arrive at a current estimate for all

insurance liabilities. This was deemed appropriate as overhead expenses are explicitly included in the definition of a current estimate in ICP 14, and it was determined that making the change would not create an onerous burden for Volunteer Groups.

Question 169. Should the IAIS consider harmonizing the definitions of contract recognition and contract boundaries across all valuation approaches (jurisdictional GAAP Plus approaches) possibly in alignment with the IFRS accounting standard on Insurance Contracts (IFRS 17)?[50] Please comment on how this would impact jurisdictional GAAP Plus approaches (such as Japanese GAAP Plus and U.S. GAAP Plus) in terms of feasibility and cost and whether the IFRS 17 definitions are generally applicable in all jurisdictions. If no, please explain the difficulties and/or issues associated with conforming to one single definition.

528. The results of prior years' field testing for GAAP Plus are of limited value for most jurisdictional GAAP Plus approaches. The approaches developed prior to 2018 (with the exception of Japanese GAAP Plus) were based on numerous local GAAPs. Many of these approaches are in the process of being redesigned for future field testing due to the fact that the underlying accounting rules related to insurance liability valuation have been revised. As GAAP Plus relies on jurisdictional accounting rules, it is necessary to take these new rules into account. More specifically the International Accounting Standards Board (IASB) has issued the new standard IFRS 17, *Insurance Contracts*, which provides for a consistent approach for the valuation of all insurance liabilities. In addition, the U.S. FASB is in the final stages of issuing a standard on targeted improvements to the accounting for long-duration insurance contracts.

529. As of the date of the publication of this consultation, it was not clear whether or how IFRS 17 will be endorsed or implemented across the multiple jurisdictions that apply IFRS accounting rules. Thus, it is difficult to predict whether the IFRS GAAP Plus approach will be developed as a single approach or whether it will need to be refined further at a jurisdictional level. As IFRS 17 is a principles based standard, it is also not known at this point in time whether there will be a wide range of practice that may lead the IAIS to explore narrowing the range under a GAAP Plus approach. The expectation is that it may take another year before a

[50] Per IFRS 17, *Insurance Contracts*, cash flows are within the boundary of an insurance contract if they arise from substantive rights and obligations that exist during the reporting period in which the entity can compel the policyholder to pay the premiums or in which the entity has a substantive obligation to provide the policyholder with services (see paragraphs B61–B71). A substantive obligation to provide services ends when:

(a) the entity has the practical ability to reassess the risks of the particular policyholder and, as a result, can set a price or level of benefits that fully reflects those risks; or

(b) both of the following criteria are satisfied:

(i) the entity has the practical ability to reassess the risks of the portfolio of insurance contracts that contains the contract and, as a result, can set a price or level of benefits that fully reflects the risk of that portfolio; and

(ii) the pricing of the premiums for coverage up to the date when the risks are reassessed does not take into account the risks that relate to periods after the reassessment date.

An entity shall not recognise as a liability or as an asset any amounts relating to expected premiums or expected claims outside the boundary of the insurance contract. Such amounts relate to future insurance contracts.

meaningful evaluation can be made. Thus, specifications have yet to be developed for IFRS GAAP Plus. The questions in this consultation focus more generally on how an approach should be developed. It is expected that an approach will be developed for 2019 Field Testing.

9.1.5 Current design

9.1.5.1 Japanese GAAP Plus - refinements

530. Japanese GAAP Plus adjustments utilise the Japanese GAAP statutory cash flow test pursuant to the Insurance Business Act in Japan in order to remove margins in reserves and apply current information in assumptions. This approach has not changed from its original inception except to provide for certain refinements that were identified through data analysis and feedback from Volunteer Groups. The expectation is that this approach will be at an implementable state at the end of 2019 Field Testing and be available for confidential reporting in the monitoring period starting in 2020. Refer to the 2018 Field Testing Technical Specifications (Section 7.5.3) for additional details on the Japanese GAAP Plus approach.

531. 2018 Field Testing focuses on refinements made to the specifications under the following three topics:

- Investment return assumption for reinvestment and new money for use in determining the discount rate for life insurance contracts,
- Valuation of options and guarantees, and
- Group contracts

532. The discounting assumption for investment returns from reinvestments and new money is one of the key assumptions for the insurance liability calculation, especially for life insurers. The 2018 Field Testing Technical Specifications on Japanese GAAP Plus clarifies that the discounting assumption for investment returns for reinvestments and new money should be defined based on an assumption that IAIGs invest in Japanese government bonds with an average duration equal to the average duration of Japanese government bonds in which the IAIG invested in the previous financial year.

533. Options and guarantees that are explicitly measured under Japanese GAAP should be adjusted for GAAP Plus. However, the implicit time value of options and guarantees (TVOG) was not significant in 2017 Field Testing and Volunteer Groups suggested that due to proportionality, as a practical expedient, TVOG under MAV could be used to reflect TVOG for the Japanese GAAP Plus Balance Sheet. This suggestion was incorporated into the JGAAP Plus specification for 2018.

Question 170. Should Japanese GAAP contracts that are measured under a book value approach in GAAP Plus include time value of options and guarantees (TVOG) or would this result in measurement inconsistencies, mixing book value and market value concepts? Please explain.

Question 171. Would a liability measured without TVOGs under GAAP Plus still conform to the definition of a current estimate as per ICP 14.11?[51] Please provide rationale to support the answer.

534. Group insurance contracts are excluded from the Japanese GAAP statutory cash flow test. For 2017 Field Testing, Japanese Volunteer Groups were using Japanese GAAP insurance reserve valuation to measure group contracts, however the treatment was not documented in the Technical Specifications. Japanese GAAP valuation for group insurance contracts was deemed to result in a current estimate therefore, the 2018 Technical Specification includes this treatment of group insurance contracts under Japanese GAAP Plus.

535. Discounting projected cash flows under the Japanese GAAP Plus approach follows the Japanese GAAP statutory cash flow test pursuant to the Insurance Business Act in Japan including related guidance (the Japanese Insurance Act).

536. As defined in paragraph 532, the discounting assumption for investment returns for reinvestments and new money should be defined based on an assumption that insurers invest in Japanese government bonds. As general practices of the Japanese GAAP statutory cash flow test, the LTFR is not taken into account for the reinvestment return and the Japanese Insurance Act does not provide detailed guidance on the LTFR. In 2017 Field Testing, some Volunteer Groups did not incorporate the LTFR for Japanese GAAP Plus investment assumptions, while other Volunteer Groups reflected the LTFR.

537. At this time there are no specific proposals for additional specifications on the LTFR.

Question 172. As a general practice of the Japanese GAAP statutory cash flow test, the LTFR is not taken into consideration for (re)investment assumptions. Should Japanese GAAP Plus (re)investment assumptions reflect the LTFR? If "yes", please explain why Japanese GAAP Plus should differ from the practice of the Japanese GAAP statutory cash flow test.

Question 173. Are there any other suggested refinements to the Japanese GAAP Plus specifications (eg discounting) where there may be judgment or interpretation that could lead to a wide range of practice or potential need for guardrails to restrict overly aggressive practices? If "yes", please describe any suggested refinement and the concern that it is expected to address.

Question 174. Are there elements of the MAV Three-Bucket Approach that could be considered in the further development of the Japanese GAAP Plus discounting methodology to improve the alignment of the two methodologies? Please explain.

Question 175. Are there any other suggested refinements to the Japanese GAAP Plus approach or elements of the specifications that remain unclear that would need to be incorporated prior to the release of ICS Version 2.0? Please explain.

[51] ICP 14.11, "The supervisor requires the valuation of technical provisions to make appropriate allowance for embedded options and guarantees."

9.1.5.2 U.S. GAAP Plus – addressing new life insurance accounting rules

538. In January 2018, two roundtables were organised to collect views from Volunteer Groups and accounting/actuarial experts on a proposed redesign of U.S. GAAP Plus for certain life liabilities. This redesign was undertaken to reflect the expected changes to the accounting for long duration insurance contracts as outlined in the Financial Accounting Standards Board's (FASB's) tentative decisions on their targeted improvements to the accounting for long-duration insurance contracts. The current expectation is that a final standard will be issued sometime in the third quarter of 2018 and will not differ significantly from the Board's tentative decisions. At the conclusion of the roundtables, the IAIS agreed on the approach for 2018 Field Testing, based on data availability and what Volunteer Groups and experts believed could be provided on a best efforts basis.

539. The most significant changes to the U.S. GAAP Plus approach in 2018 are as follows:

- Non-participating, traditional life insurance contracts (eg with terms that are fixed and guaranteed) and limited payment contracts are measured according to the new accounting rules with an adjustment to bring the liability from a net to a gross premium basis and an adjustment to include direct overhead expenses in order to approximate a current estimate.
- All market risk benefits, as defined in the expected U.S. GAAP standard, are measured at fair value and adjusted to remove any amounts related to own credit risk and transfer value risk margin. At the time of the issuance of the 2018 Technical Specifications, the scope of the market risk benefits portion of the new rule was not yet defined with certainty. Thus, for purposes of 2018 Field Testing, all guarantees and options will be reported based on the current GAAP rules and prior year's specification.
- Investment contracts are measured utilising the Gross Premium Valuation (GPV) approach as defined in loss recognition (premium deficiency) testing under U.S. GAAP. There was a discussion at the roundtables held in January 2018 on the most appropriate measurement method for these contracts as they are measured under GAAP similar to a bank deposit. In order to remove the embedded margins it was necessary to adopt the insurance accounting GPV methodology.

540. The U.S. GAAP Plus approach has not changed from prior years for non-life insurance, participating contracts and non-par insurance contracts measured under a retrospective deposit method approach.

541. For U.S. GAAP Plus there are a number of design elements that are being evaluated and for which input is being requested. Refer to the 2018 Field Testing Technical Specifications (Section 7.5.1) for additional details on the U.S. GAAP Plus approach.

542. Guidelines, specific criteria and/or guardrails are being considered to ensure that discounting falls within a range of practice that promotes comparability and is not overly aggressive. In particular, it has been noted that supervisors, as well as several Volunteer Groups commented that liabilities discounted based on a rate that is a blend of a book yield plus a reinvestment assumption and minus investment expenses and expected defaults contain several possible elements where a wide range of practice may exist and that can be susceptible to abuse. The noted elements are as follows:

- How the book yield is blended with a reinvestment rate assumption could have a significant impact on the overall rate and liability balance. There is very little instruction provided in U.S GAAP to describe how this should be performed.
- Assumptions that are the key parameters for the reinvestment rate can also have a material effect, especially on long duration liabilities. These assumptions include LOT, LTFR and the method used to transition from LOT to LTFR.
- Par contracts are discounted under GAAP Plus utilising dividend fund crediting rates. There has been some feedback received that there may be diversity in practice around how these rates are derived.

543. At this time there are no specific proposals for additional specifications. Rather, this consultation seeks input on any compensating controls or processes that would mitigate the need for further specification; and in the absence of such mechanisms, input on the possible design for additional specifications to address prudential concerns that a lack of guardrails could result in overly aggressive assumptions in discounting.

Question 176. Should the IAIS develop additional guidelines and criteria for elements where there is significant judgment and potential for abuse in the calculation of a discount rate derived from a blend of book yield and a reinvestment assumption or dividend fund crediting rate?

(1) If 'no', please describe the mitigating controls that would serve to limit abuse or aggressive actions and ensure that valuation results are comparable across IAIGs.

(2) If 'yes', please describe the elements where there may be a need for additional guidelines or criteria. Include in the response whether there may be opportunity to align this criteria with the MAV approach or whether criteria should be specific to U.S. GAAP Plus and why.

Question 177. Short term, non-life liabilities under U.S. GAAP Plus are not adjusted and are reported undiscounted. This design is predicated on the assumption that the undiscounted liabilities would approximate a current estimate plus a MOCE and that the cost would outweigh the benefit of discounting these short term, non-life liabilities. With the understanding that there are still options being considered for the MOCE design, please provide any comments or observations regarding this design element under U.S. GAAP Plus.

Question 178. Are there any other suggested refinements to the U.S. GAAP Plus approach or elements of the specifications that remain unclear that would need to be incorporated prior to the release of ICS Version 2.0?

9.1.5.3 IFRS GAAP Plus – addressing new accounting rules

544. For 2018, GAAP Plus approaches for jurisdictions that have either adopted, plan to adopt or expect to follow a jurisdictional adaptation of IFRS 17 will need to be revised. This redesign will begin once it becomes clear how adoption and implementation of IFRS 17 will proceed under each jurisdiction. As of the start of 2018 Field Testing, it was not yet known which jurisdictions will adopt IFRS 17 or whether there may be significant jurisdictional

adaptations incorporated into adoption. Although the decision to adopt may have been made in several jurisdictions, it was still considered too early to evaluate the potential end-state or to begin design of an IFRS GAAP Plus approach for field testing. In addition, the implementation timeline for IFRS 17 is such that is was not considered likely that accurate or meaningful data could be collected for purposes of field testing. Thus for 2018 Field Testing, only qualitative information will be collected from Volunteer Groups. There are also plans to monitor developments related to jurisdictional adoption/endorsement, external auditor and actuarial work on implementation guidance and supervisory preparations. Refer to the 2018 Field Testing Technical Specifications (Section 7.5.4) for additional details related to IFRS GAAP Plus.

545. This consultation seeks to collect views on how an IFRS GAAP Plus approach might be developed. Some of the possibilities for a direction were discussed at GAAP Plus roundtables held in January 2018 including participants from Volunteer Groups and accounting/actuarial experts.

546. A rough outline of the approach that was discussed at these roundtables is as follows:

- For General Measurement Model – Report the discounted fulfilment cash flows as equivalent to a current estimate.
- For Variable Fee Approach – Since the variable fee approach only impacts the CSM and CSM is likely to be reversed out, no further adjustment is required.
- For Premium Allocation Approach – No adjustment required.
- Where risk adjustment applies, replace with the ICS Margin Over Current Estimate. Contractual service margin would be reversed.

Question 179. If a wide range of practice is observed, in particular for discounting, should the IAIS seek to narrow that range? Why or why not?

Question 180. Should gain at issue be recognised or deferred? This question can be thought about in the context of whether the contractual service margin should be reversed or not.

Question 181. Are there elements of MAV that would not be aligned with IFRS 17 (for example, MOCE or Three-Bucket Approach)? If "yes", please describe the rationale for why these elements would not be aligned with IFRS 17.

9.1.6 2018 Field Testing and future development

547. 2018 Field Testing objectives differ depending on the jurisdictional approach. For Japanese GAAP Plus, which was not changed significantly from prior years, field testing will focus on the evaluation of several refinements to the specifications. There are no significant open design elements being tested in 2018. For U.S. GAAP Plus, field testing will include a partial adoption of new U.S. GAAP insurance contract accounting rules. Objectives include an evaluation of the new approach and impact on ICS ratios. For IFRS GAAP Plus, balance sheets will not be collected in 2018 as it was determined that collecting balances conforming to the new rules would not be possible and collecting data based on old accounting rules is no longer relevant. Information will be collected in the form of qualitative questions on the design

of an IFRS GAAP Plus approach to be developed for 2019 Field Testing. EU IFRS filers will continue to report an adjusted Solvency II balance sheet similar to prior years.

548. As explained earlier, the timeline for field testing of GAAP Plus differs from MAV in that it was extended for two years into the monitoring period for U.S. GAAP Plus and IFRS GAAP Plus. This is to provide more time to design a GAAP Plus approach based on new accounting rules and allow IAIGs time to implement the changes. The timeline for Japanese GAAP Plus remains consistent with MAV.

549. For 2019 Field Testing, all participating Volunteer Groups will submit a balance sheet and perform the necessary calculations to produce an ICS ratio on a GAAP Plus basis. There may be some use of simplifications and practical expedients where the new accounting may not yet be fully integrated in systems and processes. See the 2018 Field Testing Technical Specifications (Section 7) on GAAP Plus.

550. Field testing will continue for U.S. and IFRS GAAP Plus into 2020 and 2021 with the expectation that confidential reporting on a GAAP Plus basis will be possible by 2022. GAAP Plus will be reported alongside MAV for the remaining three years of the monitoring period, at the request of the GWS.

551. An assessment of whether GAAP Plus will be recognised as a part of ICS Version 2.0 for implementation as a PCR will occur by the end of the monitoring period.

9.1.7 Addressing differences between GAAP Plus jurisdictional approaches

552. One of the primary criticisms raised against GAAP Plus is that it may not provide for comparisons between IAIGs because the valuation approaches are tied to different jurisdictional accounting regimes. This criticism is often made in the context of a comparison of GAAP Plus against a single prescriptive approach. While it is true that GAAP Plus relies on multiple approaches for the valuation of insurance liabilities, the aim of these approaches is to arrive at a current estimate. Thus there is a common insurance liability valuation definition that underlies all GAAP Plus approaches. Potential differences are driven largely by how cash flows are discounted. Valuation based on IFRS 17 relies on a principles based approach to discounting that provides for two possible methods of deriving a discount curve (bottom up and top down). U.S. GAAP has several discounting models depending on the type of product. Japanese GAAP also has differing approaches by product (life and non-life).

553. A second criticism of GAAP Plus is that it requires variations for certain ICS risk charges because of the way in which particular assets or liabilities are valued under GAAP Plus. In particular, this issue relates to the way in which certain risk charges are calculated for long-duration insurance contracts measured under jurisdictional GAAP rules using a book value approach. In the case of fixed income investments that are backing such long-duration life contracts, some GAAP Plus specifications apply an AOCI adjustment, adjusting these assets to amortised cost in order to address asymmetry in the accounting. As the assets and liabilities are essentially book value measures, there is little to no impact of an Interest Rate or Non-Default Spread risk market shock on their recorded value. Thus, under GAAP Plus the Market risk charge for certain long duration contracts could be materially different depending on the accounting regime of the IAIG. Some would argue that this result is appropriate as it reflects the economics of a book and hold business strategy for long duration insurance contracts and the application of ALM practices. Evaluating appropriateness may be influenced by whether it

is believed that a market or book value approach is the better measure for such business. In developing GAAP Plus, reliance was placed on accounting standard setters to make this judgement.

554. These criticisms of GAAP Plus related to jurisdictional differences in valuation and how risk charges are calculated result from the need to balance a number of objectives, some of which are explicitly stated in the ICS Principles and some of which give recognition to issues noted and criticisms levelled against early versions of the ICS. On the one hand, there is a desire to adhere to ICS Principles to achieve a very high level of comparability between IAIGs and to ensure that supervisory outcomes are equivalent. In particular, ICS Principle 1 states that the ICS is a "*globally comparable risk-based measure*" and the amount of capital required to be held should be irrespective of the location of an IAIG's headquarters. On the other hand there are concerns that balances produced outside of the financial reporting framework, controls and independent assurance could result in incorrect and unverifiable results. There is also the need to consider complexity, cost and inefficiencies. It is very difficult to evaluate which ICS valuation approach achieves the most appropriate balance. When attempting to find a balance at the jurisdictional level, costs and efficiencies may differ depending on how much has already been invested in systems to produce market consistent solvency reporting. There is also a related debate on the appropriateness of using cost versus market value to measure long duration insurance business, making it difficult to conclude whether one approach can be seen as more accurate or better reflective of risk. In the discussions that have taken place over the course of development of the ICS, how one concludes is often tied to the types of products offered in a jurisdiction and where a jurisdiction's solvency reporting currently lies on the spectrum of book value verses market.

555. The expectation and the foundation of GAAP Plus is that audited, public reporting that is subject to rigorous internal controls, independent review and market scrutiny results in an accurate and appropriate valuation measure. Standard setters supported by expert practitioners and time tested accounting frameworks commit significant effort and resources to ensure that local accounting standards reflect the underlying economic realities to the greatest extent possible. While there may be some difference in the objectives of accounting standard setters and insurance regulators, these differences can be addressed in adjustments that are reflected in a GAAP Plus Balance Sheet.

556. IAIGs are all required to maintain controls, systems and processes to support reporting on a GAAP basis. Utilising these figures and relying on these processes and systems to the extent possible reduces costs and generates efficiencies. Also, figures that are produced under GAAP rules are subject to the rigors of public reporting providing an extra layer of assurance. For many jurisdictions that do not currently maintain a market-based valuation approach for solvency reporting, there would be a significant cost to develop new financial processes and systems to report amounts used solely for solvency purposes. In addition, supervisors may not be able to require that balances are subject to independent audit. There is also the consideration of the cost borne by supervisors who must fill the gap and provide support and issue guidance similar to what is provided by expert practitioners and actuarial societies in a public reporting context.

557. Although comparability is an explicit goal of the ICS, it was not the only criteria applied to develop GAAP Plus. The GAAP Plus valuation approach was developed in response to the feedback and concerns of stakeholders and supervisors, and therefore seeks a balance

between comparability, accuracy, verifiability, relevance and cost. In order to achieve this balance there were trade-offs that were accepted. The GAAP Plus approach seeks to produce balances that are largely comparable, while also maximising the use of existing financial reporting systems, producing appropriate results and limiting costs to the extent possible.

Question 182. Should the IAIS do more to align discounting under jurisdictional GAAP Plus approaches? If "yes", please provide a rationale and any suggestions for how this might be achieved. If "no", please provide context and support for the response.

Question 183. Under certain jurisdictional GAAP Plus approaches, some risk charge calculations depend on whether balances are measured on a market or book value basis. This is particularly relevant for the Interest Rate risk and Non-Default Spread risk calculations. Thus, the capital requirement result can depend on the accounting regime applied by a Group. Should the IAIS seek to reduce or eliminate these jurisdictional differences in risk charge calculations? If "yes", please provide any suggestions for revising the noted risk charge calculations. Please also provide context and support for the answer provided.

Question 184. Are there any further comments on GAAP Plus that the IAIS should consider in the development of ICS Version 2.0? If "yes", please explain with sufficient detail and rationale.

9.2 Internal models

9.2.1 Introduction

558. The IAIS introduced the concept of internal models as part of other methods in the 2014 ICS CD. Feedback received showed that some stakeholders supported the use of internal models to enable IAIGs to better reflect their risk profiles.

559. The IAIS agreed in November 2017 that the use of internal models is a viable option for calculating the ICS capital requirement and would be considered for inclusion in the ICS by the end of the monitoring period. Subsequently, the IAIS clarified that:

- The reporting by IAIGs of results obtained from the use of internal models is at the option of the GWS.
- The IAIS intends to develop a set of prerequisites in the form of tests and standards to be used by IAIGs and other interested Volunteer Groups to support the reporting of internal model results during the monitoring period.
- The monitoring period will provide an opportunity to inform the IAIS on which tests and standards should be developed if internal models were to be accepted as part of the implementation of the ICS as a PCR.

560. The scope of application of internal models is limited to the calculation of the ICS capital requirement and not to other areas of the ICS such as capital resources or valuation (eg MAV). Therefore, the development of internal models is meant to introduce only an alternative calculation of the ICS capital requirement, while the valuation of the assets and liabilities of the IAIG would continue to be calculated according to the methods set out by the IAIS. However, the IAIS expects convergence between the valuation basis embedded in the internal model and the valuation basis for the ICS during the monitoring period.

561. The following sections present feedback from Volunteer Groups from 2017 Field Testing, set the prerequisites for submission of internal model data as part of the additional reporting during the monitoring period and seeks stakeholder feedback on the internal model issues under consultation.

9.2.2 Observations and feedback from 2017 Field Testing

562. Some Volunteers Groups indicated that internal models are used in their decision-making processes concerning pricing, capital allocation, and risk limits among other internal decisions. Many of these internal models were noted to be in use for more than ten years.

563. Most of the internal models in use are subject to specific model governance frameworks that address roles and responsibilities, documentation, validation, and changes to internal models.

564. Some Volunteers Groups that reported to the IAIS on the use of internal models indicated that they engage independent, qualified experts for internal model validation purposes.

565. Volunteers Groups cited the following benefits of using internal models:

- Increased understanding of risks across the business;

- Better risk/solvency management;
- Ability to reflect risks that cannot be properly captured in the standard method; and
- Improved insurance supervision, cooperation, and transparency.

566. Also, Volunteers Groups noted the following challenges:

- Proper consistency and comparability;
- Complexity; and
- Stability over time.

9.2.3 General principles

9.2.3.1 Background

567. The main goal of internal models is to calculate capital requirements (at the risk level or at the aggregated level) closer to the risks borne by the IAIG. Specificities of an IAIG that cannot be captured in the standard method (eg specific risk mitigation arrangements) can be reflected in an internal model. Internal models can also capture risks that are not included in the standard method if these are material for a specific IAIG. Internal models are particularly relevant in the context of IAIGs, which are large and complex insurance groups operating in multiple jurisdictions.

9.2.3.2 Internal model data submission as part of the additional reporting during the monitoring period

568. ICP 17 has laid the foundation for shaping the ten prerequisites for the use of internal models in the ICS during the monitoring period. The subsequent sections will detail the underlying principles for each of these prerequisites.

569. To be able to submit internal model data as part of the additional reporting during the monitoring period, IAIGs would be required to complete a self-assessment template concerning prerequisites 1 to 10 as outlined in the subsequent sections, ie, within which the IAIG must:

- Briefly describe the scope of application of the internal model (eg partial or full internal model);
- Provide evidence that the internal model has been validated independently (Prerequisite 2) (internally or externally) and signed-off by the IAIG's Board of Directors to calculate the group economic capital (Prerequisite 3);
- Indicate the degree of compliance of the internal model with prerequisites 4 to 7;
    - Statistical quality test;
    - Calibration test;
    - Use test and governance; and
    - Documentation standards.
- In the case of a partial internal model, the IAIG must also complete the self-assessment template regarding Prerequisites 8 to 10, ie the need to:

- justify the reason for the limited scope of the internal model (ie absence of cherry-picking);
- provide evidence that the resulting ICS capital requirement more appropriately reflects the risk profile of the IAIG;
- explain how the partial internal model and standard method's results can be integrated.

570. During the monitoring period, the IAIS will provide IAIGs with a self-assessment template to be used to assess the degree of compliance with the prerequisites. This self-assessment template will accompany the submission of internal models results during the monitoring period.

571. Where the prerequisites are not fully met, but the IAIG would like to submit internal model results during the monitoring period, then the IAIG should explain and justify this conclusion to their GWS. Moreover, the IAIG should indicate the reasons for this decision in their self-assessment template along with details of how the internal model does not meet the prerequisites.

572. Supervisory approval of the internal model for data submission is not a pre-requisite during the monitoring period. Further, a model does not have to be used for regulatory capital purposes to satisfy the pre-requisites for reporting of internal model results during the monitoring period.

Question 185. Is the current approach, to use ICP 17 as a foundation of prerequisites, appropriate for developing the additional reporting of internal models during the monitoring period? If "no", please explain and describe any changes that could enhance the additional reporting of internal models during the monitoring period.

9.2.3.3 Prerequisite 1 – Description of the scope of application of internal models

573. IAIG's must describe the scope of application of their internal model (ie the perimeter of the internal model's calculation). Two possible approaches are considered for the additional reporting of internal model results during the monitoring period:

a. **Partial internal model** – which involves the replacement of some parts of the standard method calculation. For example:
   i. One or more risk charges of the ICS standard method capital requirement (eg Market risk);
   ii. One or more sub-risk charges of the ICS standard method capital requirement (eg Equity risk);
   iii. One or more risk charges or sub-risk charges not captured by the the ICS standard method capital requirement;
   iv. The whole business of the IAIG, or only to one or more major business units or legal entities.

b. **Full internal model** – which involves the replacement of the entire standard method calculation.

Question 186. Is prerequisite 1 appropriate for additional reporting of internal model results during the monitoring period? Please explain.

9.2.3.4 Prerequisite 2: Validation

574. Internal model validation requires IAIGs to demonstrate that a rigorous process is in place by which they can establish whether their internal model framework is sound or whether improvements are needed. Validation should enable them to understand the internal model's capabilities and limitations better and confirm that the internal model and the supporting processes are adequate and appropriate for the purpose. Validation should be an iterative process by which an IAIG using an internal model periodically refines validation tools in response to changing market and operating conditions. There is no universal validation method, and the structure of the validation approach depends on the technical specifications of the internal model, its purpose and its intended use.

575. According to ICP 17.13.6 Guidance, "*the insurer should review its own internal model and validate it so as to satisfy itself of the appropriateness of the model for use as part of its risk and capital management processes. As well as internal review, the insurer may wish to consider a regular independent, external review of its internal model by appropriate specialists*".

576. Building on ICP 17.18 when an IAIG uses an internal model to determine regulatory capital requirements, it should:

- "*… monitor the performance of its internal model and regularly review and validate the ongoing appropriateness of the model's specifications*"
- "*… demonstrate that the model remains fit for regulatory capital purposes in changing circumstances against the criteria of the statistical quality test, calibration test and use test*";
- "*… notify the supervisor of material changes to the internal model made by it*";
- "*… properly document internal model changes*"; and
- "*… report information necessary for supervisory review*".

577. Validation should encompass both quantitative and qualitative elements. While it might be possible to think of validation as a purely technical/mathematical exercise in which outcomes are compared to estimates using statistical techniques, it is insufficient to focus solely on comparing predictions to outcomes. In assessing the overall performance of an internal model, it is important to assess the overall model and each of its building blocks regarding the structure, governance, data and processes.

578. Finally, to achieve an effective validation, an objective challenge is essential. Independent model validation helps IAIGs to evaluate and verify the overall performance of their internal models. Proper independence of the validation function is therefore important,

whether the validation is internal or external, individuals performing the validation must possess the necessary skills, knowledge, expertise and experience.

Question 187. Is prerequisite 2 appropriate for additional reporting of internal model results during the monitoring period? Please explain.

9.2.3.5 Prerequisite 3: Sign-off of the Board of Directors of the IAIG

579. This prerequisite aims to ensure that there is ownership of the internal model by the Board of Directors and that the model is compliant with the validation process inscribed in the governance of the internal model.

580. Moreover, ICP 17 recommends a certain level of engagement by the Board of Directors concerning the internal models as part of the use test, which will be further detailed in the section of prerequisite 6.

Question 188. Is prerequisite 3 appropriate for additional reporting of internal model results during the monitoring period? Please explain.

9.2.3.6 Prerequisite 4: Statistical quality test

581. Building on ICP 17.4 IAIGs need:

- "*… to conduct a 'statistical quality test' which assesses the base quantitative methodology of the internal model, to demonstrate the appropriateness of this methodology, including the choice of model inputs and parameters, and to justify the assumptions underlying the model*"; and provide evidence
- "*… that the determination of the regulatory capital requirement using an internal model addresses the overall risk position of the insurer and that the underlying data used in the model is accurate and complete*".

582. The statistical quality test addresses issues related to the internal model in the narrow mathematical sense, ie:

- methodology and assumptions;
- coverage of material risks;
- data (including external data) and expert judgment;
- aggregation of risks and diversification effects;
- consistency with the method used for the calculation of technical provisions;
- allowance for risk mitigation techniques and future management actions; and
- financial guarantees and contractual options

583. The statistical quality test concentrates on the individual building blocks of an internal model. The different elements making up the internal model and the inputs used must pass this test.

584. The statistical quality test set out in ICP 17 allows considerable modelling freedom to insurers. For example, ICP 17.14.1 Guidance states that *"A range of approaches could constitute an effective internal model for risk and capital management purposes, and supervisors should encourage the use of a range of different approaches appropriate to the nature, scale and complexity of different insurers and different risk exposures. There are several different techniques to quantify risk which could be used by an insurer to construct its internal model. In broad terms, these could range from basic deterministic scenarios to complex stochastic models. Deterministic scenarios would typically involve the use of stress and scenario testing reflecting an event, or a change in conditions, with a set probability to model the effect of certain events (such as a drop in equity prices) on the insurer's capital position, in which the underlying assumptions would be fixed. In contrast, stochastic modelling often involves simulating very large numbers of scenarios to reflect the likely distributions of the capital required by, and the different risk exposures of, the insurer"*. IAIGs should be at the high end regarding the nature, scale and complexity of the risks borne and the business models and structure and thus it is expected that the modelling approach is commensurate with such risk and business profile.

585. The statistical quality test also sets the boundaries within which IAIGs should take responsibility for specifying their approach to assess and aggregate risks. In conjunction with internal model validation requirements, they promote a well-structured, documented and controlled process of model development and refinement which should be consistently applied across the IAIG and to the different modelling areas. For example, ICP 17.14.3 Guidance states that *"The IAIS considers that an insurer would generally be expected to decide how best to aggregate and account for the risks to the whole of its business. The determination of overall regulatory capital requirements by the internal model should consider dependencies within, as well as across, risk categories. Where the internal model allows for diversification effects, the insurer should be able to justify its allowance for diversification effects and demonstrate that it has considered how dependencies may increase under stressed circumstances"*.

586. Data used to build the internal model are one of the main drivers of its performance. As stated in ICP 17.14.4 Guidance *"Internal models need high-quality data in order to produce sufficiently reliable results. The data used for an internal model should be current and sufficiently credible, accurate, complete and appropriate. Hence, a 'statistical quality test' should examine the appropriateness of the underlying data used in the construction of the internal model"*. ICP 17.14.6 Guidance also deals with the use of external data specifying that *"… any data not specific to the insurer would need to be carefully considered before deciding it was appropriate for use as the basis for an insurer's 'statistical quality test'. Even where deemed appropriate, it may still be necessary to adjust the data to allow for differences in features between the data source and the insurer"*.

587. There is always a certain amount of expert judgement involved when selecting data for an internal model. To this end, ICP 17.14.7 Guidance states *that "In assessing suitability of data and of other inputs, eg assumptions, to the internal model, expert judgment should be applied and supported by proper justification, documentation and validation"*.

588. ICP 17.14.8 Guidance stresses the importance that *"The methodology should also be consistent with the methods used to calculate technical provisions"*.

589. Moreover, as stated in ICP 17.14.9 the *"statistical quality test should also include a review of the internal model to determine whether the assets and products as represented in the model truly reflect the insurer's actual assets and products. This should include an analysis of whether all reasonably foreseeable and relevant material risks have been incorporated, including any financial guarantees and embedded options. Insurers should also consider whether the algorithms used are able to take into account the action of management and the reasonable expectation of policyholders. Testing should include future projections within the model and to the extent practicable 'back-testing' (the process of comparing the predictions from the model with actual experience)"*.

Question 189. Is prerequisite 4 appropriate for additional reporting of internal model results during the monitoring period? Please explain.

9.2.3.7 Prerequisite 5: Calibration test

590. Building on ICP 17.15 the IAIG should *"… conduct a 'calibration test' to demonstrate that the regulatory capital requirement determined by the internal model satisfies the specified modelling criteria"*.

591. The ICP definition of calibration is different from the general definition of calibration used in statistics and actuarial science. For example, model calibration is often defined in statistics as the process of adjustment of the model parameters to obtain a model representation of the processes of interest that satisfies pre-agreed criteria (eg Goodness-of-Fit). As indicated in the ICP 17.15.2 Guidance the "calibration test" should be used by the IAIG to demonstrate that the internal model is calibrated appropriately to allow a fair, unbiased estimate of the capital required for the particular risk measure, level of confidence and time horizon specified by the supervisor. In the case of the ICS standard method, the calibration target is VaR 99.5% over a one-year time horizon.

592. Where an IAIG uses a different confidence interval (eg 99.7% in order to maintain a certain investment grade rating), risk measure (eg TVaR for Cat Risk) or time horizon (eg to ultimate) than the one set out for the ICS standard method capital requirement calculations, it may need to recalibrate its model to the ICS capital requirement target criterion (ie VaR 99.5% over a one year time horizon). Alternatively, the IAIG can provide quantitative evidence on how this outcome compares to the ICS target criterion.

Question 190. Is prerequisite 5 appropriate for additional reporting of internal model results during the monitoring period? Please explain.

9.2.3.8 Prerequisite 6: Use test and governance

593. Building on ICP 17.16, IAIGs need:

- "*… to fully embed the internal model, its methodologies and results, into the insurer's risk strategy and operational processes (the 'use test')*";
- their "*Board and Senior management to have overall control of and responsibility for the construction and use of the internal model for risk management purposes, and ensure sufficient understanding of the model's construction at appropriate levels within the insurer's organisational structure*". In particular, they would need to provide evidence that the insurer's Board and Senior management understand the consequences of the internal model's outputs and limitations for risk and capital management decisions; and
- "*… to have adequate governance and internal controls in place with respect to the internal model*".

594. The use test is, in effect, the evidence that should support the relationship of trust between the supervisor and the regulated group. This trust is needed for the supervisor to gain assurance that the internal model reflects the IAIG's view of its risks and is used in decision making, and not developed with the purpose of reducing regulatory capital.

595. Consistent with ICP 17.16.1 Guidance, the IAIG should demonstrate that its internal model is widely used and plays an important role in risk management and decision-making, at different levels of management in the organisation, and the assessment of the economic and solvency capital.

596. Moreover, as stated in ICP 17.16.5 Guidance *"The 'use test' is a key method by which the insurer can demonstrate that its internal model is integrated within its risk and capital management and system of governance processes and procedures"*. In other words, the IAIG must provide evidence that the internal model is fully embedded in the operational and organisational structure of the insurer and demonstrate that the model remains useful and is applied consistently over time.

597. Furthermore, an IAIG *"… should demonstrate to the supervisor that an internal model used for regulatory capital purposes remains useful and is applied consistently over time and that it has the full support of and ownership by the Board and Senior management"*.

598. Another key aspect of the use test is that according to ICP 17.16.6 Guidance the IAIG's Senior management is responsible for the design and implementation of the internal model and for ensuring the ongoing appropriateness of the model.

599. ICP 17.16.7 Guidance also notes that *"For a model to pass the 'use test' it would be expected that an insurer would have a framework for the model's application across business units. This framework should define lines of responsibility for the production and use of information derived from the model*".

600. ICP 17.16.8 Guidance stresses the importance of the governance, communication, challenge and understanding of the model *"An internal model should be subject to appropriate review and challenge so that it is relevant and reliable when used by the insurer. The key elements and results from the internal model should be understood by the key personnel within the insurer, including the Board, and not only by those who have constructed it. This understanding should ensure that the internal model remains a useful decision-making tool. If the internal model is not widely understood, it will not be achieving its purpose and adding*

value to the business. The 'use test' is key to ensuring the relevance of the internal model to the insurer's business".

Question 191. Is prerequisite 6 appropriate for additional reporting of internal model results during the monitoring period? Please explain.

9.2.3.9 Prerequisite 7: Documentation standards

601. Building on ICP 17.17 the IAIG should *"… document the design, construction and governance of the internal model, including an outline of the rationale and assumptions underlying its methodology"*. The documentation should be sufficient to demonstrate compliance with the regulatory validation requirements for internal models, including the statistical quality test, calibration test and use test.

602. The main aims of the documentation are:

- reduce key person risk;
- facilitate the supervisory review and approval of the model;
- facilitate Senior Management understanding;
- recognise the weaknesses of the model.

603. As stated in the ICP 17.17.1 Guidance, documentation should be thorough, detailed and complete enough to allow *"… a knowledgeable professional in the field to be able to understand its design and construction. This documentation should include justifications for and details of the underlying methodology, assumptions and quantitative and financial bases, as well as information on the modelling criteria used to assess the level of capital needed"*.

604. Moreover, according to ICP 17.17.2 Guidance, *"The insurer should also document, on an ongoing basis, the development of the model and any major changes, as well as instances where the model is shown to not perform effectively. Where there is reliance on an external vendor/supplier, the reliance should be documented along with an explanation of the appropriateness of the use of the external vendor/supplier"*.

Question 192. Is prerequisite 7 appropriate for additional reporting of internal model results during the monitoring period? Please explain.

9.2.3.10 Prerequisite 8: Absence of cherry-picking

605. According to ICP 17.12.4 Guidance, *"The IAIS supports the use of internal models where appropriate as they can be a more realistic, risk-responsive method of calculating capital requirements, but discourages any 'cherry-picking' practices by insurers"*.

606. From a supervisor's perspective, the possibility of mixing and matching internal models for some risks and businesses while using the standard method for the rest of the risks or businesses raises potential concerns about cherry picking. To help mitigate these concerns, consistent with ICP 17.12.14 Guidance, the IAIG should *"… justify why it has chosen to only*

use internal models for certain risks or business lines". To this end, the IAIG should provide in its self-assessment the rationale for the limited scope of the internal model.

Question 193. Is prerequisite 8 appropriate for additional reporting of internal model results during the monitoring period? Please explain.

9.2.3.11 Prerequisite 9: The resulting ICS capital requirement more appropriately reflects the risk profile of the insurer

607. According to ICP 17.12.15, *"an insurer should be required to justify the limited scope of the model and why it considers that using partial internal modelling for determining regulatory capital requirements is more consistent with the risk profile of the business than the standardised approach or why it sufficiently matches regulatory capital requirements"*.

Question 194. Is prerequisite 9 appropriate for additional reporting of internal model results during the monitoring period? Please explain.

9.2.3.12 Prerequisite 10: Explain how the partial internal model and standard method's results can be integrated

608. It is essential that the integration of the partial internal model and the standard method results is being carried out prudently and consistently to derive the overall ICS capital requirement. To this end, the IAIG should provide evidence that the partial internal model and standard method results can be integrated. This prerequisite is particularly relevant for IAIGs whose internal model construction does not follow a similar design to the standard method (eg risks have not been defined or split along similar lines to the standard method, the target criteria are different, etc.).

Question 195. Is prerequisite 10 appropriate for additional reporting of internal model results during the monitoring period? Please explain.

9.2.3.13 General comments

Question 196. Are there other prerequisites that should be met for additional reporting of internal model results during the monitoring period? Please explain.

Question 197. Are there other prerequisites that should be met for additional reporting of partial internal model results during the monitoring period? Please explain.

Question 198. Are there any further comments on the additional reporting of internal models during the monitoring period, which the IAIS should consider? If "yes", please explain with sufficient detail and rationale.

Annex 1 Example Methodology for an ISF

1. The following describes an example of a possible prescribed methodology that colud be considered for determining an ISF for non-life Premium risk. The notations are as follows:

- accident years are denoted by consecutive numbers starting with 1 for the first accident year for which data are available;
- *T* denotes the latest accident year for which data are available
- for all accident years, the aggregated losses in segment s in a particular accident year t are denoted by y for all accident years, the aggregated losses in segment *s* in a particular accident year *t* are denoted by y_t;;
- for all accident years, the premiums earned in segment s in a particular accident year t are denoted by x_t.

2. The example ISF is calculated as the 99.5% percentile of a log-normal distribution:

$$ISF = \frac{e^{N_{99.5\%}\sqrt{\ln(\sigma^2+1)}}}{\sqrt{\sigma^2+1}} - 1;$$

where $N_{99.5\%}$ is the 99.5% quantile of the standard distribution;

and σ represents the standard deviation estimated

$$\sigma = \hat{\sigma} \times \sqrt{\frac{T+1}{T-1}};$$

with

$$\hat{\sigma} = \exp(\hat{\gamma} + \frac{0{,}5T + \sum_{t=1}^{T} \pi_t \ln\left(\frac{y_t}{x_t}\right)}{\sum_{t=1}^{T} \pi_t};$$

where

$$\pi_t = \frac{1}{\ln\left[1 + \left((1-\hat{\delta})\frac{\bar{x}}{x_t} + \hat{\delta}\right)e^{2(\hat{\gamma})}\right]},$$

$$\bar{x} = \frac{1}{T}\sum_{t=1}^{T} x_t\,;$$

and $\hat{\gamma}$ and $\hat{\delta}$ the values that minimise the following amount:

$$\sum_{t=1}^{T} \pi_t \left[\ln\left(\frac{y_t}{x_t}\right) + \frac{1}{2\pi_t} + \hat{\gamma} - \ln(\hat{\sigma})\right]^2 - \sum_{t=1}^{T} \ln(\pi_t).$$

Annex 2 Japanese GAAP Held for Reserves Operational Criteria

1. The following operational criteria is being considered for assets that are included in the AOCI adjustment under GAAP Plus. Similar criteria are also being considered for the Middle Bucket of the MAV Three-Bucket Approach. See GAAP Plus Section 9.1.2

a. The managed portfolio of assets and liabilities are identified within the GAAP Plus AOCI adjustment.

b. The duration of assets and liabilities portfolio satisfies the following formula.

D(L) / D(A) = Kd

where:

$0.8 \leqq Kd \leqq 1.25$

D(L) = duration of liabilities portfolio expressed in years. AOCI adjustment may be used.

D(A) = duration of assets portfolio expressed in years (duration of non-eligible assets should be deemed as 0). AOCI adjustment may be used.

c. Management (eg the Board of Directors, executive committees) documents assets and liabilities duration matching policy including:

i. Standards to set up portfolios of assets and liabilities;

ii. Overall investment policy and asset allocation plan;

iii. Metrics to calculate duration of portfolios assets and liabilities, including assumptions (eg lapse ratio): and,

iv. Metrics to calculate market value of portfolio assets and liabilities.

d. Management (eg the Board of Directors, executive committees) monitors and approves for portfolio assets and liabilities matching regularly.

Glossary

Term	Acronym	Definition / 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
2016 ICS Consultation Document	2016 ICS CD	http://www.iaisweb.org/page/supervisory-material/insurance-capital-standard
2017 Field Testing		See "2017 Quantitative Field Testing Package" at http://www.iaisweb.org/page/supervisory-material/insurance-capital-standard
2017 Technical Specifications		See "Public 2017 Field Testing Technical Specifications" also known as the "Instructions for the May 2017 Quantitative Data Collection Exercise," at http://www.iaisweb.org/page/supervisory-material/insurance-capital-standard
2018 Field Testing		See "2018 Quantitative Field Testing Package" at http://www.iaisweb.org/page/supervisory-material/insurance-capital-standard
2018 Technical Specifications		See "Public 2018 Field Testing Technical Specifications" also known as the "Instructions for the May 2018 Quantitative Data Collection Exercise," at http://www.iaisweb.org/page/supervisory-material/insurance-capital-standard
Accumulated Other Comprehensive Income	AOCI	*See section 9.1 on "GAAP with Adjustments"*
Arbitrage-Free Dynamic Nelson-Siegel Model	AFNS Model	See section 7.12 on "Interest Rate risk"
Asset and Liability Management	ALM	

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 5.2 on "Margin Over Current Estimate (MOCE)"*
Cost of Capital MOCE	C-MOCE	*See section 5.2.1.1 on "Cost of Capital MOCE (C-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 6.4 on "Capital elements other than financial instruments" and section 8 on "Tax Treatment"*
Deferred Tax Liabilities	DTLs	*See section 6.4 on "Capital elements other than financial instruments" and section 8 on "Tax Treatment"*
Dynamic Nelson-Siegel Model	DNS Model	See Annex 2 of ICS Version 1.0 for extended field testing at http://www.iaisweb.org/page/supervisory-material/insurance-capital-standard
Financial Stability Board	FSB	http://www.fsb.org/
GAAP with Adjustments	GAAP Plus	*See section 9.1 on "GAAP with Adjustments"*
Generally Accepted Accounting Principles	GAAP	https://en.wikipedia.org/wiki/Generally_accepted_accounting_principles http://www.accountingfoundation.org/gaap
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/ http://www.fsb.org/2016/11/fsb-publishes-2016-g-sii-list/ http://www.fsb.org/2017/11/review-of-the-list-of-global-systemically-important-insurers-g-siis/
Group-Wide Supervisor	GWS	
Held for Insurance Reserves	HFR	*See section 9.1 "GAAP Plus"*
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
ICS Version 1.0 for extended field testing		See "ICS Version 1.0 for extended field testing" at 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 2018 at http://www.iaisweb.org/page/supervisory-material/common-framework
Kuala Lumpur Agreement	KL Agreement	See "Implementation of ICS Version 2.0" at http://www.iaisweb.org/page/supervisory-material/insurance-capital-standard
Last Observed Term	LOT	*See section 5.1.1 on "Discounting"*
Long Term Forward Rate	LTFR	*See section 5.1.1 on "Discounting"*
Management Actions		*See section 7.5 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 5.1 on "Market-adjusted valuation (MAV) approach"*
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/
Prescribed Capital Requirement	PCR	A solvency control level above which the supervisor does not intervene on capital adequacy grounds. See ICP 17.4
Prudence MOCE	P-MOCE	See section 5.2.1.2 on "Prudence MOCE (P-MOCE)"
Reference date		The balance sheet date on which the ICS is calculated
Smith-Wilson Technique		*See section 5.1 on "Market Adjusted Valuation"*
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
Time Value of Options and Guarantees	TVOG	*See section 9.1 "GAAP Plus"*
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 Groups	*See section 1 on "Introduction"*
Weighted Average of Multiple Representative Portfolios	WAMP	*See section 5.1.1.2 on "Adjustments to the base yield curve"*