INTERNATIONAL ASSOCIATION OF INSURANCE SUPERVISORS

Public

Risk-based Global Insurance Capital Standard

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Public Consultation Document

Comments due by 16 February 2015

About the IAIS

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

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

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

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1. Introduction

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

   18 July 2013 FSB statement:

   > "The IAIS will develop, and the FSB will review, a work plan to develop a comprehensive, group-wide supervisory and regulatory framework for Internationally Active Insurance Groups (IAIGs), including a quantitative capital standard. The timeline for the finalisation of the framework will be agreed by the FSB by end 2013."

   6 November 2014 FSB Statement:

   > "When finalised, the risk based group-wide global Insurance Capital Standard (ICS) is expected to replace the BCR (Basic Capital Requirements) in its role as the foundation for higher loss absorbency requirements."

2. This Consultation Document is the first step in a multi-year process to develop and finalise the ICS for Internationally Active Insurance Groups (IAIGs) and Global Systemically Important Insurers (G-SIIs). A separate consultation document on Higher Loss Absorbency (HLA) requirements for G-SIIs will be issued in 2015.

3. The purpose of this Consultation Document is to solicit feedback from stakeholders on the proposed ICS. This includes feedback on valuation, qualifying capital resources, an example of a standard method for determining the ICS capital requirement as well as exploration of potential other methods for determining the ICS capital requirement.

4. In order to develop a globally comparable ICS, it is necessary to prioritise the following: an example of a standard method for determining the ICS capital requirement, a valuation approach and the definition of qualifying capital resources. This Consultation Document focuses on these components and the IAIS will be guided by the principles for ICS development (as set out in Section 2).

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

[1] http://www.financialstabilityboard.org/publications/r_130718.pdf

[2] http://www.financialstabilityboard.org/wp-content/uploads/pr_141106a.pdf

6. By virtue of the fact that the ICS is a group-wide, consolidated insurance capital standard, it is not intended as a legal entity requirement and is not intended to affect or replace existing arrangements or capital standards for legal entity supervision in any jurisdiction. If a jurisdiction references the ICS in the development of its domestic solvency framework that is the choice of that jurisdiction.

7. Once finalised and agreed, the ICS will be a measure of capital adequacy for IAIGs and G-SIIs. It will constitute the minimum standard to be achieved and one which the supervisors represented in the IAIS will implement or propose to implement taking into account specific market circumstances in their respective jurisdictions.

1.1 Providing feedback

8. Feedback on this Consultation Document is invited by 16 February 2015. Feedback received by this date will enable the IAIS to enhance the development of field testing technical specifications. The IAIS is seeking answers to the specific questions listed in the consultation as well as on each section of the document.

9. Comments are most helpful if they:

   a) Are clear as to the issue being addressed

   b) Provide a clear rationale and basis for comments made

   c) Describe alternatives proposed for consideration.

10. Comments must be sent electronically via the "Consultations" page of the IAIS website – http://www.iaisweb.org/. All comments will be published on the IAIS website unless a specific request is made for comments to remain confidential.

1.2 Next steps

11. The IAIS will carefully consider comments from Members and stakeholders on this Consultation Document and will revise the contents proposed within where appropriate.

12. Field testing throughout 2015 will assume a critical role in the development of the ICS as the example standard method for calculating the ICS capital requirement and the valuation approaches are assessed in 2015.

13. The broad timetable can be summarised as follows:

Date	Activity
December 2014 onwards	Preparation of technical specifications for the second quantitative field testing
16 February 2015	Consultation period for this Consultation Document closes
End-April 2015	Launch of second quantitative field testing
End-June 2015	Second quantitative field testing information submitted to IAIS
July/August 2015	Analyses of second quantitative field testing submissions
December 2015	Consultation on ComFrame, including ICS, revised after second quantitative field testing
End-April 2016	Launch of third quantitative field testing
End-June 2016	Third quantitative field testing information submitted to IAIS
July/August 2016	Analyses of third quantitative field testing submissions
December 2016	Finalisation of the ICS
From 2017	Start of ICS confidential reporting to supervisors
December 2017	Consultation on ComFrame, including ICS, adopted in December 2016 and refined after first year of reporting to supervisors
Fourth quarter 2018	ComFrame, including ICS, adopted by IAIS Members at General Meeting

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

2 Insurance Capital Standard

15. The ICS is part of ComFrame, a comprehensive framework addressing qualitative as well as quantitative requirements for IAIGs. This framework may evolve and be refined over time.

16. The ICS must necessarily achieve a greater degree of comparability than achieved through implementation of the Insurance Core Principles (ICPs). The ICPs are general in nature and are designed to be implemented in a wide variety of contexts in a proportionate manner. This intent is best described in the Assessment Methodology set out in the 2011 ICPs:

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

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

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

2.1 Principles for the development of the ICS

19. The principles set forth in Table 1 were published in September 2014 and will be followed in the development of the ICS.

Table 1. ICS Principles

ICS Principle 1 – The ICS is a consolidated group-wide standard with a globally comparable risk-based measure of capital adequacy for IAIGs and G-SIIs. The standard incorporates consistent valuation principles for assets and liabilities, a definition of qualifying capital resources and a risk-based capital requirement. The amount of capital required to be held and the definition of capital resources are based on the characteristics of risks held by the IAIG irrespective of the location of its headquarters. **ICS Principle 2 - The main objectives of the ICS are protection of policyholders and to contribute to financial stability.** The ICS is being developed in the context of the IAIS Mission, which is to promote effective and globally consistent supervision of the insurance industry in order to develop and maintain fair, safe and stable insurance markets for the benefit and protection of policyholders and to contribute to global financial stability. **ICS Principle 3 – ICS is the foundation for HLA for G-SIIs.** Initially, the 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.** **ICS Principle 7 – The ICS promotes prudentially sound behaviour while minimising inappropriate procyclical 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 procyclical 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.

Question 1. Are these principles appropriate as the foundation for a global consolidated insurance capital standard? Are any enhancements or modifications needed to the ICS Principles?

20. In line with ICS Principles 1 and 5, the ICS will be a globally comparable risk-based measure that aims at comparability of outcomes across jurisdictions. Details of how comparability will be assessed will be set out in a subsequent consultation on the ICS after the IAIS has considered and deliberated on feedback from this current consultation.

Question 2. What does comparability mean for the ICS from your perspective?

2.2 Context and overview

21. This document is structured in a way that sets out all of the components of the ICS. There are three major components of the ICS:

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

    b) Qualifying capital resources

    c) ICS capital requirement.

22. The definition of qualifying capital resources sets out criteria and specifications that consider policyholder protection and loss absorbency; these are set out in Section 6. All potential capital resources are assessed against this definition to determine whether they are qualifying capital resources.

23. The ICS capital requirement, calculated using a risk-based method, is the amount of qualifying capital resources needed to meet the specified target criteria. Section 7 sets out general architecture of the ICS capital requirement no matter what method is chosen to calculate components of the ICS capital requirement. Section 8 sets out the different approaches for calculation methods. Section 9 then provides an example of a standard method using the market-adjusted valuation approach. Finally Section 10 discusses other calculation methods which the IAIS may consider. The ICS capital adequacy measure is determined by comparing the amount of qualifying capital resources to the ICS capital requirement using the following ratio:

ICS Ratio = qualifying capital resources / ICS capital requirement

3 Scope of application

24. The ICS will apply to all IAIGs and to all G-SIIs. G-SIIs may not necessarily be insurance groups that meet the criteria to be IAIGs; however, ComFrame and therefore the ICS applies to G-SIIs as required by the G-SII Policy Measures published on 18 July 2013.[3]

25. An insurance group qualifies as an IAIG if it meets the following criteria:[4]

    a) international activity criterion

    i. premiums are written in three or more jurisdictions

    and

    ii. percentage of gross premiums written outside the home jurisdiction is at least 10% of the group's total gross written premium

    and

    b) size criterion (based on a rolling three-year average)

    i. total assets are at least USD 50 billion

    or

    ii. gross written premiums are at least USD 10 billion.

26. An IAIG may be:[5]

    a) An insurance group that only conducts insurance business

    b) A financial conglomerate dominated by insurance business that also includes other financial business such as banking or securities related activities

    c) Part of a financial conglomerate dominated by other financial business

    d) Part of a diversified conglomerate including non-financial activities.

27. Involved supervisors have discretion in applying the criteria to determine whether an insurance group qualifies as an IAIG.[6]

28. G-SIIs are one class of global systemically important financial institutions (G-SIFIs). G-SIFIs are defined by the FSB as "institutions of such size, market importance, and global interconnectedness that their distress or failure would cause significant dislocation in the

[3] Available on the IAIS website http://www.iaisweb.org.

[4] See 2014 ComFrame Draft Module 1 Element 1 on the IAIS website for more details.

[5] See 2014 ComFrame Draft Guideline M1E1-1-1-2.

[6] See 2014 ComFrame Draft Parameter M1E1-1-3 and relevant guidelines.

global financial system and adverse economic consequences across a range of countries."

29. The IAIS expects that approximately 50 IAIGs may be identified by supervisors, including the current 9 G-SIIs.

30. For the remainder of this document, G-SIIs and IAIGs will be referred to as "IAIGs."

4 Scope of group

31. The ICS will form part of ComFrame; therefore, the scope of group set out in ComFrame is an important starting point. Below are the relevant parameters and standards from Module 1 Element 3 of the 2014 ComFrame Draft:[7]

Parameter M1E3-1-1 The group-wide supervisor leads the process of determining the scope of the group to be subject to supervision. If the involved supervisors cannot reach a joint decision within a timely manner, the group-wide supervisor is responsible for making the decision.	*Guideline M1E3-1-1-1* *Involved supervisors should consult and agree on the scope of group-wide supervision of the IAIG to ensure that there are no gaps and no unnecessary duplication in regulatory oversight among jurisdictions.* *Guideline M1E3-1-1-2* *A practical method to determine the entities to capture within the scope of group-wide supervision is to start with entities included in the consolidated accounts. Entities that are not included in consolidated accounts should be included if they are relevant from the perspective of risk (non-consolidated entities also subject to supervision) or control. The entities may either be incorporated or unincorporated.* *Guideline M1E3-1-1-3* *In considering the risks to which the group is exposed it is important to take account of those risks that emanate from the wider group within which the IAIG operates.* *Guideline M1E3-1-1-4* *Individual entities within the group may be excluded from the scope of group-wide supervision if the risks from those entities are negligible.* *Guideline M1E3-1-1-5* *The exclusion or inclusion of entities within the scope of group-wide supervision should be regularly re-assessed.*

32. The ICS is a consolidated group-wide standard (see ICS Principle 1). The ICS will replace the BCR as a basis for HLA (see ICS Principle 3). The IAIS concluded in June 2014 that "the scope of BCR and ICS needs to be the same" and also that "the scope of calculation of the ICS should include non-insurance financial activities." This Consultation Document focuses on the insurance activities of IAIGs and G-SIIs. The IAIS is currently undertaking a project to review the group-wide supervision aspects of the ICPs, with a consultation expected early in the third quarter of 2015. This work will inform the future development of ComFrame and therefore the ICS which sits within ComFrame, including the level within the group at which the ICS will be applied.

[7] Available on the IAIS website http://www.iaisweb.org.

33. This Consultation Document focuses on the insurance activities of IAIGs and G-SIIs. As per the BCR, the intention is that non-insurance financial activities will be addressed having regard to any relevant global capital standard for those activities if one exists. As a "basic" requirement, the BCR adopted basic sectoral requirements where appropriate for non-insurance activities. As the ICS is intended to be more risk sensitive than the BCR, sectoral requirements that are integrated in the ICS should be commensurately more risk-sensitive. For example, the BCR requirement for securities and derivatives held outside of insurance entities or regulated banks were based on the Basel III leverage ratio framework.[8] To add additional risk sensitivity, the ICS requirements for these assets would be based on the Basel capital framework.

34. In cases where risks are not captured by sectoral capital standards, risks may be addressed through the ICS capital requirement or other measures in the proposed ICS. The capital treatment of non-insurance financial activities will be expanded upon in future consultation processes.

Question 3. Should the IAIS consider integrating the measurement of some or all risks across different sectors?

[8] http://www.bis.org/publ/bcbs270.pdf.

5 Valuation

35. The balance sheet of an IAIG used for ICS purposes may provide at least some, if not most, 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.

36. A key issue affecting the issue of valuation and the overall design of the ICS is the pursuit of a total balance sheet approach[9] in line with the ICPs. A total balance sheet approach should lead to the interactions between assets and liabilities, as circumstances change, being reflected in both qualifying capital resources and the ICS capital requirement.

37. In order 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. Regulatory regimes vary in the degree of prudence they include in the valuation of insurance liabilities (e.g. margins), in the valuation of invested assets or other assets and liabilities, and in capital requirements.[10] These differences affect both the measurement of qualifying capital resources and the ICS capital requirement.

38. ICS Principle 7 requires a valuation approach that prompts supervisory attention when appropriate by revealing long-term trends but in a manner that does not over-emphasise short-term volatility. Prudentially sound behaviour by IAIGs is promoted where the ICS does not encourage them to take actions in a stress event that exacerbate the impact of that event (for example fire sales of assets) or to focus on short term goals to the detriment of appropriate long term objectives, for instance, hedging to maximise capital ratios rather than hedging to optimise appropriate economic objectives. Stability in valuation is important in that context. In addition, IAIGs should not be incentivised to take excessive risks, for example high sales of products that expose the IAIG to significant risks in a downturn or provide a short-term uplift in qualifying capital resources that may not be sustainable over time.

39. When testing different valuation approaches for the first quantitative field testing exercise and for BCR development, field testing volunteers were asked to produce data based on three different consolidated balance sheets (see Annex 2 for further detail):

    a) Generally Accepted Accounting Principles Basis (GAAP valuation approach) – reporting assets and liabilities valued according to the existing accounting rules defined in the jurisdictional GAAP applicable to each volunteer on an unadjusted basis

[9] 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.

[10] 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.

b) Generally Accepted Accounting Principles Basis with specified valuation for material assets and insurance liabilities (Market-adjusted approach[11]) – the IAIS specified that the valuation of invested assets should be at fair value and specified the basis of valuation of insurance liabilities. The IAIS specification covered the majority of assets and liabilities on a volunteer's balance sheet. Within this approach, volunteers were asked to value insurance liabilities using both their own yield curves and IAIS specified yield curves

c) Economic valuation approach – volunteers were asked to report the figures as derived using the economic model used by each group.

40. The IAIS analysed results of these different options on the bases of the following criteria in the technical specifications for first quantitative field testing in 2014:

a) Comparability – assessment on whether the IAIG's balance sheets are comparable across jurisdictions

b) Risk Sensitivity – assessment as to how appropriately the Volunteer IAIGs' balance sheets respond to stresses over time.

41. Details about the results of the first quantitative field testing exercise are shown in Annex 3.

42. Informed by the field testing results and other considerations the following decision of the IAIS has determined the way forward on valuation[12] which does not prejudge any aspect of the ICS:

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

43. The example of a standard method to determine the ICS capital requirement referred to in the decision above can be found in Section 9. In addition, it was decided that the economic valuation approach should no longer be field tested.

44. ICS development will include consideration of both costs and benefits. Future field testing exercises will collect data on the potential incremental costs to IAIGs and supervisors associated with the implementation of the valuation approaches tested.

45. Segmentation of asset and liability exposures is an important element of the ICS. Where factors are used to calculate the ICS capital requirement, segments must be sufficiently granular to ensure the requirement is adequately risk sensitive. Where stresses are used to calculate the ICS capital requirement, segmentation, while less central, is important to

[11] Within the paper *Basic Capital Requirements for Global Systemically Important Insurers* (23 October 2014), available on www.iaisweb.org, the market-adjusted valuation approach is discussed in Section 5 and Annex C.

[12] Executive Committee Summary Record, 22 October 2014, Amsterdam.

allow stakeholders to identify the requirements associated with products, investments or business lines. During the development of the ICS, sufficient segmentation of exposures is necessary to determine and test approaches to setting the ICS capital requirement. ICS segmentation criteria will seek the least granular definitions possible while maintaining risk sensitivity where the exposures in each segment have common underlying risk drivers and reasonably consistent, stable reactions to those drivers. Segmentation may incorporate combinations of dimensions, including but not limited to:

a) Product characteristics/Peril

b) Geographic location

c) Time horizon/Tail

d) Loss attachment point/Subordination level.

5.1 Market-adjusted approach to valuation

46. The market-adjusted approach as tested in 2014 requires that various IAIS prescribed adjustments be made to significant components within jurisdictional GAAP accounting valuations, including the requirement to use current estimates[13] for insurance liabilities, the reclassification of margins from insurance liabilities to qualifying capital resources as explained in paragraph 47, use of fair values for financial instruments and the use of an IAIS prescribed yield curve to discount the insurance liabilities (the IAIS also requested volunteers to value their insurance liabilities using their own yield curves). A description of the market-adjusted valuation approach as tested in 2014 is available within Annex 1 and that approach will be used with refinements as the initial basis for valuation in the development of an example standard method for the ICS. The market-adjusted approach would be transparent and verifiable to supervisors.

5.1.1 Margin Over Current Estimate (MOCE)

47. In many GAAP regimes, margins to add a degree of prudence are included in insurance liabilities but differences in how these margins are calculated are one of the key reasons for the lack of comparability in the valuation of insurance liabilities. For the purposes of the market adjusted valuation approach, the IAIS proposed, during the 2014 field testing, that where margins exist, whether explicitly or implicitly calculated, they should be removed from insurance liabilities and treated, on a provisional basis, as a component of qualifying capital resources. Such margins were labelled Margin Over Current Estimate, or MOCE, and will thereafter be referred to as GAAP-MOCE. The GAAP-MOCE as defined in the 2014 field testing was essentially a balancing item between the value of insurance liabilities calculated according to jurisdictional GAAP and the current estimate as specified in field testing. When publishing the BCR for G-SIIs in October 2014, the

[13] In other contexts, current estimate may be called a best estimate or the statistical mean (commonly referred to as the "average") of a range of possible values. 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."*

IAIS acknowledged that the treatment of these margins will be further investigated during the development of the ICS.[14]

48. For purposes of the ICS, the introduction of a "consistent and comparable MOCE" different and in the first instance independent from the GAAP-MOCE should be considered. If this were adopted, the market adjusted value of the insurance liabilities may then be the sum of the current estimate and the newly defined "consistent and comparable MOCE." Standard 14.9 in the ICPs is a starting point for determining a comparable MOCE (thereafter in this document referred simply as MOCE) and the definition does differ from the one used in field testing.

    ICP Standard 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.

49. When developing a MOCE, care will be taken to ensure that the specification appropriately fits with the calibration and time horizon of the ICS capital requirement. The development of a consistent MOCE methodology could be based on the current estimate liabilities independent of the margins in GAAP liabilities, thus enhancing comparability of insurance liabilities across all IAIGs. To ensure that the MOCE is consistent and comparable, it is important to ensure that calculating the MOCE is based on economic considerations. The introduction of a consistent margin could fulfil one or more different purposes such as:

    a) *Margin for prudence.* The introduction of a certain degree of prudence in the calculation of insurance liabilities, to reflect the inherent uncertainty (as per ICP Standard 14.9) related to all relevant future cash flows that arise in fulfilling insurance obligations and two examples of this are amounts in excess of the current estimate such that:

        i. The amount of assets of the IAIG supporting insurance liabilities is sufficient to meet the policyholder obligations ("own fulfilment") at a particular confidence level either when the IAIG is continuing to operate normally or under a "gone concern" situation

        ii. Product sales do not result in the recognition of future profit.[15]

    b) *A margin to recognise transfer value.* The introduction of an additional amount above the current estimate considered necessary for the transfer of the insurance liabilities to another entity. Given the uncertainty attached to insurance liabilities, and the absence of available hedging options, a third party is expected to require assets in an amount greater than the current estimate to take over the commitment to pay policyholder obligations. This may occur in two circumstances:

        i. When the capital resources of the original insurer have been exhausted to a level below that necessary to ensure it can continue its normal operations. To ensure

[14] *Basic Capital Requirements for Global Systemically Important Insurers* (23 October 2014), paragraph 54.

[15] This may dissuade IAIGs from attempting to improve their capital position by selling policies that may not prove to be profitable in the long-run or during times of stress.

policyholder protection, the current estimate and the MOCE at the end of the time horizon would be calculated for a distressed situation of the IAIG.

ii. Under normal circumstances. The current estimate and the MOCE at the end of the time horizon would then be calculated for a situation where the IAIG is not under stress. Under this alternative, any additional margin necessary to transfer the insurance liabilities under a distressed situation could be included in the ICS capital requirements.

50. To fulfil either the transfer to a third party or the "own fulfilment" purposes, the MOCE could be calculated as the expected cost of ICS capital requirement for future time periods over the lifetime of the insurance liabilities. The transfer or the "own fulfilment" might occur in different situations, which in general lead to different MOCE.

51. To reflect the inherent uncertainty related to future insurance cash flows, the MOCE could also be calculated according to a quantile approach.

52. If the IAIS were to develop a GAAP with adjustments valuation basis (please see section 5.2 for further discussion on a GAAP with adjustments valuation basis), the treatment of margins (e.g. as part of insurance liabilities or as part of capital resources) and the comparability of the valuation of insurance liabilities would have to be addressed.

53. If a consistent MOCE is developed for the purposes of the ICS, there may well be a residual amount of GAAP insurance liabilities in excess of current estimate plus consistent MOCE. This amount may continue to be treated as part of qualifying capital resources. Regardless of whether a consistent MOCE is developed, the recognition of margin or residual margin in qualifying capital resources needs further consideration. Please see Section 6 for considerations about qualifying capital resources.

Question 4. Should the IAIS attempt to develop a consistent and comparable MOCE? Why or why not?

Question 5. If the IAIS were to develop a consistent and comparable MOCE should it fulfil one of the possible purposes listed in paragraph 49 above? If yes, please explain. If no, what should be the purpose of the MOCE? Please explain.

Question 6. If the IAIS were to develop a consistent and comparable MOCE, what principles should underlie its development?

Question 7. Depending on your answers to the above three questions, what calculation methodology should be applied for the MOCE?

5.1.2 Other refinements to the market-adjusted valuation approach

54. In developing the market-adjusted valuation approach, the IAIS considered an initial set of principles for the valuation adjustments.[16] The continued appropriateness of these

[16] Initial principles for valuation adjustments included:

principles and valuation basis will be investigated further through field testing to be carried out by the IAIS for the ICS. This testing will continue to focus on the total balance sheet and on understanding the impact of stresses on that balance sheet.

55. In addition, the IAIS will consider, develop and field test further refinements and alternative approaches to various components within the market-adjusted valuation approach, including:

a) The method for determining the IAIS yield curve

b) The specification of contract boundaries (see Annex 1 for the existing definition)

c) The valuation of options and guarantees, for example interest rate guarantees embedded within insurance products, for which IAIGs may not currently be using full stochastic valuation techniques

d) The valuation of future bonuses and other discretionary benefits for products that have these features (e.g. participating policies)

e) Clarification of the relationship between current estimate as defined by the IAIS and "best estimate" as defined in accounting and actuarial standards

f) Deferred taxes.

Question 8. Should the IAIS develop an alternative definition of contract boundaries? If so, please provide such a definition with rationale for that alternative definition.

Question 9. If such alternative definition is adopted what would be the impact on the definitions of ICS capital requirement and qualifying capital resources?

Question 10. Are there any other aspects of the market-adjusted approach that would benefit from further enhancement or greater specificity or other changes in any way?

Question 11. What refinements, if any, should be made to the market-adjusted approach as currently formulated in regards to the treatment of long-term business?

a) Total balance sheet approach
b) Where assets and liabilities are matched, market volatility should have no impact on the net assets of the IAIG
c) For invested assets use fair value measurement as a basis for valuation
d) All values to be based on either observed market values or an estimate of the future cash flows related to the invested asset and insurance liabilities
e) ICP 14 standards to apply – but the MOCE to be separately identified and counted as a component of the capital resources of the IAIG
f) No recognition of changes in own credit standing as per ICP 14.

5.1.3 IAIS yield curve

56. The main objective of providing IAIS specified discount curves is comparability. As such, the approach chosen for the first quantitative exercise did not pre-empt the future development of alternative comparable approaches to discounting the current estimate that may better reflect the long-term nature of insurance liabilities and that could be eventually used as part of the IAIS standard. That applies to both the mechanics of the curve as well as any factors used in the calculation for the purposes of the field test.

57. A key issue is the method of determining the IAIS yield curve. The adjustment to risk free yield curves in the 2014 field testing exercise was grouped in three different buckets: (1) adjustment for currency/jurisdiction identity, (2) adjustment for currency unions and (3) adjustment for markets with small corporate bond markets.

58. The basis for the adjustment was an investment grade corporate bond or broad market index (i.e. basket of liquid bonds with a credit rating from AAA to BBB), where they were available.

59. The adjustment was calculated as a fixed percentage upward shift and was based on the 10 year unadjusted rate (where available).[17] Forty percent of the actual corporate bond spread was used for the adjustment.[18] The percentage adjustment that was applied to the curve was then relative to the (10 year) basic risk free rate. The adjustment was capped at the absolute spread as calculated at 10 years.

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

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

*Weight_Govt * Relevant_Spread_Govt +Weight_Corp * Relevant_Spread_Corp.*

61. For markets where a number of indicators (e.g. lack of index, low amount outstanding, few high quality bonds) suggested that the corporate bond market does not allow considerable investments by IAIGs, a simple assumption was made that the adjustment would be 50 basis points. For future field testing exercises, further investigation will likely be undertaken on the development of the local corporate bond markets.

[17] The reason for using the 10 year rate as a basis for the adjustment is that in order to be representative, a corporate bond index is needed that is liquid and largely representative of the market (i.e. covers a sufficiently large number of bonds).

[18] This spread adjustment was universal and no distinction was applied among the products to which it is applied. For example, even a product that could be surrendered at any time without penalty applied the same curve. This was done as a simplification. The IAIS will evolve its approach to determining yield curves with particular consideration of long-term guaranteed products.

Question 12. What enhancements could be made to the IAIS prescribed yield curve used to discount insurance liabilities? In particular, what enhancement could be made to further consider procyclicality with reference to ICS Principle 7?

Question 13. Is the methodology for determining the IAIS yield curve under the market-adjusted approach appropriate for and consistent with the business models of insurers that write long-term business? If not, how should it be adjusted? Please explain.

5.2 GAAP with adjustments approach to valuation

62. As outlined in paragraph 42, the IAIS will use the market-adjusted valuation approach as the initial basis to develop an example of a standard method in the ICS. The GAAP valuation approach data will be collected. Reconciliation between the market-adjusted valuation approach and GAAP valuation approach will be requested of the participating IAIGs. This will be used to explore and, if possible, develop a GAAP with adjustments valuation approach.

63. GAAP in this context is defined as the basis of accounting that has been determined by the relevant accounting standard setter in each jurisdiction for audited, general-purpose financial reporting. It would include reporting on the basis of International Financial Reporting Standards (IFRS) as promulgated by the International Accounting Standards Board (IASB) in those jurisdictions that have adopted IFRS, as well as other comprehensive bases of accounting as authorised in jurisdictions that have not adopted IFRS, such as US GAAP as promulgated by the Financial Accounting Standards Board (FASB) in the United States, Japanese GAAP, etc. For mutual insurers in the United States that are not required to report on the basis of US GAAP, statutory accounting principles as promulgated by state insurance supervisors would be considered to be a form of GAAP. Similar situations may also exist for insurers in other jurisdictions.

64. On the surface, the market-adjusted and the GAAP with adjustments approaches sound similar, i.e. both start with an IAIG's GAAP balance sheet and make certain adjustments. However, depending upon an IAIG's jurisdictional GAAP, the nature and the magnitude of adjustments made can be quite different.[19] For example, the market-adjusted approach cannot be attained through incremental adjustments made to most insurance liabilities that are reported under US GAAP as the market-adjusted valuation basis is a completely different construct which requires determination of a current estimate liability from the "ground up" using a different valuation system and methodology.

65. Further to this example and subject to the provisions of proportionality within the market-adjusted approach (see Annex 1, paragraph 29), a requirement to use stochastic methods to determine current estimate insurance liabilities under that approach would be in contrast to the more prevalent use of deterministic reserving methods in some jurisdictions. These methods for reserving are not only conceptually different, they may require completely different techniques, systems and experience.

[19] For mutual companies such as those in the United States that do not prepare consolidated GAAP financials, additional adjustments to audited statutory financial statements would be necessary in order to develop a comparable GAAP with adjustments balance sheet.

66. Thus, the intent of the effort to develop a GAAP with adjustments approach is to enable IAIGs to determine comparable capital needs using local jurisdictional GAAP as a starting point, with incremental and quantifiable adjustments made therefrom. If unadjusted local jurisdictional GAAP could provide methodologies fit for purpose for the ICS then the IAIS would be able to utilise jurisdictional GAAP as a valuation basis. If adjustment can be made to make local jurisdictional GAAP fit for purpose as a valuation basis for ICS, or in the future, jurisdictional GAAP does converge and develop so that it is fit for purpose as a valuation basis, then this is likely to reduce costs for regulated insurance entities, and thereby policyholders.[20]

67. Under a GAAP with adjustments approach, the necessary adjustments would be transparent and verifiable to supervisors, and based to the extent possible on amounts, systems, processes (e.g. loss recognition testing used under some jurisdictional GAAPs, existing or modelled values to the market already contained in the reporting to the supervisors either at legal entity level and/or group level) and rigorous controls that support reported GAAP amounts. Through field testing, the IAIS will continue to evaluate whether a GAAP with adjustments approach could serve as an appropriate, comparable and reasonable approach for measuring an IAIG's capital resources and exposures to material risks, and reflect risk sensitivity without introducing artificial volatility and procyclicality.

68. As noted above, an outstanding issue for field testing involves the evolving nature and state of convergence of global accounting standards for insurance contracts, especially given the planned adoption of the ICS by the IAIS at the end of 2018. While significant differences in accounting rules continue to persist globally, the IAIS will continue to explore whether a GAAP with adjustments approach will be able to address material differences through appropriate adjustments and provide the flexibility to adapt to prospective changes in GAAP rules.

69. Potential IAIGs involved in field testing currently prepare external financial reporting on the basis of one of four GAAPs: IFRS, Japanese GAAP, US GAAP or US SAP (the latter in the case of US mutual insurance companies). However, IFRS currently permits a variety of jurisdictional approaches to the valuation of insurance liabilities. Consequently, as many of the IAIGs participating in the IAIS field testing report their results using their jurisdictional IFRS for insurance contracts, there currently is well over a dozen different jurisdictional GAAPs for which the IAIS could gather field testing data.

70. An exercise to test well over a dozen different permutations of a GAAP with adjustments approach would inherently be much more involved as compared to testing four permutations of such an approach. The number of GAAPs to test and the approach to be taken given the evolving status of accounting standards has potentially significant implications for field testing. Several questions below are posed in this consultation to address this point.

[20] The IAIS also expressed its preference, within its 30 November 2010 comment letter on the IASB's exposure draft on insurance contracts for GAAP and regulatory reporting bases to be as similar as possible, and the likelihood that such an outcome would reduce costs.

Question 14. Would your IAIG/jurisdiction be likely to consider the use of a GAAP with adjustments valuation approach, and why?

Question 15. For the purpose of determining ICS qualifying capital resources, what adjustments, if any, should be made and to which local jurisdictional GAAP financial statements?

Question 16. For the purpose of determining the ICS capital requirement, what adjustments, if any should be made to which local jurisdictional GAAP financial statements?

Question 17. Please describe how the above adjustments should or could be calculated, using GAAP or readily available information, so that the results could be most comparable to the market-adjusted valuation approach, after application of the ICS. Please also comment on the likely or potential variations of the results of the adjustments using the GAAP with adjustments approach compared to the market-adjusted valuation approach.

5.3 Accounting convergence

71. A fundamental issue facing the global insurance industry is that there currently is no single accounting standard in place across jurisdictions. IFRS are in place across many jurisdictions, but its current standard for accounting for insurance contracts provides that IAIGs can continue to use local jurisdictional practices until a comprehensive IFRS standard for insurance contracts is in place.

72. There are also a number of jurisdictions – such as the United States and Japan – that do not use IFRS at least mandatorily, relying instead on reporting based on their local jurisdictional GAAP. As a result, the accounting policy that is in use for insurance contacts – the most pervasive and complex accounting issue for insurers – varies by IAIG and by jurisdiction.

73. Another issue is that IFRS and jurisdictional GAAPs exist in a dynamic state; they are constantly changing in response to the needs of users of financial statements and as mandated by the respective governing bodies that promulgate the standards. In the case of IFRS, a key development is the years-long effort to adopt a comprehensive standard for accounting for insurance contracts[21] together with a set of accounting standards relating to accounting for financial instruments. It appears highly likely that the accounting standards for insurance contracts currently in place in most IAIG head office domiciles/jurisdictions will be set to change by, or soon after, the end of 2018.[22] However, the IAIS is committed to delivering the ICS by the end of 2018.

[21] The FASB in the United States had participated on a joint basis with the IASB in the insurance contracts project. However, in February 2014, the FASB abandoned the broad convergence process and tentatively decided to focus instead on targeted improvements to the current guidance for long-duration (e.g., life) contracts and to focus only on disclosures in the case of short-duration (e.g., non-life) contracts.

[22] The IASB is expected to adopt an insurance contract standard in late 2015, for implementation by 2018/19 at the earliest. The timeline for the FASB completion and implementation of its targeted improvements to the current guidance for long-duration contracts is less certain, but the work is well underway.

74. The IAIS encourages industry to contribute to the on-going development and refinement of a consistent valuation basis for ICS purposes, particularly for insurance liabilities. The IAIS intends to engage with other standard setters (including the IASB, FASB and the International Actuarial Association (IAA)) to encourage development, over time, of complementary financial reporting[23] and actuarial standards. It is expected that comparability of valuation results should improve over time through various dynamic processes, including further ICS development and refinement, external standards aimed at narrowing of the range of practice, and from market discipline imposed from transparency of results.

[23] The FASB tentatively decided in September 2014 to require an update of all assumptions used in calculating the liability for future policy benefits for traditional long-duration contracts, limited payment contracts, and participating life insurance contracts annually, during the fourth quarter, and include the effects of changed assumptions in the determination of net income. By comparison, existing US GAAP for many contracts provides that such assumptions are generally "locked in" at policy issuance. Thus, there is some indication that US GAAP may move closer to what an eventual IFRS standard will be, at least with respect to amounts reported on the balance sheet.

6 Capital resources

6.1 Introduction

75. In order to meet the ICS, an IAIG needs to have qualifying capital resources at least equal to the ICS capital requirement.

76. Qualifying capital resources are capital resources (both financial instruments and other capital elements) that provide loss absorbency on a going concern, in adverse circumstances and during a winding-up for the purposes of policyholder protection and financial stability.

77. Qualifying capital resources are determined through an assessment of the nature, quality and suitability of all potential capital resources and the consideration of qualifying criteria and application of specified inclusions, exclusions, deductions, adjustments and limits.

78. The ICS may require that qualifying capital resources be classified into at least two categories of capital: Tier 1 and Tier 2. Tiers are used to differentiate between capital items that clearly have very different characteristics. For example, high quality financial elements like ordinary shares and retained earnings can be differentiated from lower quality items such as subordinated debt.

79. A financial instrument's quality and suitability assessment takes into consideration a number of criteria including subordination, availability, loss absorbency (on a going concern and during a winding-up), permanence, and absence of both encumbrances and mandatory servicing costs. The ICS may classify financial instruments in four groups:

    a) Tier 1 financial instruments for which there is no limit

    b) Tier 1 financial instruments for which there is a limit

    c) Paid-Up Tier 2 financial instruments

    d) Non-Paid-Up Tier 2 financial instruments.

6.2 Categorisation of capital into tiers

6.2.1 Purpose and principles

80. The purpose of categorising capital resources into two tiers of capital is to distinguish between higher quality elements and lower quality elements. The following characteristics are assessed in order to distinguish between the higher quality Tier 1 capital resources and the lower quality Tier 2 capital resources:

    a) *Subordination*: the extent to which and in what circumstances the capital element is subordinated to the rights of policyholders and non-subordinated creditors in winding-up[24]

[24] The term winding-up (reference ICP 12 and ICP 17) is meant to include situations such as insolvency, bankruptcy and liquidation.

b) *Availability*: the extent to which the capital element is fully paid and available to absorb losses

c) *Loss absorbing capacity*: the extent to which the capital element absorbs losses and in which circumstances

d) *Permanence*: the period for which the capital element is available

e) *Absence of encumbrances and/or mandatory servicing costs*: the extent to which the capital element is free from mandatory payments or encumbrances.

Question 18. Are there other key principles not included above that should be considered when assessing the quality of financial instruments for regulatory capital purposes? If so, please suggest other principles and the rationale for including them.

81. Tier 1 capital resources comprise qualifying financial instruments and capital elements other than financial instruments that contribute to financial strength, absorb losses during going-concern and winding-up and otherwise contribute to survival through periods when the IAIG is under stress.

82. In order to qualify as Tier 1 capital resources, financial instruments must be paid-up, permanent, loss-absorbing on both a going concern and winding-up basis, deeply subordinated and free of both encumbrances and mandatory distributions that reduce shareholders' equity or members' surplus. Tier 1 capital resources should exclude items that do not absorb losses in periods when the IAIG is under stress (e.g. financial instruments that are subject to mandatory fixed charges).

83. Within Tier 1 capital resources, there are a variety of financial instruments that potentially meet the qualifying criteria and absorb losses on a going concern basis; however, there are certain quality distinctions among those instruments.[25] For example, common shares are the most deeply subordinated (i.e. they take the first loss) and could be recognised as being of higher quality than another perpetual financial instrument that ranks ahead of common shares in the hierarchy or has a preference as to distributions or has characteristics of a debt security. Thus, the ICS may include a Tier 1 composition limit in order to manage the quality of financial instruments in Tier 1 capital resources. The intent of the composition limit is to constrain the inclusion of certain financial instruments in Tier 1 capital resources for the purpose of calculating the ICS Ratio(s). Thus, in the ICS, financial instruments may be further distinguished between financial instruments for which there is not a limit (e.g. common/ordinary share capital) and financial instruments for which a limit may be established (e.g. non-cumulative perpetual preferred shares or certain hybrid instruments) to emphasise the differences in quality. Any such Tier 1 financial instruments that are in excess of the limit may be considered for inclusion in Tier 2.

[25] Please note the discussion on quality of capital in this paragraph is in the context of ICS and not HLA.

84. Capital elements other than financial instruments, including retained earnings, reserves[26] and other elements, which can absorb losses in the same way as those elements attributable to holders of Tier 1 capital instruments, may be included in Tier 1 capital resources and may not be subject to a capital composition limit. Deductions may be made from Tier 1 capital resources for specified assets that would be subject to write-down/loss of value during periods when the IAIG is under stress, a time when capital resources are most likely to be needed.

85. Tier 2 capital resources comprises qualifying financial instruments and capital elements other than those included in Tier 1 capital resources,[27] that possess certain characteristics such as subordination to policyholders and non-subordinated creditors and availability to absorb losses in winding-up. These instruments should allow the IAIG to meet liabilities to policyholders and non-subordinated creditors in the event of a winding-up. Tier 2 capital resources may also include forms of lower-quality financial instruments (e.g. subordinated debt) and other capital resource elements (e.g. restricted reserves).

86. In addition to elements that contribute to the protection of policyholders in a winding-up, Tier 2 capital resources may also comprise items that are not yet paid-up. As these items are not immediately available to absorb losses, they should not be eligible for inclusion in Tier 1 capital resources. However, provided there are strong safeguards to ensure that such items will be paid-up when called by the IAIG, there is some merit in recognising a limited amount of such capital resources in Tier 2 capital resources. Recognition should be subject to their being approved by supervisors and becoming an instrument or element eligible for classification in Tier 1 capital resources [or paid-up Tier 2].

87. In order to safeguard against undue reliance by IAIGs on non-paid-up capital, the ICS may introduce a capital composition limit in respect of these items.

Question 19. Should qualifying capital resources be classified in more than one or more than two tiers of capital? How many? And, if different from above, what key criteria should be used to determine tiering?

Question 20. If qualifying capital resources are classified in two or more categories of capital, should the ICS capital adequacy be expressed using only one, two or more ratios? Why?

Question 21. Should any amount of non-paid-up items be included in qualifying capital resources? Why? If yes, how should these be classified and should there be limits? Should there be an additional limit on non-paid-up elements that give rise to paid-up Tier 2 elements as opposed to those that give rise to paid-up Tier 1 elements? Please give reasons for your answer.

[26] The term reserves here is used in a generic sense to mean balance sheet amounts that are able to absorb losses in going concern situations in the same way as equity and that are available to the benefit of all policyholders. As explained in Section 5 it currently includes MOCE. This term may be further defined for ICS purposes.

[27] Tier 1 instruments subject to a limit may be included in Tier 2 capital where the IAIG exceeds the limit on such instruments.

Question 22. If non-paid-up capital items were permitted, should the capital composition limit for non-paid-up Tier 2 items be based on a percentage of Tier 1 capital resources, on ICS capital requirement or determined on another basis?

6.3 Categorisation: defining the two tier system

6.3.1 Tier 1 capital resources

88. Tier 1 capital resources (prior to regulatory adjustments/deductions) may consist of the sum of the following elements:

a) Instruments that meet the criteria for classification as Tier 1 for which there is no limit

b) Instruments that meet the criteria for classification as Tier 1 for which there is a limit, including any associated share premium where such amount would be included in the principal amount at redemption

c) Share premium resulting from the issuance of instruments included in Tier 1, and other contributed surplus (e.g. members' contributions and initial funds for mutual companies)

d) Retained earnings: net income from operations that is retained by the IAIG rather than distributed to its owners and members, including participating equity or accounts for joint-stock companies and non-participating accounts for mutual companies

e) Accumulated other comprehensive income (AOCI)

f) Unrestricted reserves: reserves or profits accumulated by the IAIG that are unappropriated and available to absorb losses pari passu with retained earnings and common/ordinary shares; taking into account paragraph 80 this may or may not include reserves that are set up under regulatory requirements to cover specific types of risks and can be unappropriated under supervisory approval

g) Tier 1 capital instruments issued by consolidated subsidiaries of the IAIG and held by third parties that meet the criteria for inclusion in Tier 1 capital (see Section 6.3.2 and Section 6.3.3 for the relevant criteria).

89. The treatment of GAAP MOCE and other revaluation adjustments treatment is under review and may depend on the valuation approach. In addition, as set out in Section 5, consideration is being given to the development of a consistently calculated MOCE. Even if a consistently calculated MOCE is developed for the purposes of the ICS, there may well be a residual amount of GAAP insurance liabilities. This amount may continue to be treated as part of qualifying capital resources. Regardless of whether a consistently calculated MOCE is developed, the recognition of MOCE in qualifying capital resources needs further consideration.

Question 23. Should the residual amount of GAAP insurance liabilities in excess of current estimate plus consistent MOCE (as referred to in paragraphs 53 and 89) continue to be considered as part of Tier 1 capital resources? If so, should it be all in Tier 1 for which there is no limit, or at least partially recognised in Tier 1 for which there is a limit? If it is not all recognised in Tier 1, should it be recognised in Tier 2, and if so, which part of Tier 2? Should any part of the residual amount

of GAAP insurance liabilities not be recognised at all in qualifying capital resources, and therefore effectively be deducted from qualifying capital resources?

Question 24. Should reserves that are set up under regulatory requirements to cover specific types of risks, and that can be unappropriated under supervisory approval, be considered unrestricted and therefore be included in Tier 1 capital?

6.3.2 Qualifying criteria for financial instruments classified as Tier 1 capital for which there is no limit

90. IAIGs should only classify financial instruments as Tier 1 capital for which there is no limit if all of the following criteria are met:

a) The instrument is fully paid-up

b) The instrument is in the form of issued capital such that it is the first instrument to absorb losses as they occur

c) The instrument represents the most subordinated claim in a winding-up of the IAIG where the holder is entitled to a claim on the residual assets proportional to its share of the issued share capital after all claims have been repaid, and which is not subject to a fixed or capped amount

d) The instrument is perpetual (i.e. it does not have a maturity date) and the principal is not repaid outside winding-up, other than by means of discretionary repurchase permitted under national law, which is subject to prior supervisory review or approval

e) There is not an expectation created at issuance by the IAIG, or through the terms of the instrument, that the IAIG will repurchase or cancel the instrument, or that such action will receive supervisory approval

f) There are no circumstances under which a distribution is obligatory (non-payment is, therefore, not an event of default)

g) Distributions are paid out of distributable items, including retained earnings (i.e. distributions should reduce equity rather than the profit/loss of the current year)

h) The instrument is neither undermined nor rendered ineffective by encumbrances. In particular, priority of claims should not be compromised by guarantees or security arrangements given by either the IAIG or a related entity over which the IAIG exercises control or significant influence, for the benefit of investors

i) Neither the IAIG nor a related party over which the IAIG exercises control or significant influence has purchased the instrument, nor has the IAIG directly or indirectly funded the purchase of the instrument

j) The paid-in amount is recognised as equity capital (i.e. not recognised as a liability) where a determination that liabilities exceed assets constitutes a test of insolvency.

6.3.3 Qualifying criteria for financial instruments classified as Tier 1 capital resources for which there is a limit

91. IAIGs should only classify financial instruments as Tier 1 capital resources for which there is a limit if all of the following criteria are met:

    a) The instrument is fully paid-up

    b) The instrument is subordinated to policyholders and other non-subordinated creditors and holders of Tier 2 capital instruments but may rank senior to holders of Tier 1 capital instruments for which there is not a limit

    c) The instrument is perpetual (i.e. it does not have a maturity date and it does not contain a step-up or another incentive to redeem)

    d) The instrument is only redeemable at the option of the issuer after a minimum of five years from the date of issue (i.e. the instrument is not retractable by the holder) and the redemption is subject to prior supervisory review or approval

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

    f) There is not an expectation created by the IAIG, or through the terms of the instrument, that the IAIG will repurchase the instrument or exercise any right to call the instrument, or that the repurchase or redemption will receive supervisory approval

    g) The IAIG has full discretion at all times to cancel distributions (i.e. dividends and coupon payments are non-cumulative)(non-payment is, therefore, not an event of default)

    h) Distributions are paid out of distributable items

    i) The instrument does not have distributions that are tied or linked to the credit standing or financial condition of the IAIG or another related entity, such that those distributions may accelerate winding-up

    j) The instrument is neither undermined nor rendered ineffective by encumbrances (in particular, priority of claims should not be compromised by guarantees or security arrangements given by either the IAIG or a related entity over which the IAIG exercises control or significant influence, for the benefit of investors)

    k) Neither the IAIG nor a related party over which the IAIG exercises control or significant influence has purchased the instrument, nor has the IAIG directly or indirectly funded the purchase of the instrument

    l) The paid-in amount is not recognised as a liability where a determination that liabilities exceed assets constitutes a test of insolvency

m) The instrument cannot possess features that hinder recapitalisation, such as provisions that require the issuer to compensate investors if a new instrument is issued at a lower price during a specified time frame

n) If the instrument is not issued out of an operating entity or the holding company of the IAIG (e.g. it is issued out of a special purpose vehicle or "SPV"), proceeds must be immediately available without limitation to an operating entity or the holding company of the IAIG in a form that meets or exceeds all of the other criteria for inclusion in Tier 1 Capital for which there is a limit (i.e. the SPV may only hold assets that are intercompany instruments issued by the IAIG or a related entity with terms and conditions that meet or exceed the criteria for Tier 1 Capital for which there is a limit).

92. The IAIS is considering a requirement for a principal loss absorbency mechanism to apply to Tier 1 instruments for which there is a limit. This principal loss absorbency mechanism would provide a means for such instruments to absorb losses on a going-concern basis through reductions in the principal amount in addition to cancellation of distributions.

Question 25. Should Tier 1 instruments for which there is a limit be required to include a principal loss absorbency mechanism that absorbs losses on a going-concern basis by means of the principal amount in addition to actions with respect to distributions (e.g. coupon cancellation)? If so, how would such a mechanism operate in practice and at what point should such a mechanism be triggered?

6.3.4 Tier 2 capital resources

93. Tier 2 capital resources (prior to regulatory adjustments/deductions) consists of the sum of the following elements:

a) Instruments that meet the criteria for classification as Paid-Up Tier 2 capital resources

b) Elements that meet the criteria for classification as Non-Paid-Up Tier 2 capital resources (i.e. certain non-paid-up capital items), subject to a limit

c) Share premium resulting from the issuance of instruments included in paid-up Tier 2 capital resources

d) Restricted reserves: reserves or profits accumulated by the IAIG that are appropriated or set aside for a specific subset or class of policyholders or creditors

e) Paid-Up Tier 2 capital instruments issued by consolidated subsidiaries of the IAIG and held by third parties that meet the criteria for inclusion in Tier 2 capital resources (see Section 6.3.5 for the relevant criteria)

f) Realisable amount of the value of net DTAs that rely on future profitability deducted from Tier 1

g) Realisable amount of the value of computer software intangibles deducted from Tier 1

h) 50% of each net defined benefit pension plan asset, net of any eligible Deferred Tax Liabilities (DTLs), deducted from Tier 1.

Question 26. Should any value with respect to DTA, computer software intangibles and defined benefit pension plan assets be included in Tier 2 capital resources? Why?

Question 27. Is it appropriate to include in Tier 2 add-backs from items that are deducted from Tier 1 capital resources (i.e. DTAs, computer software intangibles, defined benefit pension plan assets)? What methodology could the IAIS use to determine an objective realisable value in a stress scenario for these items or should the IAIS adopt a more arbitrary approach such as permitting a percentage of the amount deducted from Tier 1 capital resources to be included in Tier 2 capital resources? If Tier 2 add-backs are included, how would the ICS capital requirement work in relation to the amounts added back?

6.3.5 Qualifying criteria for financial instruments classified as paid-up Tier 2 capital resources

94. IAIGs should only classify financial instruments as paid-up Tier 2 capital resources if all of the following criteria are met:

a) The instrument is fully paid-up

b) The instrument is subordinated to policyholders and other non-subordinated creditors of the IAIG

c) The instrument has an initial maturity of at least five years, with its effective maturity date[28] defined to be the earlier of

i. the first occurrence of a call option together with a step-up or other incentive to redeem the instrument and

ii. the contractual maturity date fixed in the instrument's terms and conditions.

d) The instrument's availability to absorb losses as it nears its effective maturity is captured by either

i. decreasing the qualifying amount of the instrument from 100% to 0% on a straight-line basis in the final five years prior to maturity or

ii. the existence of a lock-in clause, which is a requirement for the IAIG to suspend repayment or redemption if it is in breach of its ICS capital requirement or would breach it if the instrument is repaid or redeemed.

[28] For example, if the first call option combined with a step-up is at year 5 and the contractual maturity is at year 10, the item is eligible to be included in Tier 2 capital and it is treated as an item with a 5 year maturity including consideration of its availability as it nears its effective maturity below. At year 5, if the call option is not exercised, the full amount is again treated as an item with a 5 year maturity again including considerations as it near effective maturity a second time.

e) The instrument is only redeemable at the option of the issuer after a minimum of five years from the date of issue (i.e. the instrument is not retractable by the holder) and the redemption is subject to prior supervisory review or approval

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

g) There is not an expectation created by the IAIG, or through the terms of the instrument, that the IAIG will repurchase the instrument or exercise its right to call the instrument, or that the repurchase or redemption will receive supervisory approval

h) The instrument does not have distributions that are tied or linked to the credit standing or financial condition of the IAIG or another related entity, such that those distributions may accelerate winding-up

i) The instrument does not give holders rights to accelerate the repayment of future scheduled principal or coupon payments, except in winding-up

j) The instrument is neither undermined nor rendered ineffective by encumbrances. In particular, priority of claims should not be compromised by guarantees or security arrangements given by either the IAIG or a related entity over which the IAIG exercises control or significant influence, for the benefit of investors

k) Neither the IAIG nor a related party over which the IAIG exercises control or significant influence can purchase the instrument, nor can the IAIG directly or indirectly fund the purchase of the instrument

l) If the instrument is not issued out of an operating entity or the holding company of the IAIG (e.g. it is issued out of an SPV), proceeds must be immediately available without limitation to an operating entity or the holding company of the IAIG in a form that meets or exceeds all of the other criteria for inclusion in paid-up Tier 2 capital resources (i.e. the SPV may only hold assets that are intercompany instruments issued by the IAIG or a related entity with terms and conditions that meet or exceed the criteria for paid-up Tier 2 capital resources).

6.3.6 Qualifying criteria for capital Items classified as non-paid-up Tier 2 capital resources

95. IAIGs should only classify financial items, contracts and arrangements as non-paid-up Tier 2 capital resources if all of the following criteria are met:

a) The item has been approved by the supervisor as satisfying all relevant criteria as to its characteristics and amount

b) The item is callable on demand by the IAIG and is not subject to any contingencies or conditions which prevent or act as a disincentive to the call being made or satisfied

c) When called, the item becomes a financial instrument that meets in full the criteria for inclusion in Tier 1 capital resources [or Paid-Up Tier 2] or as an element within Tier 1 capital resources

d) The item is legally enforceable in each relevant jurisdiction

e) The counterparty to the contract to provide capital resources is able and willing to pay the agreed amounts when called upon by the IAIG

f) The item is neither undermined nor rendered ineffective by encumbrances

g) The IAIG is under a duty to notify the supervisor of any changes of fact or circumstance that could affect the supervisor's approval of the item.

96. Non-paid-up capital items may be limited to an amount not greater than a certain percentage of Tier 1 capital resources or a certain percentage of the ICS capital requirement.

6.3.7 Instruments issued by consolidated subsidiaries of the IAIG and held by third parties (non-controlling interests)

97. Due to the non-fungible nature of non-controlling interests, the potential need for a limit on the amount of non-controlling interests that may be included in qualifying capital resources is under discussion.

Question 28. What objective methodology could the IAIS use to determine the amount of a non-controlling interest that is not available to the group for the protection of policyholders of the IAIG?

6.3.8 Adjustments, exclusions and deductions from Tier 1 capital resources

98. The IAIG's net amount of qualifying capital resources is determined after the application of adjustments, exclusions and deductions to reflect that the recognition or basis of valuation for certain items may not be appropriate for capital adequacy purposes.

99. To the extent that any items have not already been excluded through the valuation approach, the following items should be excluded or deducted from Tier 1 capital resources:[29]

a) Goodwill

b) Intangible assets, including computer software intangibles

c) Each net defined benefit pension plan asset that cannot be easily and promptly accessed for the own use and on-going operations of the IAIG

d) DTAs that rely on the future profitability of the IAIG

e) Reciprocal cross holdings arranged either directly or indirectly between financial institutions and that artificially inflate the Tier 1 capital position of the IAIG

f) Direct investments in own Tier 1 financial instruments (indirect investments via the group should have been eliminated)

[29] Items (a) to (d) should be net of associated DTLs

g) Reinsurance assets arising from arrangements deemed to constitute non-qualifying reinsurance or arrangements that are either not legally binding or not executed within a six-month grace period from the effective date of reinsurance coverage. Non-qualifying reinsurance refers to agreements

   i. with entities providing reinsurance that are neither regulated nor subject to risk-based solvency supervision, including appropriate capital requirements or

   ii. that do not provide a sufficient transfer of risk.

h) Total secured (encumbered) assets in excess of the sum of

   i. the value of the IAIG's on-balance sheet liabilities secured by the (encumbered) assets plus

   ii. the value of the IAIG's incremental ICS capital requirement for liabilities secured by the (encumbered) assets plus

   iii. the value of the IAIG's incremental ICS capital requirement for secured (encumbered) assets.

100. No deduction is required for encumbered assets relating to off-balance sheet securities financing transactions (e.g. securities lending and borrowing, repos and reverse repos) that do not give rise to any liability on the balance sheet.

Question 29. Should other items be deducted or should some of the above items not be deducted? Please provide details and explain your answer.

Question 30. Instead of treating the above elements as deductions to Tier 1 capital resources, should some or all of these elements be included in the ICS capital requirement? Please provide details and explain your answer.

6.3.9 Adjustments, exclusions and deductions from Tier 2 capital resources

101. To the extent that any items have not already been excluded through the valuation approach, the following items should be excluded or deducted from Tier 2 capital resources:

a) Reciprocal cross holdings, arranged either directly or indirectly between financial institutions and that artificially inflate the Tier 2 capital position of the IAIG

b) Direct investments in own Tier 2 financial instruments (indirect investments via the group should have been eliminated).

Question 31. Instead of treating the above elements as deductions to Tier 2 qualifying capital resources, should some or all of these elements be included in the ICS capital requirement? Please provide details and explain your answer.

6.3.10 Tier 1 capital resources and total qualifying capital resources

102. Tier 1 capital resources are equal to Tier 1 capital instruments (i.e. Tier 1 instruments for which there is not a limit and Tier 1 instruments for which there is a limit) plus Tier 1 elements other than financial instruments less adjustments, exclusions and deductions from Tier 1.

103. Total qualifying capital resources are equal to Tier 1 capital resources (as defined above) plus Paid-up Tier 2 capital instruments plus Tier 2 elements other than financial instruments, including Non-Paid-Up Tier 2 capital items (up to a limit), less adjustments, exclusions and deductions from Tier 2.

6.3.11 Limits and minimum levels of capital

104. The IAIS may introduce capital composition limits in the ICS, including:

a) Tier 1 instruments for which there is a limit based on total Tier 1 capital resources

b) Tier 2 capital cannot exceed a set percentage of the ICS capital requirement

c) Non-paid-up capital items may be limited to an amount not greater than a certain percentage of Tier 1 capital resources or a set percentage of the ICS capital requirement.

Question 32. Should the ICS contain capital composition limits? Why?

Question 33. If it were to contain limits, what would be an appropriate limit for Tier 1 capital instruments that satisfy the criteria set out in Section 6.3.3 (i.e. Tier 1 capital resources for which there is a limit)? How should this be expressed? If it were expressed as a percentage of Tier 1 capital resources, net of regulatory adjustments and deductions, what would an appropriate limit be?

Question 34. If the ICS were to include a capital composition limit on Tier 2 capital resources, how should it be determined? If it were set as a percentage of the ICS capital requirement, what should the limit be? Please include reasons for your answer.

Question 35. If GAAP with adjustments were used as an alternative valuation approach for the ICS, are the definitions of capital resources detailed above appropriate? Please describe key differences and any complications that might emerge under a GAAP with adjustments approach to valuation.

Question 36. Should the IAIS consider transitional arrangements for financial instruments that do not meet the ICS qualifying criteria? If so, what transitional arrangements would be appropriate?

7 ICS capital requirement

105. The ICS capital requirement could be used as a prescribed capital requirement (PCR) as defined in ICP 17. Standard 17.4 defines the PCR to be a solvency control level above which the supervisor does not intervene on capital adequacy grounds.

Question 37. Should the ICS capital requirement be developed so that it can be implemented as a PCR? If not, why not?

106. Upon completion of the ICS, the IAIS may consider the development of a backstop capital measure. A backstop capital measure would be less risk sensitive and would be simpler than the ICS capital requirement. A backstop capital measure could serve as an early warning mechanism and hence fulfil the role as an additional safeguard for the monitoring of model and assumption risk and measurement error by supplementing the ICS capital requirement with a simple transparent independent tool. Alternatively, it could serve as a capital floor to the ICS.

Question 38. Should the IAIS promulgate a less risk-sensitive backstop capital measure? Should this backstop measure be used for monitoring the risk-sensitive ICS capital model, or should the backstop serve the role as a capital floor to the ICS?

107. The ICS capital requirement will specify the risks to be covered, target criteria to be met, treatment of risk mitigation techniques and appropriate treatment of risk aggregation/diversification.

7.1 Risks in the ICS capital requirement

108. ICS Principle 4 states that "The ICS reflects all material risks to which an IAIG is exposed… To the extent that risks are not quantified in the ICS they are addressed in ComFrame."

7.1.1 Risks to be included

109. The IAIS considers the key categories of risk that may be included in the ICS capital requirement are: insurance risk, market risk, credit risk and operational risk.

Question 39. What other risks should be included in the ICS capital requirement? Should any of the risks identified be excluded from the ICS capital requirement? Please provide reasons.

110. The ICS capital requirement is based on the potential adverse changes in qualifying capital resources resulting from unexpected changes, events or other manifestations of the specified risks. Section 7.5 addresses dependencies and inter-relationships within and between risks. The risks covered by the ICS capital requirement are outlined in Table 2. The starting point for the items in the table was those used in the 2014

ComFrame Draft. Some modifications have been made where appropriate and further refinement may follow as ComFrame is finalised.

Table 2. Risks and definitions

Categories of risk	Key risk	Scope/definition: Risk of adverse change in the value of qualifying capital resources due to
Insurance risk	Mortality risk	Unexpected changes[30] in the level, trend or volatility of mortality rates
	Longevity risk	Unexpected changes[30] in the level, trend or volatility of mortality rates
	Morbidity/disability risk	Unexpected changes[30] in the level, trend or volatility of disability, sickness and morbidity rates
	Expense risk	Unexpected changes[30] in liability cash flows due to the incidence of expenses incurred
	Lapse risk	Unexpected changes[30] in the level or volatility of rates of policy lapses, terminations, renewals and surrenders
	Premium risk (non-life)	Unexpected changes[30] in the timing, frequency and severity of future insured events (to the extent not already captured in morbidity or disability risk)
	Claim reserve/revision risk (non-life)	Unexpected changes[30] in the expected future payments for claims (to the extent not already captured in morbidity or disability risk)
	Catastrophe risk	Unexpected changes[30] in the occurrence of low frequency and high severity events
Market risk	Interest rate risk	Unexpected changes[30] in the level or volatility of interest rates
	Equity risk	Unexpected changes[30] in the level or volatility of market prices of equities
	Real estate risk	Unexpected changes[30] in the level or volatility of market prices of real estate or from the amount and timing of cash-flows from investments in real estate
	Spread risk[31]	Unexpected changes[30] in the level or volatility of credit spreads over the risk-free interest rate term structure
	Currency risk	Unexpected changes[30] in the level or volatility of currency exchange rates
	Asset concentration risk	The lack of diversification in the asset portfolio
Credit risk		Unexpected counterparty default, including their inability or unwillingness to meet contractual obligations in a timely manner
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

Question 40. Are these specified risks and their definitions appropriate for the ICS capital requirement? If not, why not?

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

[31] 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.

7.1.2 Risks not included

111. There are other risks to which an IAIG is exposed that are not set out in Table 2 above, such as group and liquidity risk (the reasons for not quantifying these risks in the ICS capital requirement are set out in Sections 7.1.2.1 and 7.1.2.2 below). The IAIS considers that these other risks, for the time being, should not be quantified in the ICS capital requirement and will be addressed elsewhere in ComFrame's qualitative requirements, specifically in Module 2 Elements 3 and 4 which address ERM. However, it is noted that some aspects of group risk, such as fungibility and minority interests, may be addressed within qualifying capital resources.

Question 41. Is it appropriate to <u>not</u> quantify risks other than those identified in Table 2 in the ICS capital requirement? If not appropriate, what risks in addition to those in Table 2 should be quantified in the ICS capital requirement, and how could they be quantified?

7.1.2.1 Group risk

112. Risks may be posed to policyholders as well as to the financial stability of the group as a whole by the group itself as a result of the IAIG's structure. Risks from the IAIG's structure mainly arise from intra-group transactions and capital and risk transfer instruments such as loans, guarantees, reinsurance contracts, and participations.

113. In ComFrame the following group risks were identified:

a) Intra-group transactions

b) Capital fungibility

c) Contagion/reputational

d) Cross-jurisdictional issues

e) Partial ownership and minority interests.

114. Two approaches are currently used at the international level to model and quantify all the relevant risks of a group:

a) The first approach models the risks of a group such that they are *consolidated*, as if the group were a single legal entity ("consolidated group modelling"). As a consequence, the relevant supervisors can determine whether the group satisfies capital adequacy requirements as based on its consolidated financial position. With regard to transferability, in some jurisdictions assets and liabilities are assumed to be freely transferable (not giving rise to any particular adjustment). In other jurisdictions, adjustments are made to capital resources to capture the possible lack of transferability/fungibility of elements within the group or use additional measures that quantify the potential non-fungibility of distributed capital and the risk this may pose to the parent or head of the group.

b) The second approach is based on modelling the risks of the *individual legal entities* of a group, and thus models the relations between these units in addition to the external relations ("granular group modelling"). In this second method a uniform approach is applied to assess the risks of the assets and liabilities of the *individual legal entities*, in addition to the risks resulting from the relations *within* the group. This second method enables the relevant supervisors of the group to determine whether any risk potential is posed to policyholders and the financial stability of the group *by individual parts of the group itself* for other parts of the group or for the group as a whole.

115. The second approach quantifies "group risks" by attributing them to the individual legal entities of the group, but does not go as far as aggregating the group risks to alter the capital requirement on a consolidated basis. As per ICS Principle 1, the ICS is a consolidated group capital standard and therefore a consolidated view is to be applied for determining the ICS capital requirement.

116. If group risks are not explicitly quantified within the ICS capital requirement they may be treated with a thorough qualitative analysis in Module 3 of ComFrame.[32]

7.1.2.2 Liquidity risk

117. In the normal course of business, IAIGs typically rely on premiums, income from investment and other sources for cash inflows to match cash outflows to meet obligations, particularly payments of claims and benefits to policyholders. IAIGs nevertheless need to maintain adequate liquidity to fulfil expected and unexpected payment obligations and meet funding shortfalls.

118. Activities that involve financial features such as leverage, liquidity or maturity transformation and imperfect transfer of credit risk on the liability side and concentrated investments in illiquid assets backing those liability structures may lead to increased liquidity risk.

119. The IAIS does not propose a separate quantification of liquidity risk as it is implicitly addressed in the quantification of the risks set out in Table 2.

7.2 Target criteria

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

a) A risk measure

b) A time horizon

c) A basis of measurement.

[32] This is not explicitly addressed in the 2014 ComFrame Draft but may be addressed in future iterations.

7.2.1 Risk measure

121. The decision on the risk measure to be used for the ICS will be informed by field testing. At the moment the IAIS is assessing the pros and cons of different risk measures, specifically Value-at-Risk and Tail Value-at-Risk. Where other sectorial rules would apply, it is not intended to alter the risk measures in use there. Therefore, the scope of the following discussion is limited to the insurance part of the ICS.

122. Value-at-Risk (VaR) is the loss at a predefined confidence level (e.g. 99.5%), i.e. the loss that is not exceeded with probability equal to the confidence level.

123. 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.

124. Another way to describe VaR and Tail-VaR is by looking, for example, at 10,000 (simulated) losses. VaR would be set equal to the 50^{th} largest loss (assuming a confidence level of 99.5%). Tail-VaR would be calculated as the average of the 50 largest losses. The VaR is then equal to the 50^{th} largest loss and the Tail-VaR to the average of the 50 largest losses.

125. Conceptually, Tail-VaR has the following advantages over VaR:

a) Tail-VaR takes into account not only the probability loss for a certain confidence level but also the distribution of losses beyond that level. It thereby provides incentives to IAIGs and supervisors to consider the expected loss amount given a specific probability.

b) For many business lines, IAIGs may be subject to infrequent, high-impact losses. Under VaR, insured losses with probability beyond the confidence threshold receive no risk charge, but do in the Tail-VaR. Thus Tail-VaR provides an incentive for IAIGs to mitigate even the more extreme losses, and for supervisors to see that they do so.

c) Tail-VaR is sub-additive, so the capital requirement for two or more risks combined is less than the sum of the requirements for the individual risks. VaR, by contrast, fails to be sub-additive under certain circumstances. Sub-additivity is a very important property, since it reflects that diversification effects occur when risks are combined. It thus provides incentives for good risk management practices, i.e. portfolio diversification.

d) It follows from the previous comment that the capital requirement under Tail-VaR is largest if risks are aggregated co-monotonously, i.e. fully positively dependent. This is not the case in general for VaR.

126. Disadvantages of Tail-VaR as compared to VaR include:

a) Tail-VaR requires information about the entire tail of the distribution and thus a suitable amount of data in the tail. This may be very challenging when calibrating some of the risks borne by IAIGs (e.g. lapse, mortality, etc.).

b) Tail-VaR is perceived to be more difficult to estimate from the same amount of (scarce) data than VaR. Details of the distribution of the tails are not normally available and often require additional subjective assumptions, which may lead to increased modelling error. This may make it more difficult to calculate Tail-VaR than VaR.

c) Tail-VaR might react very sensitively to slight changes in the underlying (simulated) distribution, thus lacking "robustness" in the statistical sense.

d) Tail-VaR is not currency invariant. It is possible that a company is able to absorb the losses if the required capital is calculated in one currency but is not in another currency.

127. In summary:

a) VaR has often been criticised for not being sub-additive and its inability to capture the tail. On the other hand, VaR enjoys statistical advantages and its back-testing is more straightforward.

b) Tail-VaR is sub-additive and captures the tail. On the other hand, Tail-VaR has often been criticised for issues with estimation, back-testing and robustness.

128. The table below shows the main features of VaR and Tail-VaR, respectively:

Table 3. Main features of VaR and Tail-VaR

Features/Risk measure	VaR	Tail-VaR
Frequency captured?	Yes	Yes
Severity captured?	No	Yes
Sub-additive?	Not always	Always
Diversification captured?	Issues	Yes
Back-testing?	Straight-forward	Issues
Estimation?	Feasible	Issues with data limitation
Model uncertainty?	Sensitive to aggregation	Sensitive to tail modelling
Robustness I (with respect to "Lévy metric[33]")?	Almost, only minor issues	No
Robustness II (with respect to "Wasserstein metric[34]")?	Yes	Yes

[33] The Lévy metric is a metric on the space of cumulative distribution functions of one-dimensional random variables. It is a special case of the Lévy–Prokhorov metric.

[34] The Wasserstein (or Vasershtein) metric is a distance function defined between probability distributions on a given metric space, the metric is also known for its optimal transport properties.

Question 42. Which risk measure – VaR, Tail-VaR or another – is most appropriate for ICS capital requirement purposes? Why?

Question 43. What are some of the practical solutions which may be used to address known issues with respect to modelling tails and diversification benefits, e.g. in the internal risk measures used by IAIGs, particularly in ORSA?

7.2.2 Time horizon

129. The measurement period may be a one-year time horizon in line with the annual cycle of financial reporting and solvency surveillance prevalent throughout the financial services industry. This is because supervisors, policyholders, beneficiaries and other stakeholders are interested in the financial position an IAIG reports through its balance sheet. The ICS capital requirement should be sufficient so there is only a small probability that the balance sheet one year from now will have negative capital resources. If capital resources are negative at that point, supervisors will not be dissuaded from taking action by projections presented by the IAIG that may demonstrate improved financial conditions from new business, future profits or other management actions that extend beyond that point.

130. The one-year time horizon means that the ICS capital requirement is exposed to all events assumed to occur within the one-year time period. The effect of these events is evaluated on the year-end balance sheet. The events assumed to occur over the year include changes to valuation assumptions encompassing the entire lifespan of the assets and liabilities (e.g. changes occur to the entire bond yield curve or to mortality rates over the entire settlement period of a life policy).

131. An assumption about new business is required. For the ICS capital requirement it may be assumed that the IAIG will carry on its existing business for the one-year time period as a going concern or the ICS capital requirement may only apply to risks existing at the measurement date (i.e. assume no new business).

Question 44. Is the prescription of a one-year time horizon appropriate? If not, what are the alternatives and why?

Question 45. Should the ICS capital requirement include an assumption that the IAIG will carry on existing business for the one-year time period as a going concern? Should the ICS capital requirement only apply to risks at the existing measurement date? Why?

7.2.3 Basis of measurement

132. The decision on the basis of measurement to be used for the ICS capital requirement will be informed by field testing. To allow flexibility during calibration of the ICS capital requirement, it is important to collect information that targets a high confidence level, so that more information on the tails of the loss distribution is available for future refinements of calibrations. For example, this could enable results to be appropriately

rescaled, if necessary. Therefore, a proposed initial working assumption is to collect information that would enable the calibration of the ICS capital requirement to two alternative different target criteria and time horizons:

a) At least 99.5% VaR over 1 year

b) At least 90% Tail VaR over 1 year.

Question 46. In what ways are the proposed initial field testing target criteria appropriate or inappropriate for the development of the ICS?

Question 47. Describe the costs and benefits of conducting field testing on either one or both target criteria.

Question 48. In order to field test a Tail-VaR measure, how should the IAIS specify the Tail-VaR measure for a given confidence level?

133. These testing criteria are not indicative of an expected conclusion or anticipated result. Rather they are intended to start a constructive discussion based on evidence gathered through a field testing process. Specifying these aspects of the ICS capital requirement should provide a common basis and ensure consistency for the calculation of the ICS capital requirement, either by using a standard method or the application of any other method allowed by the ICS.

7.3 Risk mitigation

134. The IAIS is considering the following **general principles** for the recognition of risk mitigation techniques in the ICS:

a) The calculation of the ICS capital requirement should allow for the effects of risk mitigation techniques through a reduction in requirements commensurate with the extent of risk mitigation – taking into consideration reasonable basis risk effects due to changes in risk mitigation assumptions and relationships during a stress scenario - and an appropriate treatment of any corresponding risks embedded in the use of risk mitigation techniques. These two effects should be separated.

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

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

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

e) Providers of risk mitigation should have an adequate credit quality to guarantee with appropriate certainty that the IAIG will receive the protection in the cases specified by the contracting parties.

f) Credit quality should be assessed using objective techniques according to generally accepted practices.

Question 49. Do the proposed principles adequately address the concept of risk mitigation? If not, which principles should be changed and why? What additional principles should the IAIS consider and why? What unintended consequences do the proposed principles create?

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

Question 50. 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. If that is the case:

a) Which criteria should be considered in order for the renewal of risk mitigation arrangements to be recognised in the ICS calculation?

b) In particular, which criteria should be met for a full recognition of the renewal of risk mitigation, and which criteria should lead to partial recognition of the renewal of risk mitigation?

136. The following principle also applies specifically to the recognition of **financial risk mitigation** techniques in the ICS: the IAIG should have a direct claim on the protection provider and there should be an explicit reference to specific exposures or a pool of exposures, that the extent of cover is clearly defined and undisputable.

137. It is difficult to quantify risk mitigation of operational risk in the ICS capital requirement because risk mitigation tools are not all encompassing. For example, purchasing insurance against fraud may not be fully effective because the contract may not include all types of fraud and may be subject to exclusions. Unidentified operational risks will always exist and there should always be a minimum operational risk charge regardless of the strength of controls and mitigation strategies.

138. Losses due to operational risk tend to be idiosyncratic to each IAIG. Therefore, incentives for better controls and better mitigation for operational risk may best be deferred to supervision where appropriate supervisory discretion may be used to adjust for the risks and risk mitigation strategies particular to each company.

139. Operational risk is a downside risk only. There is no incentive to take additional risk for additional reward, unlike market risk or insurance risk. IAIGs do not choose to take on more operational risk, so it can also be seen as a necessary expense that IAIGs try to minimise to the extent it is cost effective to do so. This type of assessment is difficult to capture in the ICS capital requirement and is more appropriately addressed within the qualitative requirements within ComFrame, particularly Module 2 Elements 3 and 4 dealing with ERM. Inadequate controls or risk management processes would subject the IAIG to a supervisory adjustment to capital and that process will be set out in future in Module 3 of ComFrame.

7.4 Credit for participating/profit sharing and adjustable products

140. A potential reduction in ICS capital requirements (credit) for participating/profit sharing and adjustable products may be calculated in aggregate for market, credit and insurance risks. The credit for these products may be taken into account in the capital requirement only to the extent that the discretionary benefits have been recognised and identified as a part of the insurance liabilities.

141. This reduction may be calculated in aggregate in a last step adjustment as an overall adjustment to the capital requirement, or along the intermediate calculation steps in the scenarios relating to individual risks. If the latter approach is chosen, it should be assured that the overall effect of the reduction is realistic, in particular that it does not exceed the available amount of future discretionary benefits included in insurance liabilities.

142. The credit for participating/profit sharing and adjustable products may only be available if the participating/profit sharing policies meet specified criteria (e.g. meaningful amount of discretionary benefits, disclosure of discretionary benefits and their adjustability, regular review of the discretionary benefits and pass through of experience shortfalls) and credit for the adjustable products may only be available if the adjustable features meet certain criteria which demonstrates minimum acceptable "flexibility" (e.g. minimum testing when pricing the policy, ability to recover minimum amounts of unexpected losses). The nature of the "discretion" may thus be specified.

143. For example, with respect to business that is contractually adjustable at the sole discretion of the IAIG, the ICS may specify criteria that must be met for its inclusion as an adjustable product. The following are examples of criteria or considerations which could be included in the ICS:

a) Adjustable products may include policies and others products only if the cost of insurance (COI), expense charges and/or the credited interest or fees are adjustable.

b) Products with adjustable features not at the discretion of the IAIG, such as formula or index based adjustments, may be treated as non-adjustable business. (It is however possible for a product with formula or index-based adjustments to have other contractually adjustable features at the sole discretion of the IAIG such as COI charges).

c) Only the contractually adjustable features at the sole discretion of the IAIG may be treated as adjustable for the calculation of the credit. Adjustable features that are not at the sole discretion of the IAIG may be taken into account in the part of the current estimate that does not relate to discretionary benefits.

d) Adjustability may not take into consideration amounts recovered through special arrangements that are already considered when determining ICS capital requirements (no double counting).

e) A product that is only adjustable up to a certain age or has a one-time adjustment may be included provided it meets all other conditions. A product/policy for which the adjustability is no longer available (e.g. used up or expired) may be excluded.

f) The credit may be reduced to reflect IAIG policies which, if followed, would restrict contractual adjustability.

g) A reduced credit may be available where IAIG discretion requires regulatory approval.

144. The credit may take into account impacts of the scenario or combination of scenarios in the capital requirement calculation on the likelihood that policyholders will exercise contractual options and may be based on the assets currently held by the IAIGs. Future changes in asset allocation may be taken into account in accordance with realistic, pre-determined assumptions on future management actions. In principle, it may be determined on individual policy level; however, grouping of policies may be possible where their reaction to the ICS scenarios can be shown to be similar.

145. In the ICS, IAIGs may be requested to calculate a credit for participating/profit sharing and adjustable products by major blocks of business, separately by jurisdiction or in aggregate. For example, the potential credit for participating/profit sharing products may be applied and calculated for separate funds where separate funds exist, or funds may be added together and applied as an overall limit per jurisdiction.

146. The credit for participating/profit sharing and adjustable products may be based on the "value" of the discretionary benefits, i.e. the level of discretionary dividends/bonuses and contractual adjustability, included in the current estimate.

147. If the credit is not calculated using scenario projections, this may imply that, for the purpose of calculating ICS capital requirements, except where specified otherwise, the current estimate for participating/profit sharing and adjustable products may need to be valued on the basis of equivalent non-participating/profit sharing, non-adjustable products (e.g. assuming no future discretionary benefit cash flows) and assuming similar product design, risk profile and investment strategy. This may be determined by excluding the value of discretionary benefits from the current estimate.

148. The total credit may be limited based on the component of the ICS capital requirement specifically for participating/profit sharing and adjustable products. The limit may be applied by geography and before operational risk and credit for diversification.

Question 51. Should credit for participating/profit sharing and adjustable products be calculated in a last step adjustment as an overall adjustment to the capital requirement, or along the intermediate calculation steps in the determination of individual risk charges? Why?

Question 52. How can an overall adjustment for discretionary credits be calibrated in a manner that takes account of the reaction of policyholders to extreme scenarios into account? How can it be made comparable to calculations based on scenario projections?

Question 53. What are some other criteria or considerations in determining qualifying participating/profit sharing and adjustable products?

Question 54. What are some of the considerations for determining the aggregation

of the credit for participating/profit sharing and adjustable products? What are some of the limitations with respect to cross-subsidisation of different products, the application of the credit generally or its ability to be used across the IAIG?

Question 55. As a starting point for determining the value of the credit, does the approach described above represent any challenges? What other options or methodologies should be considered and why?

7.5 Concentration of risks and diversification effects in the ICS capital requirement

149. The management of a portfolio of risks allows for the impact of individual risk events to be spread or diversified amongst the group of exposures included in the portfolio in a more predictable manner. From a capital requirement perspective, as the size of a portfolio of independent risks increases, the relative volatility of results decreases[35] and so the portfolio's behaviour is more predictable. In contrast, a concentration of risks reduces the benefits of diversification.

150. Both diversification and risk concentration effects may apply at multiple levels in the management of an insurance business, such as:

a) Within risks

b) Across risks

c) Across lines of business and portfolios.

151. Combining similar portfolios of risks across different insurers, countries or geographical areas may increase diversification and lead to larger and more stable portfolios. This effect is the same whether the diversification is achieved through branches or separate legal entities. Not all risk in a portfolio may be diversified away, for example systematic risk (also known as undiversifiable risk).

152. In practice, risks in a portfolio are usually not fully independent. This may limit the beneficial impact of diversification when managing the portfolio to a desired level of confidence. Furthermore, under varying conditions (e.g. economic, demographic) the relationship between risks may change. Often in stressed conditions the level of diversification between risks may decrease and hence additional capital may be required to retain the same level of confidence when managing the portfolio in practice. When determining the ICS capital requirement, the changes in the level of diversification between risks under stressed conditions should be recognised. For instance, the recent financial crisis has shown that some diversification benefits tend to diminish or not materialise in stressed times. In other words, risks which are viewed as unrelated under normal circumstances may become less independent under stressed conditions.

[35] In more mathematical language, the coefficient of variation (the ratio of the standard deviation to the mean) reduces as the size of the portfolio increases. The "Law of large numbers" is often referenced as the basis for discussions of diversification. It is also noted that from a statistical perspective diversification is most effective when the risks in a portfolio are independent and identical.

Understanding and analysis of these differences could contribute to promoting sound risk management.

153. To achieve an appropriate level of risk sensitivity within the ICS, the IAIS considers that some risk diversification should be captured at different stages of the calculation of the ICS capital requirement. Some basic elements which should be taken in account if diversification effects are to be recognised include the key variables driving dependencies, non-linear dependency and lack of diversification under extreme scenarios.

154. As indicated above, diversification may be reflected at multiple levels and arises from different sources. For instance, the calculation of a risk charge for a segment of insurance liabilities may take into account some diversification within this segment; similarly the risk charge calculated for the equity risk may take into account some diversification between the different equity assets. There is thus a need to ensure that diversification effects are not double counted.

155. In order to reflect any diversification benefit in the calculation of the ICS capital requirement three basic approaches, separately or in combination, can be included:

a) The addition of risk charges for individual risks. This can be interpreted as assuming full dependency between risks.

b) The aggregation using a defined dependency structure, such as the use of a variance-covariance matrix or the more sophisticated use of copulas.

c) The use of structural dependencies usually reflecting the impact of identified risk drivers, for instance, through the use of specific economic variables and relations between these variables (e.g. inflation may impact a number of risks).

Question 56. How should dependencies and inter-relationships between risks during stressful situations be addressed by the ICS capital requirement?

Question 57. Are there any aspects of diversification of an IAIG's activities that are not identified in this section and that the IAIS needs to consider?

8 Possible approaches to measuring risk

8.1 Introduction

156. Multiple approaches can be used to determine capital requirements. These approaches can be used in isolation or combination. There are two basic approaches: deterministic and stochastic.

157. A deterministic approach relies on carrying out specified calculations and the result that emerges is the outcome used. The outcome is likely to have been calibrated at some point in time relative to external criteria (that is, criteria external to the specific calculations made). A key defining feature of a deterministic approach or calculation is that for a given set of inputs and parameters, the outcome is fully defined and reproducible.

158. Some examples of deterministic approaches that are considered in this Consultation Document are:

a) Factor-based approach

b) Stress approach.

159. This Consultation Document also briefly describes the use of stochastic and structural modelling to determine capital requirements.

8.2 Factor-based approach

160. Under a factor-based approach, the calculation of the ICS capital requirement for a particular or a number of risks is determined by applying factors to specific exposure measures. If all risks are measured using this approach, the overall capital requirement is then calculated by aggregating these separate sub-capital requirements. Factors applied to exposure measures may be determined pre- or post-diversification. Where factors are determined pre-diversification, the aggregation of the sub-capital requirement may allow for diversification by means of correlation matrices or other methodologies. 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.

161. An example of a factor-based approach is represented by the BCR. Under this approach the BCR is determined by applying 15 factors to defined segments within the main categories of insurance activity, namely Traditional Life (TL) insurance, Traditional Non-Life (TNL) insurance, Non-Traditional (NT) insurance, Assets (A) and Non-Insurance (NI).

162. As a formula, the BCR Required Capital is:

$$BCR\ Required\ Capital = \alpha\left[\sum_{i=1}^{4} a_i\, TL_i + \sum_{i=1}^{4} b_i\, TNL_i + \sum_{i=1}^{4} c_i\, NT_i + \sum_{i=1}^{3} d_i\, A_i\right] + \sum_{i=1}^{n} NI_i$$

where:

- α (alpha) is the scalar to determine the overall BCR level
- a_i, b_i c_i and d_i represent the factors applied to the exposures
- TL_i, TNL_i, NT_i, and A_i represent the exposures
- NI reflects the charges provided by sectoral rules for non-insurance activities.

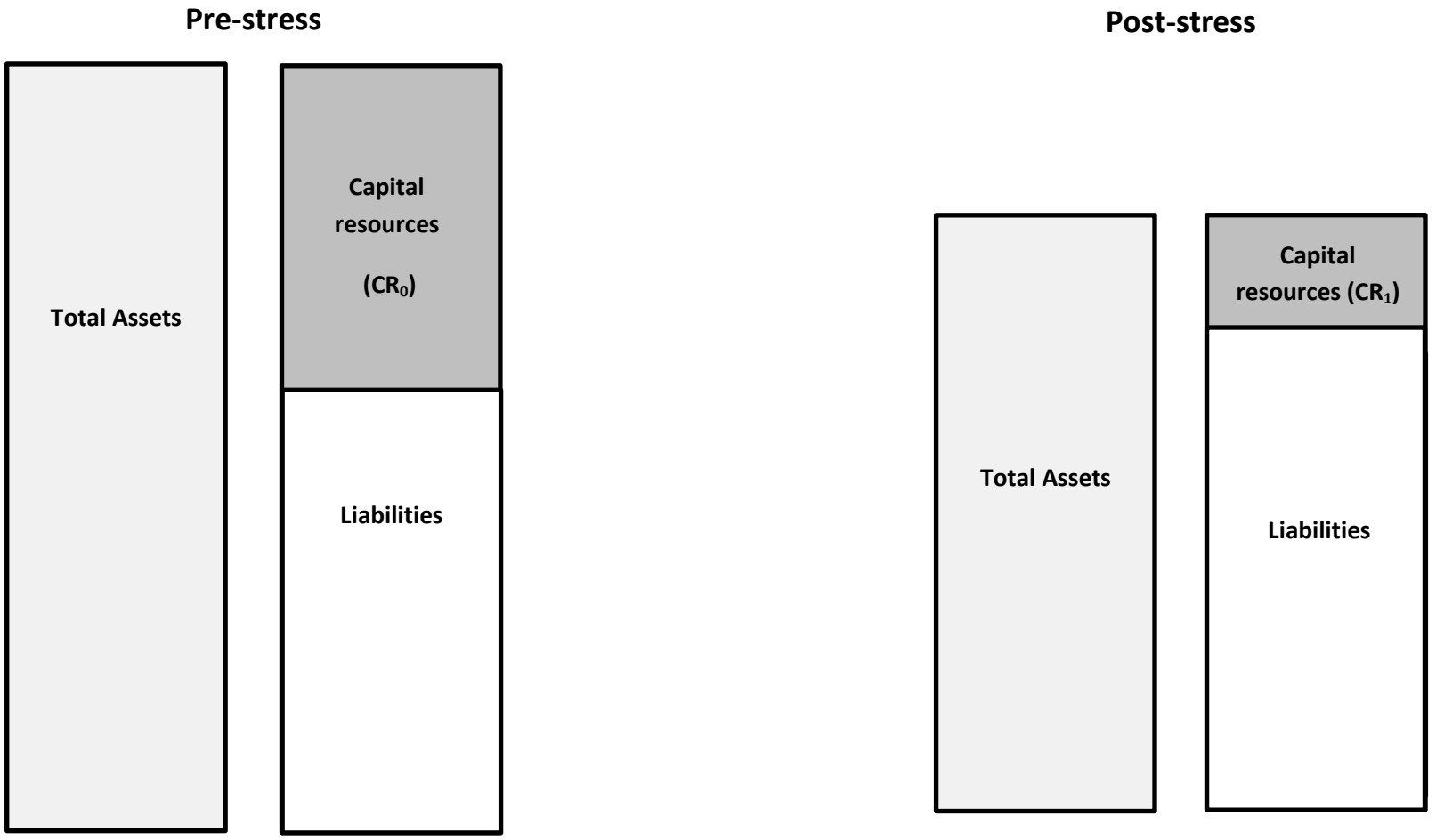
8.3 Stress approach

163. In the stress approach, the calculation of the capital requirement for a particular or a number of risks should follow a dynamic approach looking at the balance sheet at two points in time: the IAIG's current balance sheet pre-stress and the IAIG's balance sheet post-stress. The capital requirement for each individual risk is determined as the decrease between the amount of capital resources on the unstressed balance sheet (CR_0) and the amount of capital resources on the stressed balance sheet (CR_1).

164. Stresses can be applied with individual stressed balance sheets determined on a per risk basis (CR_0 - CR_1) to determine the capital requirement with respect to each stress. If all risks are measured using this approach, the overall capital requirement is then calculated by combining these separate capital requirements, allowing for diversification by means of correlation matrices or other methodologies.

165. Figure 1 illustrates the ICS balance sheet at the valuation pre-stress and post-stress. As described above, the capital requirement is the difference between the current CR_0 and the post-stress scenario CR_1.

Fig. 1. From the balance sheet to the capital requirement



8.4 Stochastic modelling approach

166. Under stochastic modelling, the calculation of the capital requirement for a particular or number of risks is determined using stochastic processes giving scenarios for the possible outcomes of each risk factor. Through aggregation of these risks the distribution for the change in the capital requirement over time can be obtained.

167. The distribution may be obtained in various ways with varying degrees of reliability. Usually the distribution is estimated in some way (commonly some form of Monte Carlo simulation, in which many sample paths chosen from inputs, which are typically also driven by distribution themselves, are evaluated), but in some cases may be determined in a closed mathematical form.

168. Having a distribution of results implies that statistical tools may be applied, including seeking percentiles and other properties. Such tools are not directly available when deterministic approaches are used. In one sense, a properly implemented stochastic approach could be considered to be self-calibrating (for example a specified percentile may be required, but the value for that percentile emerges directly from the distribution), but a deterministic approach needs to be externally calibrated and when the calculation is completed there is no direct indication available as to whether the desired target criteria has been achieved to not.

169. A trade-off between simplicity and ease of application on the one hand, and complexity and richer information on the other hand, needs to be made when choosing between deterministic and stochastic approaches. These approaches are not necessarily mutually exclusive and so hybrid approaches may also be viable.

8.5 Structural modelling approach

170. Structural models are built on causal relations specified a priori using a combination of statistical data and qualitative causal assumptions. The causal assumptions embedded in the structural models often have implications which can be tested against observations.

171. One example of structural model is the credit risk model based on the Merton approach. For example, under this approach the stochastic behaviour of the value of a IAIG's assets is modelled and if the value becomes lower than a threshold, usually a proportion of the IAIG's debt value, the company is considered to be in default. The minimum level of capital resources required is therefore determined to yield a maximum acceptable cumulative probability of default.

172. In general, a structural model analysis goes through the steps of model specification, data collection, model estimation, model evaluation, and (possibly) model modification.

Question 58. What major approaches for measuring risk are not included in Sections 8.2 to 8.5? In what circumstances would these alternative approaches be appropriate?

9 ICS capital requirement: an example of the standard method using the market-adjusted valuation basis

173. As per the IAIS decision set out in paragraph 42, the market-adjusted valuation approach will be used as the initial basis to develop an example of a standard method in the ICS. This section contains an example of a standard method. Its presentation here does not prejudge any aspect of the ICS development; rather it provides a basis for continuing discussion and development. The example is presented here to communicate what is intended in terms of the scope and granularity of the ICS.

174. The IAIS decision also includes, if possible, developing a GAAP with adjustments valuation approach. In line with the IAIS decision, this section has been developed based on the market-adjusted valuation approach. Questions have been added at the end of each subsection in order to collect further information on how the example based on the market-adjusted valuation approach may be relevant in order to calculate an ICS capital requirement for a GAAP with adjustments valuation approach as set out in Section 5.2.

9.1 Approach

175. The approach taken in this standard method is to consider each risk category identified in Section 7.1 and determine an approach to measuring that risk which is suitable on an individual basis. Some risks are best measured on the basis of a stress approach as set out in Section 8.3. This is particularly the case where a risk could manifest in changes in the values of both assets and liabilities, or where the risk cannot be adequately captured by a single factor or item of the balance sheet (e.g. mortality/longevity risk, interest rate risk). Other risks are measured using a factor-based approach as set out in Section 8.2. Cases where this is appropriate include cases where a risk exposure is appropriately captured by a balance sheet item. However, particularly in the case of catastrophe risk, a stochastic modelling approach as set out in Section 8.4 may also form part of this standard method as this is likely to provide the greatest level of risk sensitivity and to adequately reflect the risk profile of the IAIG.

176. The risks will be combined through a correlation matrix or other aggregation techniques to recognise risk diversification as set out in Section 9.2.7.

9.2 Calculations methods within the standard method

Table 4. Summary of risk measurement methods proposed in the example standard method

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

9.2.1 Look-through

177. In the context of the example standard method for the ICS capital requirement, an overarching question is whether a look-through approach should be applied. This issue is potentially relevant for all kinds of risks included in the ICS capital requirement (with the exception of operational risk). There are two options on the implementation of a look-through approach.

9.2.1.1 Option 1

178. For reasons of risk sensitivity and sound risk management, the look-through approach should apply whenever and to the extent possible on the basis of the underlying current exposures at a point in time inherent in the indirect investment or insurance arrangement.

179. When a full look-through is not possible, a partial look-through could be applied, along the lines as provided by the Basel III framework.[51] 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.

180. Finally, when no look-through is possible, the full investment should be considered as an asset belonging to the asset class with the highest risk charge.

9.2.1.2 Option 2

181. A look-through approach can underestimate the risk of collective investment funds, hedge funds, and indirect investments when a point in time approach is used to identify the exposures embedded in such instruments. Therefore current holdings of a collective fund may not represent the true risk of the investment. The approach where the decreasing highest risk exposure permitted is used (as per paragraph 179) better represents the potential holdings and therefore the potential loss of a collective fund.

182. In addition, where a fund is leveraged, the risk is akin to equities risk because the fund unit holders or shareholders own a residual value of the fund.

Question 59. Should a look-through approach be applied on the basis of Option 1 or Option 2?

9.2.1.3 Application

183. In the context of market risks, look-through could be applied, for instance, to collective investment funds, hedge funds, convertible bonds, etc. in order to identify all the indirect exposures embedded in such instruments. A look-through approach should be applied to the extent possible, in order to identify which assets are sensitive to the stress scenario(s), and to select the appropriate scenario that should apply on those assets, depending on their nature.

184. In the context of insurance risks, look-through could be applied, for instance, on mortality bonds, catastrophe bonds, etc. in order to appropriately capture the effect on such instruments of the stress scenarios designed for mortality, longevity, catastrophe events (and any other relevant scenario if any). Such an approach could prevail in both cases where the IAIG is an investor or the issuer of such instruments.

9.2.2 Insurance risk

185. For the purposes of the ICS capital requirement, insurance risk is considered as a number of key risks as set out in Table 2. This means that the IAIG needs to consider whether its business is exposed to each of these risks and apply the standard method, rather than first classifying the business and then applying only some risks set out below.

[51] http://www.bis.org/publ/bcbs266.htm.

The exceptions to this are “premium risk” and “claims reserve/revision risk,” which apply to non-life business only (because these two risks are adequately captured by the other risk components for life business).

9.2.2.1 Grouping of policies for life risks

186. In the example standard method for the ICS capital requirement, the stressed approach may be used to calculate the risk charge for a number of the insurance risks. Where the stress approach is used, the projections of the stressed cash flows should be conducted at the same level of granularity as the pre-stress cash flows to ensure consistency in the pre-stress and post-stress cash flows. For most cases, it is expected that the pre-stress projections will be done for each policy individually. However, where the pre-stress cash flows have been projected using some grouping of policies, the same grouping of policies should be used in the stressed cash flows to ensure consistency in the pre-stress and post-stress cash flows.

187. For some policies, an upward stress may produce an increase in risk charge, while for other policies a downward stress may result in an increase in risk charge. For the purpose of deciding whether to apply an upward or a downward stress, it is necessary to decide on an appropriate grouping of policies, even though the projections are still mostly done on a policy level. The level of prudence of the resulting risk charge would thus depend on the granularity of the policy groupings adopted by the IAIG.

188. At one extreme end, the determination of the upward or downward shock that produces the larger increase in insurance liabilities is evaluated for each policy independently. This is potentially very computationally intensive but reflects individual policyholder behaviour and produces the largest risk charge, as there would be no cross-subsidisation among policies.

189. At the other end, the selection of the direction of the shock that produces the larger increase in insurance liabilities can be one for the IAIG as a whole. This would however result in a significant amount of cross-subsidisation among the different types of products and different types of businesses, e.g. non-unit-linked with unit-linked business, and may understate the ICS capital requirement.

190. From a practicality standpoint, grouping by portfolios of products or policies where the exposure to insurance risk is homogenous within the class should be employed.

Question 60. Is the proposed grouping above appropriate? How can the grouping be refined?

9.2.2.2 Mortality and longevity risks

9.2.2.2.1 Background and proposed approach

191. For mortality and longevity risks, a factor-based approach would not be risk sensitive as the risk of many products is not proportional to their amount on the balance sheet or other measure. A factor-based approach may require a separate calculation to reflect the impact where losses are absorbed through risk mitigating mechanisms, for example:

a) With profit or participating policies, where mortality and longevity risks may be shared with policyholders

b) Reinsurance, especially where the use of non-proportional reinsurance is used

c) Mortality based assets (e.g. longevity swaps), where the value of assets is dependent on changes in mortality/longevity.

192. These impacts would be captured by a stress approach, where the value of the assets and the liabilities after the stress would reflect the impact of these risk mitigating mechanisms.

193. It is therefore proposed that a stress approach is used to calculate the mortality and longevity risks charge within the example standard method for the ICS capital requirement.

Question 61. Is it appropriate and practical to use a stress approach to calculate the mortality and longevity risks for some products/portfolios within the ICS? If yes, which products/portfolios? If not, why not (see also Question 62)?

Question 62. Is it appropriate and practical to use a factor approach to calculate the mortality and longevity risks for some products/portfolios within the ICS? If yes, which products/portfolios? If not, why not?

Question 63. Where risk mitigation tools are used, which ones are more practically measured separately from the liabilities and which ones are more practically measured in combination with the liabilities?

Question 64. How should participating policies be allowed for in the mortality and longevity risk charge calculations?

9.2.2.2.2 Sub-risks to be covered

194. The following components could be included within a stress approach:

a) Stress to the level of mortality

b) Stress to the trend in which mortality is expected to develop

c) Stress to the volatility of mortality rates.

195. Catastrophe mortality stress could also be included but it is proposed this be addressed as part of catastrophe risk.

196. The mortality stress is only applicable to insurance liabilities which are contingent on mortality risk. This means that the stress should only be applied in those cases where the amount currently payable on death exceeds the insurance liabilities held and, as a result, an increase in mortality rates leads to an increase of insurance liabilities. The aim of this provision is to avoid that the natural hedging embedded in the portfolio of the IAIG

leads to an underestimation in the calculation of both mortality and longevity risks. Such effect will be taken into account through the explicit recognition of diversification effects.

197. The longevity stress is only applicable to insurance liabilities which are contingent on longevity risk. This means that the stress should only be applied in those cases where there is no death benefit or the amount currently payable on death is less than the insurance liabilities held and, as a result, a decrease in mortality rates is likely to lead to an increase in the insurance liabilities. The aim of this provision is to avoid that the natural hedging embedded in the portfolio of the IAIG leads to an underestimation in the calculation of both mortality and longevity risks. Such effect will be taken into account through the explicit recognition of diversification effects.

198. For the stress to the level of mortality, it is proposed that a simple approach is taken whereby the best estimate level of mortality is increased and decreased by specified percentages to capture mortality and longevity risks respectively.

199. Experience has generally shown that mortality rates decrease over time. For mortality products, the ICS capital requirement may include a stress to the trend if the best estimate assumptions used includes an assumption relating to the trend or if the assumption is not zero.

200. For longevity products, the trend of mortality over the life of the product is a very important assumption, and in most cases this would explicitly be modelled within the best estimate calculation. Quite often, this may also be age dependent as different cohorts of lives would be assumed to have different rates at which mortality rates would decrease.

201. It is proposed that the rate at which mortality changes is stressed. This could be stated as an additional percentage decrease in addition to what is already assumed in the best estimate mortality trend. Care should be taken to avoid double counting in the calibration and application of the level and trend risks for mortality and longevity.

202. With the understanding that the ICS capital requirement is being developed for IAIGs with large portfolios exposed to mortality and longevity which may not be subject to random volatility in the same as smaller portfolios, and also considering that the calculations may be complex and the data in some cases scarce, the IAIS may nonetheless explore a stress on volatility.

Question 65. Which sub-risk components (see paragraph 194) should be included within the mortality and longevity risks calculation?

Question 66. For each risk component that should be included, which approach may be most appropriate for its measure and why?

9.2.2.2.3 Segmentation and granularity

203. Different parts of the world have different mortality characteristics, and therefore may justify having different stresses applied depending on the region of the exposure. In order to make the application of the calculation practical, it is also proposed that the calculation is not too granular, but split into a few high-level regions.

204. Further work is required to determine the geographic groupings which may have a similar stress for the same target criterion. As a starting point, it is proposed that the following geographic groupings be used to determine if there are different stresses to be applied:

a) EEA and Switzerland

b) United States and Canada

c) Japan

d) Other developed

e) Emerging market.

205. For determining which countries fall in categories of "other developed" and "emerging market," classifications used by the World Bank, OECD, IMF, MSCI and others will be considered.

206. To the extent feasible where some jurisdictions' mortality characteristics justify a significantly different stress for the same target criterion within a region, the ICS capital requirement may be more granular so that it reflects the proper level of risk. One manner of doing this may be by grouping stress levels. Further work is required to determine the groupings by level of stress for the same target criterion. For example, buckets could be expressed as:

a) +/- 45% and above of best estimate assumption => 50% (maximum)

b) +/- 35% to 45% of best estimate assumption => 40%

c) +/- 25% to 35% of best estimate assumption => 30%

d) +/- 15% to 25% of best estimate assumption => 20%

e) +/- 0% to 15% of best estimate assumption => 10% (minimum).

207. It should be noted that the above split is only to determine whether the level of stresses applied should vary by region – the base best estimate assumption level may naturally vary widely even within jurisdictions.

208. It is further suggested that there is no differentiation in the level of the stress applied by product type.

Question 67. Should the IAIS explore other groupings or should it not further explore one or both of the geographic or stress bucket groupings in favour of determining a specific level of stress for each jurisdiction as these implement the ICS at the then specified target criterion?

Question 68. Are there jurisdictions where an IAIG does business for which it may not be clear in which geographic grouping it should be included? If yes, which

jurisdictions and in which geographic group should they be included?

Question 69. How could stress buckets/groupings be used and how should these is defined?

Question 70. If GAAP with adjustments were used as an alternative valuation approach for the ICS, detail those adjustments, if any would be required to produce comparable mortality/longevity risk charge to those produced using the Market-Adjusted Valuation approach under the mortality/longevity risk charge described in this section.

9.2.2.3 Morbidity/disability risk

9.2.2.3.1 Background and proposed approach

209. The risk charge determined for this risk reflects the impact of unexpected changes in the level, trend or volatility of disability, sickness and morbidity rates (expected impacts are assumed to be incorporated in valuation methodologies) as well as unexpected changes in the level of claims payments. This risk category includes risk events that are caused by accident as well as by sickness. In summary, morbidity/disability risk covers all risks linked to unexpected changes in the health status, and their management, of policyholders. For clarity, this risk is applied to both life and non-life business that has exposure to morbidity/disability risk.

210. The risk charge relating to the morbidity/disability risk would be obtained by the application of a stress scenario, designed as a combination of stresses on all the risk factors identified below.

9.2.2.3.2 Sub-risks to be covered

211. The following examples of major types of morbidity/disability risks that have been identified:

a) Sickness

b) Accident at work/occupational disease while employed and post-employment (particularly with respect to occupational disease)

c) Critical illness, specifically tied to benefit availability depend on not dying in specified time period following confirmation of diagnosis

d) Disability, including temporary and permanent, temporary and full, physical and non-physical (mental)

e) Loss of income, including past and future income and includes (but not limited to) salary replacement

f) Long-term care - all forms of insurance that address full or partial loss of ability to perform all defined and established functions of daily living

g) Health insurance – medical and directly related expenses

h) Health insurance – other than medical and directly related expenses(particularly including preventative health and well-being benefits)

i) Other.

212. In terms of types of payment claims, there are two main possibilities:

a) Income stream benefit payments that take the form of an annuity (either lifelong or of limited term, and not necessarily with equal payments). An example of this is benefits due to loss of salary (after the exclusion of any social/government benefits in this regard).

b) Single benefit payment - this has two main aspects (which have different risk characteristics):

i. Indemnity - reimbursement (perhaps subject to limits) for expenses incurred. An example of this is medical expense payments.

ii. Benefit - payment of an amount contractually agreed in advance of the risk event occurring (and not directly linked to expenses incurred). An example of this is the typical crisis cover payment that is specified on commencement of the contract as a sum insured.

213. There are a number of areas in which adverse outcomes may arise. These may be associated with a number of risk factors to which an IAIG may be sensitive:

a) Increase of the incidence rates (claim frequency). It is assumed that a decrease in claims rate does not lead to adverse financial outcomes for the IAIG.

b) Decreases in the "exit rate" (decrease of the recovery/termination) from annuity benefit payment streams. This may be aggravated by any guarantees on number or quantum of payments. Examples where decreases in "'exit" rate are likely to be adverse for the IAIG include long-term care products and salary replacement. This implicitly includes the risk of increased duration of the length of annuity payment streams.

c) Increase(s) in payments made - this is particularly relevant to both annuity payment streams and to single benefit indemnity payments. In some case this may be driven by factors outside the control of the IAIG, such as medical expense incurred.

214. In addition to those direct risks identified above, a broader "over/under payment" risk is identified for products for which there may also be other payments made from other sources, particularly through social/government systems. In such cases insurance policy benefit payments are provided over and above those from the other sources (such as social/government schemes) and benefits from other compulsory insurance sources (such as compulsory motor or workers compensation schemes) may need to be adjusted to prevent over or under payment in aggregate. Consequently, changes in benefit payment from other sources may result in changes in the benefit payments made by the IAIG.

215. Such changes in the social/governmental schemes are typically not in the control of the IAIG. Further risks may also arise through judicial decisions that arise through the

court system and change or set precedents. This over/under payment risk is particularly relevant when benefit payments are specified prior to the risk event occurring, not indemnity based.

Question 71. With respect to the list examples of major types of morbidity/disability in paragraph 211, the expectation is that the "Other" category should be small. Are there material omissions in the preceding list of examples?

Question 72. Are there any material or benefit payment approaches (or implications of them) that that should be included but are not mentioned above?

Question 73. Regarding the over/under payment risk, is this likely to be significant? More generally, are there good reasons for excluding consideration of the over/under payment risk in the design of risk charges for morbidity/disability risk?

9.2.2.3.3 Segmentation and granularity

216. A possible example of a stress scenario would be the following simultaneous occurrence of:

a) A relative increase of [x%] of the incidence rates used in the calculation of insurance liabilities, for ordinary disease/accident at work/critical illness/dependency

b) A relative decrease of [y%] of the recovery/termination rates used in the calculation of insurance liabilities, for all risk categories mentioned above

c) A relative increase of [c%] of the medical expense costs, combined with an absolute increase of [i%] of their inflation, projected in the calculation of insurance liabilities.

217. This example corresponds to one of the simplest possible designs for a stress scenario. This design could be refined (and therefore also made more complex) by differentiating the stress parameters according to:

a) The type of morbidity/disability risk considered

b) The area considered (geographical segmentation)

c) The point in time (in the future) at which the stress applies (for instance, it could be envisaged to consider a bigger stress on incidence rates for the first year, decreasing after 1 year).

218. In addition, it should also be considered whether such stress scenarios should be applied across all products, or whether a differentiation should be made between "similar to life" and "not similar to life" products. If a differentiation were to be made, the above specified stress scenario would apply only to "similar to life" products. The "non-similar to life" products would be subject to a less refined factor-based approach, applied directly to relevant bases such as premiums and provisions.

Question 74. Should a distinction be made between "similar to life" and "not similar to life" products? Or should a stress scenario as designed above be applied consistently across all the portfolio of policies of IAIGs?

Question 75. With regard to the stress scenario, is the example provided above fit for purpose? If not, why? If "no," what should be refined, e.g. the differentiation of the stress factors by type of biometric risk; by geographical area; by point in time in the future (please indicate in order of priority)?

Question 76. Is the combination structure presented above (simultaneous occurrence of stresses) appropriate? If not, why and what is the alternative?

Question 77. If GAAP with adjustments were used as an alternative valuation approach for the ICS, detail those adjustments, if any that would be required to produce comparable morbidity/disability risk charge to those produced using the market-adjusted valuation approach under the morbidity/disability risk charge described in this section.

9.2.2.4 Lapse (contractual option) risk

9.2.2.4.1 Background and proposed approach

219. The lapse risk charge addresses the uncertainty in lapses beyond those assumed in the insurance liabilities arising from policyholder options to either partially or wholly, terminate, surrender, reduce, or increase insurance coverage. This includes the reduction or suspension of premium payments where applicable, such as for unit-linked policies, as well as changes in option take up rates such as annuitisation options. This risk is likely to apply only to life business.

9.2.2.4.2 Sub-risks to be covered

220. Lapse/ option exercise experience may be worse than that assumed in the insurance liabilities due to various reasons, such as, but not limited to:

a) Unexpected increase in mortality for term products may be accompanied by increase in premium rates which in turn results in policyholders lapsing their coverage. Similarly, increases in premium rates for health insurance arising from poor claims experience may lead to poorer persistency experience.

b) Unexpected increases in the insurance coverage (payment of additional premiums to a savings contract, that the IAIG cannot reject), or lower than expected lapse rates.

221. Lapse/persistency changes due to changes in market conditions are dealt with in the market risk section. Although the effect from market changes may be experience through lapses, increases in coverage or unexpected persistence, the risk driver for many such changes is due to market changes. Therefore, for instance in an equity stress situation, the effect on lapse rates should be considered in respect of this particular risk.

9.2.2.4.3 Segmentation and granularity

222. The example standard method for the ICS capital requirement covers the following risks:

a) Changes in the level and trend due to mis-estimation of lapse rates or permanent change in lapse rates. This includes the risks arising from paragraph 220 above.

b) Temporary, large increases in lapses occurring over a short period of time i.e. a mass-lapse event. For example, policyholders may lose their confidence in the insurance group, thereby resulting in mass surrenders. Similarly, a financial crisis may lead to a general loss of public confidence in the insurance industry. This can be exacerbated when policies have cash values that are higher than insurance liabilities.

223. The effect of diversification can be considered to the extent that the risks described in paragraph 220 above have been taken into account in the various other risk charges for insurance risk such as mortality and morbidity.

Question 78. Does the proposed scope of the capture the key risks relating to lapses? If not, please provide comments on any other key risks that should be considered.

9.2.2.4.4 Variation by geographical region

224. Due to the different demographical nature of policyholders by geography, and the different methods of product distribution, the severity of the shocks corresponding to a given target level of calibration may vary by geography.

225. It is proposed to differentiate the shocks by major geographical groups. The geographical groupings proposed are the same as those for mortality and longevity risk in paragraph 204 with the same definitional considerations as in paragraph 205.

Question 79. Is the proposed grouping by geographical region appropriate for lapse risk? If not, what should be the appropriate geographical grouping?

9.2.2.4.5 Differentiation of Level and Trend Risk by Product

226. Various studies have indicated that lapse experience differs by product type and duration in-force. For example, earlier durations tend to show higher incidence of lapses which gradually reduces with time. Simplified or no-underwriting products also tend to have higher lapse experience compared with products requiring full underwriting.

227. The idiosyncratic nature of lapse rates as noted above is already reflected in the best estimate lapse assumptions. It is therefore proposed that the lapse shock be not differentiated by product type or duration as the application of the lapse shock to the underlying lapse rates would have considered the particular nature of the lapse assumptions.

9.2.2.4.6 Differentiation of Mass Lapse by Type of Coverage

228. It is likely that mass lapses would be highly dependent on the nature of the underlying coverage. For example, products with a higher level of guarantees such as participating products may have better persistency compared with products such as term or unit-linked. Similarly, group business may be more prone to lapsation due to a lack of surrender charges.

Question 80. Should the mass lapse risk charge depend on the type of products? If yes, how should the mass lapse risk charge be considered by product?

9.2.2.4.7 Practical example

229. In this practical example, the lapse risk charge is calculated based on the increase in insurance liabilities after being subjected to the appropriate shocks. The lapse risk charge will be the larger of the lapse risk charge for (A) level and trend component and (B) mass lapse component as described below.

(A) Level and Trend Component

230. The behaviour of the insurance liabilities in response to the lapse shocks will be different for lapse supported products and lapse sensitive products. In order to properly capture this risk, there is a need to subject the insurance liabilities to both upward and downward shocks on the best estimate lapse rates.

231. The larger of the increase in the resulting insurance liabilities will be taken as the lapse risk charge relating to level and trend risk. Decreases in the insurance liabilities will be floored at zero.

232. For example the shocked lapse rates used in the level and trend component may be determined as follows:

a) Shocked-up rate = min [(1+X%) * W, 100%], X > 0

b) Shocked-down rate = (1+Y%) * W, Y < 0

where W is the underlying best estimate lapse rate assumed in the insurance liabilities.

233. Additional caps and floors may be imposed on the shocked rates. For example, the shocked-down rate may be subject to a minimum shock.

(B) Mass Lapse Component

234. The best estimate lapse rate rates for the next 12 months will be increased by the mass lapse shock. Decreases in insurance liabilities will be floored at zero, i.e. only increases in the shocked insurance liabilities will be considered.

235. In general, the above design approach is in line with that used by some IAIS Members surveyed.

Question 81. Is the above methodology appropriate? If not, please provide comments on how the methodology can be refined.

Question 82. Is lapse risk also relevant for Non-life business, and if so, to what extent would the methodology described for measuring lapse risk for life business be appropriate for non-life business?

Question 83. If GAAP with adjustments were used as an alternative valuation approach for the ICS, detail those adjustments, if any that would be required to produce comparable lapse risk charge to those produced using the market-adjusted valuation approach under the lapse risk charge described in this section.

9.2.2.5 Expense risk

9.2.2.5.1 Background and proposed approach

236. Expense risk is the risk of adverse change in the value of qualifying capital resources due to unexpected changes in the level of management expenses and includes increases in expenses associated with paying claims and, where appropriate, surrender benefits. Additional expenses can also arise due to higher than expected inflation compared with those assumed in insurance liabilities. For clarity, this risk is applied to both life and non-life business.

237. The expense risk charge covers the uncertainty in expenses arising from changes in the level, trend or volatility of the expenses incurred. The expense risk charge is calculated based on the increase in insurance liabilities by:

a) applying an upward shock to the unit expense assumptions and

b) increasing the expense inflation.

238. In the above, the upward shock to the unit expense assumptions may be further refined by increasing the shock in the next 12 months. Medical expense inflation will be covered in the morbidity risk charge.

Question 84. Is the above methodology appropriate? If not, please provide comments on how the methodology can be refined.

Question 85. If GAAP with adjustments were used as an alternative valuation approach for the ICS, detail those adjustments, if any that would be required to produce comparable expense risk charge to those produced using the market-adjusted valuation approach under the expense risk charge described in this section.

9.2.2.6 Premium risk

9.2.2.6.1 Background and proposed approach

239. Premium risk covers risks associated with the timing, frequency and severity of future insured events being higher than expected. This risk is applicable to non-life business only, because premium risk for life business is captured within mortality, longevity and lapse risks. Note that to the extent that premium risk for non-life business is already captured by assessment under morbidity/disability risk, it would not be included here to ensure there is no double-counting of risk.

Question 86. Will there be any issues with separating non-life business in the way outlined above? Why or why not?

240. It is proposed that the risks associated with future claims related to catastrophe events are considered separately from premium risk – see Section 9.2.2.8.

Question 87. Will there be any difficulties in separating premium and catastrophe risk? If yes, how else can these two risks be treated? If no, where should the threshold between premium risk and catastrophe events be set? Why is this appropriate?

241. It is proposed that a factor-based approach can appropriately capture premium risk as outlined above (i.e. excluding catastrophe and morbidity risk). For most classes of business, a factor could be applied across the appropriate segmentation to reflect an increase in the expected losses. These factors could be a set percentage of the exposure measure, or could be set as a loss ratio shock factor (calculated as shock loss ratio divided by base loss ratio). The factor is intended to capture the unexpected changes in timing, frequency and severity. It is noted that this approach may not capture idiosyncratic risks such as changes in trends.

Question 88. Is it appropriate to use a factor-based approach to calculate premium risk? If not, what other alternative approaches in Section 8 could be used? How would it/they work? If yes, which type of factors should be included in the ICS capital requirement, set factors or shocks to loss ratios? Is it necessary to address idiosyncratic risks?

242. It is proposed that the relevant exposure amount for most classes of business could either be total premium charged to policyholders including all associated expenses, or could be a measure of unearned premium. It is acknowledged that for some non-life business (e.g. mortgage insurance) alternative exposure measures may be more appropriate.

Question 89. Which exposure amount – premium charged or unearned premium – would be most appropriate to use for most classes of business and why? Which classes of business should not use this as an exposure measure? If possible, provide alternatives including reasons for those alternatives.

243. For some non-life business, there are additional complications such as the impact of guarantees of future coverage or multi-year contracts will need to be taken into account. The IAIS will consider how to capture these impacts and whether they can be adequately captured by the factor and/or the exposure measure. For example, if unearned premium is used for exposure amount, the IAIS could specify that the exposure also capture the expected premium for the guarantee or other years of multi-year contracts.

Question 90. How should the risk charge for premium risk capture these additional risks? Why is this appropriate?

9.2.2.6.2 Segmentation and granularity

244. Segmentation of business will be informed by the segmentation used for the first field testing exercise in 2014; however, it is expected to be more granular. It will take into account whether business written is direct or reinsurance business, with non-proportional reinsurance business written treated separately.

245. Geographic groupings are also likely to be important to ensure appropriate risk sensitivity for premium risk. The geographical groupings proposed are the same as those for mortality and longevity risk in paragraph 204 with the same definitional considerations as in paragraph 205.

Question 91. What segmentation of business lines would be appropriate for premium risk? What specific issues with respect to reinsurance should be addressed?

Question 92. Is the proposed grouping by geographical region appropriate for premium risk? If not, what should be the appropriate geographical grouping?

Question 93. If GAAP with adjustments were used as an alternative valuation approach for the ICS, detail those adjustments, if any that would be required to produce a comparable premium risk charge to those produced using the market-adjusted valuation approach under the premium risk charge described in this section.

9.2.2.7 Claim reserve/revision risk

9.2.2.7.1 Background and proposed approach

246. Claim reserve/revision 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 will include all possible claims under polices, 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 claim reserve/revision risk. This risk is applicable to non-life business only, because this risk is captured within mortality, longevity and lapse risk for life insurance business. Note that to the extent that this risk is already captured by assessment under morbidity/disability risk, it would not be included here to ensure there is no double-counting of risk.

Question 94. Will there be any issues with separating non-life business in the way outlined above? Why or why not?

247. It is proposed that a factor-based approach can appropriately capture this risk. A factor could be applied to an appropriate measure of claims across the appropriate segmentation to reflect the increase in expected future payments.

Question 95. Is it appropriate to use a factor-based approach to calculate claim reserve/revision risk? If not, what other alternative approaches in Section 8 could be used? How would it/they work?

248. It is proposed that the relevant exposure measure be current estimates.

Question 96. Is it appropriate to apply the factor to current estimates? If not, what exposure would be more appropriate? Why?

9.2.2.7.2 Segmentation and granularity

249. Segmentation of business will be informed by the segmentation used for the first field testing exercise in 2014; however, it is expected to be more granular. For practical reasons it is likely to be the same as that used for premium risk. It will take into account whether business written is direct or reinsurance business, with non-proportional reinsurance business being treated separately.

250. Geographic groupings are also likely to be important to ensure appropriate risk sensitivity for claim reserve/revision risk. The geographical groupings proposed are the same as those for mortality and longevity risk in paragraph 204 with the same definitional considerations as in paragraph 205.

Question 97. What segmentation of business lines would be appropriate for claims reserve/revision risk? Should the segmentation be the same for premium risk? Why or why not?

Question 98. Is the proposed grouping by geographical region appropriate for claim/revision risk? If not, what should be the appropriate geographical grouping?

Question 99. If GAAP with adjustments were used as an alternative valuation

approach for the ICS, detail those adjustments, if any that would be required to produce a comparable claim/revision risk charge to those produced using the market-adjusted valuation approach under the claim/revision risk charge described in this section.

9.2.2.8 Catastrophe risk

9.2.2.8.1 Background and proposed approach

251. This covers risks associated with claims events that have yet to happen, and are risks associated with low frequency/high severity events, often arising from an aggregation of multiple claims arising from a single source. It considers all losses arising in the next 12 months, not just from a single event, and may take into account expected business volumes. For clarity, this risk is applied to both life and non-life business.

252. Allowance will be made for any risk mitigation arrangements, e.g. outwards reinsurance protection purchased, which may reduce overall catastrophe risk. For the purpose of the catastrophe risk charge it should be assumed that any credit risk associated with such arrangements is zero (i.e. the payments will always be fully recovered where applicable), and the contingent credit risk associated with such recoveries should be assessed as part of credit risk – see Section 9.2.5.

253. It is expected that some exposures to catastrophe risk will be protected by reinsurance arrangements and that these arrangements will form a material component of the management for such risk by the IAIGs. The IAIGs will be allowed to claim the benefit of the reinsurance arrangements, subject to the provisions on the use of risk mitigation provided in Section 7.3, however in order to provide supervisors with an important information on the potential exposure to risk of IAIGs and important information on the quantification of the associated credit risk, the exposures to catastrophe will be reported to the group wide supervisor both gross and net of qualifying external reinsurance. The benefit of reinsurance arrangements will take into account potential reinstatement premium associated with these arrangements.

254. Such risks cannot realistically be assessed using a simple factor-based approach, due to the complex and heterogeneous nature of exposures and risk mitigation arrangements made by IAIGs. In practice the assessment will need to be quantified using standardised stress and scenario test techniques. It will be necessary to rely on IAIG self-assessments, but these should be subject to supervisory oversight, which will increase as catastrophe exposures become more material to the IAIG.

9.2.2.8.2 Sub-risks to be covered

255. All business which is exposed to catastrophe events will be covered by this section. Typical examples would be natural catastrophe perils such as hurricanes/cyclones, earthquakes, flooding and wildfires. It also covers ‘man-made’ perils, often considered as part of disaster scenarios in extreme stress tests, such as airliners colliding over a major city, cruise ship colliding with a fully laden oil tanker resulting in massive environmental pollution, terrorist atrocities etc. Catastrophe losses generally associated with life business, for example a pandemic, should also be included within the scope of this section.

256. The catastrophe risk should cover not only the main peril (e.g. windstorm, earthquake), but also the secondary perils associated with the primary peril. For example, storm surge as well as demand surge or loss amplification should be associated with tropical cyclone as appropriate. Fire following earthquake, sprinkler leakage and demand surge or loss amplification should be associated with earthquake as appropriate.

257. The historic data on which to base catastrophe risk calibrations is very sparse. This is especially true for catastrophes associated with long-term business for which the biggest mortality catastrophe events have historically been pandemics, and where much of the data collected may not be relevant anymore given the advancement in measures that can be taken today to avoid widespread deaths compared to what was available in the past.

258. In some instances, the impact of a single peril can materialise within several sub-risks. For example, a pandemic event could result in increases in mortality and morbidity risk, offset to some extent by a reduction in longevity risk.

259. Such an interaction between sub-risks could be addressed in one of two potential ways:

a) Explicitly by modelling the various sub risks together

b) Implicitly by modelling each sub-risk, but reflecting the interaction between the risks through a correlation parameter when the risk charges are aggregated.

Question 100. Which of the two approaches described above would be most appropriate in the context of the ICS capital requirement?

260. Furthermore, perils may have an impact on multiple high level risk categories (e.g. market risk and premium risk). For instance, catastrophes such as acts of terror or pandemics could impact the valuation of assets. Again, this interaction could be addressed by quantifying risk in respect of each risk independently and then applying a correlation factor or alternatively by holistically considering the overall impact of the peril.

261. It is proposed that there is no catastrophe stress applied for longevity risk. If there is a sudden event resulting in a decrease in mortality rates, it is likely that this would be a permanent decrease in mortality and would be best modelled through a stress of the level or trend of mortality rates.

Question 101. Is the approach above appropriate? If not, please explain what other approach should be adopted and why.

9.2.2.8.3 Segmentation and granularity

262. Catastrophe risk could be segmented at the risk/peril level as it is likely to be the appropriate segmentation for the IAIGs to manage and report such type of risk. “Peril”

should be interpreted in its broader sense to cover both naturally occurring and man-made perils and their consequences.

263. The segmentation at the peril level also allows for ease of aggregation, providing the additional benefit of meaningful information for the monitoring of a potential aspect of the systemic nature of some insurance activities.

264. Although the segmentation by lines of business does not seem necessary, all exposed lines of business should be considered by the IAIGs when calculating the catastrophe risk charge. For example, a natural catastrophe such as an earthquake could impact not only the residential property, commercial property, auto and marine lines of business, but also specie/fine art, personal accident, aviation, liability, cancelation and some life insurance lines of business.

265. As part of the ICS standard method, it is proposed that at least the following perils will be subject to a risk charge:[52]

a) Tropical cyclone

b) Extra-tropical windstorm and hail

c) Earthquake

d) City centre terrorist attack

e) Marine collision

f) Pandemic.

Question 102. Which perils should be included in the ICS standard method? Is the list above appropriate? Should it include additional perils or exclude some of the listed perils? Please provide comments with reasons. Please provide comments about possible criteria for perils to be included in the list of perils.

266. In the event that an IAIG has material exposure to a peril not included in the list of perils in paragraph 265, the IAIG will be required to define this peril and submit equivalent data in respect of this "bespoke peril" in addition to the compulsory perils.

[52] Unless the IAIG demonstrates that its exposure to such peril is not material.

Question 103. How should the IAIS define material in this context? Should materiality be defined in terms of likely impact on the ICS, or in relation to a more objective measure such as premium or other exposure threshold?

Question 104. For the purpose of field testing, the IAIS is considering collecting data for various confidence levels from full empirical distributions, in order to consider the shape of the distribution and the most appropriate aggregation method. Is that likely to be a challenge for IAIGs? Please explain.

9.2.2.8.4 Practical examples

267. Different options for the quantification of catastrophe risk for the purpose of the ICS standard method could be considered. A first possible option would be to develop factors to be applied to insurance premium. A second option would be to calculate factors associated with defined catastrophe scenarios. A third option would be to report estimated losses resulting from pre-defined scenarios (i.e. catastrophe events). A fourth option would be to allow the use of partial models in particular regarding natural catastrophe.

268. For the purpose of field testing of the ICS standard method, proposals to pursue the use of defined scenarios and the allowance to use partial models would appear to be appropriate (i.e. the third and fourth options defined above).

269. The defined scenario method would require the IAIS to provide detailed descriptions of scenarios to be applied and to mandate acceptable approaches to calculate the impact of such scenarios on the IAIG's exposures. A detailed description of a scenario would include a footprint map of the event together with the physical characteristic of the event. For example in the case of a tropical cyclone, this would include various points of landfall, the intensity at landfall, various paths of the cyclone on land and the intensity reduction rate on land. The definition of an event would also include the assumed industry loss level divided by primary lines of business (e.g. residential property, commercial property, auto, marine etc.). In the case that it is appropriate for an IAIG to submit a bespoke peril, the IAIG would also be required to define such bespoke event.

270. In the case of pandemic the defined scenario is likely to take the form of "x per mille in addition to the average mortality rate."

Question 105. **Are the defined scenario method and the use of partial models appropriate for the purpose of the ICS standard method? If yes, please explain why. If not, please provide alternative methods and explain why they would be more appropriate.**

Question 106. **In case of a defined scenario by the IAIS:**

a) What elements should be part of the description of the scenario defined by the IAIS? Please provide an example.

b) Which calculation method by the IAIG of the impact of a defined scenario should be allowed by the IAIS for the ICS standard method? Please explain why this is appropriate.

Question 107. **In the case of a bespoke defined scenario by the IAIG, should the scenario be approved by the IAIS before its application by the IAIG?**

271. The use of partial models is likely to provide the greatest level of risk sensitivity and to adequately reflect the risk profile of the IAIG. The use of partial models would also align the ICS method with generally accepted market practice for the quantification, monitoring, management and reporting of catastrophe risk. However, it will provide practical and regulatory challenges.

Question 108. **Should the use of partial models be allowed for the calculation of catastrophe risk for the ICS standard method? Why or why not.**

Question 109. **In the case where the use of partial models is allowed by the IAIS:**

a) Should IAIGs be required to seek prior approval of the partial models?

b) What criteria should be applied by the IAIS (either as generic conditions, or as part of the prior approval) to allow the use of internal models?

c) What information about the partial model and its use by the IAIG should be provided to the supervisor with each ICS calculation?

Question 110. **If GAAP with adjustments were used as an alternative valuation approach for the ICS, detail those adjustments, if any that would be required to produce a comparable catastrophe risk charge to those produced using the market-adjusted valuation approach under the catastrophe risk charge described in this section.**

9.2.3 Market risk

272. When considering market risk, it is not only the direct impact on the value of balance sheet items that must be considered, but also the consequential impact of market changes on policyholder behaviour. For instance, with respect to policy lapses:

a) Unexpected increases in future interest rates for non-participating products may lead to the products being perceived as less attractive compared with newer insurance or investment products.

b) Reduction in bonus rates as a response to equity losses or decreases in interest rates may result in policyholders perceiving their coverage to be less valuable or attractive.

9.2.3.1 Interest rate risk

273. Interest rate risk is defined as the risk of loss arising from adverse movements in the level and volatility of interest rates. Since changes in interest rates affect both assets and liabilities of an IAIG, the intent of the example standard method for the ICS capital requirement regarding interest rate risk is to measure the net loss in an IAIG's qualifying capital resources in the event of an adverse movement in interest rates.

274. Two approaches are considered for the calculation of the interest rate risk charge: an approach based on measuring the durations of an IAIG's assets and liabilities, and an approach based on measuring the changes in the market-adjusted value of an IAIG's assets and liabilities under prescribed stresses to the term structure of risk-free interest rates.

275. Under the simplest duration-based approach, the interest rate risk charge would be calculated by applying a single factor to the absolute value of the difference in the dollar durations of an IAIG's assets and liabilities. A more complex approach would entail measuring the net dollar duration[53] within a number of duration buckets so that different factors could be applied to the net exposure within each bucket, approximating the effect of a non-parallel yield curve shift. Both duration approaches would recognise the effect of risk mitigating hedges such as interest rate swaps.

276. Under the prescribed stress approach, the interest rate risk charge will be the maximum loss to an IAIG's qualifying capital resources under various prescribed up and down interest rate stress scenarios, taking into account the optionality and other non-linear features of assets and liabilities. Such optionality includes changes in insurance product lapse rates in response to changes in interest rates, as well as other shortening or lengthening of asset or liability maturities as compared to contractual maturities (e.g. prepayments on mortgages). There will be at least two stress scenarios: one in which all of the interest rates in the term structure move up, and one in which they move down. For any prescribed scenario, the example method for the ICS capital requirement could specify the form of the interest rate shocks based on the existing term structure as of the valuation date. The form of the prescribed shocks should be sufficiently general so that they may be applied to the interest rate term structures in multiple currencies and also be used in determining changes to policyholder behaviour, particularly through changes in lapse rates.

[53] Dollar duration measures the dollar or currency value change in a bond's value to a change in the market interest rate. The dollar duration is generally used as a way of approximating a bond portfolio's interest rate risk.

Question 111. Are the approaches outlined above appropriate for the calculation of the interest rate risk charge? Should any other approaches be considered, and if so, what are they and why?

Question 112. What should be the form of the prescribed interest rate shocks, and in particular how should the shocks relate to the existing term structure? Are there any other scenarios besides upwards and downwards shocks at all terms that should be included in the set of prescribed scenarios?

Question 113. Under the second approach, should the IAIS consider different shock magnitudes for each duration bucket, or even a flat or inverted yield curve scenario?

Question 114. Should the IAIS consider an immediate shock or a shock over a period of time, or both?

277. For the prescribed stress approach, the example standard method for the ICS capital requirement may contain specific guidance on which assets, liabilities and off-balance sheet items should be treated as interest sensitive, and how they should be revalued under the stresses. Those may include real estate, preferred shares, unit-linked policy liabilities, liabilities with profit sharing, interest rate swaps, and items whose cash flows vary directly with interest rates.

278. Many assets (such as bonds), insurance liabilities (e.g. fixed annuities) and derivatives (e.g. caps and floors) are sensitive to both the level and volatility of interest rates. However, the dependence of the value of an interest rate option on volatility will not be captured if only interest rate levels are stressed. Under the prescribed stress approach, it may therefore be necessary to include interest rate volatility shocks in addition to the term structure shocks.

Question 115. Should the IAIS consider inclusion of interest rate volatility shocks in addition to the term structure shocks?

Question 116. If GAAP with adjustments were used as an alternative valuation approach for the ICS, detail those adjustments, if any, that would be required to produce a comparable interest rate risk charge to those produced using the market adjusted valuation approach under the interest rate risk charge described in this section. Please pay particular attention to interest rate-sensitive liabilities.

9.2.3.2 Equity risk

9.2.3.2.1 Background and proposed approach

279. In the context of the equity risk for the example standard method for the ICS capital requirement, “equity” should be understood as a broad class of assets, including not only common listed equities, but also for instance:

a) Preference shares

b) Infrastructure investment (separate granularity)

c) Commodities

d) Unlisted equity

e) In general, any class of assets not explicitly taken into account through other risks listed for the example standard method for the ICS capital requirement.

280. Depending on the investment behaviour/asset allocation of the IAIG, the equity risk can represent a significant part of the overall risk borne by the IAIG, and should be adequately captured. The behaviour of equities prices is not homogeneous across all markets, and some types of equities can be more risky than others, depending on a number of factors, such as the type of the company considered (blue chips vs. SMEs or private equity), or the market on which the equity is exchanged. This consideration justifies the need for designing stress scenarios with a certain level of granularity.

9.2.3.2.2 Sub-risks to be covered

281. In the context of the example standard method for the ICS capital requirement, the "equity risk" should capture all direct and indirect impacts on the financial situation of the IAIG of one or several stress scenarios related to the value of equities.

282. The direct impacts are those linked to a direct holding of equities. The indirect impacts are those linked to products held by the IAIG, which may be sensitive to a change in value or behaviour of the equity prices. Such indirect exposures may include, but are not limited to:

a) Mutual funds invested in equity

b) Derivatives sensitive to equity prices/volatilities

c) Unit-linked products (especially those providing guarantees)

d) Participating products in general

e) More complex insurance products, such as variable annuities.

283. Where relevant (such as with participating products), the impact of the equity stress scenario(s) on insurance liabilities should be adequately reflected, in order to identify the net effect of such scenarios on the financial situation of the IAIG.

284. In addition to stress scenarios on the market prices of equities, the question can be raised whether it is necessary to include a stress on the equity price volatilities in the scenarios. Such a stress is likely to have a significant impact as soon as options are present on the balance sheet of the IAIG (either on the asset or liability side). For instance, this could be the case for a variable annuity portfolio hedged against a change in equity prices, where a variation in volatilities is likely to have a more significant impact than a change in market prices.

285. For this reason, it is proposed to include a stress on volatilities in the design of equity risk. In both cases (price levels and volatilities) the stresses should be twofold: increase and decrease. It is proposed that the most adverse effect is selected.

Question 117. Is it appropriate for the equity risk to include a stress on volatilities? For IAIGs, is the impact of a stress on volatilities likely to be material when compared to the impact of a stress on equity prices?

Question 118. Would implementation of a volatility stress result in a significantly increased implementation complexity? In particular, would such a stress result in the necessity to set up IT tools not required otherwise, or a significantly increased time calculation when computing the effects of stress scenarios? Please provide any quantitative or qualitative detail if possible.

9.2.3.2.3 Segmentation and granularity

286. In terms of segmentation and granularity, a 5-bucket approach as follows in Figure 2 below could be considered for equity risk:

a) Listed equity - developed[54] markets

b) Listed equity - emerging markets

c) Other - developed markets

d) Other - emerging markets

e) Direct equity interest in infrastructure.

287. With regard to the method for aggregating shocks across all equity classes, two options are envisaged:

a) For each stress scenario, apply it to all equity classes simultaneously and then base the equity risk charge on the scenario that produces the maximum loss

b) For each of an IAIG's equity positions, determine the stress scenario that produces the maximum loss, and then base the equity risk charge on the results aggregated using a correlation matrix or other aggregation techniques.

288. A specific treatment for preference shares and hybrid debt should also be specified. Three alternatives are envisaged for those kinds of assets:

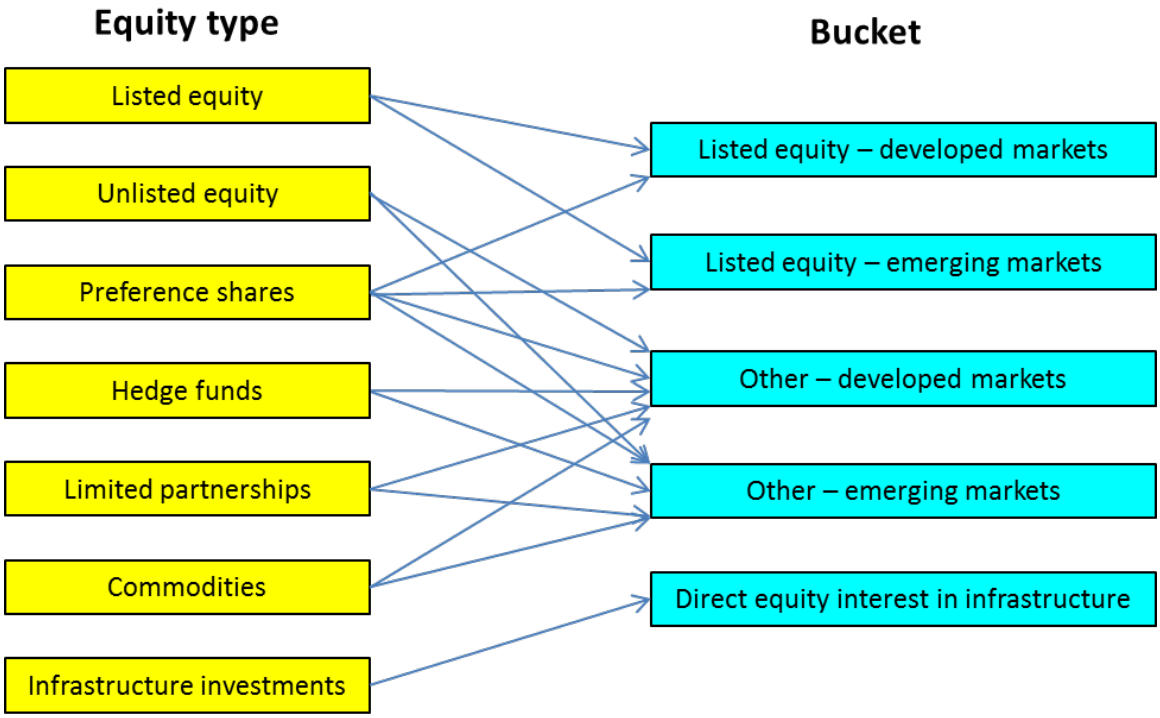
[54] For determining which countries fall in categories of "developed," either classifications used by the MSCI or FTSE can be used. As at 24 November 2014, the MSCI Developed Markets Index consists of the following 23 developed market country indexes: Canada, USA, Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Israel, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, UK, Australia, Hong Kong, Japan, New Zealand and Singapore. And as at 28 November 2014, the FTSE Developed index consists of the 25 developed market country indexes in which Korea and Greece are added to the above 23 countries in the MSCI Developed Markets Index.

a) Alternative 1: hybrid debt and preference shares would attract a risk charge corresponding to a relative drop in value depending only on their rating.

b) Alternative 2: an additional category could be created for hybrid debt/preference shares. This category would bear a risk charge determined as a weighting between the risk charge such assets would attract if they were vanilla bonds with a similar rating, and the charge they would attract as if they were belonging to one of the buckets above.

c) Alternative 3: hybrid debt and preference shares would be treated either as bonds or as equity on a case by case basis, depending on their key characteristics (and possibly the assessment of the IAIG and/or their supervisors). A possibility for classification as bonds or equity is to rely on the accounting treatment of those items (i.e. whether they are considered as equity or as debt on the liability side of the issuer).

Fig. 2. Mapping of Equity Type and Buckets



289. In terms of segmentation, for the sake of simplicity and relevance of the volatility stress, it is proposed to apply the same stress across all equity classes. This stress would be specified as a given relative increase/decrease in the level of the volatilities relevant for the valuation of all balance sheet items.

Question 119. Is segmentation based on 5 buckets appropriate? Should the number of buckets be increased, or reduced? Why?

Question 120. Are the proposed buckets fit for purpose? If not, what could be an alternative?

Question 121. Is it appropriate to apply all stresses simultaneously across all equity classes or would it be more appropriate to use a correlation matrix?

Question 122. With regard to hybrid debt and preference shares, amongst the 3 proposed alternatives, which is more appropriate? Why? Is there any other alternative that should also be considered?

Question 123. Assuming that a volatility stress is included in the ICS framework, is it sensible to use the same relative stress across all types of equity?

9.2.3.2.4 Practical example

290. The following example is a possible implementation of the views presented above, having selected "Alternative 2" with regard to the treatment of preference shares/hybrid debt. The risk charge calculated with regard to equity risk should be equal to the greater decrease in financial resources of the IAIG following the occurrence of the following four scenarios each containing seven variables.

291. Scenario 1 (prices down, volatility up)

a) A relative decrease by [x1%] of the market prices of all listed shares in developed markets

b) A relative decrease by [x2%] of the market prices of all listed shares in emerging markets

c) A relative decrease by [y1%] of the market prices of all other types of assets in developed markets

d) A relative decrease by [y2%] of the market prices of all other types of assets in emerging markets

e) A relative decrease by [w%] of the market prices of infrastructure investments

f) A relative decrease by [z%] of the market prices of hybrid debt/preference shares, where

i. $z = a \times c1 + (1-a) \times c2$;

ii. $0 < a < 1$ is a parameter (either fixed or depending on the nature of the asset considered);

iii. c1 is equal either to x1, x2, y1 or y2, depending on the nature of the hybrid debt/preference shares; and

iv. c2 is equal to the relative risk charge attracted by the considered asset if it had the highest possible level of seniority.

g) A relative increase by [v %] of the volatilities of all the asset classes listed above for all maturities.

292. Scenario 2 (prices down, volatility down)

a) A relative decrease by [x1%] of the market prices of all listed shares in developed markets

b) A relative decrease by [x2%] of the market prices of all listed shares in emerging markets

c) A relative decrease by [y1%] of the market prices of all other types of assets in developed markets

d) A relative decrease by [y2%] of the market prices of all other types of assets in emerging markets

e) A relative decrease by [w%] of the market prices of infrastructure investments

f) A relative decrease by [z%] of the market prices of hybrid debt/preference shares, where z is determined as in Scenario 1

g) A relative decrease by [v%] of the volatilities of all the asset classes listed above for all maturities.

293. Scenario 3 (prices up, volatility up)

a) A relative increase by [x1%] of the market prices of all listed shares in developed markets

b) A relative increase by [x2%] of the market prices of all listed shares in emerging markets

c) A relative increase by [y1%] of the market prices of all other types of assets in developed markets

d) A relative increase by [y2%] of the market prices of all other types of assets in emerging markets

e) A relative increase by [w%] of the market prices of infrastructure investments

f) A relative increase by [z%] of the market prices of hybrid debt/preference shares, where z is determined as in Scenario 1

g) A relative increase by [v%] of the volatilities of all the asset classes listed above for all relevant maturities.

294. Scenario 4 (prices up, volatility down)

a) A relative increase by [x1%] of the market prices of all listed shares in developed markets

b) A relative increase by [x2%] of the market prices of all listed shares in emerging markets

c) A relative increase by [y1%] of the market prices of all other types of assets in developed markets

d) A relative increase by [y2%] of the market prices of all other types of assets in emerging markets

e) A relative increase by [w%] of the market prices of infrastructure investments

f) A relative increase by [z%] of the market prices of hybrid debt/preference shares, where z is determined as in Scenario 1

g) A relative decrease by [v%] of the volatilities of all the asset classes listed above for all relevant maturities.

Question 124. Would the proposed design in this example lead to an adequate quantification of the equity risk? If not, why?

Question 125. Does the proposed design in this example involve workable and proportionate calculations? If not, why?

Question 126. What improvements to that design would be needed, in order to improve either accuracy or feasibility?

Question 127. If GAAP with adjustments were used as an alternative valuation approach for the ICS, detail those adjustments, if any that would be required to produce a comparable equity risk charge to those produced using the market-adjusted valuation approach under the equity risk charge described in this section. Please pay particular attention to equity market-sensitive liabilities like variable annuities and index annuities.

9.2.3.3 Real estate risk

295. There are various ways in which a real estate risk charge could be calculated. The two main methods are a factor-based approach (where a factor is multiplied by an exposure measure) and a stress approach (where the impact of a stress is calculated on a balance sheet).

296. The advantage of a factor-based approach is that it is a simple calculation which is easy to apply. However, the factor-based approach would not be able to fully reflect the impact where losses are absorbed through risk mitigating mechanisms. Examples of this include with-profit or participating policies, where assets value fluctuations may be shared with policyholders.

297. These impacts would be captured by a stress approach, where the value of the assets and the liabilities after the stress would reflect the impact of these risk mitigating mechanisms.

298. It is therefore proposed that a stress approach is used to calculate the real estate risk charge within the example standard method for the ICS capital requirement.

Question 128. Is it appropriate to use a stress approach to calculate the real estate risk within the example standard method for the ICS capital requirement? Why or why not?

299. If a stress approach is taken, the structure of the stress may vary in complexity. The following components could be allowed for within a stress test:

a) Stress to the level of real estate market prices

b) Stress to the volatility of real estate market prices

c) Stress to the amount and timing of cash flows from investment in real estate.

300. It is proposed to exclude the stress on volatility. The calculation would be too complex and the data may not be available. Also, this standard is being developed for IAIGs, so it may be assumed that the portfolios exposed to real estate are large, and would not be subject to random volatility in the same way in which smaller portfolios may be affected.

Question 129. Which components should be included within the real estate risk charge, if a stress approach is taken?

301. Real estate held for own use are often not classified as investment, and do not generate cash-inflows. However, holding real estate saves cash-outflows that would be needed for renting similar real estate as the self-occupied assets.

Question 130. Is it appropriate to include property held for own use in the real estate risk within the real estate risk charge?

302. For a stress to the level of real estate, a simple approach can be envisaged whereby the value of real estate is decreased by a specified percentage.

303. Different real estate assets have different intrinsic characteristics (build quality, location, etc.), and different current usage (vacancy level, tenant credit, in-force lease agreements, etc.), therefore this may require the application of different stresses depending on specific items or usage characteristics. However, availability of calibration material to specify various fine-tuned stress levels is expected to be an issue. Existing prudential regimes using a stress or factor-based approach on real estate price often do so with very limited granularity.

Question 131. Is it worthwhile to have different stresses applied depending on specific items or usage characteristics? If yes, under a stress of real estate market price approach, should the granularity of the stress be limited to only broad characteristics, such as commercial vs residential, to cover the real estate risk within the example standard method for the ICS capital requirement? What would be the optimal granularity for the example standard method for the ICS capital requirement?

304. Under the assumption that a rental yield can be determined, a proportional downward stress on the market prices can be shown to be equivalent to a proportional upward stress on rental yields. Adopting a rental yield approach on the real estate stress allows for a layered approach where the yield could be split into a reference financial yield plus a real estate specific spread, and corresponding stresses could be applied in two layers (e.g. the financial yield being stressed in a way ensuring consistency with the interest rate risk modelling, and the real estate layer allowing to capture the different intrinsic and current usage characteristics of held real estate).

Question 132. Would the benefits of the increased risk sensitivity of a layered approach based on splitting a rental yield in a real estate spread on top of a financial component outweigh the costs of increased complexity? Why or why not?

305. Another alternative would be to split the market value of a property into the present value of contractually stipulated cash flows under leases in force (with no assumed renewals), and a residual amount. The value of the lease payments would be subject to the credit risk charge and interest rate risk charge, while the residual amount would be subject to a decrease-in-value stress comparable to that applied for the equity risk charge.

Question 133. Should lease payments and other contractually specified cash flows associated with a property be unbundled from its market value? Is it appropriate to use an equity-type stress for the residual amount?

9.2.3.4 Currency/FX risk

306. Currency risk is the risk associated with changes in the level or volatility of currency exchange rates. This risk may arise from the assets and/or the liabilities, taking into account that changes in value of some items on the balance sheet (e.g. investment assets) could be offset or partially offset by changes in value of other items on the balance sheet (e.g. claim reserves). For that reason it is proposed to adopt a stress approach.

Question 134. Is the proposed stress or scenario approach appropriate? If not, please describe a more appropriate approach and explain why it is more appropriate.

307. The currency risk will be assessed against a reference currency. The reference currency will be the currency in which the group wide supervisor assesses the solvency position of the IAIG. It is expected that in most cases the reference currency will be the official currency of the jurisdiction in which the IAIG is located or domiciled or the currency in which the financial statements are produced. A change in currency exchange rates could adversely impact the IAIG either following an increase or a decrease of a given currency. The stress approach will be applied to all currencies to which the IAIG is materially exposed. For each currency both an increase and a decrease of the exchange rate against the reference currency will be measured and the currency risk charge will be calculated using the movement that more adversely impacts the IAIG.

Question 135. Is the identification of the reference currency for the purpose of assessing the currency risk appropriate? If not, please explain why, suggest an alternative approach and explain why this will be more appropriate.

308. In order to calibrate the stresses for individual currencies, subject to the selected time horizon and confidence level, two different approaches (or a combination thereof) could be adopted to the development of a currency risk charge:

a) Calibrate individual stresses for each individual pairs of currencies. This would lead to a very granular specification that will require a very granular calibration and a very granular application by IAIG. An alternative approach would be to calibrate a series of stresses for a few baskets of currency (for instance by setting several regional baskets of currencies). This will reduce the level of granularity mentioned above.

b) A different approach will be to calibrate a single stress to be applied similarly to all currencies, based on a reasonably diversified portfolio of assets and liabilities deemed to replicate the exposure profile to currency risk of an IAIG.

309. The IAIS proposes to adopt option b) as described above for the example standard method for the ICS capital requirement.

Question 136. Is the proposal to adopt option b) for the standard method appropriate? If not, please describe a more appropriate proposal and explain why it is more appropriate.

310. In order to calculate the aggregated currency risk charge, several approaches could be adopted to consider the potential correlation of changes in exchange rate between several currencies. For instance:

a) Calibrate the stress, for the selected time horizon and confidence level, so that it takes into account the correlation between the movements of the currencies of a

reasonably well diversified portfolio of insurance assets and liabilities. In that case, the aggregated currency risk charge will be calculated by summing the charges for individual currencies (the correlation/diversification between currency movements is implicitly taken into account in the calibration of the stress).

b) Calibrate the stress, for the selected time horizon and confidence level, for each currency individually. In that case the aggregated currency risk charge would be calculated by correlating (for instance by using a correlation matrix) the risk charges for individual currencies.

311. The IAIS proposes to adopt option (a) as described above for the example standard method for the ICS capital requirement.

Question 137. Is proposal to adopt option a) for the standard method appropriate? If not, please described a more appropriate approach and explain why it is more appropriate.

312. An issue exists around the treatment of an IAIG's net capital investments in foreign subsidiaries that are denominated in foreign currencies. Such positions frequently arise because IAIGs are required to hold surplus assets in a foreign subsidiary that are denominated in the local currency in order to support the subsidiary's activities. While net capital investments in foreign subsidiaries expose an IAIG to currency risk, it may not be practical for the IAIG to avoid this risk. One option for dealing with this issue would be to treat net capital investments in foreign subsidiaries like any other currency exposure. Another option would be to allow a limited exemption of the investments from the currency risk charge. If an exemption is permitted, it will be necessary to specify the calculation of the exemption limit (for example, it may be based on the capital requirements or the total liabilities of the subsidiary).

Question 138. How should the currency risk charge be applied to net capital investments in foreign subsidiaries?

9.2.4 Asset concentration risk

9.2.4.1 Background and proposed approach

313. Standard risk charges are generally developed under the assumption that portfolios are well-diversified. This section outlines various considerations and proposals for an incremental risk charge within the example standard method for the ICS capital requirement specifically for situations where the IAIG's asset portfolios are not well-diversified.

314. Asset concentration risks take the form of excessive exposures under various perspectives, including to single counterparty names, connected-groups, industry

sectors, or geographies.[55] 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.

315. In the banking sector, consistent with minimum capital requirements (Pillar 1) as opposed to adequate capital requirement (Pillar 2), and to preserve portfolio-independent/perfectly additive risk weights, the Basel II framework assumes that bank loan portfolios are sufficiently diversified such that no idiosyncratic risks remain. Concentration risk is, however, not considered in calculating minimum capital requirements.[56] Rather, the approach to controlling concentration risk has been through the internal capital adequacy assessment process (ICAAP) under Pillar 2. Moreover, single name concentration risk is addressed in the large exposures framework.[57] This framework defines large exposures in the context of single and connected counterparties and sets out explicit limits and supervisory reporting requirement thresholds for banks with such exposures, in line with the BCBS Core Principles for Effective Bank Supervision. The Core Principles require that laws, regulations, and/or supervisory authorities specifically set prudential limits on large exposures to a single borrower or a closely related group of borrowers.[58]

316. In the insurance sector, a range of practices exist with respect to addressing asset concentrations risks. For a number of jurisdictions, the approach has been to follow a model similar to the banking sector, relying on supervisory review and hard limits and thresholds established for large exposures by local legislation, regulation, and/or supervisory requirements.[59] Other jurisdictions have developed specific risk charges for IAIG asset concentrations risks, but there is a considerable range of practices across jurisdictions in terms of the applicable scope and approach for such risk charges.[60]

317. Under the IAIS ICPs, insurers are expected to develop asset concentration limits as well as ERM frameworks to address all relevant and material risks, including asset concentration risks. Also, similar expectations are being developed for IAIGs under the

[55] For example, geographic concentration may be a material risk consideration for large real estate portfolios.

[56] In an early draft of Basel II (Second Consultative Paper, 2001), the BCBS proposed using a 'granularity adjustment' methodology to require capital for portfolio concentration risks, but this was removed prior to the finalisation of Basel II as part of BCBS initiatives to stream-line and simplify the final set of rules.

[57] As outlined within the Basel Committee on Banking Supervision's(BCBS's) paper entitled *Supervisory framework for measuring and controlling large exposures*, April 2014 (http://www.bis.org/publ/bcbs283.htm), which updates a 1991 BCBS paper.

[58] Requirements are outlined within essential criteria of Principle 19 (Concentration Risk and Large Exposure Limits), *Core Principles for Effective Banking Supervision*, September 2012 (http://www.bis.org/publ/bcbs230.htm).

[59] For example, the Canadian federal regulator requires insurers adhere to large exposure limit guidelines. Also, the Swiss regulator (FINMA) addresses asset concentration risks largely through directives that establish a detailed framework of permissible and restricted investments for insurers, supported by supervisory review. In addition, scenarios addressing asset concentrations are applied within the Swiss Solvency Test.

[60] The EU Solvency II has concentration risk factor charges on counterparty assets in excess of a threshold based on % of total assets, including for equities and property, and utilizes credit ratings. APRA's asset concentration risk capital framework has broader coverage, and limits are based on multiple triggers. The NAIC RBC makes use of asset concentration adjustments that can double RBC charges for exposures to the largest single issuers.

ComFrame initiative.[61] To the extent that group-wide supervisors are unsatisfied with the control framework developed by an IAIG to address asset concentration risks, there may be a consequential expectation that target capital be increased.

318. However, IAIG frameworks for addressing asset concentration risks will differ, while supervisory review processes across jurisdictions are not harmonised,[62] leading to the possibility of major differences in outcomes for IAIGs with similar asset concentration risks.

319. As a result, at this point the IAIS has two possible broad directions (or possibly some combination thereof), that it may take to address IAIG asset concentration risks:

a) Develop an approach similar to that used by banking supervisors whereby standards are established that prescribe specific limits and thresholds for reporting and controlling defined large exposures, including requirements for jurisdictions to explicitly define such requirements in laws, regulations or supervisory requirements

b) Develop specific standard risk charges (the use of full or partial internal models is a separate ICS consideration) for certain asset concentrations beyond a defined prudential threshold.

320. While using an approach similar to that used by banking supervisors may be an effective and comparable tool for monitoring and restricting certain large exposures, it would also be necessary to design and define it broadly in order to ensure effective adoption and application across various jurisdictions. However, this may also result in a less flexible, adaptive and risk sensitive approach to addressing asset concentration risks.

321. On the other hand, for the latter option, there are many considerations and complexities to work through in developing an standard asset concentration risk charge, including the:

a) Scope of application (single counterparties, connected groups, industry sectors, geographies, etc.)

b) Asset classes covered (deposits, fixed income securities, equities, reinsurance recoverables, properties, etc.)

c) Exposure measurement considerations, such as:

i. Defining 'look-through' requirements for various investment funds or structured products

[61] Module 2, Element 3 within the IAIS document entitled *Common Framework for Supervision of Internationally Active Insurance Groups* (Revised DRAFT, September 2014) addresses ERM expectations for IAIGs. This document can be downloaded from www.iaisweb.org.

[62] The IAIS has no equivalent to the BCBS' *Supervisory framework for measuring and controlling large exposures* (April 2014), nor to the BCBS BCP 19, which directly addresses concentration risks and large exposure limits. While ICPs address these topics, they are not as comprehensive and prescriptive as the BCBS requirements, and so regulatory considerations for insurers vary considerably across jurisdictions.

ii. Inclusion of off-balance sheet exposures

iii. The treatment of collateral, third-party guarantees, and rights of offset

iv. The treat of assets backing participating policies and within policyholder funds.

d) Considerations for the development of appropriate prudential limits and asset concentration risk charges, including:

i. Basis of risk charge (model, scenario, factor etc.)

ii. Design of incentives (straight factor applied to excess exposures, deduction of excess from available capital, application of a sliding scale, etc.)

iii. Avoidance of double-counting

iv. Consistency with treatments in other sectors.

Question 139. How should the issue of asset concentration be addressed for the purpose of the ICS capital requirement? Please provide detailed considerations and rationale.

322. The IAIS expects that, as a group, IAIGs should have less issues with asset concentration risks than might be the case for smaller insurance groups, given the:

a) Larger portfolios, and generally more options for diverse investments

b) More sophisticated risk management tools

c) Expectations for well-developed governance and control structures.

323. However, the IAIS plans to test the degree to which IAIGs may have asset concentration issues, and to utilise the results from this testing to help determine the nature, extent and complexity of the asset concentration risk charge that may or may not be necessary to develop within the standard method for the ICS capital requirement.

324. For purposes of the example standard method for the ICS capital requirement and data collection from future quantitative field testing from 2015 onwards, the IAIS is considering using a simple factor-based approach to be applied against net exposures that exceed a defined prudential threshold for asset concentrations. This does not preclude the use of other approaches in future field testing and consultations.

325. There was some consideration for using of a structural modelling approach (see Section 8.5) for determining the asset concentration risk charge. However, a model-based approach for establishing formula inputs significantly increases the complexity of the asset concentration risk charge determination, which may not be justified given that IAIGs are not expected to have significant concentration risk issues. To the extent the field testing reveals concentration risk issues in IAIGs, the IAIS may need to revisit the approach and consider the extent that punitive risk charges should be established to

discourage such concerning behaviours – such exposures are more likely to be IAIG intended exposures to idiosyncratic risks, given the ability of IAIGs to largely avoid such risks based upon size considerations and also taking into account IAIS financial stability objectives.

326. The table below, and paragraphs that follow, outline a simple factor-based approach for purposes of the example standard method for the ICS capital requirement:

Table 5. Factor-based approach for asset concentration risk in example standard method

	Asset Exposure	Large Exposure Limit	Additional Risk Factor on Excess
1	Assets guaranteed by OECD governments/ related agencies	None	xx%
2	Assets guaranteed by non-OECD governments/related agencies	xx% of qualifying capital resources	xx%
3	Bank deposits in OECD countries	None	xx%
4	Bank deposits in non-OECD countries	xx% of qualifying capital resources	xx%
5	Any non-government, non-affiliated single counterparty name or connected group of companies - rated 'A' or above - rated below 'A', but investment grade - non-investment grade and unrated counterparties	xx% of qualifying capital resources	 xx% xx% xx%
6	Single property, or group of properties in very close proximity to each other (for example, on the same block), including exposures from both direct and indirect (such as funds of properties and mortgage) holdings	xx% of qualifying capital resources	xx%

327. The calculation of net asset exposure and asset concentration risk charge should take into consideration the following:

a) It should be applied to exposures to single counterparties or connected groups,[63] including for reinsurers, as well as to property exposures.

b) All net exposures should be included (subject to the exceptions and clarifications listed below) based upon both balance sheet categories and off-balance sheet

[63] For this purpose, the IAIS will utilize the same definition as exists within the BCBS paper entitled *Supervisory framework for measuring and controlling large exposures*, April 2014.

considerations, including those created through ownership of securities, transactions of derivatives, receivables, real estate, off-balance sheet commitments etc.

c) Exposures from assets held in respect to life insurance contracts where the investment risks fully flow-through to policyholders should be excluded.

d) Exposures should include "look-through" considerations for investment funds, structured products etc. For practical considerations, where a "look through" is required for determining risk exposures within other modules of the example standard method for the ICS capital requirement, the same "look through" should also apply here.

e) Asset exposures should only be netted against liability exposures to the extent that they are subject to a legally enforceable right of offset.

f) Exposures can also be netted against collateral, to the extent the collateral is composed of cash or OECD government instruments, or are guaranteed unconditionally and irrevocably by an independent third-party with a credit rating of AA or above.

g) The credit rating for the net exposure should be based upon the weighted-average credit quality of the individual exposures to a counterparty or connected group.

Question 140. Should the large exposure limit be based on qualifying capital resources, or should the limit be based on other measures such as assets?

9.2.5 Credit risk

9.2.5.1 Background and proposed approach

328. Credit risk captures both the risk of actual default, as well the risk of an IAIG incurring losses due to deterioration in an obligor's creditworthiness short of default, including migration and spread risks.

329. Credit risk arises from the potential default of parties having a financial obligation to the IAIG. All assets representing fixed financial obligations due to an IAIG from another entity entail credit risk. Credit risk is also embedded in transactions with reinsurers and derivatives counterparties, and in off-balance sheet transactions such as guarantees and loan commitments. All credit risks should be captured to the greatest extent possible under the example standard method for the ICS capital requirement.

330. The ICS credit risk charge may be based on a stress in which the market-adjusted balance sheet carrying amounts of all of an IAIG's assets that are exposed to credit risk incur losses that are expressed as fixed percentages. The requirement will reflect the effects of credit risk mitigation (i.e. collateral, guarantees and credit derivatives). In addition, depending on the global structure of the ICS capital requirement, the potential loss-absorbing features of certain product designs (e.g. participating and unit-linked products) may also be reflected in the credit risk charge. This credit risk charge will consist of a set of credit risk factors, which will be designed to capture both the risk of

asset default and the risk of losses in asset value due to deterioration in creditworthiness short of default, including migration and spread risks. In order to reflect the increased potential for credit deterioration associated with assets having longer maturity, the IAIS is considering the use of credit risk factors that increase with the remaining term to maturity.

Question 141. Should the ICS credit risk factors vary by maturity?

331. The IAIS is aware of the international work in progress under the steer of the G20 "to facilitate long-term financing from institutional investors and to encourage market sources of finance, including transparent securitisation, particularly for small and medium-sized enterprises."[64] A consultation paper setting out criteria to identify simple, transparent and comparable securitisations is expected to be published by BCBS and IOSCO in late 2014. This would be the preliminary results of a cross-sectoral work stream aimed at identifying criteria to assist the development by the financial industry of simple and transparent securitisation structures.[65] The IAIS will closely follow these developments in order to have them reflected in the definition of the risk factors associated to those market sources of long-term finance.

9.2.5.2 Segmentation and granularity

332. The IAIS has identified the following major asset classes, each of which may require its own credit risk factors:

a) Bonds and other credit exposures to sovereign governments

b) Bonds and other credit exposures to corporations and public sector entities (e.g. municipalities)

c) Securitisations

d) Residential mortgages

e) Commercial mortgages

f) Deposits and other short-term obligations of regulated banks

g) Reinsurance and OTC derivatives counterparties

h) Other miscellaneous items (e.g. outstanding premiums, amounts due from agents and brokers, other receivables, prepaid expenses).

[64] See G20 Leaders' Communiqué, Brisbane Summit, November 2014. https://www.g20.org/sites/default/files/g20_resources/library/brisbane_g20_leaders_summit_communique.pdf.

[65] See "Overview of Progress in the Implementation of the G20 Recommendations for Strengthening Financial Stability." November 2014. http://www.financialstabilityboard.org/2014/11/overview-of-progress-in-the-implementation-of-the-g20-recommendations-for-strengthening-financial-stability-5/.

333. Unsecured loans are likely to be included in the corporate bond category. Insurance-linked securities will be subject to the credit risk charge for corporate bonds in addition to the charge for insurance risk.

Question 142. Are there any other major asset classes that this list has omitted? Should some of the classes in this list be further segmented or merged? Why?

334. The credit risk factors for bonds and securitisations will vary by credit quality. If these factors vary by maturity as well then they will form a table. It is expected that the credit quality categories will be based on external rating agency assessments, as there do not appear to be any other viable alternatives without resorting to the use of internal models. However, it is debateable whether internal credit risk models are appropriate for a standard approach. It is anticipated that there will be up to seven categories corresponding to agency ratings or their equivalent, plus additional categories for unrated obligations and for defaulted obligations. The example standard method for the ICS capital requirement will specify criteria for the recognition of rating agencies and conditions around the use of their ratings, taking into account the objective of reducing mechanistic reliance on credit rating agencies.[66]

Question 143. Are there are any proposed alternatives for assessing credit quality that do not rely on rating agencies or on internal models?

335. It is expected that the treatment of collateral, guarantees and credit derivatives will closely follow that which is specified under the Basel capital framework.

336. The IAIS is considering the standardised risk weights for credit risk under the Basel II framework as a basis for the bond factors, modifying them using expert judgement to bring them to the confidence levels specified for field testing as well as addressing the different valuation methods in banking and the example standard method. The IAIS is also considering two types of models to calibrate the bond factors: the asymptotic single risk factor model as used under the Basel IRB approach, and actuarial-type models that explicitly model credit rating migrations using transition matrices. If it is decided not to vary credit risk factors by maturity, the factors will be calibrated assuming a bond duration of 10 years, as this is the threshold above which observed maturity effects on bond prices become less pronounced. The data used as input to any model is expected to consist primarily of historical rating agency default and transition statistics.

Question 144. Are the Basel II standardised credit risk weights an appropriate basis for the ICS credit risk charges? If yes, what modifications should be made to the factors? If no, what other basis is appropriate?

[66] Principles For Reducing Reliance On CRA Ratings, October 2010.

337. The financial crisis served to highlight the additional risks embedded in securitisation exposures. Consequently, while the requirements for securitisations will have the same format as the requirements for bonds (i.e. varying by rating and possibly by duration), the credit risk factors are expected to be higher than the factors for bonds with similar ratings. The factors for re-securitisations will be higher than those for regular securitisations. All off-balance sheet securitisation exposures (e.g. credit enhancement and liquidity facilities) will be subject to the credit risk requirement, including off-balance sheet assets for which an IAIG is still exposed to the credit risk associated with the assets (e.g. implicit support).

338. Because of the wide variation in property markets and borrower characteristics worldwide, it may not be possible for the IAIS to collect sufficient data that would support an approach that is more complex than using distinct single factors for residential and commercial mortgages, possibly varying by region.

Question 145. Are there any proposed risk segmentations of residential and commercial mortgages that are possible to apply internationally to differentiate the credit risk charge?

339. It is proposed that a single factor be used for deposits with regulated banks, and another single factor will be used for miscellaneous assets.

340. To the extent that it is possible, the IAIS intends to use the same credit risk approach for reinsurance, OTC derivatives counterparty, and off-balance sheet exposures as is used for bond and loan exposures. The requirement for OTC derivatives and off-balance sheet exposures will be calculated by applying credit risk factors to credit equivalent amounts determined for the exposures.

Question 146. Should a different approach be used for reinsurance exposures than is used for other credit risk exposures?

Question 147. If GAAP with adjustments were used as an alternative valuation approach for the ICS, detail those adjustments, if any that would be required to produce a comparable credit risk charge to those produced using the market-adjusted valuation approach under the credit risk charge described in this section.

341. Any credit risk factors are likely to be derived under the assumption that an IAIG's portfolio is infinitely granular. In order to capture the risk associated with concentrated credit exposures to single names, the IAIS is considering the use of a granularity adjustment that is a function of the amount and credit risk charge of each of an IAIG's credit exposures to a related group of entities. Credit exposures above the thresholds specified for the asset concentration risk requirement will be excluded from the granularity adjustment.

9.2.6 Operational risk

9.2.6.1 Background and proposed approach

342. This covers risks associated with the operations of the IAIG. Examples of operational risk include losses due to fraud, failures in computer systems and administrative processes, legal risk (excluding strategic risk and reputation risk), mis-selling of products and external events causing damage to the IAIG's premises, equipment or people.

343. Recent experience has shown the potential for operational risk exposures to result in severe and unexpected losses. There is also evidence that operational risk is continuing to increase in its size and complexity due to factors such as the increasing reliance on advanced technology, legacy and IT system issues, cyber-attacks, outsourcing and agency distribution channels, and mergers and acquisitions activity. Therefore operational risk is a key risk for IAIGs and it is appropriate to explicitly address this risk in the example standard method for the ICS capital requirement.

344. Operational risk is difficult to isolate from other risks as the causes are extremely heterogeneous and are potentially picked up to some extent elsewhere in an insurance capital standard. Furthermore, the extent of operational risk can vary based on qualitative factors including corporate governance and the quality of internal controls in place. The development of operational risk capital modelling is in its early stages, particularly in the insurance industry, but further development and coordination on a global basis should be encouraged. It is therefore proposed that the standard method for the ICS capital requirement is to include the determination of an operational risk component of required capital that is relatively simple to apply whilst still in part reflective of the exposure of an IAIG to operational risk.

345. It is possible for the design of the operational risk charge within the example standard method for the ICS capital requirement to follow a number of designs. It is proposed that a factor-based approach be used for the insurance activities of the IAIG. This is because factors can be applied to exposures that are readily measurable and relatively objective for each IAIG, irrespective of the location of the group-wide supervisor. The design would be based on applying factors to exposure measures as proxies for operational risk. These exposures measures could be based on:

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

c) A combination of both (a) and (b).

346. Option (a) aligns the operational risk profile of the IAIG to the other risk charges in the example standard method for the ICS capital requirement. This may be acceptable in some circumstances and may be sufficient for the purposes of the standard method. This method is used in a number of member jurisdictions. However, it may not adequately represent the operational risk profile of the IAIG, without some sort of quantitative and/or qualitative assessment by the group-wide supervisor.

347. Option (b) is aligned to measures that relate to the business of the IAIG, rather than other risk charges on the basis that these measures can be specifically selected to be included due to the reflectiveness of the operational risk profile of the IAIG. This method is also used in a number of member jurisdictions.

348. Option (c) may address the shortcomings in option (a) or (b) and provide a working hybrid for the measure. This needs to be balanced against the added complexity on a risk that is difficult to isolate.

349. The IAIS is proposing to pursue all methods during future field testing exercises.

Question 148. Which of the options presented above should be pursued? Why should this method be pursued? How can the drawbacks to that method be addressed within the standard method?

Question 149. Are there any alternative methods to capture operational risk that should be explored other than the three methods described in paragraph 345 above? If so, please provide details and rationale.

9.2.6.2 Option (a) further details

350. If option (a) is pursued, the example standard method for the ICS capital requirement will need to specify the specific risk charges that will be used as the exposure measure for the operational risk profile; for example, the sum of the other risk charges after the application of any diversification credit.

Question 150. What risk charges as outlined in this Consultation Document should be included when determining the exposure measure for the IAIG that is used in the operational risk charge? Why is this appropriate?

9.2.6.3 Option (b) further details

351. If option (b) is pursued, the example standard method for the ICS capital requirement will need to specify both the level of granularity that differing factors will apply, as well as the specific exposure measures that will be used.

352. Dealing with granularity first, it is proposed that a split across the types of insurance business undertaken by the IAIG is included. This is due to the nature and profile of the business written across the insurance spectrum. It would not be appropriate to apply the same factor to motor insurance premium as investment premiums received by a life insurer. One such split that could be pursued is non-life, life (risk), life (unit-linked) and life (investment and accumulation). This split means four separate factors would be derived to be then applied to an exposure measure. The factor for each type of business will be derived based on field testing. There is an open question as to whether non-life and life (risk) should be further split by direct and assumed business.

353. Assuming the above granularity is pursued, the exposure measures will need to be determined. The IAIS is proposing that within the split of type of business for non-life and

life (risk), a premium exposure measure and a liability exposure measure be included. The greater of the outcome of the relevant factor multiplied by the exposure measure would be used in the operational risk charge. Life (unit-linked) and life (investment and accumulation) would only have a liability/account balance measure.

354. For the premium exposure measure, it is proposed that the premium be the gross premium for the last financial year of the IAIG. The IAIS welcomes comments on whether this premium measure should be written or earned premium.

355. The IAIS is considering an additional operational risk charge to apply to growth in premium. For example, the acquisition of other insurance operations, which would result in an increase in premium of the IAIG, may be indicative of an increase in operational risk of the IAIG. The measure could be growth in premium over the last financial year that is greater than a pre-determined percentage of the previous years' premium.

Question 151. Should the operational risk charge include an additional component for growth? Why or why not?

356. For the liability measure, the IAIS is proposing that the measure be current estimates, to be consistent with the derivation of the insurance risk charge components. The IAIS welcomes comments on whether the liability measure should be gross or net of reinsurance.

Question 152. What are the views on the granularity and exposure measures proposed above for option (b)?

9.2.6.4 Minimum or maximum

357. Given the operational risk charge is based on proxies and will be simple in design, the IAIS will consider whether there should be a minimum or maximum contribution of the operational risk charge to the overall ICS capital requirement. This will be informed by the further development and refinement of the example standard method, including the second quantitative field testing exercise in 2015.

9.2.7 Aggregation/diversification

358. In order to reflect the diversification in the calculation of the example standard method for the ICS capital requirement, the IAIS is considering using a variance-covariance matrix approach to aggregate individual risk charges.

Question 153. Is the use of a variance-covariance matrix approach appropriate for the example standard method for the ICS capital requirement? If not, please explain what other approach would be more appropriate and why.

359. The variance-covariance matrix approach could be applied in one single step or in multiple steps. The application in one single step means defining a single variance-

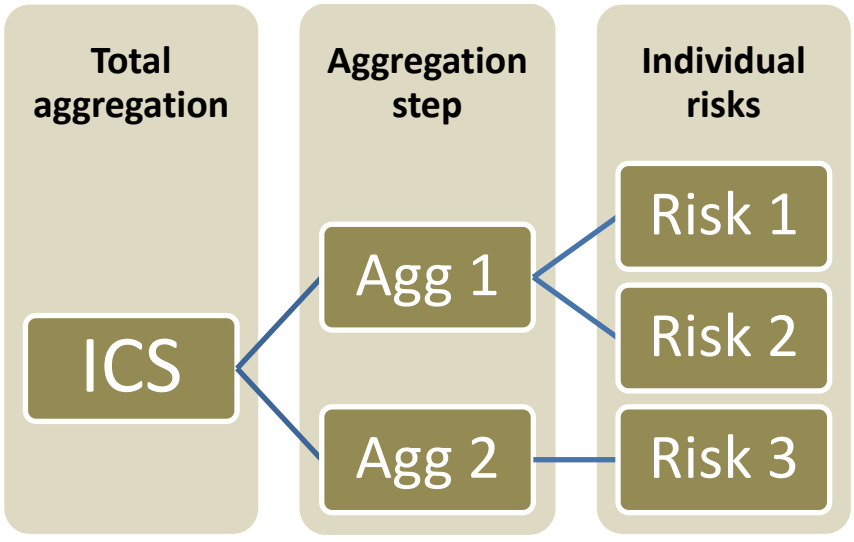
covariance matrix addressing all individual risks by setting pair correlation for all individual risk charges.

360. A single correlation matrix can be illustrated as follows:

	Risk 1	**Risk 2**	**Risk 3**	**Risk 4**	**Risk n**
Risk 1	1	X_{12}	X_{13}	X_{14}	X_{1n}
Risk 2		1	X_{23}	X_{24}	X_{2n}
Risk 3			1	X_{34}	X_{3n}
Risk 4				1	X_{4n}
Risk n					1

361. Alternatively, the application in multiple steps means defining multiple smaller matrices aggregating sub-sets of individual risks as a first step, then aggregating the multiple results of the first step as a subsequent step. The process could include two or more stages. For instance, the first step could include aggregating individual market risks together on one hand, and aggregating individual insurance risks one the other hand; the results of the market risks aggregation and of the insurance risks aggregation could then be aggregated together as a subsequent step.

362. The aggregation through multiple steps can be illustrated as follows:



Question 154. Which approach (i.e. single or multiple steps) should the IAIS adopt for the example standard method for the ICS capital requirement and why? If a multiple steps approach is recommended, please describe and explain why this will be appropriate.

10 Other methods of calculating the ICS capital requirement

363. Based on the principles set out in ICP17 and in Section 7, the ICS may provide a range of options for determining the ICS capital requirement for IAIGs, of which the example standard method for the ICS capital requirement set out in Section 9 is one option. This section sets out other options that may be considered for this purpose.

364. The other calculation methods which will potentially be considered for the ICS capital requirement range from variations of the ICS standard method that provide more prudent outcomes to the example standard method in Section 9 to highly tailored methods (in particular the use of internal models).

365. Any method chosen should provide the same minimum level of policyholder protection, and must be able to meet the ICPs and the ICS Principles. Of particular relevance when considering other methods are ICS Principles 1 and 5 which address comparability (the practical meaning and implications of comparability will be set out in subsequent consultation on the ICS after the IAIS has considered and deliberated on feedback from this current consultation). ICS Principle 8 is also highly relevant to alternative methods, as striking the appropriate balance between risk sensitivity and simplicity is an important consideration. ICS Principles 6 and 7 are also significant in this context; the alternative method should promote sound risk management and minimise inappropriate procyclical behaviour. As the ICS capital requirement must necessarily respect the requirements of the ICPs, the standards set out in ICP 17 are also a significant reference point for the ICS.

Question 155. How can it be assured that different implementations of the ICS are sufficiently comparable? What is the role of the example standard method in this context?

Question 156. What other methods besides those in this section may be able to be implemented whilst still meeting the ICS Principles and ICPs?

10.1 Variation in factors contained in the standard method

366. Variations of the standard method could comprise different implementations of an ICS standard method that provide more prudent outcomes to the example method set out in Section 9, or the replacement of individual parameters in the standard method by parameters that provide a better fit to the risk profile of the IAIG than that provided by the standard method without compromising the comparability of outcomes.

367. Such an IAIG-specific method should specify the process used to calculate the adjusted parameters and the criteria for data or information to be used in the calculation

of the adjusted parameters. In addition, this method should specify the degree of oversight to be exercised by the supervisor either through a formal approval or formal reporting to supervisor, including the justification for the appropriateness of the approach.

Question 157. Should any variation to the standard method be allowed? If so, should IAIG-specific variations to the standard method be allowed? If yes, for which risks should IAIG specific parameters be allowed?

Question 158. If variations from the standard method are allowed, what disclosure should be made of the variations? Should there be a standardised disclosure no matter what variations are allowed so that stakeholders can assess the impact of the variations?

10.2 Use of internal models

368. The expression "internal model" is used here in the same meaning as in ICP 17.[67] On one hand, an appropriate use of internal models may enable IAIGs to better reflect their risk profile. On the other, an inappropriate use of models without safeguards could jeopardise the accuracy (e.g. through the adoption of imprudent approaches to risk with the aim to reduce the amount of capital required to be held) and comparability of outcomes (e.g. through inconsistent views of risks) where the development and operations models are not accompanied by sufficient control and governance requirements. Therefore, the use of internal models should be subject to prior approval by the supervisor based on a transparent set of criteria. In particular, the supervisor would need to be satisfied that the IAIG's internal model is, and remains, appropriately calibrated relative to the ICS target criteria; that the modelling techniques adopted are appropriate to the nature, scale and complexity of the risks modelled; and that the internal model is regularly validated by the IAIG. ICP 17 provides some requirements that will need to be developed and specified further in order to achieve consistent implementation and validation standards that are adequate for the ICS.

369. The use of internal models to calculate the ICS capital requirement could be envisaged as an option for IAIGs and supervisors to consider. The use of internal models could be limited to some risks (e.g. partial models) or to the overall risks borne by the IAIG (e.g. full models). In particular partial modelling could be restricted to some risks or circumstances while a standard method is mandatory for some aspects of the risk measurement.

370. The use of internal models could be valuable to capture risks not reflected or imperfectly reflected in the standard method, or to better reflect the risk profile of the IAIG.

[67] The model which an insurer uses to calculate its regulatory capital which appropriately reflects its risk profile, based on accurate and appropriate data and adequate actuarial and statistical techniques that are commensurate with the nature, scale and complexity of its business.

371. Also, the use of partial internal models to calculate the ICS capital requirement could be made mandatory as part of the standard method. For instance, idiosyncratic risks which will be difficult to capture appropriately through standardised factors and scenarios such as natural catastrophe might rely on some form of internal modelling as part of the standard method. In such cases, a fully specified standard method and internal model are not opposing approaches, but the best of each will be selected in developing the ICS framework.

372. In all cases, the use of internal models can achieve an adequate level of risk-sensitivity only if the framework around the use of internal models includes sufficient safeguards, explicit requirements and prior approval by the supervisor. For that purpose, to complement the use of internal models, the IAIS may consider the development of additional supervisory monitoring tools or measures.

Question 159. Should the IAIS permit the use of partial internal models for calculating elements of the ICS capital requirement? If so, for which elements of the ICS capital requirement should partial models be allowed? What are the advantages and disadvantages?

Question 160. Should the IAIS permit the use of a full internal model for calculating the ICS capital requirement? What are the advantages and disadvantages?

Question 161. In what ways would the inclusion of internal models impact the ability of the ICS to be comparable across jurisdictions?

Question 162. What additional safeguards and supervisory standards will the IAIS need to develop to support and complement the use of internal models (partial or full)? Please explain.

Question 163. Should the development of internal models for the ICS be assessed against the standard method? What role should the example standard method play in this context?

Question 164. Please give details and explain any experience with model approval processes.

10.2.1 External models[68]

373. The use of internal models should not be restricted to models developed internally by the IAIG, but could also include in part or in its entirety models provided by a third party. In certain areas (e.g. catastrophe risk), the use of external models might bring advantages, as external providers could better meet the extensive data needs required for scenario projections. The use of external models should be subject to the same requirements imposed on internally developed models. In particular, it is necessary to ensure that external models are fully understood by the IAIG.

[68] External models stem from a source outside the IAIG. In most cases, they are developed and provided by external vendors; in some others they are available in the public domain.

Question 165. Should the use of external models be allowed? Should it be restricted to certain risks? If yes, which risks should be better assessed using external models?

Question 166. Should the criteria for the use of external models be the same as for internal models? Please provide the reasons.

10.2.2 Comparability

374. Allowing internal models can challenge the comparability objective of the ICS. However an appropriate balance between risk sensitivity and comparability could be achieved through:

a) The development of specific criteria to which internal models will be subject and the prior approval by the supervisors

b) Transparency on the target criteria within the standard method.

375. The criteria to be set for internal models approval could include minimum criteria for some particular areas of the modelling. For instance, in order to achieve the appropriate level of comparability, some level of granularity in the modelling could be required, such as the prescription of credit sub risks: default, downgrade, spread.

Question 167. In order to achieve comparability across IAIGs, what criteria should be applied to the use of internal models and why?

376. The ability to reliably model risks will require at least two aspects:

a) The availability of appropriate methodology (for instance scientific knowledge of the physical phenomena generating natural catastrophe, actuarial techniques to reflect the behaviour of some insurance risks).

b) The availability, to the IAIG, of data relevant to calibrate the modelling. It is important to keep in mind that data needs not only to be available but also relevant for the modelling of risks within the time horizon. Not all past data are relevant to model the future, and not all possible sets of outcomes (subject to some confidence level) are already reflected within historical data (for instance the low interest rate environment).

Question 168. What are the risks that are more likely to be reliably modelled, and which are the risks that are less likely to be reliably modelled?

10.2.3 Criteria for the use of internal models

377. As mentioned previously, allowing the use of internal models should be subject to prior supervisory approval based on a specific set of criteria.

378. This set of criteria could cover:

a) The quantitative aspects such as, but not limited to, the suitability of the modelling methodologies, the credibility of the assumptions and the quality of the data used

b) The qualitative aspects such as, but not limited to, the governance covering both the development and on-going monitoring of the internal models as well as the risk management framework. In particular, internal models should be subject to effective validation.

Question 169. In order to allow for the use of internal models, what are the criteria to be set in order to provide a framework consistent with the ICS principles?

ANNEX 1. Market-adjusted valuation approach as per 2014 field testing

1. For the purpose of developing the initial ICS example, the IAIS proposes that the IAIG starts with the amounts as reported on its audited, consolidated, general-purpose balance sheet prepared on its jurisdictional generally accepted accounting principles (GAAP) basis, and incorporate the adjustments outlined below, and which will be further considered as part of the field testing process.

2. Under this approach, IAIGs are not required to revalue every balance sheet item to a market based methodology, but are only required to make the IAIS specified adjustments to major balance sheet items.

1. Valuation of Financial Instruments

3. Financial instruments, both assets and liabilities, including derivatives and mortgages/ loans made,[69] are to be adjusted to fair value as determined under the under the IAIG's applicable GAAP accounting standards for reporting or disclosure purposes.

4. For the market-adjusted valuation approach, liabilities will be reflected at a market-value that does not take into account changes in the credit standing of the IAIG.

2. Valuation of Insurance Liabilities and Reinsurance Recoverables

5. IAIGs should exclude the Margin Over Current Estimate (MOCE) from the calculation of insurance liabilities, and they should be included within capital resources. This treatment of MOCE will be applied in order to achieve the ICS's objectives of comparability, but will be further considered and investigated during the consultation process and as part of the field testing during 2015.

2.1 Segmentation

6. The allocation of insurance liabilities to the lines of business should follow the principle of substance over form. This means insurance liabilities should be allocated to the lines of business which best reflect the nature of the underlying risks. Segmentation should be based on the nature of the risks underlying the contract (substance) rather than the legal form of the contract (form).

7. The application of this principle implies that the legal classification of insurance contracts, for authorisation or accounting purposes, is not the determining criteria for segmentation.

8. The insurance liability segments used for 2014 field testing are set out in Annex 5.

[69] In this context, mortgages/loans made means mortgages/loans that the IAIG has invested in or itself written as the originator.

3. Market Adjusted Valuation Approach – Methodology for calculation of Current Estimate

3.1 Basis for calculation

9. The Current Estimate should correspond to the probability-weighted average of the present values of the future cash flows associated with insurance liabilities discounted using the relevant interest rate term structure to derive a present value. This applies equally to the calculation of reinsurance recoverables. Reinsurance recoverables need to be calculated so that they are consistent with the Current Estimates of insurance liabilities. Therefore the same assumptions and inputs should be used.

10. The calculation of the Current Estimate is based upon up-to-date and credible information and realistic assumptions. Implicit or explicit margins are not part of the Current Estimate. The determination of Current Estimate has to be comprehensive, and objectivity is required in terms of observable input data.

11. Uncertainty in the future cash-flows should be captured in the Current Estimate. Uncertainty in cash flows can arise from a number of sources, namely: (1) the timing, frequency and severity of claim events; (2) claims amounts and the period needed to settle claims; (3) the amount of expenses; (4) the value of an index/market values used to determine claim amounts; (5) policyholder behaviour; and (6) path dependency. The calculation should consider the variability of the cash flows in order to ensure that the Current Estimate represents the mean of the distribution of cash flow values.

12. By definition, the Current Estimate is the average of the outcomes of all possible scenarios, weighted according to their respective probabilities. However, it may not be necessary or even possible to explicitly incorporate all possible scenarios in the valuation of insurance liabilities, or to develop explicit probability distributions in all cases. This depends mainly on the type of risks affecting the scenarios and the expected materiality of their financial impact in the overall calculation.

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

3.2 Cash-flow projection

14. Cash flow projections should reflect expected realistic future demographic, legal, medical, technological, social or economic developments. Appropriate inflation assumptions should also be incorporated in the cash flow projections, appropriately recognising the different types of inflation to which the entity can be exposed (e.g. consumer price index, medical inflation and salary inflation). Premium adjustment clauses, where relevant, may also need to be considered.

15. The Current Estimate should be calculated gross of recoverables from reinsurance and special purpose vehicles. Recoverables from reinsurance or special purpose vehicles should be separately calculated and recognised as an asset.

16. The cash-flows to be included in the calculation of Current Estimate should, at least, include:

a. Benefit and claim payments

b. Direct and indirect expenses to be incurred (a non-exhaustive list of examples could include: administrative expenses; investment management expenses; future acquisition expenses; claims management expenses; and, handling expenses)

c. Premiums to be received, provided they are included within the contract boundaries

d. Subrogation payments and recoveries other than reinsurance and special purpose vehicle

e. Other payments to be made which are necessary in order to settle the claims.

17. In determining the Current Estimate, IAIGs should take into account taxation payments which are charged to policyholders.

3.3 Recognition/Derecognition of insurance liabilities

18. Without prejudice to the specifications set in the "contract boundaries" section, a liability should be recognised and valued as soon as the IAIG becomes party to a contract, without any possibility to amend or cancel it, even though the insurance coverage has not yet started.

19. A contract should be derecognised when all possible claims linked to this contract have been completely settled, and all future cash-flows are certainly nil.

Example
Consider a contract providing a health coverage starting on 1 March 2014. The contract has been underwritten on 20 December 2013, with no possibility to change the terms of the contracts before the coverage starts. On 31 December 2013, this contract should be recognised in the balance sheet.

3.4 Contract Boundaries

20. Only contracts existing at the valuation date, and recognised in line with the previous section should be taken into account. This provision implies that no future business should be taken into account for the calculation of insurance liabilities.

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

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

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

22. For group policies, similar rules apply. If premiums can be amended unilaterally for the entire portfolio in a way that fully reflects the risks of the portfolio, the second condition above will be fulfilled for group policies.

Example
Consider a whole life policy, with a level premium. According to the terms of the insurance contract, the IAIG cannot reject any premium, and the premium is constant throughout the life of the contract. Therefore, all (probability-weighted) future premiums of this contract should be taken into account in the insurance liabilities, along with the related claims and expenses.

Example
Consider a health policy (medical expenses), starting on 1 July 2013, with a premium paid monthly. Premium indexation is possible at each anniversary date, and the policyholder has no right to cancel the policy during the first 12 months. On 31 December 2013, insurance liabilities should include six months of future premiums (January to June 2014), along with the related claims and expenses.

Example
Consider an annually renewable life protection policy sold on a group basis. The IAIG does not manage this portfolio on a contract-by-contract basis, but can freely adjust the premiums for the entire portfolio at the policy anniversary date, to fully reflect the risks stemming from that portfolio. In this case, the conditions defined in paragraph 21 above are deemed applicable. The calculation of Current Estimates should not include any premiums beyond the next future anniversary date where such adjustment is possible, along with the related claims and expenses.

3.5 Time horizon

23. The projection horizon used in the calculation of the Current Estimate should cover the full lifetime of all the cash in- and out-flows required to settle the obligations related to existing insurance and reinsurance contracts on the date of the valuation.

3.6 Data quality and setting of assumptions

24. When selecting data for the calculation of the Current Estimate, IAIGs should consider:

a) The quality of data, for different data sets, based on the criteria of accuracy, completeness and appropriateness

b) The use and setting of assumptions made in the collection, processing and application of data

c) The frequency of regular updates and the circumstances that trigger additional updates.

25. In some cases, only limited or unreliable data may be available from the IAIG's own experience of a particular type of contract or claim from which to base an assumption for that contract or claim. Historical data about the IAIG's own experience should be supplemented when necessary with data from other sources. Adjustment should be made to these alternatives sources so that they are more consistent with the risk characteristics of the portfolio, considering, in particular, whether:

    a) The characteristics of the portfolio differ (or will differ, for example because of adverse selection) from those of the population that has been used as a basis for the historical data

    b) There is evidence that historical trends will not continue, that new trends will emerge or that economic, demographic and other changes may affect the cash flows that arise from the existing insurance contracts

    c) There have been changes in items such as underwriting procedures and claims management procedures that may affect the relevance of historical data to the portfolio of insurance contracts.

26. When calculating the Current Estimate consideration should be given to events not captured in the data that can impact the Current Estimate.

27. Consistency across assumptions is important to consider, for example the relationship between inflation and interest rates.

3.7 Possible methodologies

28. The calculation of insurance liabilities is typically based on valuation models. Where this is the case, these models should be comprehensive, transparent, based on current and reliable data, and use appropriate actuarial and statistical methods. Valuation models and their parameters should be calibrated as much as possible on the basis of objectively observable data.

29. IAIGs should use actuarial and statistical techniques for the calculation of the Current Estimate which appropriately reflect the risks that affect the cash flows. This may include simulation methods, deterministic techniques and analytical techniques. Following the application of the proportionality principle,[70] in the case of more complex cash flow projections (e.g. future discretionary benefits relating to participating contracts or embedded options and guarantees), simulation techniques may lead to more robust valuation results. In other cases, deterministic and analytical techniques may be more appropriate.

[70] Proportionality principle: when the IAIG can demonstrate that taking into account a specific factor/rule in their calculation or valuation would lead to a significant increase in complexity, without material improvement to the quality of the figure produced, or to the assessment of risk linked to this figure, then this factor or rule can be ignored or simplified.

3.8 Liabilities expressed in different currencies

30. Discounting of liabilities needs to occur with a yield curve relevant to the particular currency. Conversion to the reporting currency from different currencies should be carried out according to the jurisdictional GAAP for consolidated group reporting. This will usually result in conversion at the currency conversion spot rate at the reporting date.

3.9 Valuation of options and guarantees

31. Insurance contracts often include embedded options and guarantees, such as guarantees of minimum investment returns (including as part of death benefits), maximum charges for mortality, surrender options, or options for the policyholder to reduce or extend coverage. Expected cash flows for these options and guarantees should be included in the cash flows to determine Current Estimates. Expected cash flows should reflect expected policyholder behaviour. For the calculation of the time value of options and guarantees all payments which are connected to the insured risks have to be considered, especially profit participations.

32. Ideally, options and guarantees should be valued using stochastic approaches. However, for the purposes of initial reporting and subject to a materiality assessment, simplified deterministic approaches can be used.

3.10 Policyholder behaviour

33. Expected cash flows should reflect expected policyholder behaviour, particularly where the options or guarantees allow policyholders to take actions to change the amount, timing or nature of the benefits they will receive. In the case of long-term contracts, options available to policyholders can include the termination of a contract, guaranteed living benefits, guaranteed income benefits or any other contractual options.

34. The likelihood that policyholders will exercise contractual options should be taken into account, considering in particular:

    a) Past behaviour of policyholders

    b) How beneficial the exercise of options would be to policyholders under specific circumstances

    c) Economic conditions

    d) Past management actions.

35. The likelihood that policyholders will exercise contractual options, including lapses and surrenders, shall be based on a prospective view of expected policyholder behaviour that makes appropriate and justified assumptions about the elements mentioned above.

36. The assumptions on policyholder behaviour should be appropriately founded in statistical and empirical evidence, to the extent that it is deemed representative of the future expected behaviour.

37. Policyholder behaviour is driven by convenience and other considerations and not purely financial self-interest (or may appear as such to the IAIGs due to the lack of knowledge of the specific circumstances of the policyholder). Realistic current expectations would incorporate at least some policyholder action or inaction consistent with observed policyholder behaviour.

38. The assumptions concerning policyholders' behaviour would need to be consistent with the assumptions for investment returns and should not, in general, be assumed to be independent from financial markets. For instance, policyholders' behaviour may be linked to the interest rate scenario and associated assumptions.

39. Ideally, the quantification of the impact on the Current Estimate of optionality or other non-symmetric cash flow could be done using a stochastic method considering the entire range of scenarios.

3.11 Valuation of future benefits (discretionary vs. non-discretionary)

40. All future benefits that are non-discretionary should be included within the projection of cash flows according to the contractual obligation of the IAIG and the economic or loss scenarios applicable for the Current Estimate.

Example
For bonuses or crediting rates, the Current Estimate should recognise the amounts expected to be paid consistent with the expected future experience and economic scenarios for which the liability valuation is based. For example, if a reference group of assets is expected to earn a greater amount than the contractual crediting rate and discretionary additional credit rates can be declared, the expected discretionary crediting rate should be taken into account. This projection should be consistent with the yield curve that is used to discount the cash flows for the contract.

41. Discretionary benefits and the exercise of policyholder options should usually be included in the projection of cash flows. The application of discretions often drive policyholder behaviour and so must be considered along with options and guarantees embedded within policies. A Current Estimate of cash flows will include the value of cash flows as a result of the exercise of discretions consistent with the assumed policyholder behaviour and other valuation assumptions.

3.12 Management actions

42. When calculating the Current Estimate, the IAIG's future management actions could be taken into account if they can reasonably be expected to be carried out under the specific circumstances to which they are applied.

43. Management actions should be objective, realistic and verifiable. They cannot be contrary to the IAIG's obligations to policyholders or to legal provisions applicable to the IAIG. Assumed future management actions should be consistent with the IAIG's current business practice and business strategy unless there is sufficient evidence that the IAIG will change its practices or strategy.

44. Assumed future management actions shall be consistent with each other. The assumptions about future management actions should take into account the time needed to implement them and any expenses caused by them.

3.13 Simplifications/approximations and appropriate adjustments (application of the Proportionality principle)

45. Where existing approaches (GAAP or economic valuation) provide a reasonably close approximation to the valuation principles outlined above for the market adjusted valuation approach, it is acceptable to use these valuation frameworks as starting points and apply adjustments.

46. Possible adjustments could include approximating the market-adjusted value by using sensitivities of economic values to using different yield-curves for discounting.

47. For insurance business not including embedded options and guarantees (in particular insurance liabilities related to non-Life insurance), there might be no need to perform stochastic valuations. In that case, the adjustment of GAAP values based on management's best estimates for determining market-adjusted values could be limited to applying discounting to the insurance liabilities which were determined according to GAAP.

3.14 Discounting

48. Current Estimates of insurance liabilities (and related reinsurance recoverables) are to be calculated using the IAIS specified discount curves.

3.15 IAIS Specified Discount Curves

49. The main objective of applying IAIS specified discount curves is to improve comparability. As such, the initial approach chosen for the ICS does not pre-empt the future development of alternative comparable approaches to discounting the Current Estimate that may better reflect the long term nature of insurance liabilities and that could be eventually used as part of IAIS standards. That applies to both the mechanics of the curve as well as any factors used in the calculation for the purposes of the field test.

50. The IAIS specified discount curves are based on risk adjusted liquid interest rate swaps or government bonds (in cases where the latter are considered being more liquid) and some adjustment based on investment grade corporate bond indices.

51. The curves provided to volunteers for field testing were based on calendar year end 2013 market data for swaps and government bonds as well as an adjustment based on a relevant investment grade corporate bond index. To derive the full curve (before adjustment), the Smith Wilson technique was used. This technique is a macroeconomic approach: A spot (i.e. zero coupon) rate curve is fitted to observed prices of financial instruments. For the purpose of the field test the curves were flat after 30 years.

52. Adjustment: For the field testing exercise the adjustments were grouped by three different buckets: (1) adjustment for currency/jurisdiction identity, (2) adjustment for currency unions and (3) adjustment for markets with small corporate bond markets.

53. The basis for the adjustment was an investment grade corporate bond or broad market index (i.e. basket of liquid bonds with a credit rating from AAA to BBB), where they were available.

54. The adjustment was calculated as a fixed percentage upward shift and was based on the 10 year unadjusted rate (where available).[71] Forty percent of the actual corporate bond spread was used for the adjustment.[72] The percentage adjustment that was applied to the curve was then relative to the (10 year) basic risk free rate. The adjustment was capped at the absolute spread as calculated at 10 years.

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

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

*Weight_Govt * Relevant_Spread_Govt +Weight_Corp * Relevant_Spread_Corp.*

56. For markets where a number of indicators (e.g. lack of index, low amount outstanding, few bonds high quality bonds) suggest that the corporate bond market does not allow considerable investments by IAIGs, a simple assumption was made that the adjustment would be 50bp. For future field testing exercises, further investigation will be undertaken on the development of the local corporate bond markets.

57. The IAIS provided the discount curves for a number of currencies/jurisdictions. To ensure comparability, for a given currency, each volunteer IAIG was required to use the relevant curve provided by the IAIS. The IAIS will publish the yield curves for use in conjunction with quantitative field testing exercises from 2015-18. From 2019, another publication method will be considered.

3.16 Curves not provided centrally

58. The IAIS will not provide discount curves for all currencies and countries where IAIGs operate. In those cases, the IAIGs are required to derive the curve following the approach set out above by complying with the principles presented above.

[71] The reason for using the 10 year rate as a basis for the adjustment is that in order to be representative, a corporate bond index is needed that is liquid and largely representative of the market (i.e. covers a sufficiently large number of bonds).

[72] This spread adjustment is universal and no distinction is applied among the products to which it is applied. For example, even a product that could be surrendered at any time without penalty applies the same curve. This was done as a simplification. The IAIS will evolve its approach to determining yield curves during the confidential reporting period with particular consideration of long-term guaranteed products.

3.17 Method to derive risk free term structure for field testing purposes

59. For discount curves that are not centrally provided, the IAIGs are required to take the following aspects into account, when deriving the basic risk free curve:

    a) The risk free interest rate term structure should be determined on the basis of market data as of the valuation date.

    b) The relevant data should either be swaps or government bonds, both adjusted for credit risk. In the rarer case where neither is available, other financial instruments that are similar to swaps can be used, subject to appropriate credit risk adjustment.

    c) If the risk free rate is derived by using swaps, an appropriate (flat) basis point adjustment to the swap rates should be applied. The credit risk of sovereigns could be measured by looking at CDS premiums on government bonds. It is recognised though, that under certain market circumstances the relationship between government bonds and CDS prices can be weak.

    d) The rates should be based on financial instruments for which a reliable market value is available. This requires a deep, liquid and transparent market.

    e) Where the credit risk assessment lacks a sufficiently robust basis, the adjustment should be approximated by multiplying the credit risk adjustment used for USD multiplied by the respective interest rate differential.

    f) The interpolation should be done in line with the approaches mentioned in the technical specifications. However, a simple linear interpolation between the observed spot rates is also acceptable.

3.18 The particular case of obligations replicable by a portfolio of assets

60. Where future cash flows associated with insurance obligations can be replicated reliably using financial instruments for which a reliable market value is observable, the value of insurance obligations associated with those future cash flows could be determined on the basis of the market value of those financial instruments.

61. The cash flows associated with insurance obligations cannot be reliably replicated when:

    a) Policyholders can exercise contractual options, including lapses and surrenders

    b) Obligations depend on mortality, disability, sickness and morbidity rates

    c) Expenses associated with insurance obligations cannot be reliably replicated.

62. Financial instruments used to value insurance obligations must be traded in deep, liquid and transparent markets.

3.19 Other Liabilities

63. For the market-adjusted valuation approach, liabilities should be reflected at a market-value that does not take into account changes in the credit standing of the IAIG.

ANNEX 2. Rationale for requesting each of the approaches

1. Consolidated Generally Accepted Accounting Principles Basis (GAAP valuation approach)

1. The request for the GAAP valuation approach was based on the fact that it is readily available to most field testing volunteers, which makes it a candidate for use as the basis for application of IAIS global standards.

2. IAIGs that do not report on a GAAP basis, for example US mutual insurers, were asked to provide aggregated statutory data.

3. The inclusion of the GAAP valuation approach in 2014 quantitative field testing allowed for the collection of relevant quantitative and qualitative information, allowed the IAIS to develop a factual analysis of the results.

4. This is a point in time test using 2013 data and cannot take into account or anticipate changes in GAAP that may occur.

2. Consolidated Generally Accepted Accounting Principles Basis with specified valuation for material assets and insurance liabilities (Market-adjusted valuation approach)

5. This valuation basis is called the market-adjusted valuation approach and it was intended to create greater comparability among volunteers.

6. Adjustments were requested only with regard to the most material components of the Asset and Liability side of the balance sheet of insurance groups: financial instrument assets, insurance liabilities and reinsurance recoverables. For the remaining balance sheet items, a simplified approach was adopted, allowing for the use of figures directly flowing from the GAAP balance sheet used in the relevant jurisdiction.

7. The IAIS specified in detail in the 2014 quantitative field testing technical specifications which components of the balance sheet were subject to adjustments and how these adjustments were to be prepared. The Technical Specifications were developed in cooperation with field testing volunteers.

8. Within the market-adjusted valuation approach, the IAIS included two sub-options with regard to the discounting of insurance liabilities: one calculation using IAIS specific discount rates and another using the interest rate term structure defined by the volunteer. Furthermore, volunteers were asked to report the details underlying the construction of their specific interest rate term structures in the Qualitative Questionnaire.

9. The addition of this request aimed to assess the impact of the use of different interest rate in the valuation of insurance liabilities and allow a better understanding of the

differences between the term structure of interest rates used by volunteers and the ones prescribed by IAIS.

2.1. Consolidated economic valuation basis

10. The request for reporting of this Valuation approach was included in 2014 quantitative field testing on the basis of industry feedback, which has suggested that this would be the most suitable approach to base the development of IAIS global standards.

11. Furthermore, reporting such quantitative and qualitative data was not expected to be burdensome for volunteers as no adjustments were asked.

12. The inclusion of this option in 2014 quantitative field testing allowed for the collection of relevant data to allow IAIS to draw conclusions on the appropriateness of the use of economic models as the valuation basis for insurance global capital standards.

ANNEX 3. Summaries of Field Testing Results

1. Analysis of comparability

1.1. Methodology of analysis of comparability

1. The market-adjusted approach (with IAIS specified discount rates) was specified in a way that was expected to make it the most comparable valuation basis of the three options tested. Therefore, the analysis of comparability used this approach as the anchor point on the assumption of its greater comparability, and comparison of values derived from the GAAP approach and the economic valuation approach was undertaken. This assumption was not quantitatively tested but significant information was collected through qualitative questionnaires and the analysis of those responses is ongoing. Any dispersion between the market-adjusted approach and the other approaches was attributed only to such other approaches. A review of the dispersion of results from that comparison then informed the conclusions about comparability of the two other bases relative to the market-adjusted approach. Low dispersion of results indicates comparability and high dispersion of results indicates a lack of comparability.

2. Therefore, the factual analysis aiming to assess the degree of the fulfilment of the comparability principle by each of the tested valuation approaches was performed taking the Market-adjusted balance sheet as the starting point.

3. To allow the identification of trends and the drawing of relevant conclusions, data were analysed based on the overall sample as well as comparing relevant subsets of volunteers. To preserve confidentiality, only analysis on the full sample is presented in this annex.

4. There were some inconsistencies with the data, but overall, after further analysis data were considered to be usable. Volunteers applied simplifications to the production of some data items on a best-efforts basis as allowed for in the technical specifications. There were a number of issues identified where improvements and/or further clarity of technical specifications will be necessary in future including:

   a) Segmentation

   b) Contract boundaries (some volunteers applied different contract boundary definitions but it is not clear if this materially affected the results)

   c) Application of discounting particularly the IAIS specified discount curves.

5. Analysis of the GAAP valuation approach versus the Market-adjusted valuation approach was carried out for all 34 volunteers. Only 21 volunteers provided usable economic valuation approach data. The following box-plots indicate the number of volunteers included in each sample.

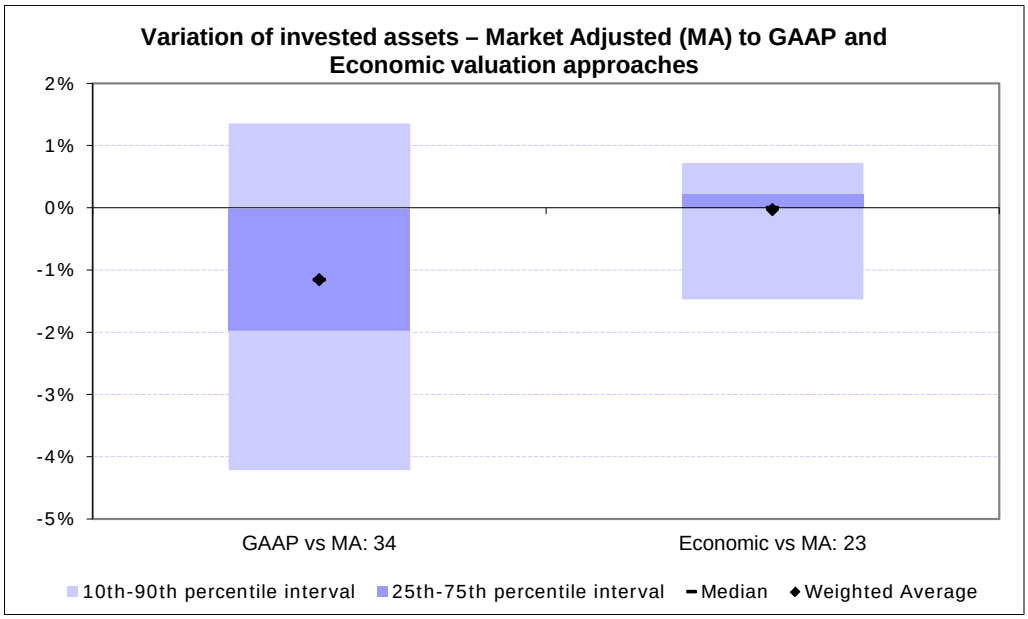
1.2. Assets

6. With respect to invested assets, the analysis of field testing data indicates that significant differences exist among GAAPs used by volunteers (see Figure 1) compared to the Market Adjusted approach. For one quarter of the full analysed sample, the switch between GAAP valuation and Market Adjusted approach represent a change in value of more than 2%. While this effect may appear limited relative to the invested assets, the natural leverage effect embedded in an insurance balance sheet would lead to (keeping the liability side constant) materially higher impacts in terms of available capital resources.

7. On review of the questionnaires, some volunteers noted that the differences between GAAP and the market-adjusted approach are due to some invested assets valued on an amortised cost basis compared to the fair value basis required for the market-adjusted approach. The overall dispersion noted above results in practice from the combination of differences in valuation principles or rules between assets classes – inter GAAP differences – with the differences between assets mix among volunteers using a common GAAP basis – intra GAAP differences. A more granular analysis than the one presented here showed that both effects were material contributors to the overall dispersion.

8. When moving from the market-adjusted to the economic valuation approach, the differences observed are less significant than for the GAAP approaches.

Fig. 1. Variation of invested assets

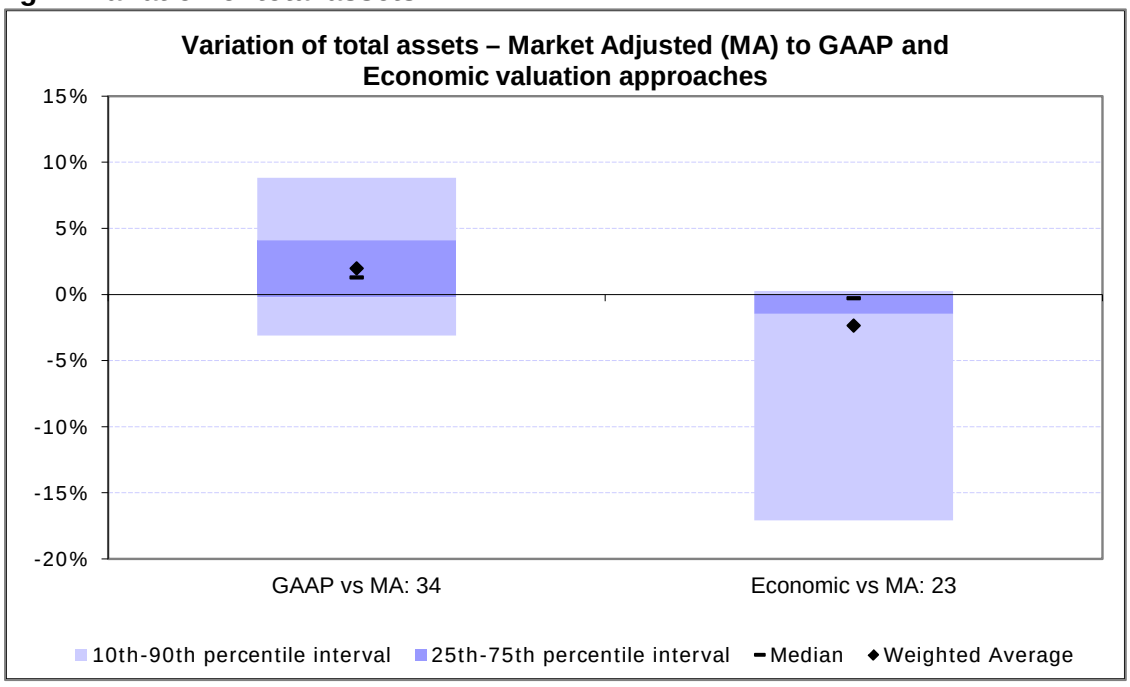


9. The dispersion of results between the market-adjusted approach and the GAAP approach is even higher when other assets are considered. This is reflected in the outcome when assessing total assets (see Figure 2 – please note displayed percentiles span approximately a 30% range compared to less than 10% for Figure 1). In fact, despite relying on GAAP valuations of other assets for the purpose of building the market-adjusted balance sheet, some significant reclassifications (e.g.

deferred acquisition costs, reinsurance recoverables, deferred tax assets, etc.) were in some cases required between the GAAP valuation and the Market Adjusted approach. The materiality of these reclassifications has materialised in the way the weighted averages significantly moved between these two figures. For this reason, the analysis of total assets further accentuates the divergence which had already been observed previously when analysing invested assets.

10. The dispersion of outcomes between the market-adjusted approach and the economic approach with respect to total assets is more pronounced than for the dispersion of outcomes between the market-adjusted approach and the GAAP approach. This is largely driven by the adjustments required for the purpose of building the market-adjusted balance sheet. These include significant implicit and explicit deviations from the application of a pure economic valuation of invested assets and insurance liabilities (e.g. goodwill, intangible assets, deferred acquisition costs, etc.).

Fig. 2. Variation of total assets



1.3. Insurance Liabilities

11. On the liability side, the analysis of field testing results evidence the dispersion of results among existing GAAP valuation methodologies (cf. Figure 3).

12. For example, valuations of GAAP life insurance liabilities, when compared to market-adjusted current estimate liabilities, with few exceptions, are higher. This was an expected outcome. In fact, the current estimates tested under the market-adjusted approach were calculated without the inclusion of any prudence buffer or risk margin, which is present in most existing regulatory and accounting frameworks. Margins

over current estimates (MOCEs) currently included in GAAP insurance liabilities were reallocated to capital resources under the market-adjusted valuation approach.

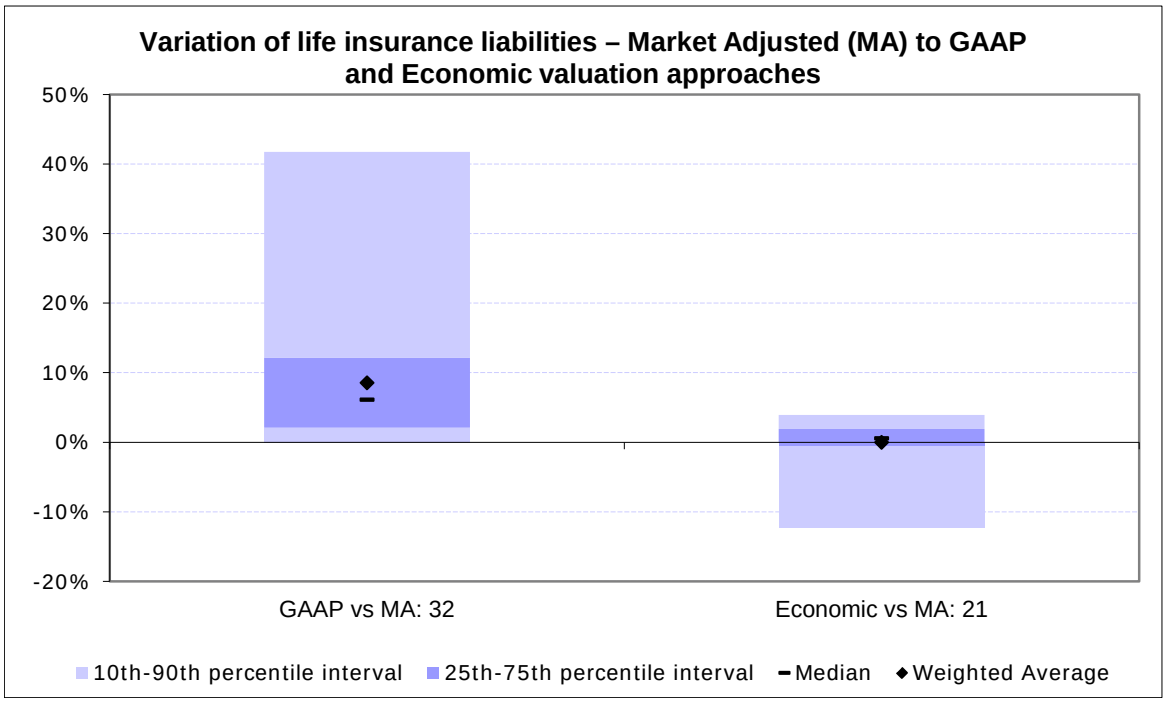
13. MOCE is perceived as the greater obstacle to comparability of insurance liability valuation across jurisdictions. This is due to the different approaches applied by different jurisdictions with respect to its purpose and quantum.

14. Despite the consistent trend for an increase of life insurance liabilities under the GAAP approach, the dispersion of results is significantly different across the different accounting frameworks (IFRS, US GAAP, Japanese GAAP, etc.). The weighted average is also different and it ranges between 2.5% for a group of volunteers using one particular GAAP reporting basis and 13.6% for a group of volunteers using a different GAAP reporting basis. Compared to the analysis of differences between the market adjusted and the GAAP valuation approach, the changes observed in the valuation of insurance liabilities between the market-adjusted and the economic valuation approach indicate the lack of a stable pattern across the entire sample. Dispersion of results is often centred on the 0% point, with a number of volunteers reporting positive changes, while others report a negative evolution.

15. These results seem to confirm the initial perception that assumptions embedded in Economic Models are usually entity specific. More specifically, with regard to life insurance liabilities, the market-adjusted valuation technical specifications set out instructions for the calculation of current estimates. These specifications were expected, on the one side, to standardise the approach followed by volunteers to increase the degree of comparability of results and, on the other, introduce deviations from IAIGs' practices used by economic models. Given its relevance, the approach laid out in the technical specifications for contract boundaries and interest rate term structures is likely to have the most significant impact.

16. The field testing results confirmed these expectations, evidencing relevant variations for many volunteers with respect to the amount of life insurance liabilities, both positive and negative.

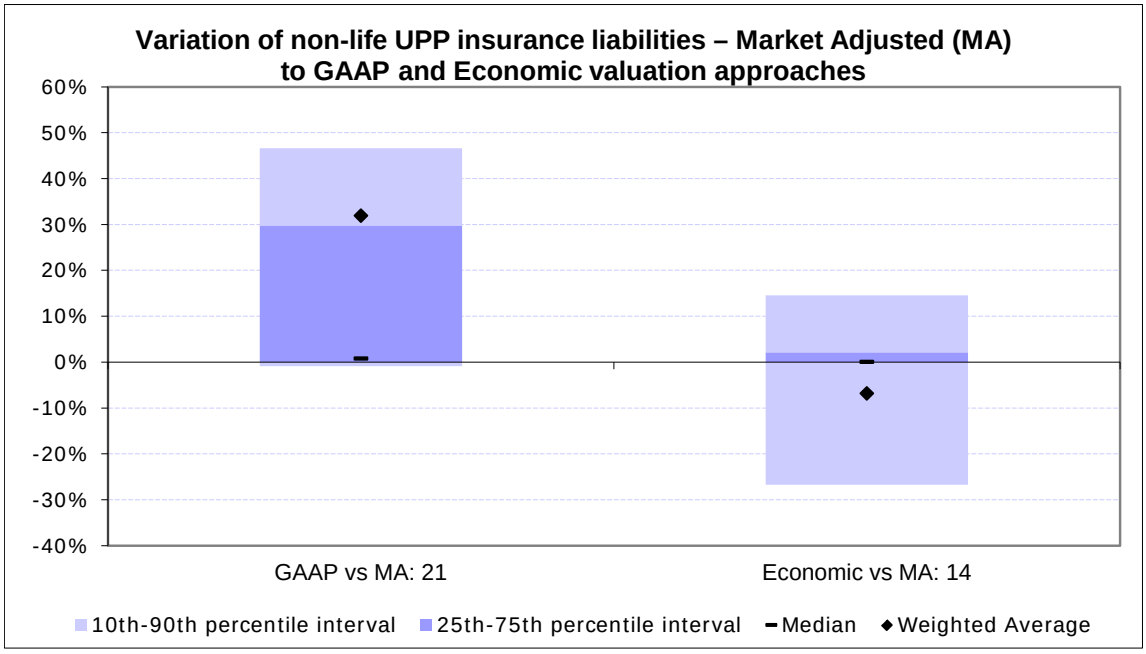
Fig. 3. Variation of life insurance liabilities



17. In the case of non-life unearned premium provision insurance liabilities, the dispersion was relatively stable across different GAAPs (details not disclosed for confidentiality reasons). The weighted average variation was 30.2% for all volunteers reporting non-life business.

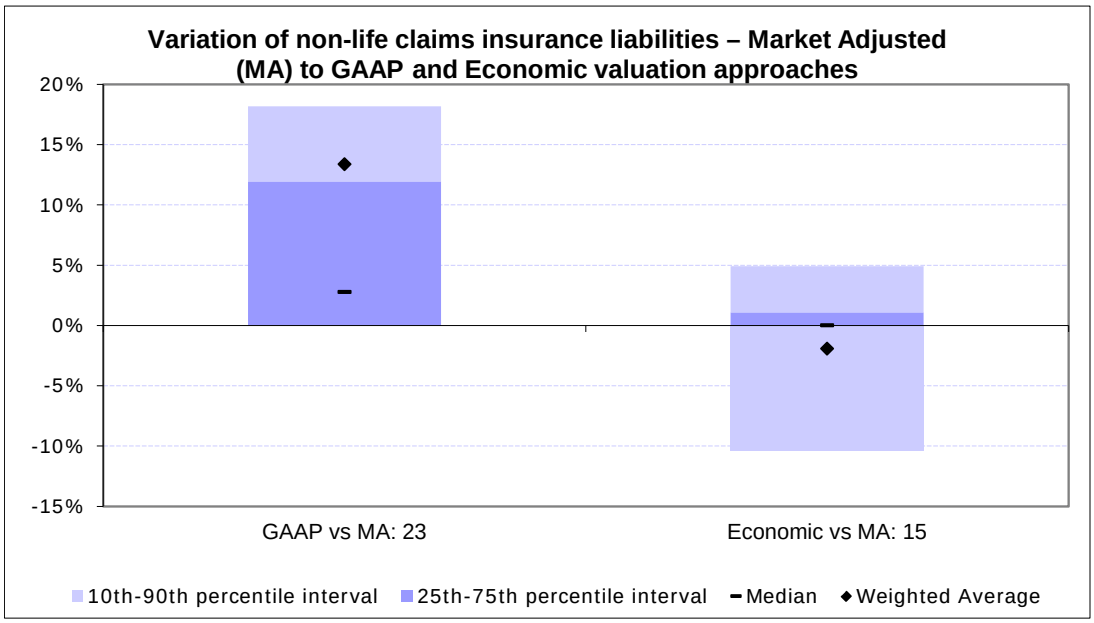
18. When comparing non-life unearned premium provision liabilities between the market-adjusted and the economic valuation approaches, the results exhibit much less dispersion with a mean difference of -6.8% (indicating economic valuations are lower than for the market-adjusted approach) and a median difference of 0%. The 25th to 75th percentile interval is only 2.2% across all volunteers that reported non-life business.

Fig. 4. Variation of non-life UPP insurance liabilities



19. For the non-life claims insurance liabilities, there was an obvious trend for GAAP liabilities to be higher than those for the market-adjusted approach. For the economic valuation approach were that there were volunteers that reported higher values under economic valuation and others that reported lower values under economic valuation than market-adjusted values. The median of results was 0% with the weighted average mean of -2.1% indicating a slight tendency for economic values to be lower than market-adjusted values. This illustrates the lesser degree of dispersion found among volunteers for the economic valuation approach than for the GAAP valuation approach with respect to non-life claims insurance liabilities.

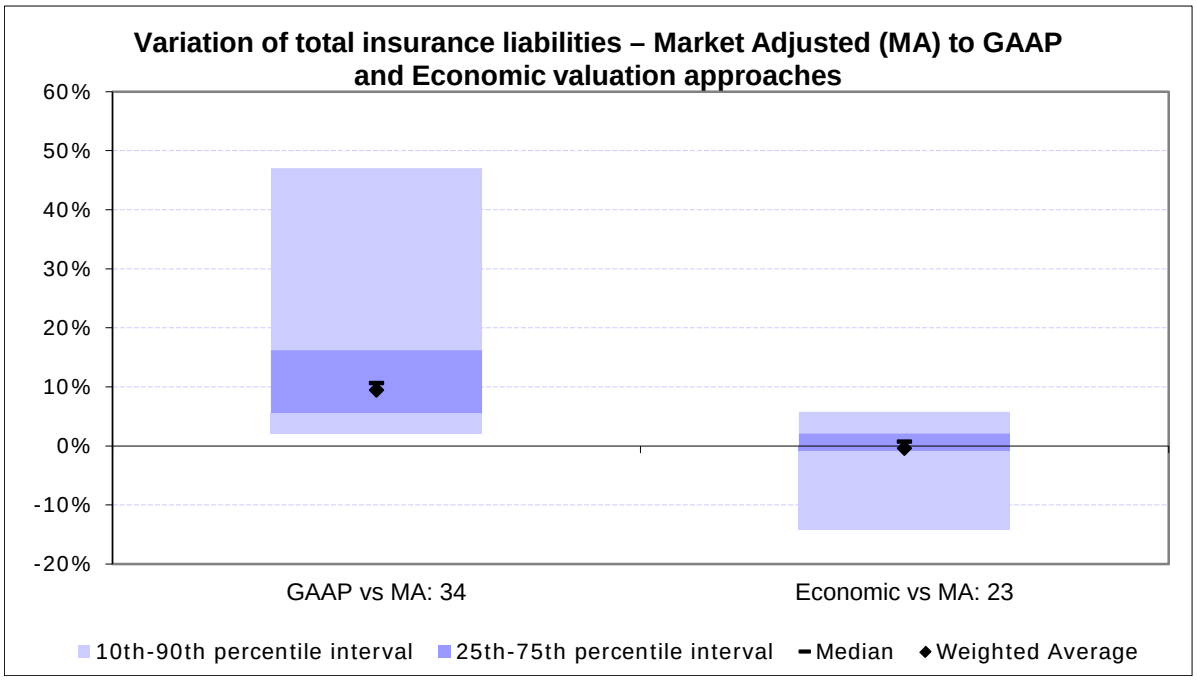
Fig. 5. Variation of non-life claims insurance liabilities



20. The overall impact on insurance liabilities (considering both the life and non-life components) results in a diverging picture, with the weighted averages of differences between the market-adjusted valuation approach and the GAAP valuation approach varying between 3.3% for one group of volunteers with a particular jurisdictional GAAP and 14.8% for another group of volunteers with a different jurisdictional GAAP. For all volunteers this weighted average difference is 9.5%.It is also worth noting that the extent of the dispersion is very significant across volunteers, with the 25th to 75th percentile interval between 5.6% and 16.2% and the 10th to 90th percentile interval from 2.1% to 47%. Different GAAP reporting groups showed similar dispersion in results for the 25th to 75th percentile interval. However at the 10th to 90th percentile interval the dispersion was considerably different. With respect to the variation between total insurance liabilities for the market-adjusted valuation approach and economic valuation approach, the total insurance liabilities' weighted average difference for all volunteers is negligible at -0.4%. There is not much variation in this weighted average difference no matter the grouping. Dispersion between the market-adjusted valuation approach and economic valuation approach is also less than the dispersion between the market-adjusted valuation approach and the GAAP valuation approach. Across all volunteers the 25th to 75th percentile interval is only between -0.9% and 2.1%. The weighted average difference between these valuation approaches and dispersion of those results is less for total insurance liabilities than individually for life insurance liabilities and non-life unearned premium or claims. This indicates offsetting differences meaning that less can be drawn from these results across life and non-life than when looking at the results individually.

21. The conclusion however must be that the differences between the market-adjusted valuation approach and the GAAP valuation approach are greater than between the market-adjusted valuation approach and the economic valuation approach.

Fig. 6. Variation of total insurance liabilities



1.4. Non-insurance Liabilities

22. Despite the market-adjusted specifications allowing for the use of GAAP for the valuation of non-insurance liabilities, the analysis highlights a significant dispersion of results, as well as differences in behaviour among groups of volunteers currently subject to different accounting GAAPs. This is mainly due to differences in treatment for deferred tax liabilities, which derive from the adjustments introduced in other components of the balance sheet (see Figure 7). The technical specifications asked volunteers not to include the tax effect of changes between the GAAP valuation approach and the market-adjusted valuation approach. However, a majority of volunteers ignored this instruction and included tax effects of the change.

23. Comparing the market-adjusted valuation approach to the GAAP valuation approach results in a weighted average difference of -6.9%, meaning that GAAP valuation of non-insurance liabilities is lower than the market-adjusted approach. The dispersion though is significant with the 25th to 75th percentile interval ranging from -14.6% to -0.1%. Such dispersion is very similar across the different GAAP reporting groups but weighted averages varied between -4.2% and -13.2%.

24. As already observed when comparing the GAAP to the market-adjusted valuation approach, the estimation of non-insurance liability amounts evidences high volatility across the sample of volunteers.

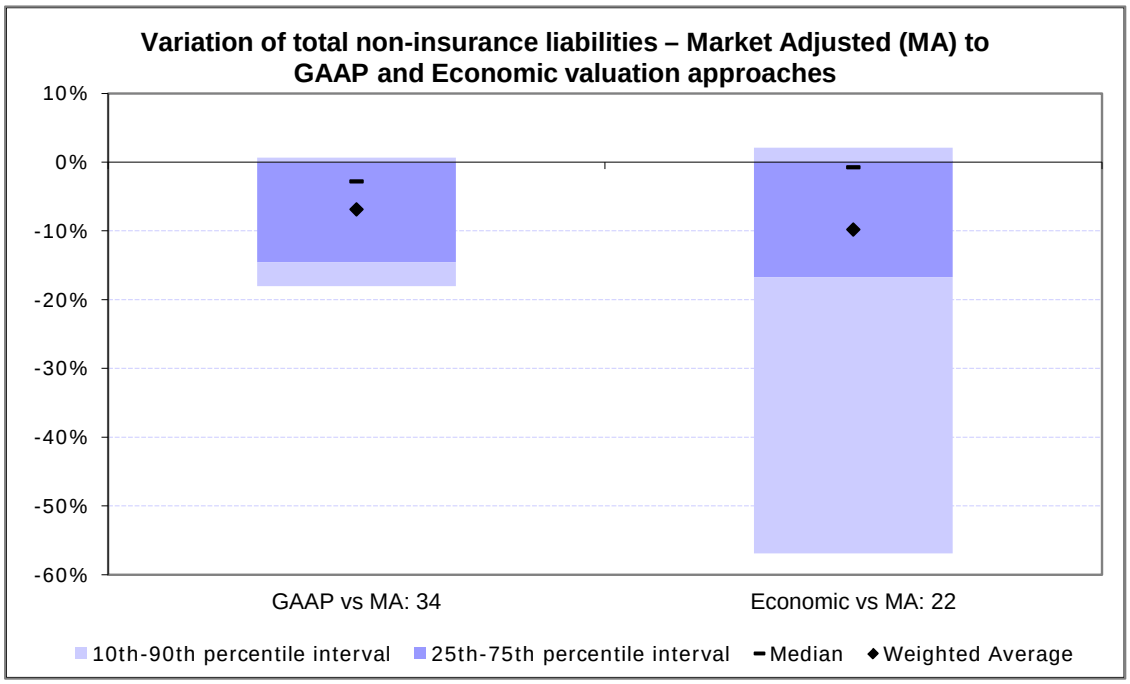
25. Comparing the market-adjusted valuation approach to the economic valuation results there is similar dispersion compared to the dispersion to GAAP valuation at the 25th

to 75th percentile level but the dispersion at the 10th to 90th percentile level is much greater indicating outliers in the data.

26. These results indicate that for non-insurance liabilities the GAAP valuation approach demonstrates more consistency than the economic valuation approach.

27. This is mainly due, on the one side, to the simplification allowed for the purposes of FTQE_1.0 to rely on existing GAAP figures for constructing the market-adjusted balance sheet and, on the other, to the indirect impact of the revaluation non-insurance liabilities such as deferred taxes due to the market-adjusted differences for major balance sheet items (invested assets and insurance liabilities).

Fig. 7. Variation of total non-insurance liabilities



1.5. Total equity (excess of assets over liabilities)

28. Another way to interpret results is to look at the impact of the different valuation approaches on capital resources. To this end, the impact on total equity reflects the combination of the previously described impacts on the various assets and liabilities components. The overall impact on total equity is often amplified by the varying degree of capital resources leverage embedded in the balance sheet. This is usually more significant for life activities. The amounts of life insurance liabilities compared to equity are many times more significant so a small variation in life insurance liabilities results in a very material variation in total equity (or capital resources).

29. As expected, given the divergences previously identified, although the large majority of volunteers experience a significant decrease in total equity when moving from the market-adjusted to the GAAP valuation approach, the magnitude varies

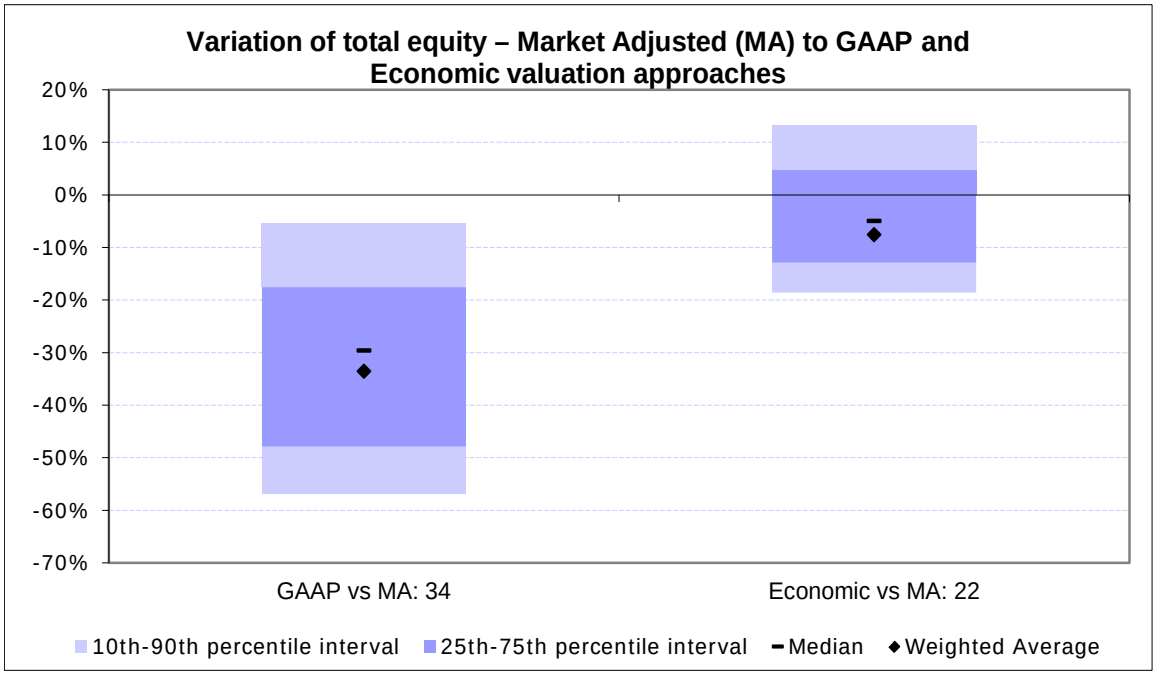
considerably. Across all volunteers the weighted-average change is -33.4% with considerable difference across reporting bases.

30. The dispersion of results for differences between the market-adjusted valuation approach and GAAP valuation approach are even more telling. The 25th to 75th percentile interval is -47.9% to -17.6% – a range of over 30%. This indicates that total equity or capital resources determined under the GAAP valuation approach are quite incomparable.

31. In comparison when considering differences between the market-adjusted valuation approach and the economic valuation approach, the weighted average difference among all volunteers is -7.2% with most reporting groups close to that weighted average difference. Dispersion was also much less when comparing the market-adjusted valuation approach and the economic valuation approach with the 25th to 75th percentile interval of -12.9% to 4.7% – still a significant 17.6% range. This outcome, which was already visible for many other components of the balance sheet, seems to confirm that economic models follow entity-specific assumptions and methodologies.

32. This means that in terms of comparability the economic valuation approach outperforms the GAAP valuation approach significantly on the crucial measure of total equity (capital resources). However, even though it demonstrates less incomparability, it is clear that the use of economic valuation may lead to incomparable results making it an inappropriate basis for ICS calculation.

Fig. 8. Variation of total equity



2. Risk Sensitivity of valuation basis

33. The rationale for testing the risk sensitivity principle is set out in the body of this memorandum. The following sections present the analysis performed by the IAIS on field testing data and provide an assessment about the valuation basis that better fulfils the risk sensitivity principle. For this purpose, the analysis focuses on two main elements:

    a) What is the valuation basis that delivers stressed balance sheets that are more consistent with the economic reality (taking into account the volunteers' population and group of tested stresses)?

    b) What is the valuation basis that delivers more consistent results for each one of the tested stresses, across the sample of volunteers?

2.1. Interest rate Stresses

34. Volunteers were asked to recalculate their balance sheets by applying an interest rate stress.

35. This is an important risk for IAIGs, in particular for those underwriting long term business or managing long tail claims. In fact, IAIGs usually actively manage interest-rate risk, namely through the implementation of asset liability management (ALM). However, given the lack of available financial instruments to perfectly match the profile of cash-flows stemming from liabilities (in particular long term liabilities), there is usually an imbalance within the balance sheet. This leaves IAIGs exposed to losses in case of an adverse development of interest rates.

36. A reasonable assumption is that volunteers would be mostly exposed to losses in an interest rate down stress scenario, due to the longer duration/amount of cash-flows on the liability side of the balance sheet. Under this assumption, total equity (i.e. excess of assets over liabilities) would decrease under an interest rate down scenario and increase under an interest rate up scenario. Life insurers are more likely to be exposed to this situation than non-life insurers engaged in more short term business of non-life insurance.

37. Analysis of field testing qualitative information aimed to assess potential different impacts on volunteers (both in terms of size and direction). In order to ensure all possibilities were captured by the field testing exercise, the IAIS required volunteer to apply interest rate stresses in both directions (i.e. both up and down). This aimed to ensure that at least one of the stresses would be relevant for each volunteer, depending on the relative size and duration of its assets and liabilities.

38. Figure 9 shows the direction of change of total equity when the interest rate upward stress was applied. The interest rate upward stress was specified as a 30% increase with respect to the pre-stress interest rate at each duration of the interest rate curve, for all currencies, with a minimum movement in the interest rate of 50 basis points.

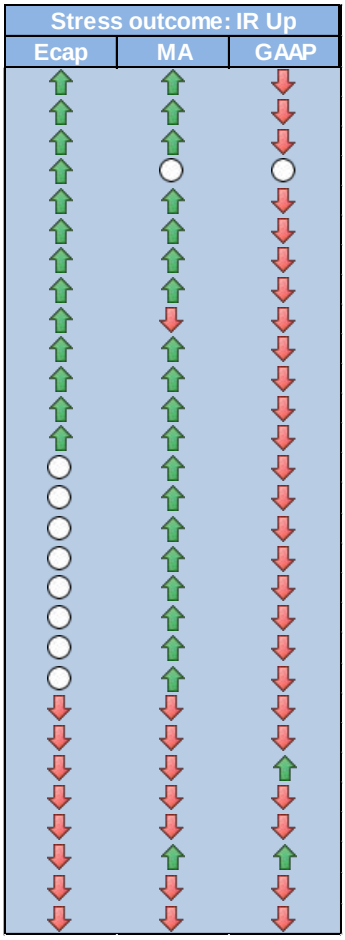
39. The interesting outcome is that in all but 2 cases (out of the 28 volunteers who reported data under the GAAP valuation approach), the application of the interest

rate upward stress resulted in a decline in total equity. Based on the previous assumption, this result this seems counter-intuitive. The IAIS supplemented the quantitative analyses with qualitative information from the field testing questionnaires which seem to indicate that while assets valued at market value decreased in value under this stress, liabilities did not decrease in value to the same extent. This indicates that under the GAAP valuation approach, the liability valuation seems less sensitive to the interest rate change than the asset valuation.

40. Outcomes were more mixed under the market-adjusted valuation approach and the economic valuation approach. Out of the 28 volunteers that reported the impact of the upward interest rate stress under the market-adjusted approach, 20 showed an increase in total equity. This is more in line with expectations based on the economics of insurer balance sheets.

41. Out of the 21 volunteers that reported the impact of the stress under the economic valuation approach, 13 reported an increase in total equity. Twenty volunteers reported the impact of the interest rate up stress under both the economic valuation approach and the market-adjusted valuation approach. Of those, only two reported different directional changes to their total equity under the economic valuation approach and the market-adjusted valuation approach.

Fig. 9. Direction of change in total equity in interest rate up stress



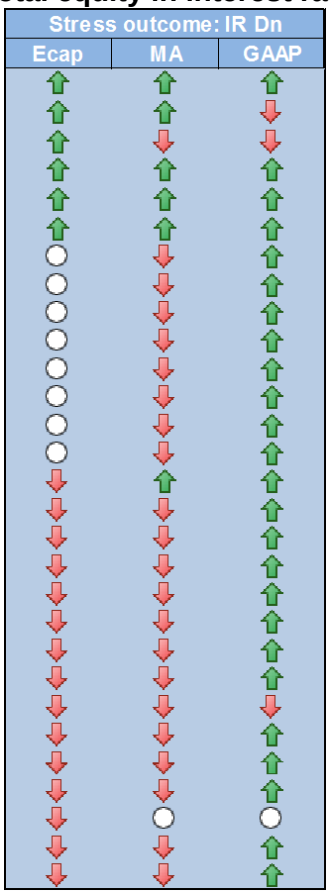
42. The interest rate down stress was specified as a 30% decrease with respect to the pre-stress interest rate at each duration of the interest rate curve, for all currencies, with a minimum movement in the interest rate of 50 basis points, subject to the constraint that stressed interest rate could not be negative for any point on the interest rate curve. The direction of changes in the total equity on the balance sheet of volunteers under the different valuation approaches can be seen in Figure 10.

43. For the GAAP valuation approach, 28 volunteers reported the outcome of the stress. In only two cases, total equity decrease as economically expected. Again, data seem to point out that this is due to the different response to stresses of assets (larger positive increase in value) and insurance liabilities (lower change in value or, in some cases, no change in value). The analysis of volunteers' data grouped by different GAAP bases also shows that some GAAP bases are not sensitive to changes in interest rates (no risk sensitivity).

44. For the market-adjusted valuation approach, out of the 28 volunteers who reported the outcome of the interest rate up stress, 4 reported an increase in total equity.

45. For the economic valuation approach, out of the 20 volunteers who reported the outcome of the interest rate up stress, 6 reported an increase in total equity. Only two volunteers reported different directional outcomes for total equity between the market-adjusted valuation approach and the economic valuation approach.

Fig. 10. Direction of change in total equity in interest rate down stress



46. Further analysis presented in Table 1 evidences the impact on specific balance sheet items to an interest rate up stress. This is only presented for the interest rate up stress as just the one direction of the interest rate stress sufficiently demonstrates how the different valuation approaches operate.

Table 1. Reaction of balance sheet items to an interest rate up stress

Interest rate up	Invested assets	Total Assets	Total Life IL	Total UPP Non-Life IL	Total CL Non-Life IL	Total IL	Total NI Liabilities	Total Equity
MA	-4.2%	-3.6%	-5.8%	-3.5%	-2.7%	-5.6%	-3.5%	8.0%
GAAP	-2.8%	-2.3%	-1.5%	0.0%	-0.1%	-1.4%	-3.0%	-12.0%
ECON	-4.1%	-3.4%	-5.1%	-1.5%	-2.6%	-4.8%	-2.1%	5.4%

Data: Weighted average of variation after stress

47. When analysing the results detailed in Table 1, it can be observed that the market-adjusted valuation approach provides a reasonably consistent and appropriate reaction to the application of an interest rate up stress. Invested assets and insurance liabilities (the balance sheet items which have been adjusted) respond according to the expectations.

48. With regard to the economic valuation basis, results are similar to the market-adjusted basis although the market-adjusted approach demonstrates more consistent changes across the sample.

49. For the GAAP valuation approach, it has been observed that under some GAAPs life insurance liabilities are insensitive to interest rate risk. Another relevant conclusion is that non-life claims are largely insensitive to interest rate risk. This could be explained by the fact that most GAAP valuation of non-life insurance liabilities are not discounted and therefore cannot react to changes in interest rates. The value of invested assets reacts largely as expected but to a lower extent than the market-adjusted and the economic valuation approaches. This could be explained by the fact that some invested assets under GAAPs are valued at amortised cost and therefore do not react to changes in interest rates. In combination, the differences in reaction to the interest rate stress in assets and liabilities creates outcomes that are anomalous – changes in asset values with minimal changes in liabilities lead to a reduction in equity when the economic valuation approach and market adjusted valuation approach indicate the opposite – the expected increase in the total equity of the volunteers.

50. Therefore, in terms of risk sensitivity to an interest rate stress, data from volunteers indicates that the market-adjusted approach appears to behave broadly in a consistent and directionally correct manner. The economic valuation approach data, in general behaves as expected. Data reported by volunteers on the GAAP valuation approach indicated that it does not respond to stresses in a consistent manner. In some cases GAAP data indicates outcomes contrary to the expected economic impact of changes in interest rates. Preliminary analysis of the field testing

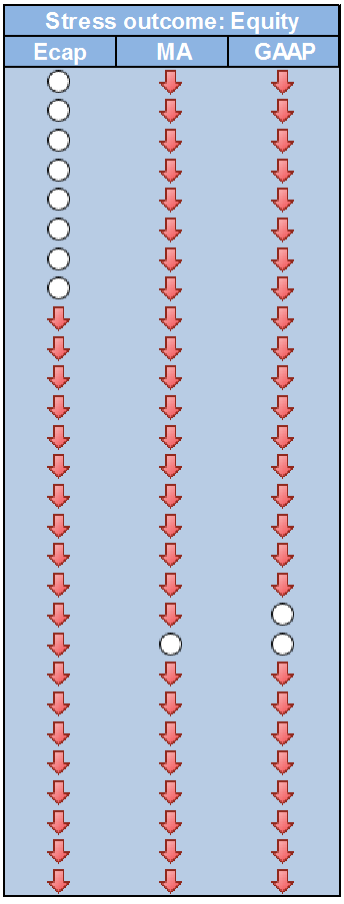
questionnaires point out that this is due to the different sensitivity to stresses of the asset and liability side of the balance sheet.

2.2. Equity Stress

51. The equity stress was defined as a shock on the equity and equity-like exposures held by volunteers. This stress was expected to impact mainly the asset side of the balance sheet. Although indirect effects on the liability side of the balance sheet were also expected, through the impact on value of separate account or participating products. The stress applied during field testing was a 30% decrease in all equities and equity type exposures, including listed and non-listed equity as well as private equity.

52. Figure 11 shows the direction of changes in total equity on the balance sheet of volunteers under the three different valuation approaches. Data for all three valuation bases consistently show a decrease in total equity for all data points.

Fig. 11. Direction of change in total equity in equity exposure down stress



53. Under this equity stress, the results observed for the market-adjusted, economic valuation and GAAP valuation approaches are rather consistent, which points to the possible conclusion that differences in the magnitude of the response to the stress

across groups of volunteers may be related mainly to differences in the level of equity exposure.

54. Table 2 includes also the impact on assets held in separate accounts. This indicates that half the assets held in separate account are equities while about 10% of invested assets, excluding assets held in separate accounts, are held in equities. It also explains why an equity shock expected to mainly affect the asset side of the balance sheet propagates quite significantly to life insurance liabilities through separate accounts – including unit-linked products – or participating products.

55. In the case of the Economic valuation approach, as in the case of the previous stresses, the magnitude of the impact is very different when comparing groups of volunteers, in particular for insurance liabilities. This may indicate the existence of important differences in the equity risk exposures of different volunteers.

56. Based on the results of the equity stress, it is not clear what valuation approach better satisfies the risk sensitivity criteria.

Table 2. Reaction of balance sheet items after equity stress

Equity	Invested assets	Assets held in separate accounts	Total Assets	Total Life IL	Total UPP Non-Life IL	Total CL Non-Life IL	Total IL	Total NI Liabilities
MA	-2.7%	-15.7%	-5.1%	-5.0%	-0.1%	-0.4%	-4.6%	-4.2%
GAAP	-2.6%	-14.3%	-4.6%	-4.4%	0.0%	0.0%	-3.9%	-3.5%
ECON	-2.8%	-14.6%	-4.9%	-4.6%	0.0%	0.0%	-4.3%	-3.8%

Data: Weighted average of variation after stress

2.3. Mortality Stress

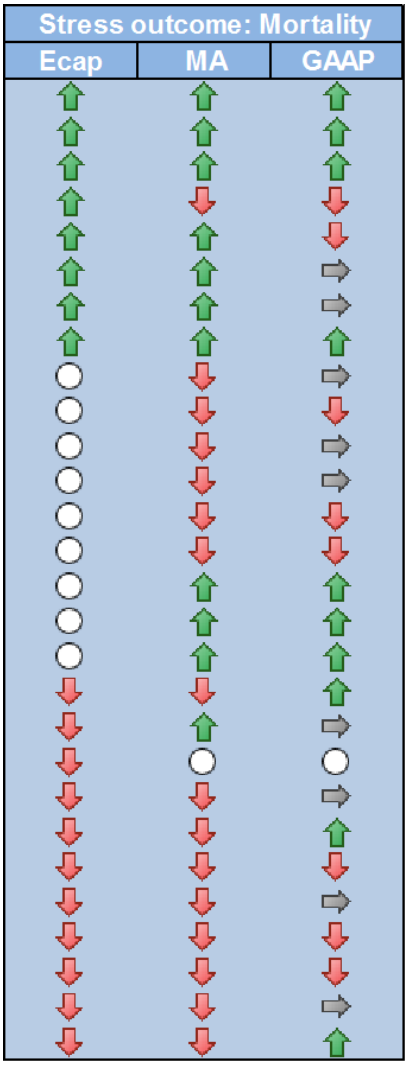
57. The mortality stress applied was a permanent 10% increase in mortality rates, and consisted mainly of a shock applied to the liabilities of volunteers. Because the shock was applied across the whole portfolio, its impact may be reduced by natural effects such as the hedging between mortality and longevity driven products. In fact, different directional outcomes in terms of total equity on the balance sheet may be explained by whether mortality or longevity is the stronger driver of valuation and risk for a particular volunteer.

58. Figure 12 shows the direction of changes in total equity of the balance sheet of volunteers. It shows the same directional signal is given by the economic valuation approach and the market adjusted approach except for two volunteers that reported the impact of stresses under both approaches. The GAAP valuation approach gives different directional signals in terms of change in total equity for 7 of the 23 volunteers that reported the impact of a mortality stress under both the market-adjusted valuation approach and the GAAP valuation approach.

59. In the case of GAAP valuation approach, there is no response in the values of insurance liabilities to the materialization of the stress for several groups of

volunteers. In nine cases, the entire balance sheet is insensitive to the application of the mortality stress, which is explained by the stress magnitude being under the threshold triggering a revaluation of liabilities valued including a prudence margin for such risks.

Fig. 12. Direction of change in total equity in mortality stress



60. Table 3 provides detailed results. These show very small impacts overall across the balance sheet. All valuation bases demonstrated small impacts.

61. All valuation bases show that life insurance liabilities are not significantly affected and in fact are affected to a similar degree to non-life insurance liabilities. These small changes lead to a relatively low impact on the equity of insurance groups. As previously mentioned, this can be to some extent justified by the fact that the stress was not applied exclusively to mortality-driven products, but across the entire portfolio of insurance liabilities.

62. What this table does show is the leveraging effect of very small changes in balance sheet items to the total equity of a volunteer which can still show a close to material change.

63. Again it is difficult to draw conclusions about the superiority of one valuation basis over another given these results on a mortality stress. Overall, these are results that require further analysis to inform future field testing and ICS design.

Table 3. Reaction of balance sheet items after mortality stress

Mortality	Invested assets	Total Assets	Total Life IL	Total UPP Non-Life IL	Total CL Non-Life IL	Total IL	Total NI Liabilities	Total Equity
MA	0.0%	0.2%	0.3%	-0.1%	-0.4%	0.2%	-0.3%	0.4%
GAAP	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	-1.4%
ECON	0.0%	0.0%	0.4%	0.0%	0.0%	0.4%	-0.4%	-2.5%

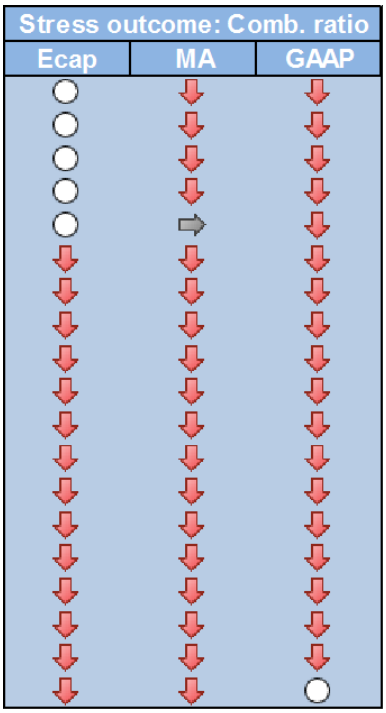
Data: Weighted average of variation after stress

2.4. Combined ratio Stress

64. The combined ratio stress aimed to assess the degree of responsiveness of non-life insurance liabilities to changes in the assumptions underlying the calculation of insurance liabilities. The stress applied for future claims was an absolute increase of 20% in the combined ratio. For incurred claims that are not fully settled, the stress was defined as a relative increase of 20% in all future cash-flows relating to these claims. On a best effort basis, volunteers were requested to apply the stress separately to each line of business. The stress was applied to claims gross of reinsurance and reinsurance assets were recalculated accordingly.

65. Figure 13 provides analysis of the direction of change in total equity in the combined stress scenario. It shows that for the 19 volunteers whose non-life activities were subject to this stress, all reported changes in total equity that went in the same direction.

Fig. 13. Direction of change in total equity in combined ratio stress



66. Considering the detailed analysis of results set out in Table 4, under the market-adjusted valuation approach, there is an appropriate response to the stress, which is also very consistent across all the groups of volunteers.

67. In the case of GAAP valuation approach, in particular the unearned premium provision does not react to stress as much as the market-adjusted and economic valuation approaches.

68. Changes to non-insurance liabilities based on this stress are hard to explain and require further investigation.

69. Preliminary findings are that the market-adjusted approach is a marginally superior with respect to risk-sensitivity compared to the economic valuation approach, and the GAAP valuation approach does not demonstrate expected risk sensitivity for unearned premium provisions for non-life insurance.

Table 4. Reaction of balance sheet items after combined ratio stress

Combined ratio	Invested assets	Total Assets	Total Life IL	Total UPP Non-Life IL	Total CL Non-Life IL	Total IL	Total NI Liabilities	Total Equity
MA	0.0%	0.2%	0.6%	21.8%	17.3%	2.7%	-2.0%	-10.6%
GAAP	0.0%	0.3%	0.0%	5.0%	15.4%	1.6%	-1.0%	-11.7%
ECON	0.0%	0.2%	1.1%	27.2%	20.6%	3.2%	-2.8%	-13.9%

Data: Weighted average of variation after stress

2.5. Conclusions regarding the Risk Sensitivity principle

70. The analysis of 2014 quantitative field testing data allowed the IAIS to reach the following conclusions:

    a) The market-adjusted valuation approach is responsive to all the stresses which were tested. Furthermore, although the manner in which each volunteer's balance sheet responds to a particular stress is largely driven by entity-specific elements such as asset composition or insurance business portfolio, the magnitude of the responses appears to be appropriate, on a weighted average. Finally, the sensitivity to stresses is consistent across the entire sample of volunteers, even when these are grouped according to their current GAAP accounting framework.

    b) GAAP valuation data show an adequate response with respect to some stresses and volunteers. However, data also points to significant inconsistencies with respect to the direction of responses to several of the tested risk stresses. This could be explained by the fact that some of the reported GAAPs are by construction non-responsive to a number of the stresses included for testing under FTQE_1.0.

    c) The economic valuation approach, although presenting in general a sensitive behaviour to the stresses applied, evidences a degree of inconsistency in those responses, across the sample of field testing volunteers.

71. The analysis of field testing data indicates that the market-adjusted approach satisfies the principle of risk sensitivity better than the other two valuation approaches. Based on these analyses, the economic valuation approach ranks second, whereas the GAAP valuation approach ranks third.

ANNEX 4. Details of other considerations in the selection of a valuation methodology for ICS

1.1. Auditability

1. GAAP balance sheets are audited with a high level of assurance as mandated by securities regulators. There is a perception that any move away from GAAP balance sheets will result either in no audit assurance or lower quality audit assurance on the inputs to the calculation of both capital resources and the ICS capital requirement.

2. Many of the jurisdictions that require prudential reporting that varies from GAAP require assurance (either external or internal) of the prudential requirements.

3. Whatever the ICS valuation basis, the IAIS could explore the development of a requirement for the balance sheet (and any other inputs into the ICS calculation) to ensure it is subject to assurance either through external audit or supervisory verification. However, the IAIS should consider the impact on cost to IAIGs (and/or supervisory authorities) of these additional assurance services. This should be considered in conjunction with the other cost issues set out below. This course of action would mitigate jurisdictional concerns about auditability and ensure that the level of audit assurance is independent from any decision about valuation.

1.2. Additional costs of any valuation approach specific to ICS

4. The material presented in this section is not meant to pre-judge any cost data that is derived from field testing. It attempts to present some assumptions about costs but these would have to be tested in a cost/benefit analysis.

5. If a valuation approach, such as the market-adjusted approach, is endorsed by the IAIS, this would imply that assets and particularly insurance liabilities are valued following the prescribed ICS calculation methodology. This is likely to generate additional costs to IAIGs compared to the use of local GAAPs. Similarly, if the IAIS needs to develop and maintain adjustments to GAAPs (an adjusted GAAP valuation approach) this would also bear a cost.

6. Additional costs may arise from the need to gather data and build IT systems to support this valuation methodology. Also, the cost of auditing the valuation methodology for ICS may also be an additional cost to be taken into account. The significance of these additional costs is not known and these costs are likely to vary depending on how much the valuation methodology differs from existing approaches. In essence, there needs to be analysis of the costs against the incremental benefits of greater comparability.

7. This is certainly an issue that could be further investigated during the next rounds of field testing through the questionnaires supporting the exercises. It is however important to frame the questionnaires in an appropriate manner to capture only the incremental costs and not the total costs arising from this exercise to avoid that data provided on costs is reflective of a bias against change.

8. The analysis of cost data must be built on an appropriate degree of scepticism about the incentives related to the cost data provided. The difficultly of translating benefits into quantitative measures must be acknowledged through a methodology that enables a qualitative assessment to be a significant component of the cost/benefit analysis.

9. It is however important to strike the right balance between costs and benefits and present a credible cost/benefit analysis. Industry comments with respect to the development of the ICS have consistently included a call for cost/benefit analysis and articulation of the benefits of the introduction of the ICS.

10. The proposed qualitative field testing includes the gathering of data on the costs of implementing the qualitative elements of ComFrame. A similar approach is needed for the ICS.

1.3. GAAP and jurisdictional specificities

11. IAIGs and trade associations often argue that local GAAPs are adapted to represent the economics of particular markets and that IAIG business models are linked to and dependent on that GAAP public reporting model.

12. The population of IAIGs exhibits diversity both in terms of geographic distribution and business models. By definition for a group to be identified as an IAIG requires that it operates in at least three jurisdictions. Although, some of the field testing volunteers currently do not meet these criteria, there is an expectation that they may meet such criteria when ICS is implemented. Some of the field testing volunteers are currently predominantly domestically focused.

13. The diversity is in the amount of business carried on outside of the home jurisdiction. The IAIG designation is based on at least 10% of business outside of the home jurisdiction which means up to 90% can be in the home jurisdiction of the IAIG. Some IAIGs predominantly have business outside of their home jurisdiction particularly where their home jurisdiction is a small market. So we have some IAIGs that are predominantly internationally focused and some IAIGs that are predominantly domestically focused with some business outside of their home jurisdiction.

14. The argument about accounting models and jurisdictional specificities is clearly relevant at the legal entity level (except where they have significant foreign branch operations). At the IAIG level, the relevance of the argument depends on the mix of business. It is understandable that those IAIGs that are predominantly domestically focused (at the moment) are concerned about different incentives that might be created by a different valuation methodology and ICS design compared to their domestic GAAP and regulatory model.

1.4. Artificial volatility, long-term guaranteed business and procyclicality

1.4.1. Artificial volatility

15. A concern stated in relation to the market-adjusted approach is that it may introduce some artificial volatility into valuation due to the link to market volatility. This volatility can have strong effects on the net financial position of an insurer when there is a mismatch between the asset side and liability side of the balance sheet. This may be problematic in case the IAIG, due to the nature of its business (long-term and well-matched portfolio of assets and liabilities) does not have the need to actually sell its assets in the short-term and can hold them to maturity.

16. The market-adjusted approach tested during the first round of field testing required volunteers to discount insurance liabilities by applying prescribed term structures depending on the currency of liabilities. In fact, the IAIS specified yield curves included an adjustment to the risk-free rate term structure (either swaps or government bonds) based on a reference portfolio of high-quality corporate bonds rather than the actual assets held by an IAIG to support its insurance liabilities. Therefore, where the value of assets and liabilities do not move in tune as market condition change this is likely to shows a certain amount of "mismatch risk."

17. However, it is important to highlight that the approach tested during the first round of field testing is different from a "market consistent" approach. The application of a market consistent approach involves the application of a pure "risk free" discount rate, which includes a significantly higher mismatch risk.

18. The approach used to determine the IAIS specified discount curves was deliberately generous and it represents a significant departure from a "market consistent" approach. The simplified market-adjusted approach used to determine the IAIS specified discount curves aimed to create a higher degree of comparability across jurisdictions with respect to the valuation of insurance liabilities. The field testing technical specifications indicated[73] that the approach adopted for the first exercise did not preclude further refinements with respect to the design and/or methodology to specifying discount curves, if the market-adjusted approach was going to be endorsed by the IAIS in the future.

19. There are a range of views as to whether applying a common discount rate independent of asset portfolios supporting insurance liabilities appropriately reflects the economic risk of the IAIG's assets and liabilities. There are broadly two views (with many nuances):

    a) Economically, insurance liabilities are not connected to the assets held by the IAIG. Depending on the IAIGs' risk tolerance, they may decide to hold quite different portfolios of assets to support insurance liabilities.

[73] See paragraph 131 of the field testing technical specifications.

b) IAIGs apply asset-liability management techniques and therefore the assets and liabilities of an IAIG should not be considered separately.

20. Furthermore, another issue that is at the heart of the debate on valuation is whether the discount rate applied to value liabilities should be based on currently observed market rates or the rate observable at the time insurance contracts are sold (locked-in assumptions). The equivalent debate on the asset side is whether the current market value of assets should be used or the market value at the time the asset purchase (amortised cost) should be used adjusted for amortisation of value as interest coupon is received (for interest bearing securities).

21. While there is no consensus with respect to adoption of the market-adjusted approach, it is fair to say that if it were to be adopted as the valuation basis for the ICS, the IAIS should investigate if there is a need to reduce artificial volatility to better reflect the nature of long-term guaranteed contracts and the related buy and hold strategies for income producing securities.

1.4.2. Procyclicality

22. Any market-based valuation approach is open to criticism that it leads to procyclical behaviour. This is because the IAIG's management is likely to feel compelled to take actions that are linked to market conditions. When these actions are taken collectively across a population of IAIGs, it may lead to herding behaviours and exacerbate market conditions. For example, a sharp fall in the value of equities may create pressure to sell equities to stop losses. This leads to the crystallisation of those losses and exacerbates the reduction in the market value of equities by adding a significant amount of sell orders to the market.

23. Adjustments that reduce volatility will also mitigate procyclical behaviour. If the full effect of market changes is not reflected immediately on the IAIG's balance sheet, it can provide the IAIG's management valuable time to gauge the long-term outlook for asset classes and make orderly adjustments to portfolios without a "fire sale" impetus.

24. Once again, while not all members agree with the market-adjusted approach, all agree that limiting procyclical behaviour is desirable and that is included in ICS Principle 7. Limiting procyclical behaviour is not only an issue of valuation but one linked to the overall design of the ICS, particularly the ICS capital requirement. The ICS design should result in disincentives to IAIGs to take on excessive risk when risk premiums are historically low. At the same time, the ICS design should not incentivise significant de-risking by IAIGs when risk premiums sharply increase due to a market correction, which may turn out to be temporary or an over correction.

1.4.3. Long-term guaranteed products

25. It is often argued that a market-based valuation approach would result in disincentives to sell long-term guaranteed products and to invest in long-term assets.

26. The argument is that with significant volatility in a balance sheet particularly where assets are not available to match the duration of liabilities, IAIGs would be incentivised not to offer those products as the amount of capital they would need to

hold to buffer the volatility would be excessive compared to the actual risk to which the IAIG is exposed. However, this outcome is dependent on how yield curves are constructed.

27. The polar opposite alternative is the use of locked-in discount rates and amortised cost asset valuation. The commonly cited concern with this approach is that it ignores current market conditions and therefore the risk that adverse market conditions will persist until assets mature.

28. Many life insurance products involve guarantees that extend beyond the contractual maturity dates of interest bearing securities available in those markets. So IAIGs selling those products are exposed to reinvestment risk. When they sell a contract they may be able to buy assets that provide the necessary cash flows to support the insurance contract cash flows. However, as market conditions change and the IAIG needs to reinvest assets bearing the necessary magnitude of cash flows may no longer be available.

29. A market-based approach may result either in insurers increasing the price of long-term guarantees to adequately reflect the risks of those products or being less incentivised to sell them.

30. The challenge is to arrive at an approach that does not create artificial volatility and disincentives to selling long-term guaranteed products but also provides an adequate signal for action by supervisors and management if adverse market conditions persist.

31. Further development of the volatility adjustment for the market-adjusted approach (the approach to determining the IAIS specified yield curve is a type of volatility adjustment) would be one way towards addressing this issue.

ANNEX 5. Detail of Insurance line of business segments

Label	Segment	Definition
Life Insurance – Traditional (L_T)		
L_T01	Protection – Life	Policies which: • Provide a defined benefit upon the insured person's death, provided that the death occurs within a certain specified time period. • Are not 'participating' (See L_T06). • Have no or small (immaterial) surrender values. Notes: 1 Focus is on the dominant insurance risk insured against is mortality risk. When risks insured against include both mortality and morbidity/accident these products should be reported in their separate segments if possible or, if necessary, in the single segment in which the primary risk insured against resides. 2 If there are material surrender values then the business is reported under L_T03. 3 Both individual and group insurance products are included in this segment. 4 Group insurance products with some form of profit sharing arrangement between the group (eg an employer) and the insurer are to be included in this segment.

Label	Segment	Definition
L_T02	Protection – Accident & health	Policies which: • Provide the policyholder with a benefit upon a health (or health related) or accident event to the insured person, provided that the event occurs within a certain specified time period. • Are not 'participating' (See L_T06). • Have no or small (immaterial) surrender values. Notes: 1 Focus is on the dominant insurance risks insured against are morbidity or accident risks. When risks insured against include both mortality and morbidity/accident these products should be reported in their separate segments if possible or, if necessary, in the single segment in which the primary risk insured against resides. 2 Benefits payable may be capped and/or have deductibles applied. Benefits may be either defined indemnity (with benefits payable specified in advance of insured events occurring) or on a reimbursement basis reflecting costs incurred relating to the insured event. 3 This segment thus includes Critical Illness and Income Protection products. 4 Long term care (LTC) products commonly would be included in this segment. LTC cover typically includes indemnity for the long-term medical and related care of an incapacitated policyholder or beneficiary usually until their death. 5 If there are material surrender values then the business is reported under L_T07 since dominant risks insured against are morbidity or accident risks, not mortality risks.

Label	Segment	Definition
		6 Both individual and group insurance products are included in this segment. 7 Group insurance products with some form of profit sharing arrangement between the group (eg an employer) and the insurer are to be included in this segment. 8 Death benefits attached to products in this segment which are not materially in excess of minimum regulatory obligations do not affect the classification of the product into this segment.
L_T03	Protection - Other	Policies which: • Provide a defined benefit upon the insured person's death, provided that the death occurs within a certain specified time period. • Are not 'participating' (See L_T06). • Have material surrender values that are contractually specified and that do not depend on investment performance or other experience. Notes: 1 Products that should be reported in this segment include, but are not limited to • Non-participating Whole-of-Life and Endowment products. • Other products, such as 'level term' insurances and single premium insurances. 2 Both individual and group insurance products are included in this segment.

Label	Segment	Definition
L_T04	Savings without guarantees or living benefits	A savings product: • Has the primary purpose of increasing the wealth of the policyholder by the insurer investing in various assets. • Has benefit payments that are not contingent on the life expectancy or health of the beneficiary. • Typically has an account value that fluctuates based on investment performance, and that is commonly disclosed to the policyholder. Notes: 1 Unitised investment products provide returns to policyholder through unit prices directly reflecting Investment performance the underlying assets of the insurer which are separately identified for these products. Non-unitised investment products provide returns to policyholders through discretionary means (with methodologies contractually defined) such as crediting rates which may not directly reflect the movement in the underlying value of the assets held by the insurer to support these products. 2 A product which has underlying assets separately identified for those products can be termed a 'separate account' product. The identification of the underlying assets may be notional or more formal (for example, through statutory funds). In all cases changes to the underlying assets must be managed through a formal process and all premiums and withdrawals for the product flow in and out of the underlying assets. 3 Products include in this segment must reflect both positive and negative investment performance in a consistent manner. If a product has features such as a commitment that crediting rates will not be negative or unit prices will not decline (either in general or only on withdrawal) then these products are to be reported in a Non-Traditional product segment. 4 Both unitised and non-unitised investment products (without investment or other guarantees) are included in this

Label	Segment	Definition
		segment. 5 A variable annuity (VA) is an Investment product, intended for the long term, under which the insurer agrees to make periodic payments (either for a fixed term or life) to the beneficiary. Payments may commence immediately or be deferred. VAs may be purchased with either a single payment or multiple payments. In both the accumulation and pay-out phases of a VA, a number of investment options are typically available to the policyholder. VAs may, but are not necessarily, be administered as unitised investment products. VAs are tax advantaged, with earnings on withdrawals taxed at ordinary rates after withdrawal. VAs have a death benefit, typically at least the amount of purchase payments, in the accumulation period. For the purpose of this data collection, VAs with no guarantees other than such death benefits are considered to be without guarantees and are to be included here. VAs may also have a variety of other guarantees, often termed living benefits, attached to them. VAs with any guarantees other than the death benefit noted previously are to be included as Non-Traditional Life products. 6 Investment products which are structured as 'participating' products should be included under L_T06. 7 Death benefits attached to products in this segment which are not materially in excess of minimum regulatory obligations do not affect the classification of the product into this segment.
L_T05	Annuities	All types of annuity product are included: • This includes Life annuities (reflecting payments to beneficiaries being made until death, with or without reversions), Term annuities (with or without residual values) and Deferred annuities (that is, annuity payments are deferred into the future, and includes premiums that may be paid in a single amount of over time). • The product reflects the underlying experience at a group level not at experience at an individual level. • The products provide guarantees on the regular payments made (includes both indexed and level (not indexed) payment streams).

Label	Segment	Definition
		Notes: 1 This includes annuity products stemming from either life or non-life insurance contracts (including, for example structured settlements from all sources). 2 Benefits in a payment stream from policies due to the occurrence of an insured event (such as an income protection policy) should be included under L_T02, as the payment of such benefits would be paid until recovery or death whichever comes first. 3 Products (typically retirement income products) which reflect the experience of an individual (including investment choice and the possibility of discretionary withdrawals) and do not have guarantees (in particular, guarantees related to mortality) are not considered annuities and are to be reported as Savings products (guided be whether there are any guarantees provided) since they do not directly mitigate mortality risk. 4 Death benefits attached to products in this segment which are not materially in excess of minimum regulatory obligations do not affect the classification of the product into this segment. 5 Annuity products which are structured as 'participating' products but are substantively intended to provide annuity benefits, are included in this segment.
L_T06	Participating products	A participating policy is such that: • The policyholder shares with the insurer the 'profit' made by the insurer (typically on an annual basis, and terminal bonuses may also be attributed). • The 'profit' sharing process is typically implemented through the attribution of bonuses to policyholders. Such policies are often also known as 'with profits' policies. • The components of the 'profit' shared typically (but not necessarily) include investment 'profits' from gains from the

Label	Segment	Definition
		performance of the underlying investment portfolio that supports the policies, mortality gains, expense gains, and lapse gains. Notes: 1 Participating products may be whole-of-life policies (which provide insurance cover on the life insured for his/her entire life, or up to a specified high termination age, such as 100). Such policies typically generate significant liabilities and surrender values. 2 Participating products may be endowment policies (which provide a defined benefit within a certain period or at a certain age (of the life insured) after which the policy matures. At the time of maturity, a lump sum is paid to the beneficiary. 3 Both whole-of-life and endowment polices typically include an investment component, which accumulates a cash value that the policy owner can withdraw or borrow against. 4 Investment products where the benefits structured as participating products, with discretionary benefits, are included in this segment. 5 Other products, such as 'level term' insurances and single premium insurances, may also be structured to be participating products. If so, they are to be included in this segment.
L_T07	Other life traditional	Any life insurance products not included in the segments above and not included in the Life Non-Traditional segments below. Notes: 1 All products in this segment should be non-participating.

Label	Segment	Definition
		2 A brief description (under Questionnaire Question 19) of products included in this segment is to be provided, including a summary of their relative contribution to the insurance data reported.
Life insurance - Non-Traditional (NT) (L_NT) (See also Appendix 1)		
L_NT01	Separate accounts with guarantees	Any separate accounts business where a guarantee is also provided. This includes, but it not limited to: • Products that give the policyholder opportunities to potentially benefit from investment options that essentially create put options for their benefit (see L_NT03) • Annuity or variable annuity – Guaranteed Minimum Income Benefit (GMIB) or Guaranteed Minimum Accumulation Benefit (GMAB) • Guaranteed minimum annuitisation rate • Guaranteed Minimum Withdrawal Benefit (GMWB) • Contingent Deferred Annuity • Unit-linked accounts with guaranteed account values or non-negative returns • Unit-linked accounts or variable annuities that provide guarantees for any form of living benefit. Two specific subsets of this segment are requested in L_NT02 and L_NT03 Notes: 1 The value to be included for this segment is the combination of the separate account value and guarantee value.

Label	Segment	Definition
		2 The term 'separate account' product is specified in L_T04. 3 Such product may be Variable Annuities, but are not limited to Variable Annuities.
L_NT02	of which guarantee	The full value of all guarantees in relation to the separate accounts reported under L_NT01 are included here. Notes: 1 The values reported for this segment are included in the values reported in L_NT01 as this segment is a subsegment of L_NT01.
L_NT03	Separate accounts with portfolio choice and guarantee	Products that give the policyholder opportunities to potentially benefit from investment options that essentially create put options for their benefit. This includes, but is not limited to: • Products with investment options that provide the policyholder the right to choose to invest premiums in different markets (e.g. the equities market), at the commencement of or throughout the contract, in conjunction with a guaranteed minimum performance of the account. • Products that give the policyholder a considerable long-term performance promise and a tangible short-term liquidity promise, which cannot be matched simultaneously by a portfolio of existing cash and market securities. Notes: 1 The values reported for this segment are included in the values reported in L_NT01 as this segment is a subsegment of L_NT01. 2 In this segment the primary direct focus of products is on investment performance.

Label	Segment	Definition
		3 The term ‘separate account’ product is specified in L_T04. 4 Such products may be Variable Annuities, but are not limited to Variable Annuities.
L_NT04	Guaranteed Investment Contracts	Guaranteed Investment Contracts (GICs) Notes: 1 This includes GIC products for which the insurer bears or substantially provides the guarantees directly or indirectly (for example, through an independent third party). 2 Variable annuity products should not be reported in this segment.
L_NT05	Synthetic GICs	Synthetic GIC products where the insurer bears (or substantially bears) market value/return risk. Notes: 1 This includes ‘stable value wraps’ products. 2 Variable annuity products should not be reported in this segment.
L_NT06	Other life Non-Traditional	Any other life Non-Traditional insurance products other than the above and not included in life Traditional insurance segments above. Notes:

Label	Segment	Definition
		1 A brief description (under Questionnaire Question 19) of products included in this segment is to be provided, including a summary of their relative contribution to the insurance data reported.
Non-Life Insurance – Traditional (NL_T)		
NL_T01	Motor	This includes: • Motor property damage: Damage to own and third-party motor vehicles (and related property damage) through accident, theft, fire and weather events, excluding liability for personal injury. • Motor bodily insurances: Insurances relating to the injury or death of third parties due to or related to motor vehicles and accidents involving them. This may also extend to include the driver involved. Notes: • This segment covers both private, commercial and other uses of motor vehicles.
NL_T02	Property damage	This includes, but is not limited to: • Property: Insurance of house or other property (including house contents) against loss through fire, windstorm, etc., insurance of contents against losses due to theft, fire, windstorm, earthquake, impact, damages, water damage, and other natural and man-made perils. Contents insurances may extend to loss or damage to property outside the home or its usual location. • Fire and industrial: Loss or damage and loss of earnings due to damage to commercial buildings and other physical

Label	Segment	Definition
		infrastructure due to fire, windstorm and other perils. • Consequential losses: Products covering consequential losses (such as 'loss of profits' or 'business interruption') should also be included in this segment. • Construction: This includes 'construction all risks and erection all risks' (CAR/EAR) or similar written in connection with construction projects. This includes the construction and erection of infrastructure projects and buildings. Notes: 1 In essence, this segment refers to insurances for property which is stationary or fixed in place. 2 This segment refers to both private and commercial property insurances.
NL_T03	Accident, protection and health (APH)	This includes, but is not limited to: • Accident and sickness: Accident cover provides benefits if an accident result in bodily injury or death. Benefits are lump sum or periodic (typically for at most 2 years). Sickness cover is often an extension of accident insurance. • Other consumer accident: Property damage other than householders or motor vehicle. For example, travel insurance. • Other commercial accident: Commercial property insurance other than Fire and Industrial risk and MAT, and other than commercial long-term liability. • Consumer credit: Guarantee of repayments on consumer credit contracts due to involuntary loss of employment.

Label	Segment	Definition
		• Consumer liability: Private individual's liability for personal injury through personal actions or property. Notes: 1 Products included in this segment are short term products. 2 Products included in this segment typically permit the insurer to not offer to renew the policy. 3 In particular, in the context of accident and health policies offered by Non-Life insurers, the capacity of the insurer to not offer to renew the policy to specific policyholders indicates such products should be included in this segment (not in L_T02). 4 Both individual and group insurance products are included in this segment.
NL_T04	Non-proportional Motor, Property damage and APH	As above for the NL_T01, NL_T02 and NL_T03 (Motor, Property Damage, and Accident, Protection and Health (APH)) segments, non-proportional reinsurance assumed. Notes: 1 This is principally a line of business for inwards reinsurance but some direct business may also fit into this segment. 2 See also Catastrophe Reinsurance definition (NT_T09).
NL_T05	Other liability	This includes, but is not limited to: • Products that provide covers for liabilities matters such as for personal injury, consequences of unsafe workplaces or products, negligent practices or other losses likely to take in excess of one year to settle. Such products include,

Label	Segment	Definition
		but are not limited to: o Workers compensation insurance. o Public liability insurance for bodily injury or damage to property. o Product liability insurance for bodily injury or damage to property for claims attributed to the use of products. o Professional indemnity for a professional person or organisation for claims for losses (legal and other) attributed to professional negligence (and related) in the services provided. For example, medical malpractice and directors and officers insurance products. o Builder warranty for private homes and other buildings following construction. Notes: 1 Products in this segment include those issued to both individuals and organisations, and to both private and commercial policies.
NL_T06	Non-proportional Other liability	As above for the NL_T05 (Other liability) segment, non-proportional reinsurance assumed. Notes: 1 This is principally a line of business for inwards reinsurance but some direct business may also fit into this segment.
NL_T07	Marine, Air, Transport (MAT)	This includes: • All damage or loss of river, canal, lake and sea vessels, aircraft, goods in transit, liabilities from use of aircraft, ships and boats. • Loss or damage to property, consequential third party liability for damages to the property of others, and consequential third party liability for personal injury to operators, passengers and other should be included.

Label	Segment	Definition
		Notes: 1 In essence, this segment refers to insurances for property which is moving (not stationary, see NL_T02) or to goods and materials that may be being moved with regard to the MAT component. 2 This segment focuses on commercial (not private or personal) insurance products.
NL_T08	Non-proportional MAT	As above for the NL_T07 (MAT) segment, non-proportional reinsurance assumed. Notes: 1 This is principally a line of business for inwards reinsurance but some direct business may also fit into this segment.
NL_T09	Catastrophe Reinsurance	Catastrophe Reinsurance is an inwards reinsurance line of business providing excess of loss protection or proportional protection in respect of aggregate losses arising from a single event or a combination of events. Typically, such business is covering damages to property and is sold with an 'hours' clause and provides protection against natural catastrophe perils such as windstorms, earthquakes and man-made catastrophe such as acts of terrorism. Notes: 1 Property Catastrophe Reinsurance would then be excluded from the definition of Non-proportional property business. 2 Catastrophe reinsurance will also include stop loss treaties when the main coverage is the combination of events.

Label	Segment	Definition
		3 This segment does not cover products in NL_T06 and NL_T08.
NL_T10	Other traditional - short-tail	Any non-Life products which do not fit into the segments above, does not fit the definition of non-life non-traditional business and where claims are usually made during the term of the policy or shortly (typically, up to 1 year) up to after the policy has expired. This may include, but not be limited to: • Credit (trade credit) insurance: Insurance coverage against debtors failing to make due payments. Notes: 1 A brief description (under Questionnaire Question 19) of products included in this segment is to be provided, including a summary of their relative contribution to the insurance data reported. 2 Both proportional and non-proportional reinsurance for products in this segment are included in this segment.
NL_T11	Other traditional – medium-tail	Any non-life products which do not fit into the defined segments above, does not fit the definition of non-life non-traditional business and where claims are usually made during the term of the policy or some time (typically between 1 and 5 years) after the policy has expired. Notes: 1 A brief description (under Questionnaire Question 19) of products included in this segment is to be provided, including a summary of their relative contribution to the insurance data reported.

Label	Segment	Definition
		2 Both proportional and non-proportional reinsurance for products in this segment are included in this segment.
NL_T12	Other traditional - long-tail	Any non-life products which do not fit into the defined segments above, does not fit the definition of non-life non-traditional business and where claims may be made many years (typically 5 or more years) after the coverage period of the insurance has expired. Notes: 1 A brief description (under Questionnaire Question 19) of products included in this segment is to be provided, including a summary of their relative contribution to the insurance data reported. 2 Both proportional and non-proportional reinsurance for products in this segment are included in this segment.
Non-life Insurance - Non-Traditional (NL_NT) (See also Appendix 1)		
NL_NT01	Mortgage Insurance	Indemnity to credit providers for losses due to the failure of a borrower to repay a loan secured by a mortgage over property. Notes: 1 This includes both residential and non-residential property. 2 Both proportional and non-proportional reinsurance for products in this segment are included in this segment.

Label	Segment	Definition
NL_NT02	Commercial credit insurance including suretyship	Indemnity for financial losses due to the failure of a commercial entity to repay outstanding credit contracts or failure to perform contracted services or deliver contracted products other than short-term trade credit and suretyship insurance. Notes: 1 By 'short term' coverage at issue of one year or less is meant. Such short term policies should be reported under NL_T10. 2 Financial guarantee business should be captured in this category including insurance of public finance bonds, structured finance, and all other type of bonds. 3 Both proportional and non-proportional reinsurance for products in this segment are included in this segment.
NL_NT03	Other Non-Life Non-Traditional insurance	Any other non-life Non-Traditional insurance products other than the above and not included in non-life Traditional insurance segments above. This includes, but is not limited to: • Financing or monetising Insurance-linked securities (ILS, for example catastrophe bonds). For example, embedded Value/Present Value of Future Profit securitisations, ILS with financial risk as material trigger condition. Notes: 1 A brief description (under Questionnaire Question 19) of products included in this segment is to be provided, including a summary of their relative contribution to the insurance data reported. 2 Both proportional and non-proportional reinsurance for products in this segment are included in this segment.