Instructions (Part 2) for the April 2023 Insurance Capital Standard (ICS) Data Collection Exercise of the Monitoring Period Project

(the "ICS Technical Specifications – Part 2: Candidate ICS as Prescribed Capital Requirement (PCR)")

The ICS Technical Specifications Part 1 and Part 2 have been developed as a supporting document for groups participating in the 2023 ICS Data Collection Exercise and must be read in conjunction with the associated ICS data collection Template, Questionnaire and Yield Curve documentation. All documents are provided for information only.

These documents do not replace or supersede the ICS Level 1 and Level 2 documents, which have been agreed and published by the IAIS.

Notes:

1. The default reporting date is end-December 2022. Subject to previous discussion with the relevant group-wide supervisor, different valuation dates could be used for the purposes of this exercise, as long as the necessary efforts are made to ensure the internal consistency of the results. For example, with respect to key assumptions such as the reference date to determine currency exchange rates or yield curves.

2. Balance sheet items are valued in accordance with the specifications set out in the relevant sections.

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3 General Guiding Principles

3.1 Substance over Form

1. The ICS balance sheet differs from publicly reported GAAP financial statements, as it reflects a different objective (prudential supervision as opposed to investor information). For example, certain assets in a GAAP balance sheet do not qualify as assets for the ICS.

2. The economic substance of transactions and events are recorded in the balance sheet rather than just their legal form, in order to present a true and fair view of the risk profile of the entity. This may require the use of judgment when preparing the balance sheet.

3. The allocation of insurance liabilities to the ICS line of business segments follows the principle of substance over form. This means that insurance liabilities are allocated to the segment that best reflects the nature of the underlying risks rather than the legal form of the contract. The definitions for the insurance line of business segmentation are specified in Sections 7.2.2 and 7.2.3.

3.2 Proportionality

4. Calculations and valuation are subject to the 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.

5. The materiality of the impact of using a simplification is assessed with regard to:

- The volume of the item valued;
- The overall volume of the group's business and capital resources; and
- The assessment of risk.

6. Moreover, even though the use of a simplification would lead to a figure possibly significantly different from the full fair value, it might nevertheless be used subject to appropriate adjustment, provided that no other applicable methodology would lead to a better proxy.

Example of proportionality for MAV
Consider a portfolio of inflation indexed annuities. In theory, a full stochastic modelling of future inflation may be needed. However, considering:

- The complexity of such a modelling (and justification of the associated parameters); and
- That inflation and mortality are assumed to not be correlated

IAIGs may use a flat future level of inflation for deriving future annuity payments in the calculation of insurance liabilities.

Example
Consider an IAIG with capital resources of 10 and insurance liabilities (savings contracts) of 100. The calculation of those insurance liabilities can be achieved either on a policy by policy basis, or by grouping all policies and using an average actuarial age and average lapse rates. The latter leads to a difference of 1% in the amount of insurance liabilities. Although such a difference can be considered as non-material with regard to the insurance liabilities, the relative impact on the capital resources is 10% (assuming the asset side is unchanged). This should be considered a material difference, and the simplification should be rejected.

Please note this example is in no way intended to mean that the materiality threshold is 10% of capital resources.

3.3 Look-Through

7. In order to assess properly the risk inherent in collective investment funds and other indirect exposures, their economic substance needs to be taken into account. This is achieved, to the extent possible, by applying a look-through approach in order to assess the risks of the assets underlying the investment vehicle.

8. The look-through approach applies to insurance arrangements and indirect investments (including unleveraged mutual funds, other collective investment vehicles, etc.) in order to identify all underlying exposures embedded in such arrangements and investments, including all indirect holdings that may artificially inflate the qualifying capital resources of an IAIG.

9. When a full look-through is not possible, a partial look-through may be applied, along the lines provided by the Basel III framework[1].

10. When no look-through is possible, the full investment is considered as unlisted equity for the purpose of calculating the ICS risk charges.

11. In the context of Market risks, look-through is applied, for instance, to collective investment funds, hedge funds, mandatory convertible bonds, etc. in order to identify all of the indirect exposures embedded in such instruments. A look-through approach is applied to the extent possible, in order to identify which assets are sensitive to the stress-based approaches to measuring risks. A similar approach can be applicable in the context of capital resources,

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

in order to identify any relevant adjustments to ICS capital resources in respect of indirect holdings or reciprocal cross holdings.

12. In the context of Insurance risks, the look-through approach is applied to the underlying risk of investments such as single tranche 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.

3.4 ICS Rating Categories

13. The IAIS has developed a mapping between ICS Rating Categories (ICS RC) and credit rating agency ratings. ICS Rating Categories range from 1 to 7.

14. Whenever the use of an ICS RC is needed, IAIGs use the agency ratings listed in the table below. Ratings from AM Best can be used only for purposes of calculating the risk charge on reinsurance exposures. Modifiers such as + or – do not affect the ICS RC. Where two ratings are listed in a cell, the first rating represents a long-term rating, and the second rating represents the short-term rating mapped to the same ICS RC. The short-term rating is used only for instruments with a remaining maturity of one year or less.

Table 1: Mapping to ICS RC (for instruments not in default)

ICS RC	S&P	Moody's	Fitch	JCR	R&I	DBRS	AM Best
1	AAA	Aaa	AAA	AAA	AAA	AAA	
2	AA / A-1	Aa / P-1	AA / F1	AA / J-1	AA / a-1	AA / R-1	A+
3	A / A-2	A / P-2	A / F2	A / J-2	A / a-2	A / R-2	A
4	BBB / A-3	Baa / P-3	BBB / F3	BBB / J-3	BBB / a-3	BBB / R-3	B+
5	BB	Ba	BB	BB	BB	BB	B
6	B / B	B / NP	B / B	B / NJ	B / b	B / R-4	C+
7	CCC / C and lower	Caa and lower	CCC / C and lower	CCC and lower	CCC / c and lower	CCC / R-5 and lower	C and lower

15. Additionally, IAIGs can use ratings issued by a rating agency that the banking regulator in its jurisdiction (or for a subsidiary, in the subsidiary's jurisdiction) has recognised as an External Credit Assessment Institution (ECAI) under the Basel II framework. The ICS RC corresponding to a rating produced by such an agency is the Basel II rating category to which the supervisor has mapped the rating (the combined rating class AAA/AA corresponds to ICS RC 2).

16. ICS RCs 1 to 4 in the table above are considered as investment grade.

17. The use of ICS RCs is further developed in Section 7.4.3.

4 Perimeter of the ICS Calculation

4.1 Scope for Starting ICS Balance Sheet

18. The starting point of the ICS is the audited consolidated GAAP balance sheet of the insurance holding company of an insurance group or financial holding company of a financial conglomerate.

19. Where an insurer does not prepare audited consolidated GAAP financials, statutory financial statements are aggregated to reflect the group level starting balance sheet.

20. The audited GAAP balance sheet is split into two components: (1) entities that are insurers, and entities whose purpose is insurance related; and (2) non-insurance entities.

21. The non-insurance entities are reported separately from insurance entities, on a GAAP basis, with the exceptions described below.

22. The perimeter of the ICS calculation is defined as including all consolidated legal entities within the IAIG.

23. The starting point to derive the balance sheet of the insurance group, prior to application of any MAV adjustments, is the consolidated GAAP balance sheet of the Head of the IAIG, as defined in ComFrame. For entities that do not have consolidated GAAP financials, see paragraph 29.

24. For purposes of the ICS calculation, balance sheets are segregated into insurance related and non-insurance components. The insurance portion of the balance sheet is comprised of entities that meet the following definitions:

a. Insurer: Insurance legal entity or insurance group.

b. Insurance legal entity: A legal entity, including its branches, that is licensed to conduct insurance, regulated and subject to supervision.

c. Insurance related entities: Legal entities that mainly exist to support the operations of the insurer. This includes the top tier holding company of an IAIG if that entity does not have other material business.

25. Legal entities that comprise the consolidated GAAP balance sheet are further categorised according to the following definitions in order to apply certain accounting treatment that differs from GAAP as well as to derive a capital requirement for non-insurance components:

a. Insurer and insurance related entities;

b. Regulated non-insurance financial entity;

c. Non-regulated non-insurance financial entity; and

d. Non-financial entity.

26. The ICS follows GAAP accounting rules for consolidation accounting treatment except for the following:

a. For insurer and insurance related entities that are determined under GAAP to be controlled as joint ventures[2], a proportional consolidation method is used unless it is determined through consultation with the GWS that such treatment is not considered feasible; in which case the entity remains unadjusted and reported as per GAAP as an equity method investment.

b. For insurer and insurance related entities that are determined under GAAP to be controlled as joint operations[3] and reported by recognising its own assets, liabilities and transactions, including its share of those incurred jointly, the entity may remain unadjusted (ie proportional consolidation on shared assets).

c. For non-insurance financial and non-financial entities that are determined under GAAP to be joint operations and reported by recognising its own assets, liabilities and transactions, including its share of those incurred jointly, the entity should instead be reported as an equity method investment.

d. For non-insurance financial and non-financial entities that are determined under GAAP to be joint ventures, the entity should be reported as an equity method investment.

27. Adjustments related to non-voting interest entities[4]:

a. A non-voting interest entity that has been determined under GAAP to be unconsolidated is consolidated if either the IAIG or its GWS assesses that it poses a material risk[5] to the group, either individually or in the aggregate.

b. A securitisation originated within the group may not be consolidated provided that it meets all of the conditions outlined in Annex 1.

c. Notwithstanding the materiality assessment or application of additional criteria, a non-voting interest entity is consolidated when the GWS determines that the nature, scale and complexity of the risks cannot be considered insignificant.

28. Other non-GAAP adjustments: Structured settlement agreements with third parties are recorded on a net basis (ie removed from reserves and reinsurance recoverables) when the underlying claim is settled and the risk to the non-life company is contingent upon the life insurer (and the guarantee fund, if applicable) having the ability to pay.

29. Aggregated group balance sheet: IAIGs that do not prepare consolidated or group level financial statements generate a balance sheet on an aggregated basis to reflect group level starting balances.

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[2] A **joint venture** is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the arrangement.
[3] A **joint operation** is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the assets, and obligations for the liabilities, relating to the arrangement.
[4] A **non-voting interest entity** is an entity where voting or similar rights are not the dominant factor in assessing control. Entities are often thinly capitalised or contain no capital and are designed for a specific purpose (eg, special purpose entities, structured entities, GP/LP structures, trusts and investment partnerships).
[5] **Material risk** in this case relates to the risks posed to the group. In considering what might significantly contribute to group risks, a firm may assess whether the related entity's gross assets or gross revenue are more than 1% of the group's gross assets or revenue. In addition, an assessment of all immaterial entities exceeding 5% of the group's assets or revenue, in the aggregate, may indicate that other entities should be consolidated in order to avoid missing material risks.

30. Non-insurance entities (financial and non-financial) are incorporated into the reference ICS, based on the entity type and whether or not the entity is subject to a sectoral capital requirement. The capital requirement for financial non-insurance entities is based on the entity's sectoral capital rules (eg banks, institutions for occupational retirement provision, etc.) when available. For financial non-insurance entities without sectoral capital rules and for non-financial entities, the capital requirement included in the reference ICS is described in Section 7.7. For all non-insurance entities, capital resources follow the capital resources framework set out for the reference ICS.

31. The reporting date to be used by all IAIGs is end December 2022. Subject to previous discussion with the relevant GWS, different valuation dates can be used for the purposes of this exercise (eg 31 March 2023 for IAIGs based in Japan), as long as necessary efforts are made to ensure the internal consistency of the results. For example, with respect to key assumptions such as the reporting date to determine currency exchange rates or yield curves.

32. In addition to balance sheets as at end December 2022 (or end March 2023), IAIGs are also asked to submit pro forma balance sheets for end December 2021 (or end March 2022), reflecting any material acquisitions and divestitures that occurred during 2022, but following the instructions for the 2022 ICS Data Collection. This will enable the IAIS to better understand the drivers of year-to-year changes. For those IAIGs without any material acquisition or divestitures, the end December 2021 (or end March 2022) balance sheets from the 2022 ICS data collection can be copied and pasted into the Template.

4.1.1 GAAP and ICS Balance Sheets: instructions

Relevant Worksheet in Template:	*GAAP and ICS Balance Sheets*

4.1.1.1 GAAP Balance Sheet

33. Column *GAAP – Amounts per Audited Consolidated Financial Statements* (or aggregated statutory financial statements) is the starting point for the balance sheet. Totals should be equal to audited GAAP financial statements (ie Assets, Liabilities, Equity). Other significant balances, to the extent possible, should also be equal to reported financial statements without any adjustment (eg total investments, insurance liabilities, retained earnings, accumulated other comprehensive income (AOCI), etc). There are several reclassifications that should be made to the GAAP audited financial statements. Any significant differences should be explained in the Questionnaire.

34. For those IAIGs that do not prepare consolidated or group level financial statements and must generate aggregated statutory financial statements, starting balances should be reported as specified in Section 4.1.1.1.1.

35. The column *GAAP – Other than Related to Insurance Activities* is automatically populated.

36. The column *GAAP – Related to Insurance Activities* is the next step. Amounts related to insurance activities should be separated from column [1] and reported here. Insurance activities are defined as activities of licensed insurers and regulated and unregulated entities that support the insurance activities (for example subsidiaries that provide claims management or asset management acting mainly for the insurance entities).

4.1.1.1.1 Instructions for Generating GAAP Group Financial Statements

37. For IAIGs that do not prepare consolidated or group level financial statements it will be necessary to generate financial statements on an aggregate basis to reflect group-level starting balances. This is primarily applicable for mutual insurers that do not prepare consolidated GAAP financial statements.

4.1.1.1.1.1 US Statutory Accounting Principles (SAP) - Group Level Financials

38. The following specifications provide instructions for US mutual IAIGs. Any other IAIG that may need to generate group-level financial statements may use these instructions as an example and apply similar steps as applicable. IAIGs should consult with their GWS for any specific questions not addressed in the instructions below.

39. US IAIGs that do not report on a consolidated group basis will need to prepare a group-level balance sheet that includes domestic insurance companies (whose financial statements are prepared in accordance with US SAP), foreign insurance company subsidiaries, and non-insurance subsidiaries and affiliates (whose financial statements are typically prepared in accordance with US GAAP in the case of subsidiaries and affiliates of a US-based insurer or group). All legal entities under the ultimate parent insurance company should be included. In situations where there are two or more top tier insurance companies that form the group, all legal entities under the top tier insurance companies should be included.

40. A group-level, consolidated balance sheet should be prepared as follows:

a. Aggregate all US audited statutory financial statements for domestic insurance companies.

b. For all non-US insurance companies that file audited financial statements on a non-US statutory basis of reporting, aggregate all balances after performing foreign currency translation into the reporting currency of the US Holding Company or Head of Group entity as specified under FASB ASC Topic 830. Foreign currency translation adjustments should be recorded in the balance sheet equity account AOCI.

c. Identify other non-insurance domestic subsidiaries, affiliates and other entities where ownership is greater than 50% or where management controls an entity through the ability to make decisions that can significantly impact the performance of the entity. For these entities, eliminate the equity investment in each subsidiary and for each balance sheet line item add the corresponding value of reported gross assets and liabilities of those subsidiaries to the parent statutory balances[6]. Include any minority interest amounts if applicable. Apply the same approach for foreign entities with the addition of performing foreign currency translation as specified in b) above.

d. Make appropriate intercompany eliminations as specified under FASB ASC Topic 810 Consolidation.

41. The following additional adjustments should be made to approximate a US GAAP balance sheet:

a. Long-term and short-term investments reported under SAP that meet the US GAAP definition of available-for-sale or trading should be adjusted to fair value. This mainly applies to debt securities, equities and derivatives. Unrealised gains and losses on

[6] This may be a mix of statutory, US GAAP and modified GAAP balances.

Available for Sale (AFS) securities should be reported in Accumulated Other Comprehensive Income – debt securities

b. Replication (synthetic) assets should be bifurcated, reclassified as debt securities and derivatives.

c. Real estate owned should be reported on a gross basis. Amounts should be revalued on the same measurement basis as would be required under US GAAP based on whether the real estate is an investment, held for sale or considered as property for own use.

d. Any life insurance deferred premium assets that exist for SAP when the mean reserve method is used for calculating reserves should be written off.

e. Non-admitted assets, including any non-admitted deferred tax asset should be reported in the balance sheet using valuation methods that are consistent with US GAAP.

f. The asset valuation reserve and interest maintenance reserve should be reclassified to Reserves.

g. Any reinsurance recoverables that are netted against insurance liabilities for US SAP should be reclassified as assets.

h. Pension liabilities: firms that have elected to defer surplus impacts of the US SAP rule change to reflect the full pension benefit obligation should record a liability for the unamortised portion.

42. This will result in a quasi-consolidated group-level balance sheet. These balances should be recorded in the worksheet *GAAP and ICS Balance Sheets*, in the column labelled *GAAP – Amounts per Audited Consolidated Financial Statements*.

4.1.1.1.2 GAAP Balance Sheet Equity

43. IAIGs should provide a breakdown of the components of equity as set out in the balance sheet. Definitions for many of the equity line items can be found in Section 6.3 *Capital elements other than financial instruments*. In particular, please note that share premium and contributed surplus should be reported separately, and that contributed surplus should include the value of equity-settled employee stock options.

44. Ordinary shares should be reported on a gross basis with treasury stock reported as a deduction at cost on the separate line that has been added to the Template.

45. The value reported as a subset of minority/non-controlling interests (NCI) in the balance sheet is limited to NCI that represents a third party ownership interest not in the form of a financial instrument. This form of NCI must also meet the full description in Section 6.3.1. It may be necessary to reclassify a portion of the valuation adjustment offset amounts related to GAAP Plus or MAV to NCI. This reclassification amount can be reported in the *Adjustment* section row *(-) adjustments already included in other equity items* with the other side of the entry to the NCI line item.

46. Where the breakdown and/or total GAAP equity reported in the Template does not correspond to amounts per audited consolidated financial statements[7] (where available),

[7] Eg because of differences in reporting currency or the scope of the group.

IAIGs are requested to explain any discrepancies in the Questionnaire and provide a reconciliation of reported amounts to the equity items in the consolidated GAAP balance sheet.

47. Any prudential or legally restricted reserves that appear in an IAIG's reported starting GAAP balance sheet should be reclassified using column [4] into the row labelled *Retained Earnings* under the Equity section of the balance sheet. Generally, restricted and legal reserves exist only under prudential reporting and would not be reflected in a GAAP balance sheet and under the ICS balance sheet.[8] A holistic analysis of capital fungibility, including restricted reserves, will be performed during the Monitoring Period.

48. Any segregated surplus on par business or demutualised "closed" block, including policyholder dividend obligations, should be reported under the Equity section in the row *Participating policyholders' equity or account*. These items will also be considered during the analysis of fungibility.

4.1.1.2 ICS Balance Sheet

49. *ICS – Reclassification from GAAP* should be used to reflect any entries to reclassify amounts from the audited, consolidated jurisdictional GAAP balances as reported in *GAAP – Related to Insurance Activities* to the ICS Balance Sheet. Such reclassification differences may result from consolidation rules, offsetting/netting rules, or variance in other accounting definitions (eg separate accounts). All reclassification entries should sum to zero. IAIGs should provide narrative explanations for reclassification entries in the Questionnaire.

50. *ICS – Related to Insurance Activities* balances should reflect the changes in valuation of invested assets or liabilities as specified under the reference ICS. The specifications are detailed in Section 5 *Market-Adjusted Valuation*.

51. Offsetting entries for valuation adjustments to assets and liabilities are automatically calculated under *Adjustments* in the Equity section of the table *Balance sheets*.

4.1.1.3 Other Balance Sheet Information

52. This section provides specifications for the tables that appear below the Balance Sheet table in the worksheet *GAAP and ICS Balance Sheets*.

53. *Difference between consolidated and insurance assets* – this table provides a breakdown, by business activity type, of the difference between the consolidated assets reported in column [1] of the Template table *Balance sheets* and insurance assets reported in column [3].

54. *Information on assets and other items subject to deduction from capital resources* – this table collects information used in the calculation of ICS capital resources under the reference ICS. See Section *6.4 Capital adjustments and deductions* for detailed instructions.

55. *Utilisability assessment of deferred taxes* – this table collects information on deferred tax assets and liabilities for use in the utilisability assessment of deferred tax assets recognised from the ICS adjustment and the tax effect on the ICS capital requirement. See Section 8 *Tax* for further details.

[8] The starting point for the ICS is the consolidated balance sheet as reported in an IAIG's general-purpose, audited financial statements, which for most IAIGs is either on the basis of IFRS or their local jurisdictional GAAP.

56. *Detailed information on insurance liabilities* – The value of insurance liabilities and investment contracts under GAAP and the reference ICS valuation approach should be reported as follows:

a. Current Estimate (CE) of insurance liabilities;

b. Reconciliation of Non-life insurance liabilities from GAAP to ICS;

c. Non-life Premium Liability selection;

d. Bucketing of insurance portfolios;

e. Investment structure for the General Bucket by currency;

f. Information on sovereign and supra-national exposures; and

g. Exposure to multilateral development banks and supranational organisations.

4.2 Development of Starting MAV Balance Sheet

57. The starting MAV balance sheet is comprised of the insurance and insurance-related entities.

58. The beginning MAV balance sheet is subject to adjustments as described in Section 5.

5 Market-Adjusted Valuation

Relevant Worksheet in Template:	*GAAP and ICS Balance Sheets*

5.1 Valuation Principles

59. The MAV approach is based on the amounts as reported on audited, consolidated, general-purpose GAAP or Statutory Accounting Principles (SAP) accounts, and includes adjustments to the following items:

a. Insurance liabilities and reinsurance balances;

b. Financial investments (assets) and instruments (liabilities); and

c. Deferred taxes.

60. Unless they are replicable by a portfolio of assets (reference Section 5.4), MAV insurance liabilities are the sum of a current estimate and a margin over current estimate (MOCE). The details underpinning the calculation of the current estimate and the MOCE are developed in the following sub-sections.

61. When deriving the adjustments to be made to insurance liabilities, reinsurance balances, financial investments and instruments, and tax, IAIGs apply the following principles:

a. **Property for own use** is adjusted to fair value using the fair value guidance under the IAIG's GAAP or when the IAIG does not produce a GAAP consolidated balance sheet, the GAAP fair value principles in the IAIG's jurisdiction.

b. **Mortgages and loans** are adjusted to fair value using the fair value guidance under the IAIG's GAAP or when the IAIG does not produce a GAAP consolidated balance sheet, the GAAP fair value principles in the IAIG's jurisdiction.

c. **Reinsurance recoverables** are restated on a basis consistent with the determination of insurance liabilities. Recoverables on paid and unpaid balances are reported net of allowances for estimated uncollectable amounts.

d. **Deferred tax assets (DTA) and liabilities (DTL)** are treated according to Section 8.

e. **Deferred acquisition costs and other deferred expenses** that are on the balance sheet at the reporting date are adjusted to zero. Future acquisition costs related to future premiums (within contract boundaries – see Section 5.2.2) are reflected in the value of insurance liabilities.

f. **Premium receivables** falling due after the reporting date and related to contracts that are included in the current estimate calculation are reflected in the valuation of insurance liabilities as negative cash flows. Premium receivables for which the due date is prior to the reporting date are not part of the current estimate calculation and remain as assets on the balance sheet.

g. **Loans to policyholders** are reported separately and are not netted against insurance liabilities.

h. **Other financial assets** that are reported on the GAAP balance sheet at amortised cost (eg Hold-To-Maturity investments) should be restated to a fair value.

i. **Financial liabilities**: upon initial recognition, the valuation of these items is based on the IAIG's reported GAAP, and there is no subsequent adjustment to take account of changes to the IAIG's own credit standing.

Example
Subordinated debt issued by the IAIG should not be revalued to market prices. However, the present value of the liability should be updated to reflect changes in the time value of money (update of yield curves).

62. The following balance sheet items' valuation should be based on the IAIG's reported International Financial Reporting Standards (IFRS) or GAAP valuations, as applicable for consolidated audited general-purpose financial statements in each IAIG's respective home jurisdiction:

a. Goodwill and other intangibles;

b. Pension assets/liabilities;

c. Other assets (including other reinsurance and other insurance-related assets);

d. Provisions other than insurance liabilities;

e. Contingent liabilities: add contingent liabilities that are reported in the notes to financial statements in the balance sheet; and

f. Other non-financial liabilities.

5.2 Calculation of the Current Estimate

5.2.1 Basis for calculation and cash-flow projection

5.2.1.1 General considerations

63. The current estimate corresponds to the probability-weighted average of the present values of the future cash-flows associated with insurance liabilities, discounted using the yield curve relevant for the currency and bucket of each liability. The three buckets to which liabilities can be allocated are described in Section 5.2.5.3.

64. The current estimate does not include any implicit or explicit margins.

65. Reinsurance recoverables are calculated in a way that is consistent with the current estimates of insurance liabilities, based on the same assumptions and inputs.

66. When valuing insurance liabilities, no adjustment is made to take into account the IAIG's own credit standing.

67. The current estimate calculation is based on the probability weighted average of the future cash flows, taking into account the uncertainty relating to:

a. The timing, frequency and severity of claim events;

b. Claim amounts and claim inflation, including where relevant any uncertainty on the value of indices used to determine claim amounts;

c. The time needed to settle claims;

d. The amount of expenses; and

e. Policyholder behaviour.

68. Cash flow projections reflect expected future demographic, legal, medical, technological, social or economic developments, and are based on appropriate inflation assumptions, recognising the different types of inflation to which the entity can be exposed. Premium adjustment clauses are also considered, where relevant.

69. The current estimate is calculated gross of reinsurance and special purpose vehicles (SPV). Recoverables from reinsurance or SPVs are calculated separately and recognised as an asset.

70. The projected cash flows include, at a minimum, the following items within the contract boundaries:

a. Benefit and claim payments;

b. Direct and indirect expenses incurred;

c. Premiums received;

d. Subrogation payments and recoveries other than from reinsurance and special purpose vehicles; and

e. Other payments made in order to settle the claims.

71. All expenses related to existing contracts and contracts that are recognised at the reporting date, but not yet in force, are included in the current estimate calculation. The expenses estimation assumes that the IAIG will write business in the future. Future expenses relating exclusively to future business are not considered for the current estimate calculation.

Example
Future expenses of the IAIG should be allocated to all contracts within the contract boundaries. The current estimate should not include the premium, expenses and claims for contracts out of the contract boundaries. The expense assumptions should be on a going concern basis and, *ceteris paribus*, consistent with the prior years.
Therefore if a contract is underwritten on 31.12.N, the current estimate should not reflect the paid expenses to settle the policy (eg costs associated with pricing the product and selling the product etc.), but should reflect future related expenses (eg overhead, claims management expenses etc.).

Calculation Example (Non-life)
Allocate the overhead expenses to premiums/claims by determining a per policy/claim expense on a going concern basis and multiply by the policies/claims. The result is that overhead expenses are recognised consistently with premiums/claims.

72. The current estimate of non-life premium liabilities (PL) should include, but is not limited to the following cash flows:

- Cash flows from future premiums falling within the contract boundary.
- Cash flows resulting from future claim events (including the potential for claims that have high severity, low probability of occurrence).
- Cash flows arising from all expenses stemming from premiums and on-going administration of existing and future business falling within the contract boundary (a non-exhaustive list of examples includes: administrative expenses, investment

management expenses, claim management expenses, acquisition expenses, overhead expenses, commission payments, premium collection costs and investment-related expenses). Acquisition costs should be included in the premium liabilities valuation and not reflected as an asset on the balance sheet.

73. Two proxies are included for the purpose of calculating non-life premium liabilities. IAIGs should indicate in the Template which proxy, if any, is used.

a. The first proxy attempts to approximate the concept of a current estimate, through the application of a formula composed of several elements:

$$PL = (CR - AER) \times UPR + (CR - 1) \times PVFP$$

Where:

PL = Premium liability

CR = Combined ratio (including all expenses)

AER = Acquisition expense ratio

UPR = Unearned premium reserves (difference between written premiums for all contracts on the balance sheet at the valuation date and earned premiums)

PVFP = Present value of future premiums (within contract boundaries)

b. A second proxy may be used if, for materiality or other reasons, the IAIG needs to further simplify the calculation, in the case where the combined ratio is smaller than 1:

$$PL = UPR = Premiums\ Written - \ Premiums\ Earned$$

74. The current estimate for claim liabilities should reflect all cash flows arising from claims that happened before the valuation date, including incurred but not reported (IBNR) claims.

75. Where a yield curve is needed as input to assess future returns on assets, IAIGs make use of the relevant IAIS yield curves with specified adjustments.

5.2.1.2 Options and guarantees

76. The expected cash flows relating to options and guarantees embedded in the insurance contract are taken into account for the calculation of the current estimate. All payments connected to the risks insured, and profit participation payments in particular, are taken into consideration for the calculation of the value of options and guarantees.

77. All options and guarantees are valued using arbitrage-free techniques[9] based on the adjusted yield curve as a proxy for the risk-free curve.

> *Example*
> Variable annuities may contain guaranteed living benefits (eg minimum maturity or withdrawal benefits) tied to the performance of specific assets, which may cause a path dependency of the liability cash flow.

[9] This implies in particular that where relevant, path dependency is taken into account in the valuation of options and guarantees.

5.2.1.3 Policyholder behaviour

78. Where relevant, expected cash flows reflect the contractual right of policyholders to change the amount, timing or nature of their benefits.

79. The likelihood that policyholders will exercise contractual options, including lapses and surrenders, is taken into account with a prospective view, considering in particular:

a. Past and expected behaviour of policyholders, considering also their reaction to management actions;

b. How beneficial the exercise of options would be to policyholders under specific circumstances; and

c. Economic conditions.

80. To the extent that it is deemed representative of future expected behaviour, assumptions on policyholder behaviour are based on appropriate statistical and empirical evidence.

81. The assumptions concerning policyholder behaviour are consistent with the assumed investment returns and the yield curves specified by the IAIS.

5.2.1.4 Future discretionary benefits

82. Future discretionary benefits (FDB) are comprised of all non-guaranteed amounts, including those bonuses linked to a legal or contractual obligation to distribute a portion of the IAIG's financial/underwriting profits to policyholders.

83. The current estimate recognises FDB expected to be paid consistently with expected future developments, the economic scenarios on which the liability valuation is based and policyholders' reasonable expectations.

84. The projection of FDB is also consistent with the yield curve applicable to the contract, as well as with the modelling of policyholder behaviour as described in Section 5.2.1.3.

Example

For participating products that have benefits paid linked to the investment returns of the IAIG's asset portfolio, currently held assets should be reflected in the projection of participating cash flows. As new investments occur in the projection, these new investments should be assumed to earn a yield consistent with the prescribed discount curve. As a result, the asset portfolio rate will begin at the IAIG's current assumed book portfolio rate used in the calculation of participating cash flows and converge with the prescribed yield curve as inforce assets mature and new investments are made.

Similarly, where stresses require valuations assuming a different yield curve, liability cash flows should be re-projected to reflect convergence of the returns of the asset portfolio to the prescribed stressed yield curve and participating cash flows should reflect the expected amount of pass through that would occur under the stress given the resulting portfolio investment returns.

Consider a simplified example: assume a participating product passes through an IAIG's investment experience without a spread or guaranteed minimum crediting rate. Assume the portfolio yield on a book basis of assets held at the valuation date is 5% and the prescribed yield curve is consistent with a flat 2% for all years. 20% of the initial assets mature each year until all starting assets have matured by the end of year 5. Application may look as follows:

Year	1	2	3	4	5	6	7	8
Asset Book Portfolio Rate	5.0%	4.4%	3.9%	3.4%	2.9%	2.0%	2.0%	2.0%
Projected Liability Crediting Rate	5.0%	4.4%	3.9%	3.4%	2.9%	2.0%	2.0%	2.0%
Prescribed Market Rate/Discount Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%

*Note that based upon the rate of asset turn-over, the degree of cash flow matching and the type of assets held, the pattern may evolve differently.

The initial asset portfolio rate turns over to the prescribed yield curve and the yield of assets held at the valuation date is explicitly included.

5.2.2 Contract recognition, contract boundaries and time horizon

85. A contract is recognised when the IAIG becomes a party to that contact, until all obligations related to that contract are extinguished. All contracts that are recognised at the valuation date, and only those, are taken into account for the current estimate calculation.

86. The future premiums and associated claims and expenses linked to those recognised contracts are taken into account up to each contract boundary.

87. 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 (within contract boundaries) related to recognised insurance and reinsurance contracts at the valuation date.

88. A contract is recognised and valued as soon as the IAIG becomes party to that contract, without any possibility to amend or cancel it, even when the insurance coverage has not yet started.

Example
Consider a contract providing health coverage starting on 1 March N+1. The contract has been underwritten on 20 December N, with no possibility to change the terms of the contracts before the coverage starts. On 31 December N, this contract should be recognised in the balance sheet.

89. A contract is derecognised when all possible claims linked to this contract have been completely settled, and all future cash-flows are nil.

90. Only those contracts recognised at the reporting date are taken into account in the current estimate calculation; in particular, no future business is included in the calculation.

91. All obligations, including future premiums, relating to a recognised contract are taken into account in the current estimate cash flow projection. However, future premiums (and associated claims and expenses) beyond either of the following dates are not considered, 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 IAIG has a unilateral right to amend the premiums or the benefits payable under the contract in such a way that the premiums fully reflect the risks.

92. 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 is considered to be met.

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 91 are deemed to have been met. 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.

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 N, with a premium paid monthly. Premium indexation is possible at each anniversary date, and the IAIG has no right to cancel the policy during the first 12 months. On 31 December N, insurance liabilities should include 6 months of future premiums (January – June N+1), along with the related claims and expenses.

5.2.3 Data quality and setting of assumptions

93. The calculation of the current estimate is based on up-to-date and credible information and realistic assumptions. The determination of the current estimate is objective, comprehensive, and uses observable input data.

94. When selecting data for the calculation of the current estimate, IAIGs consider:

a. The quality of data based on the criteria of accuracy, completeness and appropriateness;

b. The use and setting of assumptions made in the collection and processing of data; and

c. The frequency of regular updates and the circumstances that trigger additional updates.

95. When only limited or unreliable data are available from the IAIG's own experience, the IAIG shall supplement its own data with data from other sources. When the characteristics of the portfolio differ from those of the population represented in the external data used, the

external data are adjusted in order to ensure consistency with the risk characteristics of the IAIG's portfolio.

96. The assumptions used to calculate the current estimate reflect current expectations based on all information available. This requires an assessment of expected future conditions, in particular as soon as:

a. 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.

b. There have been changes in underwriting procedures and claims management procedures that may affect the relevance of historical data to the portfolio of insurance contracts.

c. Historical data do not capture types of events that may have an impact on the current estimate.

5.2.4 Management actions

97. The current estimate calculation may recognise management actions when such actions are objective, realistic and verifiable. Management actions recognised in the calculation cannot be contrary to the IAIG's obligations to policyholders or to legal provisions applicable to the IAIG.

98. The management actions recognised for the calculation of the current estimate are confined to decisions by the IAIG that have an impact on future bonuses or other discretionary benefits for participating/profit sharing and adjustable products.

99. Assumed future management actions are consistent with the IAIG's current business practice and business strategy unless the GWS is satisfied that there is sufficient evidence that the IAIG will change its practices or strategy.

100. When calculating the current estimate, future management actions are taken into account only if they can reasonably be expected to be carried out under the specific circumstances to which they apply.

101. The assumptions about future management actions take into account the time needed to implement them, as well as any resulting incremental expenses.

5.2.5 Discounting

5.2.5.1 Determination of yield curves for current estimate discounting

102. In order to calculate a current estimate, insurance liabilities are discounted using an adjusted yield curve. The adjusted yield curve is based on:

a. Risk adjusted liquid interest rate swaps or government bonds (risk-free yield curve); and

b. An adjustment.

5.2.5.2 Determination of the risk-free yield curve

103. The risk-free yield curve is determined based on a three-segment approach:

a. Segment 1: based on market information from government bonds or swaps, including a credit risk correction, where necessary;

b. Segment 2: extrapolation between the first and third segments; and

c. Segment 3: based on a stable currency specific long-term forward rate (LTFR), to which a spread is added in order to represent the expected spread that may be earned from reinvestments in the long-term.

104. For each currency, the transition from the first to the second segment occurs at the last maturity for which market information can be observed in deep, liquid and transparent financial markets (the last observed term or LOT).

105. For each currency, the LTFR is the sum of an expected real interest rate and an inflation target.

106. For the purpose of determining the expected real interest rate, jurisdictions are allocated according to areas that share common macroeconomic characteristics. The same expected real interest rate is used for all currencies within a given area. For each area, the expected real interest rate is based on a simple average of observed real interest rates over a certain period of time.

107. The two components of the LTFR are reviewed annually, in order to reflect potential changes in macroeconomic expectations. However, the magnitude of annual changes to the LTFR is capped in order to mitigate its potential volatility.

108. For each currency, the risk-free curve is determined by the relevant IAIS Member for that currency, based on the quantitative parameters and guidance provided by the IAIS.

109. For all currencies, the start of the third segment as referred to in paragraph 103 is the later of the following:

- 30 years after the Last Observed Term (LOT); and
- 60 years.

110. The list of currencies for which a risk-free yield curve is calculated and the associated observed instruments and LOT are provided in Table 2.

Table 2: List of currencies and associated instruments and LOT

Currency		Observed Instrument	LOT (years)	Long-term Forward Rate
AUD	Australian Dollar	Government Bonds	30	3.8%
BRL	Brazilian Real	Government Bonds	10	7.0%
CAD	Canadian Dollar	Government Bonds	30	3.8%
CHF	Swiss Franc	Government Bonds	20	2.8%
CLP	Chilean Peso	Swaps	10	5.0%
CNY	Yuan Renminbi	Government Bonds	10	6.0%
COP	Colombian Peso	Swaps	10	6.0%
CZK	Czech Koruna	Swaps	15	3.8%
DKK	Danish Krone	Swaps	20	3.8%
EUR	Euro	Swaps	20	3.8%
GBP	Pound Sterling	Swaps	50	3.8%
HKD	Hong Kong Dollar	Swaps	15	4.4%
HUF	Forint	Government Bonds	15	6.0%
IDR	Rupiah	Swaps	10	8.0%
ILS	New Israeli Shekel	Swaps	20	4.4%
INR	Indian Rupee	Swaps	10	7.0%
JPY	Yen	Government Bonds	30	3.8%
KRW	Won	Government Bonds	20	4.4%
MXN	Mexican Peso	Government Bonds	20	5.0%
MYR	Malaysian Ringgit	Government Bonds	15	5.0%
NOK	Norwegian Krone	Swaps	10	3.8%
NZD	New Zealand Dollar	Swaps	20	4.8%
PEN	Sol	Swaps	10	6.0%
PHP	Philippine Peso	Swaps	10	7.0%
PLN	Zloty	Government Bonds	10	5.0%
RON	Romanian Leu	Government Bonds	10	5.0%
RUB	Russian Ruble	Swaps	10	7.0%
SAR	Saudi Riyal	Swaps	15	6.0%
SEK	Swedish Krona	Swaps	10	3.8%
SGD	Singapore Dollar	Government Bonds	20	3.8%
THB	Baht	Government Bonds	10	5.0%

TRY	Turkish Lira	Government Bonds	10	7.0%
TWD	New Taiwan Dollar	Government Bonds	10	4.4%
USD	US Dollar	Government Bonds	30	3.8%
ZAR	Rand	Government Bonds	30	7.0%

111. The LTFR is the sum of the following two components:

a. The expected real interest rate, computed as the simple arithmetic mean of annual real interest rates. Annual real rates r are calculated as:

$$r = \frac{short\ term\ nominal\ rate - inflation\ rate}{1 + inflation\ rate}$$

The expected real interest rate is rounded to the nearest five basis points.

b. The expected inflation target, computed as follows:

i. For currencies for which the central bank has announced an inflation target, the expected inflation is based on that inflation target. In this case the expected inflation rate is:

- 1%, where the inflation target is lower than or equal to 1%;
- 2%, where the inflation target is higher than 1% and lower than 3%;
- 3%, where the inflation target is higher or equal to 3% and lower than 4%; and
- 4%, otherwise.

ii. For currencies for which the central bank has not announced an inflation target, the expected inflation rate is set to 2%. However, where past inflation experience and projection of inflation both clearly indicate that the inflation in a currency area is materially higher or lower than 2%, the expected inflation rate is chosen in accordance with those indicators.

112. In order to determine the expected real interest rate, countries are grouped in the following three geographical areas:

a. Geographical area 1, comprised of the following currency areas: AUD, CAD, CHF, CZK, DKK, EUR, GBP, JPY, NOK, NZD, SEK, SGD, USD;

b. Geographical area 2, comprised of the following currency areas: HKD, ILS, KRW, TWD;

c. Geographical area 3, comprised of all other currency areas.

113. The value of the expected real interest rate component is:

a. 1.8% for geographical area 1;

b. 2.4% for geographical area 2; and

c. 3.0% for geographical area 3.

114. The maximum annual change to the LTFR is limited to 15 bps. The LTFR is changed according to the following formula:

$$LTFR_t = \begin{cases} LTFR_{t-1} + 15bps, if\ LTFR_t^* \geq LTFR_{t-1} + 15bps \\ LTFR_{t-1} - 15bps, if\ LTFR_t^* \leq LTFR_{t-1} - 15bps \\ LTFR_t^*, otherwise \end{cases}$$

where:

- $LTFR_t$ denotes the LTFR of year t, after limitation of the annual change;
- $LTFR_{t-1}$ denotes the LTFR of year $t-1$, after limitation of the annual change; and
- $LTFR_t^*$ denotes the LTFR of year t, before limitation of the annual change.

115. The following spread over the LTFR is added to all LTFR calculated according to paragraphs 111 to 114 above:

a. 20 basis points for geographical area 1;

b. 25 basis points for geographical area 2; and

c. 35 basis points for geographical area 3.

5.2.5.3 Determination of the adjustment to the risk-free yield curve

116. The IAIS yield curves include an adjustment to the risk-free curves. This adjustment is determined using the Three-Bucket Approach.

117. The Three-Bucket Approach classifies liabilities into the General Bucket, the Middle Bucket and the Top Bucket, depending on the nature of the liabilities and the assets backing these liabilities. A different yield curve adjustment is determined for each bucket.

5.2.5.3.1 Classification criteria

118. Insurance liabilities are eligible for the Top Bucket if they meet all of the following criteria:

a. They belong to the category of life insurance and disability annuities in payment with no cash benefits on withdrawal, taking into account e) below.

b. The portfolio of assets to cover the insurance liabilities is identified and, together with the corresponding liabilities, it is managed separately, without being used to make payments relating to other business of the IAIG.[10]

c. The expected cash flows of the identified portfolio of assets replicate the expected cash flows of the portfolio of insurance liabilities in the same currency, up to the LOT of the risk-free yield curve for the relevant currency. Any mismatch, addressed through the carry forward of cash generated from excess of asset cash flows at previous maturities, does not give rise to material risks. Carry forward of cash is limited to 10% of the total undiscounted liability cash flows up to the LOT. Where insurance liabilities are backed with assets denominated in a different currency, those asset cash flows

[10] For both the Top and Middle Buckets, the separate management of assets does not refer to a legal ring fencing but to a portfolio segmentation of clearly identified assets that would support an identified group of insurance liabilities over their lifetime. Should a portfolio be restructured within the entity, this being exceptional, the assets contained therein can only be transferred to another portfolio when done in conjunction with their corresponding liabilities. This does not preclude changes in investments within a portfolio in the normal course of business.

are taken into account in the cash flow testing, provided that the currency mismatch is fully hedged and the cost of hedging is deducted from the asset cash flows.

d. The contracts underlying the insurance liabilities do not include future premiums.

e. The portfolio of insurance liabilities includes either no surrender option for the policyholder or only a surrender option where the surrender value does not exceed the value of the assets identified for this portfolio at the reporting date and at all future points in time.

119. No unbundling is allowed when assessing eligibility for the Top Bucket.

120. Insurance liabilities are eligible for the Middle Bucket if they meet all of the following criteria:

a. The portfolio of assets to cover the insurance liabilities is identified and, together with the corresponding liabilities, is managed separately, without being used to cover losses arising from other business of the IAIG.[10]

b. The portfolio of insurance liabilities include either no surrender option for the policyholder or only a surrender option where the surrender value does not exceed the value of the assets identified for this portfolio at the reporting date.

c. The ICS Lapse risk charge does not represent more than 5% of the current estimate of the liabilities discounted using the risk-free yield curve.

d. The total market value of assets identified for this portfolio is, at the reporting date, greater than the current estimate of the liabilities calculated using the ~~risk-free~~General Bucket yield curve. For the calculation of the total market value of assets, all assets identified for this portfolio are taken into account, irrespective of their classification in Table 3.

e. The contracts underlying the liabilities do not include future premiums or include only future premiums that are contractually fixed or are at the discretion of the IAIG. Policyholder options to pay additional future premiums do not disqualify these liabilities from the Middle Bucket, but all corresponding cash flows that are not at the discretion of the IAIG have to be unbundled and are subject to the General Bucket.~~.~~

121. No unbundling is allowed when assessing eligibility for the Middle Bucket with the exception in the context of 120e.

122. Unless they are replicable by a portfolio of assets (as specified in Section 5.4), liabilities that are not in the Top or Middle Buckets belong to the General Bucket.

123. IAIGs are requested to provide the additional information for portfolios reported in the Middle Bucket in the table *Bucketing of insurance portfolios* in the Template. IAIGs should take the following into consideration when providing that information:

a. The value of included future premiums [column 10] is calculated using the risk-free yield curve;

b. The percentage of future premium in assets (ie the percentage of cash flows that come from premiums) [column 14] is computed using the undiscounted expected premium cash flows and the undiscounted expected cash flows of eligible assets; and

c. The percentage of hedged cash flows post-haircut on assets [column 15] is computed using the expected undiscounted cash flows.

Figure 1: Example of additional information for portfolios reported in the Middle Bucket

Example with a LOT of 20 years	Additional information for portfolios reported in the Middle Bucket																					
	Total	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20
Liability Cashflows	2565	0	10	15	30	20	80	100	60	120	200	350	480	200	200	100	200	400	0	0	0	0
Asset Cashflows	4690	800	20	30	75	540	100	95	50	130	550	400	500	220	50	500	30	600	0	0	0	0
of which same currency	4145	600	20	30	75	500	100	90	40	100	550	300	500	200	40	400	0	600	0	0	0	0
of which different currency after haircut	545	200	0	0	0	40	0	5	10	30	0	100	0	20	10	100	30	0	0	0	0	0
Premium Cashflows	255	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	0	0	0	0
Discount factor using risk free yield curve		1	0.99	0.98	0.97	0.96	0.95	0.94	0.93	0.92	0.91	0.9	0.89	0.88	0.87	0.86	0.85	0.84	0.83	0.82	0.81	0.8
Market value assets eligible for cash flow test	3863.6		Criterion d: Value of included future premiums								234.6											
market value assets not eligible for cash flow test	500		% of future premiums in assets								5.4%											
			% of hedged cash flow post haircut on assets								11.6%											

5.2.5.3.2 Adjustments to the yield curve

5.2.5.3.2.1 Eligible investments

124. For the purpose of calculating the Top Bucket and Middle Bucket adjustments, the eligibility of types of investments is specified in the following table:

Table 3: Eligibility of types of investment

Type of investment	Eligible
Cash and other liquid assets not for investment purposes	(Excluded from portfolio)
Investment income receivable/accrued	N
Fixed Interest Government Bonds	Y
Fixed interest Corporate Bonds	Y
Fixed Interest Municipal Bonds	Y
Variable Interest Government Bonds	Y
Variable interest Corporate Bonds	Y
Variable Interest Municipal Bonds	Y
Convertible notes	N
Residential Mortgage Loans	Y
Non-residential Mortgage Loans	Y
Other (non-mortgage) Loans	Y
Loans to policyholders	Y
Residential Mortgage Backed Securities	Y
Commercial Mortgage Backed Securities	Y
Other structured securities	Y
Insurance Linked Securities	N

Equities	N
Hedge Funds	N
Private equity	N
Real estate (for investment purposes)	N
Infrastructure debt	Y
Infrastructure equity	N
Other investment assets	N

125. When determining the spread adjustment for the Top Bucket, only assets in Table 3 may be used. However, for purposes of the cash flow test specified in paragraph 118c, assets are not limited to those considered eligible in Table 3.

126. Assets backing unit-linked or separate account insurance liabilities are not taken into account when those insurance liabilities are valued using the asset replication approach presented in Section 5.4.

127. Government bonds include only debt instruments issued or guaranteed by central governments (excluding exposures to municipal and other public sector entities).

128. Assets featuring call options (used at the discretion of the issuer) are ineligible to back liabilities, unless it can be demonstrated that the exercise of the option does not imply a loss to the IAIG and that the matching of the liability cash flows can be maintained. For example, this can be achieved by using the proceeds of the sale to buy a similar asset on the market that enables the matching of cash flows to be maintained.

5.2.5.3.2.2 Top Bucket

129. The adjustment for the Top Bucket is based on the average spread above the risk-free yield curve of the eligible assets, as listed in Table 3, identified by the IAIG to back the portfolio of liabilities meeting the Top Bucket criteria.

130. The IAIG may identify different portfolios, which will lead to the calculation of portfolio-specific adjustments.

131. A cap at the level of the ICS RC 4 spread applies for assets with a lower credit quality. The ICS RC 4 cap is based on the spreads earned by the IAIG for ICS RC 4 rated assets denominated in the same currency. Where no such assets exist, the spread defined by the IAIS for the Middle Bucket adjustment calculation is used.

132. The spread is adjusted for credit risk and any other risk, using the same risk correction parameters as specified in paragraph 138.

133. For the Top Bucket, 100% of the spread adjustment is added to the risk-free rate to discount insurance liabilities.

134. The spread adjustment computed according to paragraph 133 is reported as *Spread* in the table *Bucketing of insurance portfolios* in the Template.

135. IAIGs use the relevant adjusted yield curves according to the currency of the insurance liability cash outflows.

136. Where insurance liabilities are backed with assets denominated in a different currency, the spread adjustment for the currency of the liability includes spreads which may be earned by the IAIG in those assets, provided that the currency mismatch is hedged. The cost of hedging is deducted from the Top Bucket adjustment.

137. The spread adjustment determined according to this methodology is applied as a parallel shift up to the run-off of the liabilities, which may be beyond the relevant LOT.

Figure 2: Example to assess the matching criterion for the Top Bucket eligibility

Example with a LOT of 20 years	Assessing the matching criterion for the **Top** Bucket eligibility																				
	Total	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20
Liability Cashflows	4635	0	10	15	30	20	80	100	60	120	200	350	480	200	0	700	350	400	350	800	320	50
Asset Cashflows	5800	800	20	30	75	540	100	95	50	130	550	400	500	220	50	500	30	410	400	500	300	100
Premium Cashflows																						
Matching (In-Out)?		800	10	15	45	520	20	-5	-10	10	350	50	20	20	50	-200	-320	10	50	-300	-20	50
Use carryforward?		No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	No	Yes	Yes	No	No	Yes	Yes	No
Remaining Cash		800	810	825	870	1390	1410	1405	1395	1405	1755	1805	1825	1845	1895	1695	1375	1385	1435	1135	1115	1165
Cumulative liability CF		0	10	25	55	75	155	255	315	435	635	985	1465	1665	1665	2365	2715	3115	3465	4265	4585	4635
Cumulative carryforward used		0	0	0	0	0	0	5	15	15	15	15	15	15	15	215	535	535	535	835	855	855
Carryforward used		18%	Failed, used carryforward/total liability CF>10%																			

The test is performed up to the LOT. The total carry-forward used is 855 and the cumulative liability cash flows are 4635, causing the test to be failed.

5.2.5.3.2.3 Middle Bucket

138. For the Middle Bucket, the IAIS provides spreads and risk corrections by credit quality, duration and currency, which serve as a basis for the calculation of the Middle Bucket adjustment.

139. The Middle Bucket spread adjustment is a group-wide adjustment calculated using the Weighted Average of Multiple Portfolios (WAMP) approach based on the eligible assets backing the Middle Bucket liabilities. The Middle Bucket spread adjustment is portfolio specific within a single currency. ~~The Middle Bucket spread adjustment is currency specific but not portfolio-specific; it is applied to all Middle Bucket portfolios in the same currency.~~

140. Where insurance liabilities are backed with assets denominated in a different currency, the weighted average calculation of the spread adjustment for the currency includes spreads earned by the IAIG in those assets, provided that the currency mismatch is hedged. The cost of hedging is deducted from the adjustment to the spread recognised in the calculation of the Middle Bucket adjustment. In case a rolling hedge strategy is in place, the cost of hedging is deducted from the spread adjustment and an additional haircut of 20% is applied to the spread.

141. The spread adjustment is calculated according to the WAMP methodology, as specified in the following paragraphs.

142. The $Wamp_{spread}(t)$ at maturity t for a given ~~currency~~ portfolio is calculated as follows:

$$Wamp_{spread}(t) = w_{gov} \times spread_{gov\ after\ RC}(t) + \sum_{ICS\ RC} w_{ICS\ RCi} \times spread_{ICS\ RCi\ after\ RC}(t) \sout{w_{ICS\ RC1} \times \left(\sum_{durations} w^{ICS\ RC1}_{duration\ band} \times spread^{ICS\ RC1\ after\ RC}_{duration\ band} \right)}$$

$$+w_{ICS\ RC2} \times \left(\sum_{durations} w^{ICS\ RC2}_{duration\ band} \times spread^{ICS\ RC2\ after\ RC}_{duration\ band} \right)$$

$$+ \ldots$$

$$+w_{Non\ eligible} \times 0$$

where:

- $w_{gov}$is the weight of government bonds;
- $w_{ICS\ RCi}$is the weight of debt instruments belonging to ICS rating category i;
- $w^{ICS\ RCi}_{duration\ band}$ is the weight of debt instruments that belong to ICS rating category i within the considered duration band;
- $w_{non-eligible}$ is the weight of non-eligible assets in the total portfolio of assets for that currency;
- $spread_{gov\ after\ RC}(t)$ is the spread after risk correction corresponding to government bonds. When a government bond rate is used for the risk-free yield curve, the applied spread is nil; and
- $spread_{ICS\ RCi\ after\ RC}(t)$ $spread^{ICS\ RCi\ after\ RC}_{duration\ band}$ is the spread after risk correction corresponding to debt instruments that belong to ICS rating category i. within the considered duration band.

143. w_{gov} and $w_{ICS\ RCi}$ are determined only considering eligible assets according to Table 3.

Example

The following assets back liabilities that are eligible for the Middle Bucket.
Government bonds:100
Corporate bonds ICS RC1:50
Corporate bonds ICS RC2:30
Equity:70
Cash: 10

$$w_{gov} = \frac{100}{100+50+30} = \frac{5}{9}$$

$$w_{ICS\ RC1} = \frac{50}{100+50+30} = \frac{5}{18}$$

$$w_{ICS\ RC2} = \frac{30}{100+50+30} = \frac{1}{6}$$

Equity is not eligible according to Table 3 and therefore not considered for the calculation of the weights. Cash is excluded according to Table 3 and therefore not considered for the calculation of the weights

144. Debt instruments in ICS RC 4 and lower, as well as unrated debt instruments, are allocated to the ICS RC 4.

145. In the case of currency unions, the sovereign exposure (and the corresponding weight in the WAMP calculation) is split by jurisdiction within the currency union.

146. The Total Observed Matching (TOM) ratio is computed as follows:

$$TOM = \min\left(\frac{M}{\min(LOT, lifetime\ of\ liability)}, 100\%\right)$$

where

$lifetime\ of\ liability$ is the maturity after which the insurance liabilities are not expected to generate any cash flow, and *M* is the last maturity for which, under the cash flow test described in paragraph 118.c, neither the cash carry forward limit of 10% is breached nor the remaining cash becomes negative. When the remaining cash becomes negative on the first year of projection, M is taken equal to 0. When the cash carry forward limit of 10% is not breached at any point in time, and the remaining cash remains non-negative over the lifetime of liability, M is taken equal to $lifetime\ of\ liability$. For the purpose of determining *M*, asset cash flows in a different currency than liability cash flows can be taken into consideration provided that either:

- the asset cash flows are fully hedged; or
- a rolling hedge is in place and the replacement frequency of the hedge is not less than one month. In this case, a 20% haircut is applied on the asset cash flows.

The cost of hedging is deducted from the expected cash flows. Only cash flows from eligible assets (Table 3) and cash can be used for the cash flow test.

147. The final spread adjustment for the Middle Bucket ($Spread\ Adj_{MB}(t)$) applied to the yield curve is computed such that ~~the spread adjustment for the Middle Bucket~~ it is greater than or equal to the spread adjustment for the General Bucket ($Spread\ Adj_{GB}(t)$ at each maturity t.

$$Spread\ Adj_{MB}(t) = \max\Big[\omega_{GB} * 0.8 * Spread\ Adj_{Gross-GB}(t), \omega_{MB} * \left(0.8 * Spread\ Adj_{Gross-GB}(t) * (1 - TOM) + 0.9 * WAMP_{spread}(t) * TOM\right)\Big]$$

~~$80\% \times (1 - TOM) \times Spread\ Adj_{GB} + 90\% \times TOM \times \max\left[WAMP_{spread}, \frac{80\%}{90\%} \times Spread\ Adj_{GB}\right]$~~

~~The value computed according to paragraph 146 is reported as *Spread* in the table *Bucketing of insurance portfolios.*~~

148. The spread adjustment $Spread\ Adj_{MB}(t)$ determined according to this methodology is applied ~~as a parallel~~additively to the risk-free rate at each maturity t ~~shift~~ up to year M. After that maturity, the spread adjustment is phased out in such a way that the resulting spot curve remains above the spot curve for the corresponding General Bucket.

Figure 3: Example to assess the matching criterion for the Middle Bucket eligibility

Example with a LOT of 20 years	Assessing the matching criterion for the **Middle** Bucket eligibility																				
	Total	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20
Liability Cashflows	2565	0	10	15	30	20	80	100	60	120	200	350	480	200	200	100	200	400	0	0	0	0
Asset Cashflows	4690	800	20	30	75	540	100	95	50	130	550	400	500	220	50	500	30	600	0	0	0	0
Premium Cashflows		15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	0	0	0	0
Matching (In-Out)?		815	25	30	60	535	35	10	5	25	365	65	35	35	-135	415	-155	215	0	0	0	0
Use carryforward?		No	No	No	No	No	No	No	No	No	No	No	No	No	Yes	No	Yes	No	No	No	No	No
Remaining Cash		815	840	870	930	1465	1500	1510	1515	1540	1905	1970	2005	2040	1905	2320	2165	2380	2380	2380	2380	2380
Cumulative liability CF		0	10	25	55	75	155	255	315	435	635	985	1465	1665	1865	1965	2165	2565	2565	2565	2565	2565
Cumulative carryforward used		0	0	0	0	0	0	0	0	0	0	0	0	0	135	135	290	290	290	290	290	290
Cumulative carryforward as a percentage of cumulative		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	7%	13%	11%	11%	11%	11%	11%

Example

The test in Figure 3 is failed in year 15 ($M = 14$). According to the assumption the LOT is 20 years and the lifetime of the liabilities 16 years.

$$TOM = \min\left(\frac{14}{\min(20,16)}, 100\%\right) = 87{,}5\%$$

5.2.5.3.2.4 General Bucket

149. The gross spread adjustment for the General Bucket ($Spread\ Adj_{Gross-GB}(t)$) is provided by the IAIS, based on a representative portfolio that reflects the assets typically held by IAIGs in a particular currency.

150. The gross spread adjustment $Spread\ Adj_{Gross-GB}(t)$ includes a correction for credit risk and any other risk.

151. For corporate bonds, the aforementioned correction is derived from the annualised cumulative default experience for a hypothetical 10-year bond, computed on the basis of transition matrices.

152. For government bonds, the risk correction is determined depending on the data underpinning the risk-free rate. Where risk-free rates are determined based on swap rates, risks other than liquidity risk are assumed to represent 30% of the 10-year average spread. For currencies where risk-free rates are based on government bond rates, no risk correction is applied.

153. ~~80%~~ *The spot rate for the General Bucket yield curve is computed as follows*:

$$r_{GB}(t) = rfr(t) + 80\% \cdot \omega_{GB} \cdot Spread\ Adj_{Gross-GB}(t)$$

up to the LOT, where $rfr(t)$ *is the risk-free spot rate at maturity* t *and* ω_{GB} *the IAIG specific modulation factor*. For Segments 2 and 3 of the adjusted yield curve, the same extrapolation methodology is used as for determining the risk-free yield curve is applied to the adjusted yield curve.~~of the spread adjustment determined according to this methodology is applied as a parallel shift up to the LOT. For Segments 2 and 3 of the adjusted yield curve, the same extrapolation methodology as used for determining the risk-free yield curve is applied to the adjusted yield curve.~~

154. IAIGs use the relevant adjusted yield curves according to the currency of the insurance liability cash outflows.

IAIS

5.2.5.3.2.5 Modulation Factor ω_i

155. The modulation factor ω_i is computed on a portfolio basis. It is computed using all assets, which are sensitive to changes in credit spreads[11], in the same currency spread bucket as the main currency of the liabilities.

156. The currency spread buckets are provided by the IAIS and are based on the spread mappings which are used for determining the credit spreads for those currencies.

> *Example*
>
> USD credit spreads are used to proxy spreads for AUD, CAD, HKD, ILS, INR, KRW, MXN, MYR, PEN, PHP, SAR, SGC, THB and TWD. These currencies form one currency spread bucket. If the main currency of liabilities is eg HKD then all assets backing these liabilities denominated in one of the currencies in this bucket can be used for the calculation of the modulation factor.

157. The modulation factor ω_i is computed using the following formula:

$$\omega_{GB} = \min\left(1, \max\left(0, \frac{PVBPU(assets)}{PVBPU(liabilities) * 0.8 * weight_{spread}}\right)\right),$$

and

$$\omega_{MB} = \min\left(1, \max\left(0, \frac{PVBPU(assets)}{PVBPU(liabilities) * [TOM * 0.9 * weight_{spread,MB} + 0.8 * weight_{spread} * (1 - TOM)]}\right)\right)$$

where,

- ω_{GB} is the modulation factor to be applied for General Bucket portfolios;
- ω_{MB} is the modulation factor to be applied for Middle Bucket portfolios;
- $PVBPU$ stands for the price value of a basis point up, and is calculated in the following way

  $$PVBPU(X) = PV(X) - PV_{up}(X),$$

  where $PV(X)$ is the current price and PV_{up} the price obtained by applying a parallel shift of one basis point upwards to the relevant yield curve. Changes in cash flows due to the parallel shift of one basis point should be considered when they are expected to have a non-negligible impact on the ICS coverage ratio. The spot rates of the relevant yield curve $r_{relevant}(t)$ for liabilities are provided by the IAIS and obtained as follows:

  $$r_{relevant}(t) = rfr(t) + 80\% \cdot Spread\ Adj_{Gross-GB}(t)$$

  up to the LOT and using the same extrapolation methodology for Segments 2 and 3 as used for determining the risk-free yield curve. Re-calculations should be performed taking into consideration potential changes in cash-flows when interest rates change. The relevant yield curve for assets is the yield curve used to determine the current balance sheet value.

[11] This includes government bonds when the respective yield curve is based on swaps.

- $weight_{spread}$ is the weight of spread contributing assets. The value is provided by the IAIS. $weight_{spread,MB}$ is the weight of the spread contributing assets for the Middle Bucket. These are computed using the parameters as for para 142.

Example: The relevant yield curve for an asset will be typically of the form:

$$spot\ rate(t) = risk\ free\ spot\ rate(t) + spread$$

where $spread$ is chosen such that the discounted cash flows using $spot\ rate(t)$ yield the market value of the asset.

~~5.2.5.3.3 Alternative adjustments for the General Bucket~~

~~IAIGs may use two alternative spread adjustments for the calculation of the General Bucket adjustment:~~

~~One specific adjustment for cases where the same currency is shared among different jurisdictions; and~~

~~One specific adjustment for cases where the IAIG is materially invested in assets denominated in a currency that is different from the liabilities they are backing.~~

~~Under those two mechanisms, IAIGs may replace the spreads used in the determination of the spread adjustment for a given currency; the weights of the different asset categories remain unchanged.~~

~~5.2.5.3.3.1 Shared currency mechanism~~

~~Where the same currency is shared among different jurisdictions, IAIGs may replace the spreads provided by the IAIS for each Risk Category in that currency ($S_{rc_{crncy}}$) by the spreads ($S_{rc\_}$) defined as follows:~~

~~If~~

~~$S_{rc_{adjusted}} - S_{rc_{crncy}} \geq 50bps$~~

~~then~~

~~$S_{rc} = S_{rc_{adjusted}} - 50bps$~~

~~where:~~

~~$S_{rc_{crncy}}$ = spread for currency $crncy$ and Risk Category rc, as provided by the IAIS~~

~~$S_{rc_{adjusted}}$ = modified spread for Risk Category rc, using a weighted average of the spreads of the specific jurisdictions (within the common currency) to which the IAIG is actually exposed~~

~~5.2.5.3.3.2 Foreign asset mechanism~~

~~IAIGs may replace the spreads provided by the IAIS for each Risk Category in that currency ($S_{rc_{crncy}}$) by the spreads ($S_{rc\_}$) defined as follows:~~

~~If~~

~~$\frac{\text{Hedged eligible foreign currency denominated assets}}{\text{Total investments (excl. cash) converted into the currency of the liability}} \geq 5\%$~~

~~then~~

~~$S_{rc} = S_{rc_{crncy}} + 50\% * (S_{rc_{adjusted}} - S_{rc_{crncy}})$~~

~~where:~~

~~$S_{rc_{crncy}}$ = spread for currency $crncy$ and Risk Category rc, as provided by the IAIS~~

~~$S_{rc_{adjusted}}$ = modified spread including the extra spread that can be earned from the hedged assets denominated in foreign currency that exceed the 5% threshold. Where the 5% threshold is exceeded by a combination of exposures in multiple asset categories, the threshold is proportionally allocated to the different asset categories.~~

5.3 Margin over Current Estimate (MOCE)

5.3.1 Definition and underlying principles

158. The MOCE is a margin added to the current estimate in order to achieve a market adjusted value of insurance liabilities. The MOCE covers the inherent uncertainty in the cash flows related to insurance obligations. As such, MOCE considers all uncertainties attached to these obligations.

5.3.2 Calculation of the MOCE

159. The MOCE is calculated as a given percentile of the normal distribution characterised by:

- A mean equal to the current estimate of life (and non-life) obligations; and
- A 99.5% percentile equal to the life (and non-life) risk charge.

160. The 85th percentile is used to compute the life component of the MOCE and the 65th percentile is used for the non-life component.

5.3.3 Interaction of MOCE with other components

161. All stress-based calculations include only current estimates for determining the pre- and post-stress Net Asset Value (NAV), ie the MOCE remains constant during the stress. Factors applied to insurance liabilities should only be applied to current estimates. MOCE is neither deducted from the ICS capital requirement, nor added to qualifying capital resources.

5.4 Obligations replicable by a portfolio of assets

162. Where future cash flows associated with insurance obligations can be replicated reliably, using financial instruments for which a market value is observable, the value of insurance liabilities associated with those future cash flows is determined on the basis of the market value of those financial instruments.

163. Insurance liabilities are considered to be replicated reliably when their cash flows are in every circumstance precisely matched by cash flows of corresponding assets.

164. The cash flows associated with insurance liabilities are not considered to 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.

165. Financial instruments used to replicate insurance liabilities must be traded in deep, liquid and transparent markets.

6 Qualifying Capital Resources

Relevant Worksheets in Template:	*ICS Summary* *GAAP and ICS Balance Sheets* *Financial Instruments* *Non-controlling interests* *Tier 2 Non-Paid-Up*

6.1 General considerations

166. Qualifying capital resources are determined on a consolidated basis for all financial activities and comprise qualifying financial instruments and capital elements other than financial instruments.

167. Qualifying capital resources are subject to adjustments, exclusions and deductions, as defined in Section 6.4. Any item deducted from capital resources should be excluded from the calculation of the ICS capital requirement.

168. The ICS identifies two tiers of capital:

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

169. In determining qualifying capital resources, the ICS differentiates between mutual and non-mutual IAIGs.

6.2 Classification of financial instruments

170. Financial instruments are classified into those two tiers based on consideration of a number of criteria, focused on five key principles:

- loss absorbing capacity (on a going-concern basis and/or in winding-up);
- subordination;
- availability to absorb losses;
- permanence; and
- absence of both encumbrances and mandatory servicing costs.

171. Within each tier, financial instruments are allocated into two categories with differing qualifying criteria:

- Tier 1:
    - Tier 1 financial instruments for which there is no limit (Tier 1 Unlimited); and
    - Tier 1 financial instruments for which there is a limit (Tier 1 Limited).

- Tier 2:
  - Tier 2 Paid-Up financial instruments (Tier 2 Paid-Up); and
  - Tier 2 Non-Paid-Up financial instruments (Tier 2 Non-Paid-Up).

172. Table 4 presents the features of Tier 1 Unlimited, Tier 1 Limited and Tier 2 Paid-Up capital with respect to the classification of financial instruments against the five key principles:

Table 4: Key Principles for tiering in capital resources

Key Principles	Tier 1 Unlimited	Tier 1 Limited	Tier 2 Paid-Up
Loss absorbing capacity	Absorbs losses on both a going-concern basis and in winding-up.	Absorbs losses on both a going-concern basis and in winding-up.	Absorbs losses in winding-up.
Level of subordination	Most subordinated (ie is the first to absorb losses); subordinated to policyholders, other non-subordinated creditors, holders of Tier 2 capital instruments, and holders of Tier 1 Limited capital instruments.	Subordinated to policyholders, other non-subordinated creditors and holders of Tier 2 capital instruments.	Subordinated to policyholders and other non-subordinated creditors.
Availability to absorb losses	Fully paid-up	Fully paid-up	Fully paid-up
Permanence	Perpetual	Perpetual For mutuals, this requirement is considered to be met if redemption at maturity (for a dated instrument) can be deferred, subject to supervisory approval or a lock-in feature, subject to a sufficiently long initial maturity. No incentives to redeem permitted. Issuer may redeem after a minimum specified period after issuance or repurchase at any time, subject to prior supervisory approval.	Sufficiently long initial maturity– may have incentives to redeem but first occurrence deemed to be "effective maturity date".

Key Principles	Tier 1 Unlimited	Tier 1 Limited	Tier 2 Paid-Up
Absence of both encumbrances and mandatory servicing costs	IAIG has full discretion to cancel distributions (ie distributions are non-cumulative); The instrument is neither undermined nor rendered ineffective by encumbrances.	IAIG has full discretion to cancel distributions (ie distributions are non-cumulative); The instrument is neither undermined nor rendered ineffective by encumbrances.	The instrument is neither undermined nor rendered ineffective by encumbrances.

173. With regard to Tier 2 Paid-Up capital, the form of subordination can be either contractual or structural. Structurally subordinated instruments are subject to certain conditions that capture the specificities of structural subordination.

174. The recognition of Tier 2 Non-Paid Up capital is restricted to mutual IAIGs. It is also required that once these items become paid-up, the resulting capital element will possess the features required of Tier 1 or Tier 2 Paid-Up capital resources.

175. The list of criteria and conditions associated with each tier of capital is in Sections 6.2.1 to 6.2.5 below.

176. The worksheet *Financial Instruments* in the Template features three tables for the reporting and assessment of paid-up financial instruments:

a. The *ICS Classification Table* provides the ICS classification result for each financial instrument reported, along with its qualifying amount. This table also performs amortisation calculations for financial instruments that are to be amortised over the final five years to their effective maturity dates. The columns in this table source information from the *Assessment Table* described in point c) below.

b. The *Data Input Table* is used to collect some information about financial instruments. IAIGs should report all relevant information on financial instruments issued to external investors in the *Data Input Table*. IAIGs should not include any intra-group financial instruments issued between entities included within the scope of the group, ie involving transactions that are eliminated in the consolidated ICS balance sheet.

c. The *Assessment Table* contains, for each financial instrument listed in the Data Input Table, the IAIG's assessment whether the instrument satisfies the qualifying criteria listed in sections 6.2.1 to 6.2.4. Those input are used to populate entries in the *ICS Classification Table*.

177. In the *Data Input Table*, IAIGs should provide all relevant information pertaining to paid-up financial instruments issued by the IAIG and included on its consolidated balance sheet as of the reporting date. This includes senior debt issued by a holding company and any ordinary shares issued by consolidated subsidiaries to third parties. A separate worksheet *Tier 2 Non-Paid-Up* is dedicated to information on non-paid-up capital items. Any instruments issued after the balance sheet reporting date should not be reported within the Template. Each financial instrument reported is assessed against the qualifying criteria described in Sections 6.2.1 to 6.2.5 below.

178. IAIGs should use a separate row to report information on each financial instrument (ie one row for each instrument). For the avoidance of doubt, where an IAIG has issued multiple instruments with largely similar features, IAIGs should not use a single row to report that information; in that case, IAIGs should split the data into multiple entries to ensure that accurate information is provided in respect of each specific instrument.

179. The information reported in the *Data Input Table* should reflect the contractual terms and conditions of the financial instrument, unless otherwise indicated. Some data inputs will require IAIGs to provide information on the features of the regulatory and/or legal environment in which an instrument was issued (eg in the case of structural and contractual subordination). Where inputs relate to the features of the regulatory and/or legal environment, rather than the terms and conditions of the financial instrument, this is clearly indicated.

180. Some columns in the *Data Input Table* utilise drop-down lists in order to collect information in a specific format. IAIGs should not amend the list of available items under any circumstances. If IAIGs have issued financial instruments with features that cannot be accurately captured within the Template, this should be indicated in the Questionnaire.

181. Financial instruments may take a number of different forms including common or ordinary shares, preferred shares, hybrid capital instruments, subordinated debt, surplus notes, etc. In the *Data Input Table*, the column labelled *Type of Financial Instrument* contains a drop-down list of different types of financial instruments. For each financial instrument reported, IAIGs should select the category that best describes the instrument.

182. For each financial instrument reported, IAIGs should indicate the type of issuing entity in column *Type of issuing entity* of the *Data Input Table* and whether it is a mutual entity in the adjacent column. In instances where more than one description may apply to the issuing entity, please select the one that is considered most appropriate. The types of issuing entities listed in the drop-down list are as follows:

a. Parent non-insurance holding company – this refers to a parent holding company (ie an ultimate or intermediate parent) that does not undertake insurance activities;

b. Parent insurance company – ie ultimate or intermediate parent that undertakes insurance activities;

c. Insurance subsidiary – this refers to controlled subsidiaries of a parent that undertake insurance activities;

d. Special purpose vehicle;

e. Banking subsidiary

f. Other financial subsidiary – this refers to controlled subsidiaries of a parent that undertake financial activities other than insurance or banking;

g. Other.

183. IAIGs should provide information on the subordination of financial instruments in columns labelled *Subordination Information* of the *Data Input Table*. In particular, for each financial instrument IAIGs should specify the degree of subordination (ie to whom the instrument is subordinated) and the type of subordination (eg contractual or structural).

184. IAIGs should provide relevant information on key dates (issue date, maturity date, first ordinary call date) in columns labelled *Date Information* of the *Data Input Table*. These columns have been pre-set to date format in Excel and when completed correctly should

display the information in long date format (eg in Europe, 22/06/2015 should read as 22 June 2015; the same output should be obtained by reporting 06/22/2015 in North America). The entry "various" does not constitute a valid entry for reporting the issue date of multiple financial instruments with similar features (eg several common/ordinary share issuances). In this case, IAIGs should split the data into multiple entries by issue date. For perpetual instruments, the text "Perpetual" should be entered in column *Date Information – Maturity* of the *Data Input Table*. When providing information in column *First Ordinary Call* of the *Data Input Table*, IAIGs should provide information in respect of ordinary calls that fall after the issue date, rather than extraordinary call rights. Data on extraordinary call rights should be provided in the adjacent columns clearly marked for that purpose.

185. The existence of a principal loss-absorbency mechanism (ie write-down or conversion feature) in the terms of an instrument should be provided in the column labelled PLAM of the *Data Input Table*.

186. IAIGs should provide information on any lock-in features specific to a financial instrument, or any other special conditions that might apply to a financial instrument, in particular as it nears maturity in the column labelled *Special conditions* of the *Data Input Table*. A lock-in feature typically involves the suspension of distributions and/or redemption where there is non-compliance with a regulatory capital requirement and is usually specified in the terms and conditions of a financial instrument. Another common feature is amortisation of the amount of an instrument that can be recognised as a qualifying capital resource as the instrument approaches its maturity date. Amortisation is normally a feature of the local regulatory jurisdiction rather than being specified within the terms of an instrument.

187. For dated financial instruments that do not have a lock-in feature, the amount recognised as a qualifying capital resource will be amortised from 100% to 0% on a straight-line basis in the final five years prior to its effective maturity (defined in paragraph 195 below). The amortisation calculation is applied automatically in the *ICS Classification Table*.

188. For each financial instrument reported, IAIGs should provide the par (face) value of the issued instrument in the column labelled *Face Amount (Par Value)* of the *Data Input Table*, and any share premium associated with the instrument in the column labelled *Share Premium associated with the issuance*. IAIGs should report the gross par (face) value, ie without making deduction for treasury stock or direct investments in own financial instruments, as otherwise, this would lead to a double deduction from capital resources. This information is captured and applied as a deduction elsewhere in the Template (treasury stock should be reported in worksheet *GAAP and ICS Balance Sheets* and direct investments in own financial instruments should be reported in the worksheet *ICS Summary*). In situations where the IAIG has redeemed or repurchased a portion of a financial instrument, the amount reported should be the par value of the outstanding portion of the instrument. In cases where the IAIG is required by its local regulator to amortise the financial instrument's par value included within regulatory capital, the amount reported should be the par value before amortisation (the ICS amortisation is then calculated automatically in the Template).

189. For each debt instrument (including senior debt, subordinated debt, hybrids, etc.), IAIGs should provide the value of the corresponding liability recognised on the balance sheet in columns labelled *Debt instrument – Balance sheet values* of the *Data Input Table*. For each instrument, IAIGs should provide two different balance sheet values, corresponding to the valuation in the GAAP and ICS balance sheets. The MAV amounts reported should follow the valuation approaches specified in Section 5. Furthermore, the balance sheet values of debt

financial instruments reported in the worksheet *Financial Instruments* should be consistent with the information reported for debt instruments and borrowings in the worksheet *GAAP and ICS Balance Sheets*.

190. IAIGs should provide information on the presence of any acceleration clauses within the legal terms and conditions of a financial instrument in the column *Acceleration Clauses* of the *Data Input Table*. Acceleration clauses provide for acceleration of payments (eg distributions, redemption amounts) owed in respect of a financial instrument.

191. The *Assessment Table* contains the IAIGs' assessments against the qualifying criteria for each financial instrument reported. Each column header provides a description of the criterion to be assessed.

6.2.1 Tier 1 unlimited financial instruments

192. Financial instruments that meet all of the following criteria qualify as ICS Tier 1 unlimited capital resources:

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 has a claim on the residual assets proportional to its share of the issued share capital after all other claims have been repaid, and which is not subject to a fixed or capped amount.

d. The instrument is perpetual (ie it does not have a maturity date).

e. The principal amount of the instrument is not repaid outside winding-up, other than by means of discretionary repurchase permitted under national law.

f. There is not an expectation created by the IAIG at issuance, through the terms of the instrument or otherwise, that the IAIG will repurchase or cancel the instrument.

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

h. Distributions are paid out of distributable items, including retained earnings.

i. The instrument is neither undermined nor rendered ineffective by encumbrances. In particular, the priority of claims is not 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.

j. Neither the IAIG nor a related entity 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.

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

6.2.2 Tier 1 limited financial instruments

193. Financial instruments that do not qualify as Tier 1 unlimited capital resources, but meet all of the following criteria, qualify as ICS Tier 1 limited capital resources:

a. The instrument is fully paid-up.

b. The instrument is subordinated to policyholders and other non-subordinated creditors and holders of Tier 2 financial instruments but may rank senior to holders of Tier 1 unlimited financial instruments.

c. The instrument is perpetual (ie it does not have a maturity date). For mutual IAIGs[12], the requirement for an instrument to be perpetual is considered to be met if redemption at maturity (for a dated instrument) can be deferred subject to supervisory approval or a lock-in[13] feature, and where an instrument has an initial maturity of at least ten years.

d. The instrument does not contain any incentive to redeem, such as a step-up.

e. The instrument is only callable at the option of the issuer after a minimum of five years from the date of issue and prior supervisory approval is required for any redemption. ~~However, extraordinary calls (defined as tax and regulatory event calls) are permitted at any time after issuance of an instrument, subject to prior supervisory approval, and provided the IAIG was not in a position to anticipate such a call at the time of issuance. Also, an IAIG may not exercise the extraordinary call within the first five years of issuance unless, prior to or concurrent with the exercise of the call, it replaces the called instrument with capital of the same or better quality, and the replacement of the called instrument is made on terms that are sustainable for the income capacity of the IAIG.~~ By way of derogation, call options, the exercise of which may take place in the first five years, may be permitted only in the following two situations:

- Tax and regulatory event call options, the exercise of which is subject to prior supervisory approval, and provided the IAIG was not in a position to anticipate such exercise at the time of issuance. Before granting approval, the supervisor should make sure that after redemption of the instrument, the IAIG will cover its ICS capital requirement with a margin sufficient to ensure that the ICS will not be breached over the foreseeable future, taking into account any relevant trend and specificities of the IAIG.
- Other call options, provided that their exercise complies with all of the following:
    - Prior to or concurrent with the exercise of the call, the IAIG replaces the called instrument with capital of the same or better quality, and the replacement of the called instrument is made on terms that are sustainable for the income capacity of the IAIG;
    - The IAIG demonstrates to the satisfaction of the supervisor that the call is economic; and
    - The call is approved by the supervisor.

  When assessing whether the call is economic, the supervisor should ensure that the cost of issuing the replacement instrument is lower than the cost of keeping the existing instrument outstanding. This analysis may consider various scenarios including, but not necessarily limited to, comparative spread levels and issuance volume.

[12] Characteristics of a mutual group typically include the inability to issue substantial amounts of common equity and an ultimate parent within the group that cannot issue common equity.
[13] A lock-in feature is a requirement for the IAIG to suspend repayment or redemption if it is in breach of its applicable regulatory capital requirement or would breach it if the instrument is repaid or redeemed.

f. The instrument may be repurchased by the issuer at any time with prior supervisory approval.

g. There is not an expectation created by the IAIG, through the terms of the instrument or otherwise, 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.

h. The IAIG has full discretion at all times to forego or cancel distributions (ie dividends and coupon payments are non-cumulative). The IAIG's obligation to pay missed distributions is forever extinguished and non-payment is not an event of default.

i. Distributions are paid out of distributable items, including retained earnings.

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

k. The instrument is neither undermined nor rendered ineffective by encumbrances. In particular, the priority of claims is not 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.

l. Neither the IAIG nor a related entity 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.

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

n. The instrument does not 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.

o. If the instrument is not issued out of an operating entity or the holding company of the IAIG (eg it is issued out of an SPV), proceeds are made immediately available, without limitation, to an operating entity or the holding company of the IAIG, through the issuance of an instrument that meets or exceeds all of the other criteria for inclusion in Tier 1 limited capital resources (ie 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 limited capital resources).

194. For the purpose of assessing compliance of an instrument with criterion e., the conditions for supervisory approval (assessment of post-redemption solvency, assessment of the economic character of the call) should be specified upon issuance of the instrument. This can be included for instance in the terms and conditions of the instrument, in a public document specifying the applicable supervisory practice with that respect, in a letter from the supervisor to the IAIG, etc.

6.2.3 Tier 2 financial instruments (other than structurally subordinated)

195. Financial instruments that do not qualify as Tier 1 (unlimited or limited) capital resources, but meet all of the following criteria qualify as Tier 2 capital resources:

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 defined to be the earlier of:

   i. The first call date, 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.

e. If the instrument is callable within the first five years from the date of issue:

   - Any such call is at the option of the issuer only;
   - Any such call is subject to supervisory approval; and
   - The called instrument must be replaced in full before or at redemption by a new issuance of the same or higher quality instrument.

   The obligation of replacement mentioned in the third bullet point above may be waived when:

   - The call is tied to a materially adverse tax or regulatory event that could not reasonably be anticipated at the time of issuance; or
   - The instrument can be called only at a make-whole price.

   Before granting approval, the supervisor should make sure that after redemption of the instrument, the IAIG will cover its ICS capital requirement with a margin sufficient to ensure that the ICS will not be breached over the foreseeable future, taking into account any relevant trend and specificities of the IAIG.

   Other than in cases of replacement outlined above, the instrument is only callable at the option of the issuer after a minimum of five years from the date of issue and prior supervisory approval is required for any redemption prior to contractual maturity.[14]

f. The instrument may be repurchased by the issuer at any time with prior supervisory approval.

[14] In the absence of a requirement for prior supervisory approval, this criterion is considered to be met if the following conditions are met:

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

g. There is not an expectation created by the IAIG, through the terms of the instrument or otherwise, 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 linked to the credit standing or financial condition of the IAIG or a related entity, such that those distributions may accelerate winding-up.

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

j. The instrument is neither undermined nor rendered ineffective by encumbrances. In particular, the priority of claims is not 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 entity 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. If the instrument is not issued out of an operating entity or the holding company of the IAIG (eg it is issued out of an SPV), proceeds are made immediately available, without limitation, to an operating entity or the holding company of the IAIG, through the issuance of an instrument that meets or exceeds all of the other criteria for inclusion in paid-up Tier 2 capital resources (ie 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 2 Paid-Up capital resources).

196. For the purpose of assessing compliance of an instrument with criterion e, the conditions for supervisory approval should be specified upon issuance of the instrument. This can be included for instance in the terms and conditions of the instrument, in a public document specifying the applicable supervisory practice with that respect, in a letter from the supervisor to the IAIG, etc.

197. The waiving of prior replacement featured in criterion e. for instruments that can be called only at a make-whole price will be subject to one of the potential transitional arrangements envisaged for the ICS. In order to assess the impact of that transitional arrangement, IAIGs should report their assessment of compliance of each instrument with criterion e. as specified above, as well as with criterion e. as it will be specified at the end of the transition period:

e. If the instrument is callable within the first five years from the date of issue:

- Any such call is at the option of the issuer only;
- Any such call is subject to supervisory approval; and
- The called instrument must be replaced in full before or at redemption by a new issuance of the same or higher quality instrument.

The obligation of replacement mentioned in the third bullet point above may be waived when the call is tied to a materially adverse tax or regulatory event that could not reasonably be anticipated at the time of issuance.

Before granting approval, the supervisor should make sure that after redemption of the instrument, the IAIG will cover its ICS capital requirement with a margin sufficient to

ensure that the ICS will not be breached over the foreseeable future, taking into account any relevant trend and specificities of the IAIG.

Other than in cases of replacement outlined above, the instrument is only callable at the option of the issuer after a minimum of five years from the date of issue and prior supervisory approval is required for any redemption prior to contractual maturity.[14]

6.2.4 Structurally subordinated Tier 2 financial instruments

198. Structural subordination of debt refers to a situation where a holding company issues a financial instrument directly to third party investors and then down-streams the proceeds into insurance subsidiaries.

199. Structurally subordinated financial instruments that meet the criteria for Tier 2 financial instruments, subject to the clarifications of criteria b), e), and f), and new criteria n), o), and p) below, qualify as Tier 2 capital resources:

b. Subordination to other non-subordinated creditors of the IAIG is not relevant to structurally subordinated instruments that are issued by an IAIG's holding company to senior creditors.

e. The requirement for supervisory approval of such a call within the first five years from the date of issue can be fulfilled through the exercise of supervisory controls and supervisory review, including the ability (direct/indirect) for supervisors to limit, defer and/or disallow the issuance or redemption of financial instruments.

The requirement for supervisory approval of redemptions after a minimum of five years can be fulfilled through supervisory approval[15] of dividends prior to their payment from an insurance subsidiary to the holding company.

f. The requirement for supervisory approval of repurchases can be fulfilled through supervisory approval[15] of dividends prior to their payment from an insurance subsidiary to the holding company.

n. The debt instrument has been issued by a clean holding company, which is defined as a holding company that does not have policyholder liabilities on its stand-alone balance sheet.

o. The IAIG and its GWS have determined that the proceeds of the instruments, which have been down-streamed into insurance subsidiaries, are being tracked and reported appropriately.

p. Amounts from the instrument issuance have been down-streamed into an insurance subsidiary of the holding company and the insurance subsidiary is located in a jurisdiction whose regulatory regime proactively enforces structural subordination through appropriate regulatory/supervisory controls over distributions from insurance subsidiaries[16].

[15] For structurally subordinated financial instruments, supervisory approval of ordinary dividends can be met if the supervisor has in place supervisory controls over distributions, including the ability for the supervisor to limit, defer and/or disallow the payment of any distributions should it find that the insurer is presently, or may potentially become, financially distressed.

[16] Supervisory controls over distributions from insurance subsidiaries refer to the supervisory review and/or prior supervisory approval of all distributions, including the ability for the supervisor to limit, defer

6.2.4.1 National discretion on acceleration clauses

200. Criterion i). in paragraph 195 is subject to a national discretion. When a GWS elects to apply that national discretion, criterion i). is waived for all IAIGs headquartered in the jurisdiction of that GWS.

201. IAIGs to which the national discretion applies provide a reconciliation of the impact between the reference ICS with and without applying the national discretion.

6.2.5 Tier 2 Non-paid-up capital

202. Non-paid-up capital consists of commitments, received by entities of the IAIG from third parties non-related to the IAIG, to provide capital upon request. Non-paid-up capital items may take a number of different forms, including unpaid preference shares, unpaid subordinated debt, letters of credit, guarantees and mutual member calls.

203. Financial items, contracts and arrangements established by mutual IAIGs qualify as Tier 2 Non-paid-up capital resources when they meet all of the following criteria:

a. The item has been approved by the supervisor as satisfying criteria b) to g) below as to its characteristics and amount.

b. The item can be called up on demand by the mutual IAIG and is not subject to any contingencies or conditions that prevent or act as a disincentive to the call being made or satisfied.

c. When called up, the item becomes either a financial instrument that meets in full the criteria for inclusion in Tier 1 or Tier 2 paid-up capital resources or a capital element listed in Section 6.3.

d. The item is legally enforceable in each relevant jurisdiction.

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

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

g. The mutual IAIG is required to notify the supervisor of any changes of fact or circumstance that could affect the supervisor's approval of the item.

204. IAIGs should provide information on any Non-paid-up capital item in the blue cells of the worksheet *Tier 2 Non-Paid-Up*. IAIGs should indicate the expected classification for the item under the ICS framework, if the item was paid-up, as well as the expected ICS qualifying amount, in the columns labelled *Expected classification* and *Expected amount of paid-up item.*

6.3 Capital elements other than financial instruments

205. Information on capital elements other than financial instruments (CEOFI) that are included in capital resources for ICS should be reported by IAIGs in the equity section of the balance sheet in worksheet *GAAP and ICS Balance Sheets*.

and/or disallow the payment of any distributions should it find that the insurer is presently, or may potentially become, financially distressed. As part of its review and/or prior approval of distributions, the relevant supervisor considers surplus adequacy, financial flexibility, the quality of earnings, and other factors deemed to be pertinent as they relate to the financial strength of the insurer and policyholder protection.

6.3.1 Tier 1 capital elements

206. Subject to any exclusion, adjustment or deduction as specified in Section 6.4.1, Tier 1 capital elements, other than financial instruments, include the following items:

a. Retained earnings, defined as the accumulated balance of income less losses resulting from operations, including earnings retained as surplus held in the participating policyholders' equity account for joint stock companies, and in the non-participating account for mutual companies;

b. Share premium, resulting from the issuance of instruments included in Tier 1, and other forms of contributed surplus earned from sources other than profits (eg members' contributions and initial funds for mutual companies and other contributions by shareholders in excess of amounts allocated to share capital for joint stock companies);

c. Accumulated Other Comprehensive Income (AOCI);

d. The fair market value of equity-settled employee stock options, provided that a corresponding expense is recorded in the profit and loss account of the IAIG, under applicable accounting standards. This should be reported in the balance sheet as contributed surplus.[17] [18]; and

e. Other allocated to equity, which includes:

   i. Minority/Non-controlling interests (NCI) reported in worksheet *GAAP and ICS Balance Sheets*, representing third party equity interest in consolidated subsidiaries. This includes any interest generated by share issuance and subsequent changes in reserves of issuing entities; and

   ii. Adjustments applied to the IAIG's consolidated balance sheet (as per audited financial statements) to produce the ICS balance sheet. This item is automatically calculated based on other balance sheet inputs.

207. Item e) in the above list (Other allocated to equity) does not include amounts reported in the line labelled *Other* in the equity section of the balance sheet. The line for *Other* items does not contribute directly to capital resources within the Template.

6.3.2 Tier 2 capital elements

208. Subject to any exclusion, adjustment or deduction as specified in Section 6.4, Tier 2 capital elements, other than financial instruments, include the following:

a. Share premium resulting from the issuance of instruments included in Tier 2 Paid-Up capital resources;

b. The value of encumbered assets in excess of the on-balance sheet liabilities secured by the encumbered assets and incremental ICS capital requirement, in respect of those

[17] Equity-settled employee stock options refer to contracts under which employees of the IAIG are granted rights to purchase shares of the IAIG at pre-determined strike prices. Employee stock options that can be settled in cash should not be included as capital resources.

[18] The granting (and vesting) of equity-settled employee stock options is capital neutral. Once an equity-settled employee stock option is exercised, capital resources would increase by the amount paid in by the employee to purchase the underlying shares at the applicable strike price.

assets and liabilities excluded from Tier 1 (see Section 6.4.3 for details on the treatment of encumbered assets); and

c. The Tier 2 basket, comprised of proportions of the following three items which relate to deductions from Tier 1 (see Section 6.4.1):

   i. the value of each net defined benefit pension fund that is an asset on the IAIG's balance sheet, net of any eligible Deferred Tax Liability (DTL);

   ii. Deferred Tax Asset (DTA) deducted from Tier 1 capital resources; and

   iii. the value of computer software intangibles (net of amortisation) deducted from Tier 1 capital resources, net of any eligible DTL.

209. The Tier 2 basket is subject to a limit, expressed as a percentage of the ICS capital requirement.

210. The proportions of the three items included in the Tier 2 basket, as well as the overall limit applicable to the basket, are specified below.

211. The Tier 2 basket comprises the following three items, subject to a limit of 15% of the ICS capital requirement:

a. 50% of the value of each net defined benefit pension fund that is an asset on the IAIG's balance sheet, net of any eligible DTL;

b. 100% of the DTA deducted from Tier 1 capital resources; and

c. 10% of the value of computer software intangibles (net of amortisation) deducted from Tier 1 capital resources, net of any eligible DTL.

6.4 Capital adjustments and deductions

212. Qualifying capital resources are subject to the adjustments and deductions listed in Sections 6.4.1, 6.4.2 and 6.4.3. In that respect, IAIGs should complete the table *Information on assets and other items subject to deduction from capital resources* in the worksheet *GAAP and ICS Balance Sheets*.

6.4.1 Deductions from Tier 1 capital resources

213. To the extent that they have not already been excluded through valuation in the ICS balance sheet, the following items are deducted from Tier 1 capital resources:

a. Goodwill;

b. Intangible assets, including computer software intangibles;

c. Each asset recognised on the IAIG's balance sheet that relates to a defined benefit pension fund;

d. DTAs on the ICS balance sheet;

e. Reciprocal cross holdings, arranged either directly or indirectly between financial institutions and that artificially inflate the Tier 1 capital position of the IAIG. IAIGs should apply a look-through approach (as described in Section 3.3) when reporting this information;

f. Direct and indirect investments in own Tier 1 capital instruments, not otherwise eliminated. IAIGs should apply a look-through approach (as described in Section 3.3) when reporting this information;

g. Reinsurance assets arising from arrangements deemed to constitute non-qualifying reinsurance. 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. Encumbered assets in excess of the on-balance sheet liabilities secured by the encumbered assets and incremental ICS capital requirement in respect of those assets and liabilities (see Section 6.4.3 for details on the treatment of encumbered assets). This figure is automatically calculated in the table *Encumbered assets* of the worksheet *ICS Summary*, based on the information provided by the IAIG in that table.

i. The value of equity and debt owned by the IAIG in entities that are excluded from the scope of the group.

214. Items a) to c) are net of any associated DTL that would be extinguished if the item becomes impaired or derecognised under the valuation approach.

215. Information on all items a) to i) above should be provided in the worksheet *GAAP and ICS Balance Sheets*, unless otherwise specified.

6.4.2 Deductions from Tier 2 capital resources

216. To the extent that they have not already been excluded through valuation in the ICS balance sheet, the following items are 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; and

b. Direct and indirect investments in own Tier 2 capital instruments, not otherwise eliminated.

217. In determining the amounts a) and b) above, IAIGs should apply a look-through approach (as described in Section 3.3).

6.4.3 Treatment of encumbered assets

218. An encumbered asset is an asset that the IAIG has pledged as collateral to a counterparty to either meet regulatory requirements or in order to participate in certain activities involving for instance: centrally cleared derivatives, over-the-counter (OTC) derivatives, mortgage borrowing, on-balance sheet repurchase agreements/securities lending and reverse repurchase agreements/securities lending, letters of credit/guarantees, collateral for reinsurance, assets held in trust, etc.

219. When an IAIG holds encumbered assets in excess of the liabilities and associated risks for which those assets have been encumbered, an adjustment to Tier 1 capital resources is made.

220. The deduction from ICS Tier 1 capital resources is calculated as the total value of encumbered assets in excess of the sum of the value of the IAIG's on-balance sheet liabilities

secured by the encumbered assets, plus the value of the IAIG's incremental ICS capital requirement for encumbered assets and secured liabilities.

221. No ICS Tier 1 deduction is required for encumbered assets relating to off-balance sheet securities financing transactions (ie securities lending and borrowing, repos and reverse repos) that do not result in a liability on the balance sheet.

222. The amount of encumbered assets deducted from Tier 1 capital resources is included in Tier 2 capital resources, subject to the limits applicable to Tier 2 (see Section 6.5 on *Capital composition limits*).

223. IAIGs should indicate in the table *Encumbered assets* of the worksheet *ICS Summary* the total amount of encumbered assets, the value of on-balance sheet liabilities secured by the encumbered assets and their split between Life current estimate, Non-life current estimate and non-insurance liabilities. The Template implements the calculation of a proxy for the IAIG's incremental capital requirement for encumbered assets and secured liabilities.

6.4.4 Limit on non-controlling interests

224. Non-controlling interests (NCI) are subject to a limit calculated at a legal entity level.

225. For each legal entity generating NCI at group level, a NCI limit is calculated as:

Limit = NCI proportion x estimated contribution to group ICS

where:

- $NCI\ proportion = \frac{Equity\ elements\ issued\ to\ 3rd\ parties}{Total\ equity}$
- $Estimated\ contribution\ to\ group\ ICS = \alpha . liabilities$
- $\alpha = \frac{Group\ ICS\ capital\ requirement}{Group\ GAAP\ liabilities}$

226. The amount of NCI generated by that entity and exceeding the limit calculated above is deducted from the amount of Tier 1 capital resources.

227. IAIGs should report in the worksheet *Non-controlling interests* the necessary information to calculate and apply the NCI limit.

6.5 Capital composition limits

228. Capital composition limits are used within the ICS to appropriately reflect the quality of capital resources and the ability of those resources to absorb losses.

229. The Tier 1 Limited and Tier 2 capital resources after adjustments, exclusions and deductions are subject to limits expressed as a percentage of the ICS capital requirement. Those limits, which may differ depending on the IAIG being mutual or non-mutual, are specified in paragraphs 232 to 234.

230. The GWS, in consultation with the supervisory college, may apply temporary supervisory forbearance on the limit on Tier 1 Limited capital resources for mutual IAIGs, provided that the IAIG submits a plan to restore its capital position.

231. Tier 1 Limited capital resources that are in excess of the associated limit are eligible for inclusion within Tier 2 capital resources, and become subject to the limit applicable to Tier 2 capital resources.

232. For non-mutual IAIGs, the following limits are applicable:

a. Tier 1 Limited capital resources are limited to 10% of the ICS capital requirement; this limit is increased to 15%, provided that the instruments in excess of the 10% limit possess a Principle Loss Absorbency Mechanism (PLAM);

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

c. There is no allowance for Tier 2 Non-Paid Up capital.

233. For the purpose of paragraph 232, a PLAM is defined as a mechanism providing for either a write-down of the liability (principal and dividend/coupon) or a conversion of the instrument (into a Tier 1 unlimited financial instrument as defined in Section 6.2.1) in contractually predefined going-concern conditions.

234. For mutual IAIGs, the following limits are applicable:

a. Tier 1 Limited capital resources are limited to 30% of the ICS capital requirement;

b. Tier 1 Limited + Tier 2 capital resources are limited to 60% of the ICS capital requirement; and

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

7 Capital Requirement – The Standard Method

7.1 ICS Risks and Calculation Methods

235. The categories of risk included in the standard method are: Insurance risk, Market risk, Credit risk and Operational risk. Table 5 lists the risk categories, along with the individual risks in each risk category.

236. 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.

237. Risks are measured using two approaches: a stress approach and a factor-based approach. There is one exception, which is natural catastrophe risk, where a vendor model may be used.

238. The stress approach follows a dynamic approach looking at the balance sheet at two points in time: the IAIG's current balance sheet pre-stress and the IAIG's balance sheet post-stress. The risk charge for each individual risk is determined as the decrease between the amount of capital resources on the pre-stress balance sheet (CR0) and the amount of capital resources on the post-stress balance sheet (CR1). Stresses can be applied individually with individual stressed balance sheets being calculated (CR0 – CR1) to determine the risk charge with respect to each individual stress. As a simplification, the change in net asset value is used as a proxy for the changes in qualifying capital resources.

239. The factor-based approach is determined by applying factors to specific exposure measures.

240. The scope of the risks covered by the ICS capital requirement, as well as the applicable measurement method, are outlined in Table 5.

Table 5: Risks, definitions and measurement method

Categories of risk	Risk	Scope/definition: Risk of adverse change in the value of capital resources due to	Measurement Method
Insurance risk	Mortality risk (life)	Unexpected changes[19] in the level, trend or volatility of mortality rates.	Stress
	Longevity risk (life)	Unexpected changes[19] in the level, trend or volatility of mortality rates.	Stress
	Morbidity/Disability risk (life)	Unexpected changes[19] in the level, trend or volatility of disability, sickness and morbidity rates.	Stress
	Lapse risk (life)	Unexpected changes[19] in the level or volatility of rates of policy lapses, terminations, renewals and surrenders.	Stress
	Expense risk (life)	Unexpected changes[19] in liability cash flows due to the incidence of expenses incurred.	Stress

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

	Premium risk (non-life)	Unexpected changes[19] in the timing, frequency and severity of future insured events (to the extent not already captured in Morbidity/Disability risk).	Factor
	Claims reserve risk (non-life)	Unexpected changes[19] in the expected future payments for claims or events that have already occurred (whether reported to the IAIG or not) and not yet fully settled (to the extent not already captured in Morbidity/Disability risk).	Factor
	Catastrophe risk	Unexpected changes[19] in the occurrence of low frequency and high severity events.	Stress, except for natural catastrophe, which may use a model.
Market risk	Interest Rate risk	Unexpected changes[19] in the level or volatility of interest rates.	Stress
	Non-default spread risk	Unexpected changes[19] in the level or volatility of spreads over the risk-free interest rate term structure, excluding the default component.	Stress
	Equity risk	Unexpected changes[19] in the level or volatility of market prices of equities.	Stress
	Real Estate risk	Unexpected changes[19] 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.	Stress
	Currency risk	Unexpected changes[19] in the level or volatility of currency exchange rates.	Stress
	Asset Concentration risk	The lack of diversification in the asset portfolio.	Factor
Credit risk	Credit risk	Unexpected changes[19] in actual defaults, as well as in the deterioration of an obligor's creditworthiness short of default, including migration risk and spread risk due to defaults.	Factor
Operational risk	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.	Factor

241. The individual risk charges are combined in a way that recognises risk diversification, using correlation matrices.

242. The ICS target criteria is a 99.5% Value at Risk (VaR), over a one-year time horizon, of adverse changes in the IAIG's qualifying capital resources.

7.1.1 Risk mitigation techniques

243. In order to promote good risk management and achieve an appropriate level of risk sensitivity, the ICS recognises the effect of risk mitigation techniques, provided certain criteria

are met. These criteria are designed to ensure that the risk mitigation techniques are accurately and appropriately reflected within the risk charges.

244. In addition, there are certain conditions that must be met regarding the renewal of risk mitigation arrangements. The conditions vary depending on whether the risk mitigation arrangement applies to a Market risk exposure or non-life Premium risk.

245. Risk mitigation techniques may be recognised in the ICS risk charges provided they meet all of the following requirements:

a. The risk mitigation technique is effective and legally enforceable in all relevant jurisdictions and results in an effective transfer of risk to a third party.

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

c. The calculation of the ICS risk charges allows for the effects of risk mitigation techniques through a reduction of the risk charge commensurate with the extent of risk mitigation. It makes reasonable allowance for any basis risk effects due to changes in risk mitigation assumptions and relationships during a stress scenario and there is appropriate treatment for any corresponding risk embedded in the use of risk mitigation techniques (eg Credit risk). These two effects are treated separately.

d. The calculation is made on the basis of assets and liabilities existing at the reporting date of the ICS calculation.

e. There is no double counting of mitigation effects.

f. The documentation for the arrangement sets out a direct claim on the IAIG's counterparty in the event of its default, insolvency, bankruptcy or other credit event.

g. Providers of risk mitigation are of an adequate credit quality (demonstrable through either adequate rating, capitalisation or collateralisation levels) to ensure with appropriate certainty that the IAIG will receive the protection in the cases specified by the contracting parties. Credit quality is assessed consistently with the definition of credit categories provided in Section 7.4.

246. In addition to these requirements, market risk mitigation techniques are based on an explicit reference to specific exposures or a pool of exposures.

247. Where risk mitigation techniques are in force for a period shorter than 12 months and meet the qualitative criteria above, a proportional factor is applied to the risk mitigation effect taken into account in the ICS risk charges. That factor is defined as either:

a. The proportion of the full term of the risk exposure covered by the risk mitigation technique up to a maximum of 100%, where the risk exposure's term is less than 12 months; or

b. The proportion of 12 months covered by the risk mitigation technique up to a maximum of 100%, where the risk exposure term is 12 months or more.

248. However, where the IAIG plans to replace a risk mitigation arrangement relating to a Market risk exposure at the time of its expiry with a similar arrangement, this renewal may be taken into account if the IAIG expects to renew and all of the foreseeable costs of renewal within the time horizon are taken into account. The requirement of an expectation to renew is considered to be met if all of the following conditions are met:

a. The renewal is consistent with previous business practice and documented strategy.

b. The replacement of the risk mitigation instrument does not take place more often than every three months, except for Currency risk or Equity risk where the replacement of the risk mitigation instrument does not take place more often than every month.

c. The risk that the risk mitigation arrangement cannot be replaced due to an absence of liquidity in the market is not material under different market conditions and there is no material basis or operational risks compared to the risk mitigation effect. If the instruments mitigating Currency or Equity risk are replaced more frequently than every three months, then the IAIG justifies to its group wide supervisor that:

   i. the market for these instruments is sufficiently liquid at the relevant tenor; and

   ii. these instruments do not pose a materially greater risk than those replaced less frequently than every three months.

d. The replacement of the risk mitigation arrangement is not conditional on any future event that is outside of the control of the IAIG. Where the replacement of the risk mitigation arrangement is conditional on any future event that is within the control of the IAIG, then the conditions are clearly set out in the documented strategy referred to in point a).

e. The renewal is realistic regarding the availability of the arrangement and its cost is deducted from the value attributed to the instrument. This deduction takes into account the risk that the cost may increase during the following 12 months.

f. Any additional risk stemming from the risk mitigation arrangement (eg Credit risk) is taken into account in the ICS risk charges.

g. The IAIG is able to demonstrate to its GWS that the required instruments will be available for renewal from a deep and liquid market under all reasonably foreseeable eventualities over the following 12 months. Where this is not the case, the benefit recognised for the renewal of the risk mitigation arrangement is limited to 80% of the full risk mitigating value of the arrangement at the reporting date.

249. The renewal of risk mitigation arrangements with respect to non-life Premium risk may be taken into account if the IAIG expects to renew and the costs of renewal within the time horizon are taken into account. The requirement of an expectation to renew is considered to be met if all of the following conditions are met:

a. The renewal is consistent with previous business practice and documented strategy;

b. The renewal is realistic with regards to availability of the arrangement and its cost[20]; and

c. Any additional risk stemming from the risk mitigation arrangement (eg Credit risk) is taken into account in the relevant ICS risk charges.

250. When modelling natural catastrophe risk, the renewal of the arrangements may be taken into account if all of the following conditions are met:

a. The renewal is consistent with previous business practice and documented strategy;

b. The renewal is realistic regarding the availability of the arrangement and its cost; and

[20] Costs may include, but are not limited to, ceded premiums to the reinsurer and commissions.

c. Any additional risk stemming from the risk mitigation arrangement (eg Credit risk) is also taken into account in the natural catastrophe risk modelling.

251. Risk mitigation arrangements are not recognised in the calculation of the ICS Operational risk charge.

7.1.2 Geographical segmentation

252. For some of the risks, a geographical segmentation is used to calculate the risk charge.

253. For those risk charges calculated using a geographical segmentation, the following regions are used:

a. European Economic Area (EEA) and Switzerland;

b. US and Canada;

c. China;

d. Japan;

e. Other developed markets; and

f. Other emerging markets.

254. The jurisdictions included in each region are listed in Table 6:

Table 6: Geographical segmentation

Region	Jurisdictions included
EEA and Switzerland	Austria, Belgium, Bulgaria, Croatia, Republic of Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom, Iceland, Liechtenstein, Norway and Switzerland
US and Canada	US[21] and Canada
China	Mainland China and Macao SAR
Japan	Japan
Other developed markets[22]	Australia, New Zealand, Israel, San Marino, Korea, Singapore, Chinese Taipei and Hong Kong SAR
Other emerging markets	A list of emerging markets is provided in Table E of the Statistical Appendix of the IMF World Economic Outlook April 2016[23]. For completeness, if a country is not listed in the regions above, it is classified as “Other emerging markets”.

[21] Including American Samoa, Guam, Northern Mariana Island, Puerto Rico and US Virgin Islands.

[22] ‘Other developed’ taken from IMF list of advanced economies minus countries mentioned in other regions as of April 2016.

[23] See http://www.imf.org/external/pubs/ft/weo/2016/01/pdf/text.pdf (accessed on 12 May 2016).

255. A different geographical segmentation, specified in Section 7.3.4, is used for the calculation of the Equity risk charge. The definition of emerging and developed markets used for Equity risk is based on the FTSE Developed Index and the FTSE Emerging Markets Index.

256. When providing information related to insurance business, the Template should be completed on the basis of location of risk. Where this information is not available, the location where the business was written may be used as a proxy.

7.1.3 Management actions

257. A credit for exercising management actions is taken into account at the level of each risk in the ICS capital requirement, subject to a cap, as described below.

258. The impact of management actions for each individual risk is calculated consistently with the provisions set out in Section 5.2.4. The impact of management actions is based on realistic assumptions and reflects the IAIG's obligations to policyholders as well as legal provisions applicable to the IAIG.

259. A cap on the overall credit for management actions is set at the total amount of insurance liabilities for future bonuses or other discretionary benefits. This cap is applied after aggregating the total of management actions post-diversification across the risks.

Example: Management actions considered after an equity stress

Consider an IAIG with a portfolio of savings contracts. Those savings contracts do not include any legally enforceable profit participation, however the IAIG has an internal policy aimed at redistributing approximately 80% of each year's financial profits (when positive) to policyholders. Such a policy leads to an amount of 80 of discretionary benefits in the current estimate figure, corresponding to the maximum loss absorbency that the IAIG would be able to pass through to policyholders in case of adverse financial scenarios.

However, for reasons of competitiveness and avoiding mass lapses, the IAIG is, in practice, not likely to pass through the maximum possible amount of loss to policyholders. For instance, while a drop of 40% in the value of its equity investments would have a negative impact of 100 on the value of assets, and normally result in an amount of discretionary benefits reduced to 0 by applying the distribution policy unchanged, the IAIG could assume that it would decide to distribute future discretionary benefits for an amount of 30. Therefore, the impact of the shock after management actions would be 100 – (80 – 30) = 50.

This example can be summarised as follows:

Balance sheet before shock:

Assets	**1000**	**Capital resources**	**150**
of which equity	*250*	**MOCE**	**50**
of which other	*750*	**Current estimate**	**800**
		of which discretionary	*80*

Balance sheet after shock, before management actions:

Assets	**900**	**Capital resources**	**50**
of which equity	*150*	**MOCE**	**50**

of which other	*750*	**Current estimate**	**800**
		of which discretionary	*80*

Balance sheet after shock, after management actions:

Assets	**900**	**Capital resources**	**100**
of which equity	*150*	**MOCE**	**50**
of which other	*750*	**Current estimate**	**750**
		of which discretionary	*30*

7.2 Insurance risks

7.2.1 Grouping of policies for life insurance risks

260. For life risks, stress scenarios are applied at the level of homogeneous risk groups.

261. The projections of the stressed cash flows are conducted at the same level of granularity as the pre-stress cash flows. Where the pre-stress cash flows have been projected by applying some grouping of policies, the same grouping of policies is applied to the stressed cash flows.

262. From a practicality standpoint, grouping by portfolios of products (or policies) exposed to homogeneous insurance risks within the class can be applied. For this purpose, a homogeneous risk group encompasses a collection of policies with similar risk characteristics.

263. Homogeneous risk groups are reasonably stable over time. Where necessary, for the determination of homogeneous risk groups, IAIGs take into account items such as:

a. Underwriting policy;

b. Claims settlement pattern;

c. Risk profile of policyholders;

d. Product features, in particular guarantees; and

e. Future management actions.

264. For some policies, an upward stress may produce an increase in the risk charge, while for others a downward stress may result in an increase in the risk charge. Even if cash flow projections are mostly performed at a policy level, to determine whether to apply an upward or a downward stress, it is necessary to decide on the appropriate grouping of policies. The level of prudence of the resulting risk charge depends on the granularity of the policy groupings adopted by the IAIG.

7.2.2 Calculation of Life Insurance risk charge

Relevant Worksheet in Template:	*Candidate ICS > Insurance*

265. Life risk charges are applicable to life business and similar to life health business (refer to paragraph 287).

266. The Life Insurance risk charge is calculated by aggregating, using the life risks correlation matrix specified in Table 7, the following five sub-risk charges.

- Mortality risk;
- Longevity risk;
- Morbidity/Disability risk;
- Lapse risk; and
- Expense risk.

267. Life Insurance risk charges are calculated based on the geographical segmentation specified in Section 7.1.2.

268. For each of the five sub-risks, the risk charge is calculated both with and without the impact of management actions.

269. The correlation matrix used for aggregating the life risk charges is the following:

Table 7: Life risks correlation matrix

	Mortality	**Longevity**	**Morbidity/ Disability**	**Lapse**	**Expense**
Mortality	100%	-25%	25%	0%	25%
Longevity	-25%	100%	0%	25%	25%
Morbidity/ Disability	25%	0%	100%	0%	50%
Lapse	0%	25%	0%	100%	50%
Expense	25%	25%	50%	50%	100%

7.2.2.1 Mortality risk

270. The Mortality risk charge is calculated as the change in net asset value after applying the prescribed stress to the level of mortality rates. The prescribed stresses, based on the geographical segmentation, are specified below.

271. The Mortality risk charge only applies to those policies that are negatively affected by an increase in mortality rates.

272. The prescribed stress for the calculation of the Mortality risk charge consists of an increase of x% in mortality rates at all ages for all policies where an increase in mortality rates leads to a decrease in the NAV.

273. The stress factors for Mortality risk are given in Table 8:

Table 8: Mortality risk stress factors

Region	x%
EEA and Switzerland	12.5 %
US and Canada	12.5 %
China	~~12.5~~15 %
Japan	10.0 %
Other developed markets	12.5 %
Other emerging markets	12.5 %

274. IAIGs should calculate the Mortality risk charge with and without the impact of management actions. The effect of such management actions should be recorded separately in the worksheet *Candidate ICS* > *Insurance* to enable a comparison of the change in NAV with and without the impact of management actions.

275. Input data required are:

a. The pre-stress NAV, ie value of assets less insurance liabilities before applying the prescribed stress, net of reinsurance;

b. The NAV after applying the prescribed stress, net of reinsurance, without the impact of management actions; and

c. The effect of management actions on NAV after applying the prescribed stresses.

276. No geographical diversification is assumed when calculating the Mortality risk charge.

277. Even though the stresses are applied to different geographical regions, double counting of the risk mitigating impact of reinsurance arrangements covering more than one geographical area should be avoided.

7.2.2.2 Longevity risk

278. The Longevity risk charge is calculated as the change in net asset value after applying the prescribed stress to the level of mortality rates. The prescribed stresses, based on the geographical segmentation, are specified below.

279. The Longevity risk charge only applies to those policies that are negatively affected by a decrease in mortality rates.

280. The prescribed stress for the calculation of the Longevity risk charge consists of a decrease of x% in mortality rates at all ages for all policies where a decrease in mortality rates leads to a decrease in the NAV.

281. The stress factors for Longevity risk are given in Table 9:

Table 9: Longevity risk stress factors

Region	x%
EEA and Switzerland	17.5 %
US and Canada	17.5 %
China	17.5 %
Japan	17.5 %
Other developed markets	17.5 %
Other emerging markets	17.5 %

282. IAIGs should calculate the Longevity risk charge with and without the impact of management actions. The effect of such management actions should be recorded separately in the worksheet *Candidate ICS* > *Insurance* to enable a comparison of the change in NAV with and without the impact of management actions.

283. Input data required are:

a. The pre-stress NAV, ie value of assets less insurance liabilities before applying the prescribed stress, net of reinsurance;

b. The NAV after applying the prescribed stress, net of reinsurance, without the impact of management actions; and

c. The effect of management actions on NAV after applying the prescribed stresses.

284. No geographical diversification is assumed when calculating the Longevity risk charge.

285. Even though the stresses are applied to different geographical regions, double counting of the risk mitigating impact of reinsurance arrangements covering more than one geographical area should be avoided.

7.2.2.3 Morbidity and Disability risk

286. The Morbidity/Disability risk charge is calculated as the change in net asset value after applying the prescribed stresses to the four specified mutually exclusive benefit segments. The prescribed stresses, based on the geographical segmentation, benefit segments and contract length, are specified below.

287. Similar Morbidity/Disability benefits may be classified as life or non-life; however, the Morbidity/Disability risk charge only applies to those policies with benefits classified as similar to life. For those classified as similar to non-life, the non-life risk charges (Premium and Claims Reserve risk) apply.

7.2.2.3.1 Segmentation

288. The Morbidity and Disability risk is applied to benefits evaluated on a similar to life technical basis. Irrespective of the legal or contractual classification of insurance obligations, the assignment to life or non-life activities is based on the type of techniques used to calculate insurance obligations[24].

289. The following is a (non-exhaustive) list of major types of Morbidity/Disability risks that can be pursued on similar to life technical bases:

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 dependent on surviving a specified period of time 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; and

h. Health insurance – other than medical and directly related expenses such as preventative health and wellness benefits.

[24] A technical basis is considered similar to life when it involves the explicit use of biometric variables such as mortality, morbidity and recovery rates by age.

Example

Segmentation of a classic health insurance product (no levelling of premiums) with a morbidity benefit

• If the health insurance liabilities are calculated on the basis of claims triangles or unearned premiums, this liability should be classified into a non-life segment. If the morbidity liability calculations are based on a morbidity/disability table, then this liability should be classified into a life segment.

• If the insurance liability calculation methodology changes after the occurrence of an event in order to reflect the evolution of the underlying risk, the segmentation should reflect this evolution.

Example

Segmentation of a disability product:

• The disability liability should be classified into a non-life segment during the period in which the policyholder does not have a declared disability, if the insurance liability calculation methodology is based on claims triangles or unearned premiums.

• If the insurance liability calculation methodology changes when a policyholder declares a disability and takes into account biometric variables from that moment, this disability liability should be classified into a life segment after the occurrence of the claim.

Example

Segmentation of morbidity and disability products where the insurance liability calculation is based on loss ratios:

• The morbidity or disability liability should be classified into a non-life segment if the determination of the loss ratio was based on non-life techniques such as claims triangles.

• The morbidity or disability liability should be classified into a life segment if the determination of the loss ratio was based on life techniques such as morbidity/disability tables.

7.2.2.3.2 Sub-risks to be covered

290. For the purpose of the calculation of the Morbidity and Disability risk charge, similar to life insurance obligations are split in the following four mutually exclusive benefit segments:

a. Category 1: Medical expenses

- Products providing any kind of compensation (either fixed or based on real costs) for medical expenses, in-patient or not. The compensation depends directly on the treatment or expenses incurred by the policyholder, and is not directly dependent on the time spent in a given health status.

- Typical examples are medical expense / supplemental medical contracts that provide benefits for practitioner fees, medication fees, vision and dental expenses, etc.

b. Category 2: Lump sum in case of a health event

- Products providing a single payment at the occurrence of a specified health event or the occurrence of an accident resulting in a certain level of disability.
- Typical examples are accident, critical illness, and permanent disability policies that provide a lump sum payment on occurrence of a claim. This category also generally includes accidental death and dismemberment policies.

c. Category 3: Short-term recurring payments

- Products providing a recurring amount of compensation for a period depending on the time spent in a given temporary health status, such as inability to work or hospitalisation.
- Typical examples are hospital indemnity, personal accident / loss of income policy, short-term disability income protection (generally in the context of group insurance).

d. Category 4: Long-term recurring payments

- Products providing a fixed annuity in case of long-term/permanently deteriorated health status.
- Typical examples are personal or group policies for permanent disability and long-term care.

291. The typical examples provided above are indicative and are not meant to be exhaustive. The terminology may also vary across jurisdictions.

292. The distinction between Category 3 and Category 4 is made according to the temporary versus permanent characteristics of the recurring benefit. A benefit that is contractually limited to a given period, common to all policyholders, is classified as short-term recurring. A benefit that is to be paid life-long, or for a period depending on individual policyholder circumstances, without any upfront short-term limitations, is considered as long-term recurring.

293. Each benefit category is divided into two segments by original contract term:

a. Short-term: Includes contracts with an original term of up to five years.

b. Long-term: Includes contracts with an original term longer than five years.

Example

- Short-term recurring payments with long contract term (Category 3):

  Medical benefit products with a 10-year renewal or whole life term that provide hospitalisation benefits are typically categorised as short-term recurring payments with long contract term.

- Long-term recurring payments with short contract term (Category 4):

Group disability contracts that are typically one year in duration but for which the associated benefits could continue to be paid to individuals until age 65 or 70.

294. A policy may actually include coverage belonging to several of the above benefit categories. For instance, a policy may provide:

a. Regular payments in case of short-term (temporary) disability;

b. Regular payments in case of long-term disability; and

c. A lump sum in case of critical illness.

295. When a policy includes coverage belonging to several of the above benefit categories, each of the different components of such a policy is subject to the relevant stress. When a policy provides a combination of benefits between medical expenses and short-term recurring payments (Categories 1 and 3), it may either be split into both categories, or considered under Category 3 altogether.

296. However, if it is not feasible for the individual stresses to be applied to each component of the policy, the stress applied to a given policy should be based on the dominant component of that policy.

7.2.2.3.3 Calculation

297. The prescribed stresses for the calculation of the Morbidity/Disability risk charge depend on the benefit category:

a. For benefit categories i = 1, 2 and 3, the stress is defined as an instantaneous relative increase in inception rates, as specified in Table 10 and Table 11.

   The inception rate stress is applied differently depending on the underlying type of benefits:

   - For benefits where claim costs are explicitly modelled using inception rates and/or recovery rates, the stress is only applied to inception rates. If only recovery rates are modelled, the stress is applied as a decrease in recovery rates.
   - For other benefits in categories 1-3, with no explicit inception rates and/or recovery rates, the stress factors are directly applied to medical claim payment amounts.

b. For the benefit category 4, the risk charge is calculated for both contract term segments as the maximum of the Inception Rate risk charge and the Recovery Rate risk charge, where:

   - The Inception Rate risk charge is calculated as the change in NAV following the increase in inception rates as specified in Table 10 and Table 11; and
   - The Recovery Rate risk charge is calculated as the change in NAV following the decrease in recovery rates of 20% (same stress for both short-term and long-term contracts).

Table 10: Morbidity/Disability risk stress factors – Location of risk Japan

Category (i)	Short-term	Long-term
1	20%	8%
2	25%	~~8~~15%
3	20%	10%
4	inception rate stress = 25%, recovery rate stress=20%	inception rate stress = 20%, recovery rate stress = 20%

Table 11: Morbidity/Disability risk stress factors – All other locations of risk

Category (i)	Short-term	Long-term
1	20%	8%
2	25%	20%
3	20%	12%
4	inception rate stress = 25%, recovery rate stress=20%	inception rate stress = 20%, recovery rate stress = 20%

298. Input data required are:

a. The pre-stress NAV, ie value of assets less insurance liabilities before applying the prescribed stress, net of reinsurance;

b. The NAV after applying the prescribed stress, net of reinsurance, without the impact of management actions; and

c. The effect of management actions on NAV after applying the prescribed stresses.

299. If applying management actions per category is not feasible, IAIGs may apply management actions on an overall basis.

7.2.2.4 Lapse risk

300. The Lapse risk charge is calculated as the maximum of the Lapse risk charge for the Level and Trend component and the Lapse risk charge for the Mass Lapse component.

301. The Lapse risk charges for the Level and Trend component and the Mass Lapse component are calculated as the change in net asset value after applying the prescribed stresses to the two components. The prescribed stresses, based on the geographical segmentation, are specified below.

302. The Lapse risk charge takes into account all legal or contractual options that can change the value of future cash flows. This includes options to partially or fully terminate, surrender, renew, extend, reduce or increase insurance coverage as well as the reduction or suspension of premium payments and changes in take up rates of options such as annuitisation options.

303. The calculation of the maximum of the Level and Trend component and Mass Lapse component is performed at the level of each region listed in Section 7.1.2.

304. The Lapse risk charge for the IAIG is then obtained as the sum of Lapse risk charges over all regions.

7.2.2.4.1 Level and Trend component

305. For each region listed in Section 7.1.2, the prescribed stress for the calculation of the Level and Trend component is the most adverse of an upward stress and a downward stress.

306. The upward stress consists of an increase of x% in the assumed option take-up rates, subject to a maximum of 100%, in all future years for all homogeneous risk groups adversely affected by such risk.

307. The downward stress consists of a decrease of x% in the assumed option take-up rates in all future years for all homogeneous risk groups adversely affected by such risk.

308. The stress factors are specified in Table 12:

Table 12: Level & Trend Lapse risk stress factors

Region	x%
EEA and Switzerland	40%
US and Canada	40%
China	40%
Japan	20%
Other developed markets	40%
Other emerging markets	40%

309. All options that can affect the amount of insurance coverage, including options that allow for partial or full termination, or increase in the insurance cover, are affected by the lapse stress factors.

310. Options that allow for a reduction in insurance coverage (eg options to partially or fully terminate cover) will be affected by the increase (decrease) in take-up rates. Where an option

allows for an increase (decrease) in insurance cover (eg extension of cover), the X% increase (decrease) should be applied to the rate that would apply if the option is not taken up (ie not exercised). In the case of an increase, the resulting shocked lapse rate should not exceed 100%, ie $\min[100\%, (1+X\%) \times base\ option\ takeup\ rate\ assumptions]$. In the case of a decrease, the resulting shocked lapse rate should be floored at 0%, ie $\max[0\%, (1-X\%) \times base\ option\ takeup\ rate\ assumptions]$.

311. For each region listed in Section 7.1.2, the Level and Trend component is first determined for each homogeneous risk group before aggregating across all homogeneous risk groups.

312. When the calculation of the current estimate involves the use of a dynamic lapse function[25], the Level and Trend component stress is applied to the base rate of the dynamic lapse function.

313. Input data required are:

a. The pre-stress NAV, ie value of assets less insurance liabilities before applying the prescribed stress, net of reinsurance;

b. The NAV after applying the prescribed stress, net of reinsurance, without the impact of management actions; and

c. The effect of management actions on NAV after applying the prescribed stresses.

Example for Level and Trend component

The following example illustrates how results should be aggregated in a given Region A, assuming that there are only two homogeneous risk groups for Region A

		Pre-stress NAV				
		Assets (a)	PV Benefits (b)	PV Expenses (c)	PV Premiums (d)	Current Estimate (e)=(b)+(c)-(d)
Homogenous Risk Group 1	Base	100	200	20	150	70
Homogenous Risk Group 2	Base	80	100	10	50	60
Total		180	300	30	200	130

Base NAV for Region A=(100-70)+(80-60)=50

Post stress NAV (net of reinsurance and without the impact of management actions)

[25] A dynamic lapse function varies the lapse rate used in the calculation of insurance liabilities depending on the difference between the return the insurer is providing on its policies and the returns provided by competitors.

		Assets (a)	PV Benefits (b)	PV Expenses (c)	PV Premiums (d)	Current Estimate (e)=(b)+(c)-(d)
Homogenous Risk Group 1	Upward stress	100	150	10	100	60
	Downward stress	100	220	30	160	90
Homogenous Risk Group 2	Upward stress	60	80	10	40	50
	Downward stress	80	110	20	70	60

Assuming no impact of management actions

		Post stress NAV (net of reinsurance and with the impact of management actions)				
		Assets	PV Benefits	PV Expenses	PV Premiums	Current Estimate
Homogenous Risk Group 1	Upward stress	100	150	10	100	60
	Downward stress	100	220	30	160	90
Homogenous Risk Group 2	Upward stress	60	80	10	40	50
	Downward stress	80	110	20	70	60

Post stress NAV for Group 1 = Min(100-60,100-90)=10 (downward stress resulted in larger drop in NAV)

Post stress NAV for Group 2 = Min(60-50, 80-60)=10 (upward stress resulted in a larger drop in NAV)

Reported in Template for Region A

Lapse risk (Level and Trend component)

		Pre-stress NAV	Post stress NAV without the impact of management actions	Risk charge without the impact of management actions	Credit for exercising management actions	Risk charge with the impact of management actions

Region		50	20	30	0	30

7.2.2.4.2 Mass Lapse Component

314. For each region listed in Section 7.1.2, the prescribed stress for the calculation of the Mass Lapse component consists of:

- an immediate surrender of 30% of retail policies; and
- an immediate surrender of 50% of non-retail policies.

315. The Mass Lapse component for each homogeneous risk group is subject to a floor of zero.

316. For each region listed in Section 7.1.2, the Mass Lapse component is first determined for each homogeneous risk group before aggregating across all homogeneous risk groups.

317. Input data required are:

a. The pre-stress NAV, ie value of assets less insurance liabilities before applying the prescribed stress, net of reinsurance;

b. The NAV after applying the prescribed stress, net of reinsurance, without the impact of management actions; and

c. The effect of management actions on NAV after applying the prescribed stresses.

7.2.2.5 Expense risk

318. The Expense risk charge covers both unit expense risk and expense inflation risk.

319. Unit expense risk is the risk of adverse change in the value of qualifying capital resources due to unexpected changes in the level of expenses incorporated within the insurance liabilities. Such expenses would include administrative and overhead expenses, management expenses and acquisition expenses excluding commissions expected to be incurred in future.

320. Expense inflation risk is the risk of expenses increasing at a higher rate than the inflation rate assumed in the calculation of insurance liabilities due to adverse changes in factors relating specifically to the insurance sector. This risk is applicable only to life business and similar to life health business.

321. The Expense risk charge is calculated as the change in net asset value after simultaneously applying the prescribed stresses to the unit expense and expense inflation assumptions. The prescribed stresses, based on the geographical segmentation, are specified below.

322. The prescribed stresses for the calculation of the Expense risk charge consists of a relative increase of x% in unit expense assumptions and an absolute increase of y% per annum in expense inflation, with x and y specified in Table 13.

Table 13: Expense risk stress factors

Region	x% (unit expense)	y% (expense inflation)
EEA and Switzerland	6%	1%
US and Canada	6%	1%
China	8%	Year 1 – 10: 3%; Year 11 – 20: 2%; Year 21 onwards: 1%
Japan	6%	1%
Other developed markets	8%	Year 1 – 10: 2%; Year 11 onwards: 1%
Other emerging markets	8%	Year 1 – 10: 3%; Year 11 – 20: 2%; Year 21 onwards: 1%

323. Expenses that are not subject to any estimation uncertainty are excluded from both the unit and inflation stresses. The expense inflation stress is applied only to expenses that are sensitive to inflation.

Example

For calculating the current estimate of liabilities, a global expected amount of expenses $\boldsymbol{e_t}$ is projected for each future year $\boldsymbol{t}$. This amount is split between an inflation-sensitive amount $\prod_{s=1}^{t}(\mathbf{1}+\boldsymbol{i_s}).\boldsymbol{eis_t}$ (where $\boldsymbol{i_s}$ is the expected future inflation for year s), an amount $\boldsymbol{ens_t}$ that is not sensitive to inflation and an amount $\boldsymbol{ed_t}$ that is deterministic (for instance, $\boldsymbol{ed_t}$ may include commissions based on a contractually determined percentage of future fixed premiums).

After stress, the amount of expenses for year $\boldsymbol{t}$ should be calculated as:

$$\widetilde{\boldsymbol{e_t}} = \boldsymbol{ed_t} + (\mathbf{1} + \boldsymbol{x})\left[\prod_{\boldsymbol{s=1}}^{\boldsymbol{t}}(\mathbf{1} + \boldsymbol{i_s} + \boldsymbol{y_s}) \,.\, \boldsymbol{eis_t} + \boldsymbol{ens_t}\right]$$

where $\boldsymbol{x}$ and $\boldsymbol{y_s}$ are the risk factors specified in Table 13.

324. Input data required are:

a. The pre-stress NAV, ie value of assets less insurance liabilities before applying the prescribed stress, net of reinsurance;

b. The NAV after applying the prescribed stress, net of reinsurance, without the impact of management actions; and

c. The effect of management actions on NAV after applying the prescribed stresses.

7.2.3 Calculation of Non-Life risk charge

Relevant Worksheet in Template:	*Candidate ICS > Insurance*

7.2.3.1 Segments/Lines of Business

325. Non-Life risk charges are applicable to non-life business and similar to non-life health business.

326. The Non-Life risk charge comprises both Premium risk and Claims Reserve risk, which are captured by a factor-based approach with factors applied to ICS segments within defined regions, as specified below. The Claims Reserve risk factors include the effects of Latent Liability risk.

327. Premium and Claims Reserve risk charges are calculated based on the geographical segmentation specified in Section 7.1.2. The geographical segmentation is further segmented into lines of business based on statutory reporting in certain regions.

328. Each exposure for Premium risk and Claims Reserve risk is mapped to a line of business based on the location of risk. Each line of business has a corresponding ICS segment, as specified in Table 15. If location of risk information is not available, the location of the legal entity underwriting the business may be used as a proxy. Any jurisdiction not explicitly listed in Table 15 is allocated to either Other developed markets or Other emerging markets according to Table 6.

7.2.3.2 Definition of ICS Segments and Risk Charges

329. Each ICS segment is assigned:

a. An ICS category: a high level grouping of the type of business (property-like, liability-like, motor-like, other, mortgage and credit); and

b. A risk factor for the purpose of calculating the risk charge.

330. Premium risk factors do not include the impact of catastrophe events since Catastrophe risk is a separate risk within the ICS.

331. Some of the Claims Reserve risk factors take into account Latent Liability risk. The purpose of the Latent Liability risk charge is to capture risk from liability exposures that is not adequately captured by historical claims experience.

332. Table 15 provides the list of ICS segments, the associated ICS category, as well as the risk charges for Premium and Claims Reserve risks. The definitions of ICS segments are provided in Annex 2.

7.2.3.3 Aggregation

333. The Non-Life risk charge is calculated using an aggregation approach that recognises diversification across lines of business and regions. The correlation factors are specified below. The aggregation approach recognises the following sources of diversification:

- Between Premium risk and Claims Reserve risk;
- Within ICS categories, which is a high-level grouping of the type of business;

- Within a region; and
- Across regions.

334. The calculation of Non-Life risk charges for each ICS segment takes into account diversification effects.

335. The first step of aggregation combines each ICS segment's Premium risk and Claims Reserve risk charges, applying a 25% correlation factor between the Premium and Claims Reserve risk charges for all segments (with the exception of mortgage and credit as outlined below).

336. Mortgage business and credit business are added across all regions and then aggregated with Real Estate risk and Credit risk, respectively.

337. The second step of aggregation is within ICS categories, where a correlation matrix is applied across segments of a given category. The correlation factors are specified in Table 14 below:

Table 14: Within category correlation factors

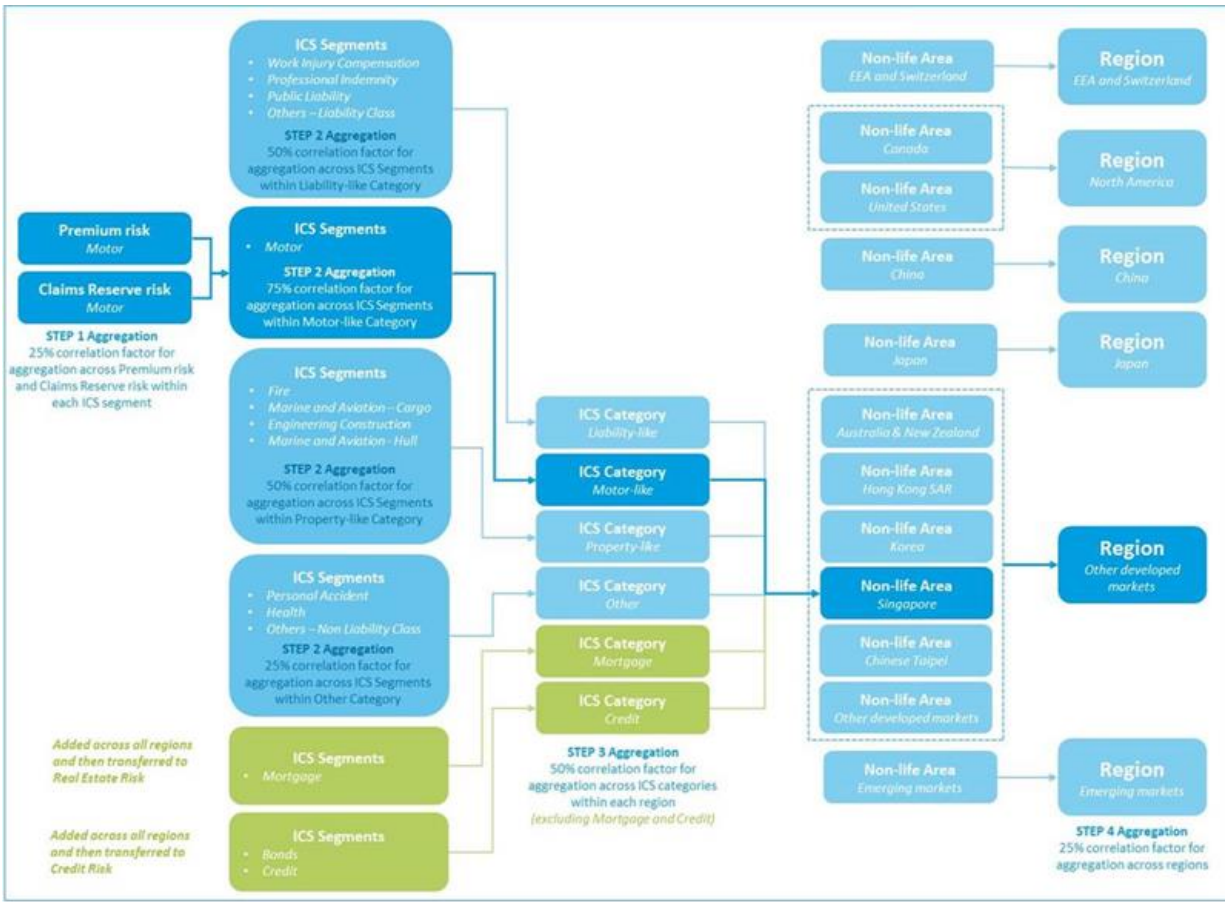
ICS Categories	Correlation factor between segments within the category
Liability-like	50%
Motor-like	75%
Property-like	50%
Other	25%

338. The third step of aggregation is within each region listed in Section 7.1.2, using a 50% correlation factor between each of the four ICS categories.

339. The fourth step of aggregation is across regions, using a 25% correlation factor between each region's total risk charge.

340. As an example, Figure 4 shows how Non-Life risk exposures are categorised into regions, geographical segments, ICS categories and ICS segments.

Figure 4: Categorisation of non-life risk exposure, showing how Singapore Motor-like ICS Category is aggregated



7.2.3.4 Input Data Required

341. The following amounts are required for each relevant region and ICS segment within that region:

342. Premium Risk

a. Net premium – Earned – Report the net earned premium (net of ceded reinsurance) as defined under statutory reporting in each region for the latest financial year (eg from 1 January 2022 to 31 December 2022 for end of December reporting date).

b. Net premium – To be earned (Y +1) – Report the expected premium, net of ceded reinsurance, to be earned in the next financial year (eg from 1 January 2023 to 31 December 2023 for end of December reporting date). This figure should be consistent with the business already written and include expected new business.

c. Net premium – Written – Report the net written premium (net of ceded reinsurance) as defined under statutory reporting in that country/region for the latest financial year (eg from 1 January 2022 to 31 December 2022 for end of December reporting date).

The Premium risk charge for each ICS segment is calculated as the relevant risk factor multiplied by the greater of the net premium earned and net premium to be earned. When net premium earned is not reported by the IAIG, net written premium is used as a proxy.

343. Claims Reserve Risk

Net current estimate – Claims – Report the net current estimate for claims as at the end of the most recent financial year (eg 31 December 2022 for end of December reporting date).

The Claims Reserve risk charge for each ICS segment is calculated as the relevant risk factor multiplied by the net current estimate.

Table 15: ICS Non-Life Segmentation

ICS Segment		ICS Category	Premium risk factor	Claims Reserve risk factor
EEA and Switzerland	Medical expense insurance	Other	15%	10%
	Income protection	Other	25%	35%
	Workers' Compensation	Liability-like	25%	27%
	Motor vehicle liability - Motor third party liability	Motor-like	20%	15%
	Motor, other classes	Motor-like	20%	15%
	Marine, aviation and transport	Property-like	35%	25%
	Fire and other damage	Property-like	17.5%	17.5%
	General liability - third party liability	Liability-like	35%	27%
	Credit and suretyship	Credit	35%	50%
	Legal expenses	Other	15%	40%
	Assistance	Other	15%	50%
	Miscellaneous financial loss	Other	30%	35%
	Non-proportional health reinsurance	Other	50%	45%
	Non-proportional Casualty reinsurance	Liability-like	55%	45%
	Non-proportional marine, aviation and transport reinsurance	Property-like	55%	40%
	Non-Proportional property reinsurance	Property-like	45%	40%
Canada	Property - personal	Property-like	35%	25%
	Home Warranty	Property-like	30%	25%

ICS Segment		ICS Category	Premium risk factor	Claims Reserve risk factor
	Product Warranty	Property-like	30%	25%
	Property - commercial	Property-like	30%	30%
	Aircraft	Property-like	45%	35%
	Automobile - liability/personal accident	Motor-like	35%	20%
	Automobile - other	Motor-like	35%	20%
	Boiler and Machinery	Property-like	30%	25%
	Equipment Warranty	Property-like	30%	25%
	Credit Insurance	Credit	45%	30%
	Credit Protection	Credit	45%	30%
	Fidelity	Other	45%	30%
	Hail	Property-like	35%	30%
	Legal Expenses	Other	45%	40%
	Liability	Liability-like	50%	38%
	Mortgage	Mortgage	45%	30%
	Surety	Credit	45%	30%
	Title	Liability-like	35%	30%
	Marine	Property-like	45%	35%
	Accident and Sickness	Other	45%	30%
	Other Approved Products	Other	45%	35%
US	Auto physical damage	Motor-like	12.5%	10%
	Homeowners/ Farm owners	Property-like	30%	15%
	Special property	Property-like	25%	17.5%
	Private passenger auto liability/ medical	Motor-like	15%	15%
	Commercial auto/ truck liability/ medical	Motor-like	15%	15%
	Workers' compensation	Liability-like	15%	16%
	Commercial multi-peril	Liability-like	30%	26%
	Medical professional liability -- Occurrence	Liability-like	40%	45%

ICS Segment		ICS Category	Premium risk factor	Claims Reserve risk factor
	Medical professional liability – Claims-Made	Liability-like	30%	35%
	Other Liability – Occurrence	Liability-like	17.5%	28%
	Other Liability – Claims-Made	Liability-like	15%	20%
	Products liability	Liability-like	45%	47%
	Reinsurance – non-proportional assumed property	Property-like	35%	25%
	Reinsurance – non-proportional assumed liability	Liability-like	45%	39%
	Special liability	Liability-like	30%	25%
	Mortgage insurance	Mortgage	45%	30%
	Fidelity/surety	Credit	35%	40%
	Financial Guaranty	Credit	45%	25%
	Other	Other	25%	35%
	Reinsurance – non-proportional assumed financial lines	Other	45%	20%
China	Motor	Motor-like	10%	20%
	Property, including commercial, personal and engineering	Property-like	30%	45%
	Marine and Special	Property-like	25%	45%
	Liability	Liability-like	10%	36%
	Agriculture	Property-like	25%	35%
	Credit	Credit	45%	35%
	Short-term Accident	Other	10%	10%
	Short-term Health	Other	10%	10%
	Short-term Life	Other	10%	20%
	Others	Other	35%	20%
Japan	Fire	Property-like	20%	35%
	Hull	Property-like	40%	35%

ICS Segment		ICS Category	Premium risk factor	Claims Reserve risk factor
	Cargo	Property-like	35%	40%
	Transit	Property-like	40%	35%
	Personal Accident	Other	10%	15%
	Automobile	Motor-like	7.5%	10%
	Aviation	Property-like	50%	45%
	Guarantee Ins.	Credit	35%	40%
	Machinery	Property-like	35%	40%
	General Liability	Liability-like	17.5%	27%
	Contractor's All Risks	Property-like	35%	40%
	Movables All Risks	Property-like	17.5%	25%
	Workers' Compensation	Liability-like	35%	22%
	Misc. Pecuniary Loss	Other	35%	45%
	Nursing Care Ins.	Other	35%	45%
	Others	Other	35%	40%
Australia and New Zealand	Householders	Property-like	30%	20%
	Commercial Motor	Motor-like	25%	20%
	Domestic Motor	Motor-like	25%	20%
	Other type A	Other	25%	20%
	Travel	Other	35%	25%
	Fire and ISR	Property-like	30%	25%
	Marine and Aviation	Property-like	35%	25%
	Consumer Credit	Credit	35%	15%
	Other Accident	Other	35%	25%
	Other type B	Other	35%	35%
	Mortgage	Mortgage	45%	30%
	CTP	Motor-like	45%	35%
	Public and Product Liability	Liability-like	45%	31%
	Professional Indemnity	Liability-like	45%	35%
	Employers' Liability	Liability-like	45%	36%
	Short tail medical expenses	Other	15%	25%

ICS Segment		ICS Category	Premium risk factor	Claims Reserve risk factor
	Other type C	Other	45%	35%
	Householders - non-prop reins	Property-like	45%	30%
	Commercial Motor - non-prop reins	Motor-like	45%	30%
	Domestic Motor - non-prop reins	Motor-like	45%	30%
	Other non-prop reins type A	Other	45%	30%
	Travel - non-prop reins	Other	45%	35%
	Fire and ISR - non-prop reins	Property-like	55%	40%
	Marine and Aviation - non-prop reins	Property-like	55%	40%
	Consumer Credit - non-prop reins	Credit	55%	40%
	Other Accident - non-prop reins	Other	55%	40%
	Other non-prop reins type B	Other	55%	35%
	Mortgage - non-prop reins	Mortgage	50%	35%
	CTP - non-prop reins	Motor-like	55%	40%
	Public and Product Liability - non-prop reins	Liability-like	55%	43%
	Professional Indemnity - non-prop reins	Liability-like	55%	40%
	Employer's Liability - non-prop reins	Liability-like	55%	43%
	Other non-prop reins type C	Other	55%	40%
Hong Kong SAR	Accident and health	Other	30%	25%
	Motor vehicle, damage and liability	Motor-like	25%	15%
	Aircraft, damage and liability	Property-like	45%	40%
	Ships, damage and liability	Property-like	45%	40%
	Goods in transit	Property-like	45%	50%
	Fire and Property damage	Property-like	35%	20%

ICS Segment		ICS Category	Premium risk factor	Claims Reserve risk factor
	General liability	Liability-like	45%	26%
	Pecuniary loss	Other	45%	35%
	Non-proportional treaty reinsurance	Property-like	45%	25%
	Proportional treaty reinsurance	Property-like	35%	35%
Korea	Fire, technology, overseas	Property-like	25%	30%
	Package	Property-like	35%	50%
	Maritime	Property-like	45%	45%
	Personal injury	Other	35%	50%
	Workers accident, liability	Liability-like	12.5%	31%
	Foreigners	Other	15%	10%
	Advance payment refund guarantee	Credit	50%	50%
	Other Non-life	Other	45%	50%
	Private vehicle (personal injury)	Motor-like	15%	30%
	Private vehicle (property, vehicles damage)	Motor-like	25%	35%
	Vehicle for commercial or business purpose(personal injury)	Motor-like	25%	20%
	Vehicle for commercial or business purpose(property, vehicles)	Motor-like	25%	20%
	Other motor	Motor-like	15%	20%
Singapore	Personal Accident	Other	30%	25%
	Singapore/Health	Other	25%	20%
	Singapore/Fire	Property-like	30%	25%
	Marine and Aviation - Cargo	Property-like	35%	30%
	Motor	Motor-like	30%	25%
	Work Injury Compensation	Liability-like	35%	31%

ICS Segment		ICS Category	Premium risk factor	Claims Reserve risk factor
	Bonds	Credit	35%	30%
	Engineering Construction	Property-like	35%	30%
	Credit	Credit	35%	30%
	Mortgage	Mortgage	35%	30%
	Others- non liability class	Other	35%	30%
	Marine and Aviation - Hull	Property-like	45%	35%
	Professional indemnity	Liability-like	35%	35%
	Public liability	Liability-like	35%	31%
	Others - liability class	Liability-like	35%	31%
Chinese Taipei	Fire - residence	Property-like	25%	40%
	Fire - commercial	Property-like	55%	45%
	Marine - inland cargo	Property-like	30%	25%
	Marine - overseas cargo	Property-like	30%	25%
	Marine - hull	Property-like	55%	45%
	Marine - fish boat	Property-like	45%	45%
	Marine - aircraft	Property-like	55%	45%
	Motor - personal vehicle	Motor-like	25%	25%
	Motor - commercial vehicle	Motor-like	25%	25%
	Motor - personal liability	Motor-like	25%	25%
	Motor - commercial liability	Motor-like	25%	25%
	Liability - public, employer, product, etc.	Liability-like	35%	36%
	Liability - professional	Liability-like	35%	35%
	Engineering	Property-like	55%	45%
	Nuclear power station	Property-like	55%	45%
	Guarantee - surety, fidelity	Credit	55%	45%
	Credit	Credit	55%	45%
	Other property damage	Property-like	35%	40%
	Accident	Other	15%	10%

ICS Segment		ICS Category	Premium risk factor	Claims Reserve risk factor
	Property Damage - commercial earthquake	Property-like	45%	35%
	Comprehensive - personal property and liability	Property-like	45%	45%
	Comprehensive - commercial property and liability	Property-like	45%	45%
	Property damage - typhoon and flood	Property-like	55%	45%
	Property damage - compulsory earthquake	Property-like	55%	45%
	Health	Other	15%	10%
Other Developed	Motor	Motor-like	30%	20%
	Property damage	Property-like	30%	25%
	Accident, protection and health (APH)	Other	35%	30%
	Short tail medical expenses	Other	35%	25%
	Other short tail	Other	35%	30%
	Marine, Air, Transport (MAT)	Property-like	35%	35%
	Workers' compensation	Liability-like	35%	36%
	Public liability	Liability-like	35%	31%
	Product liability	Liability-like	35%	43%
	Professional indemnity	Liability-like	35%	35%
	Other liability and other long tail	Liability-like	35%	36%
	Non-proportional motor, property damage, APH and MAT	Property-like	50%	40%
	Catastrophe reinsurance	Property-like	50%	40%
	Non-proportional liability	Liability-like	50%	44%
	Non-proportional professional indemnity	Liability-like	50%	40%
	Mortgage insurance	Mortgage	45%	35%
	Commercial credit insurance	Credit	45%	35%

ICS Segment		ICS Category	Premium risk factor	Claims Reserve risk factor
	Other medium-term	Other	50%	40%
Other Emerging	Motor	Motor-like	35%	25%
	Property damage	Property-like	35%	30%
	Accident, protection and health (APH)	Other	35%	30%
	Short tail medical expenses	Other	35%	25%
	Other short tail	Other	35%	30%
	Marine, Air, Transport (MAT)	Property-like	35%	35%
	Workers' compensation	Liability-like	45%	36%
	Public liability	Liability-like	45%	36%
	Product liability	Liability-like	45%	47%
	Professional indemnity	Liability-like	45%	35%
	Other liability and other long tail	Liability-like	45%	36%
	Non-proportional motor, property damage, APH and MAT	Property-like	50%	45%
	Catastrophe reinsurance	Property-like	50%	45%
	Non proportional liability	Liability-like	50%	48%
	Non-proportional professional indemnity	Liability-like	50%	45%
	Mortgage insurance	Mortgage	50%	40%
	Commercial credit insurance	Credit	50%	40%
	Other medium-term	Other	55%	40%

7.2.4 Calculation of Catastrophe risk charge

Relevant Worksheet in Template:	*Candidate ICS > Insurance*

344. Catastrophe risk is a risk that affects both life and non-life business. The Catastrophe risk charge covers risks associated with low frequency, high severity events occurring at any point in time in the next 12 months and takes into account all expected in-force business when the event occurs.

345. Risk mitigation arrangements (eg outwards reinsurance protection purchased) may reduce the overall Catastrophe risk charge.

346. Catastrophe risk is segmented at the risk/peril level. Perils cover both naturally occurring perils (natural catastrophes) and man-made perils/scenarios (other catastrophes) and their consequences.

7.2.4.1 Scope of Calculation

347. When calculating the Catastrophe risk charge, all lines of business exposed to Catastrophe risk are considered. For example, a natural catastrophe such as an earthquake could impact not only the residential property, commercial property, auto and marine (incl. energy offshore) lines of business, but also specie/fine art, personal accident, aviation, liability, workers' compensation and some life or health insurance lines of business. To avoid double counting with the other ICS risk charges, the following principles are applied:

a. Life and similar to life health business are included only for the pandemic and terrorism scenarios; and

b. The impact on financial markets and the whole economy (Market and Credit risks) is not included in the calculation of Catastrophe risk.

348. Before performing a detailed calculation, IAIGs should assess the materiality of the impact of catastrophe events based on their contractual exposure to the perils and scenarios listed. If it is determined that possible exposure to a specific scenario is immaterial, then a detailed calculation is not required.

349. IAIGs should report losses gross, as well as net, of protection from qualifying risk mitigation arrangements. The amounts reported gross of protections should be calculated net of reinstatement premium received (ie net of inward reinstatement premium). The amounts reported net of protections should take into account any reinstatement premiums received and paid (ie net of inward and outward reinstatement premium).

7.2.4.2 Covered Perils

350. The perils covered by Catastrophe risk are:

a. Natural catastrophe:

   i. Tropical cyclone, hurricane, typhoon;

   ii. Extra-tropical windstorm/winter storm;

   iii. Earthquake; and

   iv. Other material natural perils, such as:

- Flood;
- Tornado, hail, convective storms; and
- Other risks.

b. Other catastrophes (Man-Made Perils/Scenarios):

i. Terrorist attack;

ii. Pandemic; and

iii. Credit and Surety.

351. The impact of catastrophe claim events include not only the main peril (eg windstorm, earthquake) but also the secondary perils associated with the primary peril. Secondary perils can affect all lines of business within the scope of the calculation.

352. The impact of catastrophe claim events include both the main peril and any secondary perils associated with the main peril. For example, the main peril tropical cyclone may cause secondary perils such as storm surge and events such as dam breaking as well as demand surge or loss amplification. Similarly, fire or tsunami following an earthquake, sprinkler leakage and demand surge or loss amplification should be associated with the earthquake scenario, as appropriate.

7.2.4.3 Natural Catastrophe

353. Stochastic catastrophe models may be used to calculate loss amounts resulting from natural catastrophe events. The models may be either vendor or proprietary models.

354. Loss amounts are calculated considering:

a. The impact of natural catastrophe on all lines of business affected;

b. An allowance for non-modelled exposures including expected new business over the target time horizon of one year that could be affected by the listed perils; and

c. An allowance for non-modelled perils and regions reported as part of the other natural catastrophe losses. This may include perils and regions that are not modelled individually or specifically but for which potential losses are assessed using other approaches.

355. For each peril to which the IAIG is exposed, the following amounts are reported:

a. Total annual aggregate losses gross of protections (eg gross of external reinsurance protection); and

b. Total annual aggregate losses net of protections (eg net of external reinsurance protection).

356. The natural catastrophe risk charge is the difference between the 99.5th percentile and the mean of the total annual aggregate losses, net of protections. The annual aggregate losses are calculated as the aggregation of losses across all regions and perils.

7.2.4.4 Other Catastrophe Scenarios

357. The loss amounts for the following perils are determined according to the scenarios described below.

358. The impact of the scenarios is calculated for all lines of business affected by the respective scenario, unless otherwise specified in the scope of the calculation.

359. For each scenario, the loss amounts (both gross and net of external protections) should be reported. For scenarios that are not material, IAIGs may adopt a simplified and prudent approach to provide a reasonable approximation.

7.2.4.4.1 Terrorist Attack

360. The risk charge is the sum of the losses from the following two components:

a. Total loss of property (including building, content, motor vehicles) from insurance contracts and the impact on other insurance contracts resulting directly from the loss of property; and

b. The losses from life insurance contracts, health coverage and workers' compensation.

361. For both the life and non-life components, the scenario is a five-tonne bomb blast for the largest geographical risk concentration partly or fully located within a radius of 500 metres. To determine this concentration, all buildings (including properties for own use) are considered. The largest concentration is determined separately for the life and non-life components.

362. For property damage, including insured properties and related covers, the following assumptions are made:

- 100% damage ratio within a circular zone of a 200 metre radius;
- 25% damage ratio for the next circular zone up to a 400 metre radius; and
- 10% damage ratio between 400 and 500 metres.

363. For fatalities, the following assumptions are made:

- 15% fatality rate within a circular zone of a 200 metre radius; and
- 1.5% fatality rate between 200 and 500 metres.

364. For disabilities, the following assumptions are made:

- 20% disability rate within a circular zone of a 200 metre radius; and
- 10% fatality rate between 200 and 500 metres.

365. Fatalities and disabilities should only take into account liabilities from insurance contracts (eg life and health insurance policies). In particular, liabilities to own staff not originating from insurance contracts (eg through benefits or other forms of exposure) should not be included. For life insurance liabilities for which the geographical location is not available, IAIGs should make a best effort estimation of the concentration of exposures considering, in particular, group policies.

7.2.4.4.2 Pandemic

366. The scenario is an increase in the number of deaths following a global pandemic. The risk charge is the total loss amount to all individual and group insurance products covering Mortality risk in any part of the world resulting from the increase of 1.0 in the number of deaths per thousand insureds.

7.2.4.4.3 Credit and Surety

367. The risk charge is the sum of the losses from the following three components:

a. Mortgage insurance;

b. Trade credit; and

c. Surety.

7.2.4.4.3.1 Mortgage insurance

368. The scenario is calculated as an aggregate loss amount resulting from an increase in frequency and severity due to the specified decline in home prices. A 25% decline in home prices is assumed to persist for the entire one-year time period. The total loss amount includes the impact of both an increase in frequency of delinquency and defaults and an increased loss severity that result from the decline in home prices.

369. In implementing the stress scenario and to account for differences in risk profiles across various exposures and activities, portfolios and business activities are segmented into categories based on common or related risk characteristics. Appropriate models should be used to translate the relevant risk factor (home price decline) into the financial impact (increased losses). Where applicable, those models that the IAIG already uses to calculate stress losses, premium deficiency reserves or other loss measures should be used.

7.2.4.4.3.2 Trade Credit

370. The credit stress scenario for trade credit is defined as the total loss amount due to the inability of customers of the policyholder to pay for goods delivered and/or services provided. The trade credit coverage indemnifies the policyholder for bad debt losses incurred due to a customer's inability to pay. A policyholder's customer's inability to pay is indicated by an increase in both the probability of default and the loss given default of that customer. The total loss amount is adjusted for any existing loss mitigation, including reimbursements from policyholder, retention etc.

371. To help approximate these total loss amounts, IAIGs should first calculate their aggregate net earned premium for trade credit by external credit rating category: investment grade vs. non-investment grade. Then the following factors are applied to net premiums earned in the past year by rating category. Considering that the scenario does not require the identification of specific defaulting customers, the factors should be applied to the net premium earned as a way to reflect the impact of reinsurance. No further adjustment for reinsurance protection (eg non-proportional reinsurance) is required to calculate the loss amount.

Table 16: Credit stress factors for trade credit

Rating category	Factor
Investment Grade	80%
Non-Investment Grade	200%

372. The investment grade and non-investment grade categories are determined using the current rating of the policyholder's customers (if available). If a customer is not rated, the IAIG may use its internal rating system or assume it is non-investment grade.

373. If the IAIG is not able to apply the above factors due to internal data limitations, the company should apply a stress loss ratio equal to the worst experience that occurred between 2008 and 2010 to the net earned premium for trade credit.

7.2.4.4.3.3 Surety

374. The credit stress scenario for surety is defined as the total net potential loss amount based on the penal sum of the surety bond. A surety bond indemnifies the policyholder from the principal's inability to perform its contractual obligation. The penal sum represents the maximum amount that the IAIG is required to pay to the beneficiary. The IAIG calculates the largest net potential losses for its ten largest exposures to surety counterparties (principals) using the methodology described below. The total net potential loss amount assumes that the two largest net losses have occurred, and is therefore equal to the sum of the two largest net losses.

375. The net potential loss amount for a principal is calculated using the gross exposure of the principal (after any contractual amortisation that has occurred). The loss severity model 95% probable maximum loss (PML) factor is applied to the gross exposure. For US exposures, the loss severity model 90% PML for each principal can be calculated using the most current construction loss severity model developed by the Surety & Fidelity Association of America. For non-US exposures, a loss severity model 95% PML worst gross loss to exposure ratio for the past 10 years in that country or for that exposure type is used, whichever is the most granular. The loss amount is then adjusted for any co-surety arrangements, acceptable cash collateral (currently in the custody of the IAIG) and any reinsurance arrangements.

376. The co-surety amount and the adjustment for reinsurance are calculated using existing terms of the surety exposure. Adjustments can only be made for cash collateral already in custody with the IAIG or in a trust for which the IAIG is a beneficiary.

Example of Credit Stress for Surety

	Loss calculation	Surety Exposure
1	Gross Exposure for Principal	10,000,000
2	Loss Severity Model 95% PML Factor	0.4
3	Loss Severity Model 95% PML Amount = (1) * (2)	4,000,000
4	Adjustment for co-surety (co-surety % * (3))	400,000
5	Net PML Amount after Co-surety = (3) - (4)	3,600,000
6	Acceptable cash collateral	100,000
7	Net PML amount = (5) - (6)	3,500,000
8	Adjustment for reinsurance	50,000
9	Net potential Loss amount	3,450,000

7.2.4.5 Aggregation of Catastrophe Risks

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

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

7.2.4.6 Calculation of the Recoverable Amount to be used for the Calculation of Contingent Credit Risk

378. The recoverable amount is calculated as the difference between the risk charge for Catastrophe risk calculated as if the risk mitigation arrangements did not exist, and the risk charge for Catastrophe risk calculated taking into account qualifying risk mitigation arrangements.

379. The recoverable amount is allocated by credit rating categories, using the following steps:

a. For the aggregate of the Natural Catastrophe risk and for each other catastrophe scenario, calculate the recoveries by rating class and the gross and net losses;

b. Aggregate all gross and net losses using the aggregation approach described above. The difference between aggregated gross and net losses is the total recoverable; and

c. The recoverable by rating class is equal to the total recoverable multiplied by the ratio of the sum over all scenarios of the recoveries in that rating class to the sum over all scenarios of the recoveries for all rating classes.

380. The approach is illustrated by the following example. For simplicity, it is assumed that the terrorist attack scenario is the only other catastrophe scenario and therefore the Catastrophe risk charge is the square root of the sum of the square of the Natural Catastrophe risk charge and the Terrorist Attack risk charge.

Example

		Natural catastrophe	*Terrorist attack*	*Catastrophe risk charge*
Gross Loss: A	ICS RC	150	50	158
Reinsurance recoverable				
Recovery 1: B1	1	20	10	
Recovery 2: B2	1	20	10	
Recovery 3: B3	2	10	5	
Net loss: C = A - B1 - B2 - B3		100	25	103
Recoverable amount: D= A - C				55

All recoverable in ICS RC 1: B1 + B2	40	20	60
All recoverable in ICS RC 2: B3	10	5	15
% recoverable in ICS RC 1 : E1 = (B1 + B2) / (B1 + B2 + B3)			80%
% recoverable in ICS RC 2 : E2 = B3 / (B1 + B2 + B3)			20%
Total recoverable amount = D			55
Recoverable in ICS RC 1: D * E1			44
Recoverable in ICS RC 2: D * E2			11

381. The recoverable amounts by ICS RC are reported in the column *Reduction in ICS risk charges* of the relevant Credit risk section of the worksheet *Candidate ICS > Insurance* and are subject to the risk charge for maturities of 1-2 years.

7.2.4.7 Safeguards for Natural Catastrophe Models

382. In order to assess the appropriateness of stochastic natural catastrophe models, IAIGs provide information on the following safeguards.

383. **Safeguard 1** – Description of the scope of application: IAIGs describe the perimeter of the natural catastrophe model's calculation. This description includes a list of catastrophes that are modelled. Catastrophes that are not modelled should also be described, which will be further detailed in the section on Safeguard 7.

384. **Safeguard 2** – Validation: IAIGs demonstrate that a rigorous process is in place by which they can establish whether their natural catastrophe model framework is sound or whether improvements are needed.

385. Validation should enable IAIGs to better understand the capabilities and limitations of the natural catastrophe model and confirm that the natural catastrophe model and the supporting processes are adequate and appropriate for the purpose. Validation should be an iterative process by which IAIGs using a natural catastrophe model periodically refine validation tools in response to changing market and operating conditions. There is no universal

validation method, and the structure of the validation approach depends on the technical specifications of the natural catastrophe model, its purpose and its intended use. When local regulations explicitly specify that a natural catastrophe model may be used for the calculation of insurance liability or premium rates, and the GWS verifies that the model appropriately reflects the risk characteristics of the IAIG, this safeguard is satisfied provided that the IAIG demonstrates its understanding of the capabilities and limitations of the model.

386. Validation should encompass both quantitative and qualitative elements. While it might be possible to think of validation as a purely technical/mathematical exercise in which outcomes are compared to estimates using statistical techniques, it is insufficient to focus solely on comparing predictions to outcomes. In assessing the overall performance of a natural catastrophe model, it is important to assess the overall model and each of its building blocks regarding the structure, governance, data and processes.

387. Finally, to achieve an effective validation, an objective challenge is essential. Independent model validation helps the IAIG evaluate and verify the overall performance of their natural catastrophe model. Proper independence of the validation function is therefore important, whether the validation is internal or external, and individuals performing the validation must possess the necessary skills, knowledge, expertise and experience.

388. **Safeguard 3** – Sign-off by senior management: The senior management of the IAIG has ownership of the natural catastrophe model, and the model complies with the validation process prescribed by the natural catastrophe model governance process. Moreover, senior management should have a certain level of engagement concerning the natural catastrophe models as part of the use test, which will be further detailed in the section on Safeguard 5.

389. **Safeguard 4** – Statistical quality test: The statistical quality test addresses issues related to the following technical aspects of the natural catastrophe model:

- methodology and assumptions;
- coverage of material risks;
- data (including external data) and expert judgment;
- aggregation of risks and diversification effects;
- consistency with the method used for the calculation of technical provisions;
- allowance for risk mitigation techniques and future management actions; and
- financial guarantees and contractual options.

390. The statistical quality test concentrates on the individual building blocks of a natural catastrophe model. The different elements making up the natural catastrophe model and the inputs used must pass this test.

391. The statistical quality test also sets the boundaries within which IAIGs should take responsibility for specifying their approach to assess and aggregate risks. In conjunction with natural catastrophe model validation requirements, the statistical quality test promotes a well-structured, documented and controlled process of model development and refinement which should be consistently applied across the IAIG, including the different modelling areas.

392. Data used to build the natural catastrophe model are one of the main drivers of its performance. Natural catastrophe models need high-quality data in order to produce sufficiently reliable results. The data used for a natural catastrophe model should be current

and sufficiently credible, accurate, complete and appropriate. Hence, a 'statistical quality test' should examine the appropriateness of the underlying data used in the construction of the natural catastrophe model. Any data not specific to the insurer would need to be carefully considered before deciding if it is appropriate for use as the basis for an insurer's 'statistical quality test'. Even where deemed appropriate, it may still be necessary to adjust the data to allow for differences in features between the data source and the insurer.

393. The statistical quality test should include future projections within the model and, to the extent practicable, 'back-testing' (the process of comparing the predictions from the model with actual experience).

394. When local regulations explicitly specify that a natural catastrophe model may be used for the calculation of insurance liability or premium rates, and the GWS verifies that the model appropriately reflects the risk characteristics of the IAIG, this safeguard is satisfied provided that the IAIG demonstrates the validity of the assumptions set by the IAIG itself, including input data, expert judgment and the impact of risk mitigation and future management actions, etc.

395. **Safeguard 5** – Use test and governance: The use test reflects the IAIG's view of its risks and is used in decision making.

396. The IAIG should demonstrate that its natural catastrophe model is widely used and plays an important role in risk management and decision-making, at different levels of management in the organisation, and the assessment of the economic and solvency capital.

397. The IAIG provides evidence that the natural catastrophe model is fully embedded in its operational and organisational structure and demonstrate that the model remains useful and is applied consistently over time.

398. Furthermore, the IAIG should demonstrate to its GWS that a natural catastrophe model used for regulatory capital purposes remains useful and is applied consistently over time and that it has the full support of and ownership by the senior management.

399. Another key aspect of the use test is that the IAIG's senior management is responsible for the design and implementation of the natural catastrophe model and for ensuring the ongoing appropriateness of the model.

400. For a model to pass the use test it is expected that an insurer has a framework for the model's application across business units. This framework should define lines of responsibility for the production and use of information derived from the model.

401. When local regulations explicitly specify that a natural catastrophe model may be used for the calculation of insurance liability or premium rates, and the GWS verifies that the model appropriately reflects the risk characteristics of the IAIG, this safeguard is satisfied.

402. **Safeguard 6** – Documentation standards: The documentation of the natural catastrophe model, including its use and other related aspects:

- facilitates the supervisory review of the model;
- facilitates Senior Management's understanding; and
- recognises the weaknesses of the model.

403. This documentation should include the design, construction and governance of the natural catastrophe model, including an outline of the rationale and assumptions underlying its methodology.

404. The documentation should be thorough, detailed and complete enough to be sufficient for a knowledgeable professional in the field to be able to understand its design and construction. This documentation should include justifications for and details of the underlying methodology, assumptions and quantitative and financial bases, as well as information on the modelling criteria used to assess the level of capital needed.

405. The insurer should also document, on an ongoing basis, the development of the model and any major changes, as well as instances where the model is shown to not perform effectively. Where there is reliance on an external vendor/supplier, the reliance should be documented along with an explanation of the appropriateness of the use of the external vendor/supplier.

406. IAIGs should properly document natural catastrophe model changes and notify their GWS of material changes to the natural catastrophe model. IAIGs should also report information necessary for supervisory review such as, but not limited to, the identification and characteristics of the models used, information on the risk profile and natural catastrophe risks to which the IAIG is exposed, justification of the choice of a particular model over others, information on the way the model has been used (eg adjustments made), and some restrictions, if any, to the way the models have been used (eg regarding the use of some options or parameters provided by vendor models, and/or regarding potential adjustments).

407. **Safeguard 7** – List of catastrophe risk sources that are not modelled: IAIGs recognise the limitations in the scope of their natural catastrophe model. IAIGs make a list of natural catastrophe risks specified in the ICS but not modelled, and explain why those risks are not modelled.

408. IAIGs should list natural catastrophes they face and identify which are not modelled in their natural catastrophe models, as well as those that are modelled. IAIGs should also justify the reason why these natural catastrophes are not modelled and assess the impact of these natural catastrophes, and report to their GWS, if necessary. IAIGs should have an iterative process of reviewing this list to demonstrate that the model remains useful and is applied consistently over time.

7.3 Market Risks

7.3.1 Calculation of the Market risk charge

409. The Market risk charge is calculated by aggregating, using the market risks correlation matrix specified below, the following six sub-risk charges:

- Interest Rate risk;
- Non-Default Spread risk;
- Equity risk;
- Real Estate risk;
- Currency risk; and
- Asset Concentration risk.

410. When calculating the Market risk charges, the following impacts are considered:

- The direct impacts of the prescribed stress scenarios on the value of assets and liabilities; and
- The indirect impacts linked to potential changes in policyholder behaviour following the prescribed stress scenarios.

411. For each of the six sub-risks, the risk charge is calculated both with and without the impact of management actions.

412. The correlation matrix used for aggregating the Market risk charges is the following:

Table 17: Market risks correlation matrix

	Interest Rate	NDSR Up	NDSR Down	Equity	Real Estate	Currency	Asset Concentration
Interest Rate	100%	25%	25%	25%	25%	25%	0%
NDSR Up	25%	100%	100%	75%	50%	25%	0%
NDSR Down	25%	100%	100%	0%	0%	25%	0%
Equity	25%	75%	0%	100%	50%	25%	0%
Real Estate	25%	50%	0%	50%	100%	25%	0%
Currency	25%	25%	25%	25%	25%	100%	0%
Asset Concentration	0%	0%	0%	0%	0%	0%	100%

7.3.2 Interest Rate risk

Relevant Worksheet in Template:	*Candidate ICS > Insurance*

413. The calculation of the Interest Rate risk charge is based on a combination of five stresses applied to the entire risk-free yield curve for each relevant currency as identified in paragraph 415:

- A mean-reversion scenario;
- A level up scenario;
- A level down scenario;
- A twist up-to-down scenario; and
- A twist down-to-up scenario.

414. The stress scenarios are applied only to assets and liabilities that are sensitive to a change in the level of risk-free rates; the identification of assets and liabilities subject to the stresses is specified in paragraph 416. The impact of those stresses on lapse rates, due to the influence of market conditions on policyholder behaviour, is taken into account as specified in paragraph 417.

415. The impact of the scenarios listed above is calculated for all currencies in which the IAIG holds interest rate sensitive assets or liabilities. Currencies for which the exposure is non-material may be grouped together. The stress impacts calculated for each currency or group thereof are then combined to derive the overall Interest Rate risk charge.

416. All assets and liabilities sensitive to changes in interest rates are taken into account in the calculation of the Interest Rate risk charge, with the exception of financial instruments issued by the IAIG that qualify as capital resources. Non-interest sensitive assets such as cash, investment income due and accrued and common shares are excluded from the calculation and should not show any change under the interest rate stresses. Subordinated debt and preferred shares held as assets are treated as interest-sensitive within the calculation.

417. For current estimates calculated with a dynamic lapse function that uses the interest rate as an input variable, the base lapse assumptions stay unchanged under the interest rate stresses, but lapse rates react to the interest rate scenarios used to calculate the Interest Rate risk charge.

418. The Interest Rate risk charge is calculated as:

$$max\left(0, \sum_i MR_i + \mathrm{VaR}_{99.5}\left(\sum_i LT_i\right)\right)$$

where:

- i is an index over all currencies in which the IAIG is exposed to Interest Rate risk;
- MR_i is the result of the mean reversion scenario for currency i, obtained as described in paragraph 421; and

- LT_i is a random variable encompassing the results of the level up, level down, twist up-to-down and twist down-to-up scenarios for currency i, as specified in paragraph 419.

419. For currency i, LT_i is defined as:

$$\frac{1}{N^{-1}(0.995)} \times (LU_i \max(X_i, 0) - LD_i \min(X_i, 0) + TU_i \max(Y_i, 0) - TD_i \min(Y_i, 0))$$

where:

- $N^{-1}(0.995)$ is the 99.5% quantile of the standardised normal distribution;
- LU_i and LD_i are the results of the level up and level down scenarios respectively, obtained as described in paragraph 421;
- TU_i and TD_i are the results of the twist up-to-down and twist down-to-up scenarios respectively, obtained as described in paragraph 421; and
- X_i and Y_i are independent random variables following a standardised normal distribution.

420. In addition, the random variables X_i and Y_i are such that:

- For any $i \neq j$, $corr(X_i, X_j) = corr(Y_i, Y_j) = 0.75$; and
- For any i and j, $corr(X_i, Y_j) = 0$.

421. For currency i, MR_i, LU_i, LD_i, TU_i and TD_i correspond to the change in the IAIG's Net Asset Value when recalculating the value of all relevant assets and liabilities using the mean reversion, level up, level down, twist up-to-down and twist down-to-up stressed yield curves respectively, obtained using the methodology described in paragraphs 424 to 432.

422. The stress approach is aligned with the three-segment approach used for valuation, with stress scenarios defined for the first segment and the LTFR. Segments 2 and 3 of the stressed yield curve are obtained using the same extrapolation methodology as used to determine the pre-stress yield curve.

423. When reporting scenario results, gains should be treated as negative losses, so that losses are entered as positive amounts and gains are entered as negative amounts.

424. For each currency, the stressed yield curve for the mean reversion scenario is obtained by adding the following yield curve to the initial yield curve, up to the LOT:

$$\Delta L. Level\ curve + \Delta S. Slope\ curve + \Delta C. Curvature\ curve$$

where:

- $Level\ curve$ is the curve equal to 1 for all maturities;
- $Slope\ curve$ is the curve equal to $\frac{1-e^{-\lambda\tau}}{\lambda\tau}$ for any maturity τ;
- $Curvature\ curve$ is the curve equal to $\frac{1-e^{-\lambda\tau}}{\lambda\tau} - e^{-\lambda\tau}$ for any maturity τ;

- λ is the exponential decay rate of the Nelson-Siegel model[26] for the risk-free yield curve;
- $\begin{pmatrix}\Delta L\\ \Delta S\\ \Delta C\end{pmatrix}$ is the vector defined as $(I - e^{-K})(\mu - V_0)$;
- I is the $3x3$ identity matrix;
- $K = \begin{pmatrix}K_1 & & 0\\ & K_2 & \\ 0 & & K_3\end{pmatrix}$ and $\mu = \begin{pmatrix}\mu_1\\ \mu_2\\ \mu_3\end{pmatrix}$ are parameters of the process followed by the vector V_t below, described by the equation:

$$dV_t = K(\mu - V_t)dt + \Sigma dW_t$$

- $V_t = \begin{pmatrix}\beta_{1t}\\ \beta_{2t}\\ \beta_{3t}\end{pmatrix}$, where β_{1t}, β_{2t} and β_{3t} correspond to the Nelson-Siegel parameters[26] for the risk-free yield curve at time t; and
- W_t is a 3-dimensional Wiener process and Σ is a lower triangular matrix of real non-negative factors.

425. For the mean reversion scenario, the value of the LTFR remains unchanged.

426. For each currency, the stressed yield curve for the level up scenario is obtained by adding the following yield curve to the initial yield curve, up to the LOT:

$$s.N^{-1}(0.995).[sl_1.Level\ curve + sl_2.Slope\ curve + sl_3.Curvature\ curve]$$

where:

- $\begin{pmatrix}sl_1\\ sl_2\\ sl_3\end{pmatrix} = cos(\theta)Me_1 + sin(\theta)Me_2$;
- $M = \sqrt{(\Sigma\Sigma^T)\odot\left(\frac{1-e^{-(K_i+K_j)}}{K_i+K_j}\right)_{ij}}$, with Σ and K_i denoting the parameters of the equation described in paragraph 424, and $\odot$ the Hadamard product operator;
- e_1 and e_2 are the eigenvectors associated with the highest and second highest eigenvalues, respectively, of the matrix N^TN;
- $N = \begin{pmatrix}LOT & & 0\\ & a & \\ 0 & & b\end{pmatrix}M$;
- $a = \sum_{\tau=1}^{LOT}\frac{1-e^{-\lambda\tau}}{\lambda\tau}$ and $b = \sum_{\tau=1}^{LOT}\left(\frac{1-e^{-\lambda\tau}}{\lambda\tau} - e^{-\lambda\tau}\right)$;
- $\theta = Arctan\frac{\sum_{\tau=1}^{LOT}h_2(\tau)}{\sum_{\tau=1}^{LOT}h_1(\tau)}$;

[26] As described in the article Diebold, F.X. and Li, C (2006) *Forecasting the Term Structure of Government Bond Yields* in Journal of Econometrics, 130, 337-364.

- $h_i(\tau) = \left(1, \frac{1-e^{-\lambda\tau}}{\lambda\tau}, \frac{1-e^{-\lambda\tau}}{\lambda\tau} - e^{-\lambda\tau}\right) Me_i$, $i = 1, 2$; and
- $s = \begin{cases} 1 & if\ (sl_1.Level\ curve_{LOT} + sl_2.Slope\ curve_{LOT} + sl_3.Curvature\ curve_{LOT}) \geq 0 \\ -1 & otherwise \end{cases}$.

427. For the level up scenario, the LTFR is increased by 10%.

428. For each currency, the stressed yield curve for the level down scenario is obtained by adding the following yield curve to the initial yield curve, up to the LOT:

$$-s.N^{-1}(0.995).[sl_1.Level\ curve + sl_2.Slope\ curve + sl_3.Curvature\ curve]$$

429. For the level down scenario, the LTFR is decreased by 10%.

430. For each currency, the stressed yield curve for the twist up-to-down scenario is obtained by adding the following yield curve to the initial yield curve, up to the LOT:

$$N^{-1}(0.995).[st_1.Level\ curve + st_2.Slope\ curve + st_3.Curvature\ curve]$$

where:

$$\begin{pmatrix} st_1 \\ st_2 \\ st_3 \end{pmatrix} = cos(\theta)Me_2 - sin(\theta)Me_1$$

431. For each currency, the stressed yield curve for the twist down-to-up scenario is obtained by adding the following yield curve to the initial yield curve, up to the LOT:

$$-N^{-1}(0.995).[st_1.Level\ curve + st_2.Slope\ curve + st_3.Curvature\ curve]$$

432. For the twist scenarios, the LTFR remains unchanged.

433. Since there is no simple closed form solution to obtain the aggregate Interest Rate risk charge, the risk charge is calculated using direct simulation. The simulation algorithm is based on a large number of scenarios using two random variables $\{X_i\}$ and $\{Y_i\}$ with the correlation structure specified in paragraph 420, and for each scenario calculates the quantity $\sum_i LT_i$. The aggregate requirement is the sum of all mean reversion losses and the 99.5th percentile of the level and twist sums.

7.3.3 Non-Default Spread risk

Relevant Worksheet in Template:	*Candidate ICS > Insurance*

434. Non-Default Spread risk is calculated as a relative bi-directional stress applied to both assets and liabilities. The Non-Default Spread risk charge is calculated as the maximum of an upward and downward stress, subject to a floor of zero.

435. ~~The downward stress is a combination of an absolute and relative stress to the spread levels. This downward stress is specified in a way that prevents positive spreads from becoming negative after applying the stress. The upward stress is designed as an absolute increase of the spread levels.~~All liabilities sensitive to changes in spreads are taken into account in the calculation of the NDSR charge, with the exception of financial instruments issued by the IAIG that qualify as capital resources.

436. All assets that contribute to the calculation of the spread adjustments for valuation purposes (Table 3 in Section 5.2.5.3.2.1), are taken into account in the calculation of the NDSR charge, with the exception of sovereign assets.

437. For insurance liabilities, t~~T~~he stresses are applied to spreads after risk correction. ~~For insurance liabilities, the prescribed stresses are applied as parallel shifts to the spreads by risk category used to compute the adjustments specified in Section 3.2.5 for valuation purposes.~~ The prescribed stresses are applied shifts to the spreads by risk category and by each time period (t) used to compute the adjustments specified in Section 5.2.5 for valuation purposes. This means the resulting adjustment applied to the insurance liabilities should take into account application ratio, the portfolio allocation and the modulation factor. The portfolio allocation is based on the portfolio backing the liabilities or the representative portfolio for the middle bucket or the general bucket respectively.

438. The upward and downward stresses used for the calculation of the NDSR charge are a relative stress of -75% for the down and +75% of spreads at each maturity up to the LOT.

$$spread_{down}(t) = spread(t) - 75\% * |spread(t)|$$

$$spread_{up}(t) = spread(t) + 75\% * |spread(t)|$$

~~438. specified in Table 18.~~

~~Table 19: Stress factors for Non-Default Spread risk~~

~~**ICS RC**~~	~~**Up (in bps)**~~	~~**Down (in bps)**~~
~~**1**~~	~~+50~~	~~-50~~
~~**2**~~	~~+50~~	~~-50~~
~~**3**~~	~~+70~~	~~-70~~
~~**4-7**~~	~~+100~~	~~-100~~
~~**Subject to the following relative limit, calculated based on the absolute value of the spread over the risk-free yield curve:**~~		
~~**Relative limit**~~	~~No relative limit~~	~~50%~~

Example of calculation of the NDSR stress

Currency X	Current Spread	Up Shock	Resulting Spread (Up Shock)	Down Shock	ABS down	REL down (50%)	Resulting Spread (Down Shock)
	A	B	C = A+B	D	E=A+D	F=A-0.5x|A|	=max(E,F)
ICS RC 1	-21.2	+50	28.8	-50	-71.2	-31.8	-31.8
ICS RC 2	57.3	+50	107.31	-50	7.3	28.7	28.7
ICS RC 3	111.2	+70	181.2	-70	41.2	55.6	55.6
ICS RC 4 & lower	116.7	+100	216.7	-100	16.7	58.4	58.4

7.3.4 Equity risk

Relevant Worksheet in Template:	*Candidate ICS > Insurance*

439. The Equity risk charge is calculated as the change in net asset value following the occurrence of stress scenarios that impact the level and volatility of the fair value of equities, after management actions. The level scenarios are specified by segments of assets. A volatility scenario is measured separately.

440. The Equity risk charge applies to direct and indirect exposures to all assets and liabilities with values sensitive to changes in the level or volatility of the fair value of equities.

441. Indirect impacts are linked to assets and liabilities held by IAIGs that are sensitive to a change in equity prices. Such indirect exposures may include, but are not limited to:

a. Mutual funds invested in equity (see Section 3.3 on *Look-Through*);

b. Derivatives sensitive to equity prices and/or volatilities;

c. Equity linked variable annuities; and

d. Participating and unit-linked products whose value is influenced by equity markets.

442. The Equity risk charge uses the following segmentation of assets as defined below:

- ~~Listed e~~Equity in developed markets, split between:
  - Listed equity (other than infrastructure); and
  - Infrastructure equity;
- ~~Listed e~~Equity in emerging markets, split between:
  - Listed equity (other than infrastructure); and
  - Infrastructure equity;
- Hybrid debt/preference shares; and
- Other equity.

443. Listed equity in developed markets includes equities listed on the securities exchanges of equity markets included in the FTSE Developed Index: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong SAR, Ireland, Israel, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Singapore, South Korea, Spain, Sweden, Switzerland, UK, and US.

444. Any equity market not included in the FTSE Developed Index is considered an emerging market.

445. Infrastructure equity is comprised of equity assets that meet the definitions and criteria specified in sections 1 and 2 of Annex 3.

446. Investments in subordinated debt are included in the Equity risk charge within the segment hybrid debt/preference shares. Subordinated debt is not included in the Credit risk charge.

447. The segment other equity is comprised of all investments not included in the previous equity segments. Examples include: unlisted equities, hedge funds, limited partnerships, commodities and other alternative investments.

448. The four level scenarios (one for each asset segment) and volatility scenario are defined as:

a. An instantaneous decrease by 35%, before applying the Neutral Adjusted Dampener (NAD), of the market prices of ~~all~~ listed shares in developed markets, other than infrastructure equity, and by 27% of the market prices of infrastructure equity in developed markets. The impact of the decrease in value of listed equity and infrastructure equity should be aggregated using a linear correlation factor of 1.

b. An instantaneous decrease by 48%, before applying NAD, of the market prices of ~~all~~ listed shares in emerging markets, other than infrastructure equity, and by 37% of the market prices of infrastructure equity in emerging markets. The impact of the decrease in value of listed equity and infrastructure equity should be aggregated using a linear correlation factor of 0.75.

c. An instantaneous decrease of the market prices of hybrid debt/preference shares by x%, with x based on the ICS rating category (RC) of the asset, as specified in Table 18.

Table 18: Stress factors for hybrid debt/preference shares

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

d. An instantaneous decrease by 49%, before applying NAD, of the market prices of all assets classified as other equity, as defined in paragraph 447.

e. An instantaneous absolute increase by x% of the implied volatilities of all the asset classes listed above, with x having the values provided in Table 19. For example, an initial implied volatility level of 42% plus a stress of 39% equals a post-scenario implied volatility of 81%. For maturities not specified, the increase is interpolated linearly.

Table 19: Absolute stress factors for implied volatilities

Maturity (months)	x%
0-1	42%
3	28%
6	23%
12	20%

24	17%
36	16%
48	15%
60	14%
84	14%
120	12%
144	11%
180	10%
240	7%
300	4%
360 and above	0%

449. NAD is an additive component that behaves in a counter-cyclical manner. The NAD ranges from -10% to +10% and is applied on the developed markets, emerging markets, and other equity asset segments. NAD is computed using the following formula:

$$NAD = \left[a \times \left(\frac{CI_i - AI_i}{AI_i} - b\right)\right]_{-c}^{+c}$$, where:

- CIi = Current Index value for category i
- AIi = 3 years moving average index for category i
- a = 50% - This parameter has the impact of dampening the NAD to prevent the impact from being a simple binomial adjustment (either +c% or -c%)
- b = 7% - This parameter prevents the NAD from always being positive and increasing in a rising market, even when there is a moderate to normal increase.
- c = 10% - This parameter provides a corridor to limit the impact of the NAD for both good and bad market conditions.

450. The following scenario parameters should be used:

Table 20: Scenario parameters including NAD

Parameter including NAD	**Developed**	**Emerging**	**Other**
31 December 2022	35% - 5% = 30%	48% - 10% = 38%	49% - 2% = 47%
31 March 2023	35% - 2% = 33%	48% - 9% = 39%	49% - 1% = 48%

451. The results of the stresses listed above are aggregated in two steps:

a. Step 1: The total level risk is calculated by aggregating the impact of the stress for each level scenario, floored at zero, using the following correlation matrix:

Table 21: Equity correlation matrix

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

b. Step 2: The total Equity risk charge is calculated by summing the total level risk (from Step 1) and the impact of the stress under the volatility scenario.

452. IAIGs should provide the value for each of these asset segments before and after applying the stress scenario.

453. IAIGs should report the impact on the current estimate, separately for life and non-life business, and non-insurance liabilities. The impact on reinsurance recoverables/assets should also be reported separately.

7.3.5 Real Estate risk

Relevant Worksheet in Template:	*Candidate ICS > Insurance*

454. The Real Estate risk charge is calculated as the change in the net asset value, following the occurrence of a prescribed stress scenario, based on a change in the level of real estate prices, after management actions.

455. The Real Estate risk stress scenario is applied to both direct and indirect exposures to real estate prices, without distinguishing between commercial, residential and real estate for own use (see Section 3.3 on *Look-Through*).

456. Residential and commercial mortgages are not included in Real Estate risk (see Section 7.4 on *Credit risk*).

457. The Non-Life risk charge stemming from mortgage insurance is added to Real Estate risk.

458. Investments in companies engaged in real estate management, facility management or real estate administration, or investments in companies engaged in real estate project development or similar activities are excluded from Real Estate risk.

459. The stress scenario is a decrease of 25% in real estate prices. Assets and liabilities subject to the stress are:

a. Commercial investment real estate;

b. Residential investment real estate;

c. Real estate for own use;

d. Other assets whose value is impacted by a change in real estate prices; and

e. Liabilities, both insurance and other, whose value is impacted by a change in real estate prices.

7.3.6 Currency risk

Relevant Worksheet in Template:	*Candidate ICS > Insurance*

460. The Currency risk charge is equal to the higher of the aggregated losses incurred under two stress scenarios on the exchange rates between the IAIG's reporting currency and those currencies in which the IAIG holds assets or liabilities. The prescribed stresses are applied to the net open position determined for each relevant currency.

461. The net open position in a currency takes into account all direct and indirect exposures to that currency. Where relevant, an amount corresponding to jurisdictional capital requirements in that currency, subject to a cap, may be deducted from the net open position.

462. The two stress scenarios are:

a. Scenario 1: All of the currencies in which the IAIG has a net long position decrease in value against the reporting currency, while all of the currencies in which the IAIG has a net short position remain unchanged; or

b. Scenario 2: All of the currencies in which the IAIG has a net short position increase in value against the reporting currency, while all of the currencies in which the IAIG has a net long position remain unchanged.

463. Within each scenario, the losses by currency are aggregated using a correlation formula.

464. The prescribed stresses for each currency pair, the aggregation formula, as well as the rules applicable to the determination of net open positions, are specified below.

465. In order to determine the Currency risk charge, IAIGs determine their net open position for all currencies other than the reporting currency. The net open position for each currency is calculated as the sum of the following:

a. The net spot position, defined as all assets less liabilities, including accrued interest and accrued expenses;

b. The net forward position, defined as all net amounts under forward foreign exchange transactions, including currency futures and the interest and principal on currency swaps;

c. The delta equivalent amounts of currency options;

d. Guarantees and similar instruments that are certain to be exercised and are likely to be irrevocable;

e. At the discretion of the IAIG, net future income and expenses not yet accrued but already fully hedged;

f. Any other item representing a profit or loss in the foreign currency;

g. Minus the amount of capital required locally to support the activities in the foreign currency, subject to a cap of 10% of net insurance liabilities in that currency.

466. The deduction referred to in point g) of paragraph 465 is applied to long positions only and shall not change any long position to a short position. This deduction applies only if the IAIG has operations in the jurisdiction of the foreign currency.

467. The net open currency position excludes assets that are fully deducted from capital resources, and liabilities that qualify for inclusion in consolidated capital resources.

468. The net insurance liability reported for each currency consists of the current estimate net of any reinsurance assets, plus all deferred tax assets and liabilities associated with the current estimate and reinsurance assets.

469. Forward currency positions are valued at spot market exchange rates as at the reporting date.

470. The reporting currency referred to in paragraph 460 is the currency used for the IAIG's consolidated accounts, unless the GWS considers that the solvency position should be assessed in another currency. In such case, the IAIG should indicate the currency in which the solvency position is assessed in the worksheet *Participant* of the Template; this currency will then be used as the reporting currency for the calculation of the Currency risk charge.

471. For the purpose of confidential reporting, the net open positions mentioned in paragraph 465 should be calculated for 35 predefined currencies. A World Bucket[27] is provided for exposures in any currency not included in the predefined list. When choosing the currencies to report, IAIGs should apply the general principles of proportionality as presented in Section 3.2.

472. IAIGs should report in the table of exposures their net open position for each currency. Net long positions should be reported as positive entries, and net short positions should be reported as negative entries. All positions should be reported in units of the IAIG's base currency, converted using spot exchange rates in effect at the reporting date.

473. IAIGs should also report in the table of exposures their current estimate net of reinsurance for all currencies, including the reporting currency; those figures should be consistent with the amounts reported in the ICS balance sheet.

474. The Currency risk charge is equal to the higher of the aggregated losses incurred under the following two scenarios:

a. Scenario 1: all currencies in which the IAIG has a net long position decrease in value, while all of the currencies in which the IAIG has a net short position remain unchanged. The amount of the decrease of each foreign currency relative to the reporting currency is found in the currency stress matrix in Table 22 below.

b. Scenario 2: all currencies in which the IAIG has a net short position increase in value, while all of the currencies in which the IAIG has a net long position remain unchanged. The amount of the increase of each foreign currency relative to the reporting currency is found in the currency stress matrix in Table 22 below.

475. IAIGs should report in the relevant columns of the table of exposures the new value of each net open position under the two scenarios specified in paragraph 474.

[27] The one exception to the World bucket is the BND. The stresses for the BND are the same as the SGD. BND against the SGD will receive the lowest stress factor, which is 5%.

476. For each scenario, the losses by currency are aggregated using a correlation formula for which the assumed correlation of losses between each pair of foreign currencies is 50%.

Table 22: Currency risk stress factors

	Against											
Ref Curr	AUD	BRL	CAD	CHF	CLP	CNY	COP	CZK	DKK	EUR	GBP	HKD
AUD	0%	50%	25%	40%	35%	40%	40%	35%	35%	35%	35%	40%
BRL	50%	0%	50%	65%	50%	55%	55%	60%	60%	60%	55%	55%
CAD	25%	50%	0%	35%	30%	25%	35%	35%	30%	30%	30%	25%
CHF	40%	60%	35%	0%	45%	30%	45%	25%	20%	20%	30%	35%
CLP	35%	50%	30%	45%	0%	30%	40%	40%	40%	40%	35%	30%
CNY	35%	55%	25%	35%	30%	0%	35%	35%	30%	30%	25%	5%
COP	40%	55%	35%	50%	40%	35%	0%	45%	45%	45%	40%	35%
CZK	35%	55%	35%	30%	40%	35%	45%	0%	15%	15%	30%	35%
DKK	35%	55%	30%	20%	35%	30%	40%	15%	0%	5%	25%	30%
EUR	35%	55%	30%	20%	35%	30%	40%	15%	5%	0%	25%	30%
GBP	35%	55%	30%	30%	35%	25%	40%	30%	25%	25%	0%	25%
HKD	35%	55%	25%	35%	30%	5%	35%	35%	30%	30%	25%	0%
HUF	40%	60%	40%	35%	45%	45%	50%	25%	25%	25%	35%	45%
IDR	45%	60%	40%	50%	45%	35%	45%	50%	45%	45%	45%	35%
ILS	35%	55%	30%	35%	35%	25%	35%	35%	30%	30%	30%	25%
INR	35%	50%	25%	35%	30%	20%	35%	35%	30%	30%	30%	15%
JPY	50%	65%	40%	35%	45%	30%	50%	45%	35%	35%	40%	30%
KRW	30%	50%	25%	40%	30%	25%	35%	35%	35%	35%	30%	25%
MXN	35%	50%	30%	45%	35%	30%	35%	40%	40%	40%	40%	30%
MYR	35%	50%	25%	35%	30%	15%	30%	35%	30%	30%	25%	15%
NOK	35%	55%	30%	30%	40%	35%	40%	25%	20%	20%	30%	35%
NZD	20%	55%	30%	40%	40%	40%	45%	40%	35%	35%	35%	40%
PEN	35%	50%	25%	35%	30%	15%	30%	35%	30%	30%	30%	15%
PHP	35%	50%	25%	35%	30%	15%	35%	35%	30%	30%	30%	15%
PLN	35%	55%	35%	40%	40%	40%	45%	25%	25%	25%	35%	40%
RON	35%	50%	35%	30%	40%	30%	45%	25%	20%	20%	30%	30%
RUB	45%	60%	40%	50%	40%	35%	45%	45%	40%	40%	45%	35%
SAR	40%	55%	25%	35%	30%	5%	35%	35%	30%	30%	25%	5%
SEK	35%	55%	30%	30%	40%	35%	45%	25%	20%	20%	30%	35%
SGD	30%	50%	20%	30%	30%	15%	30%	30%	25%	25%	25%	15%
THB	35%	55%	30%	35%	30%	20%	35%	35%	30%	30%	30%	20%
TRY	70%	75%	70%	75%	70%	70%	75%	70%	70%	70%	70%	70%
TWD	35%	50%	25%	30%	30%	10%	35%	35%	25%	25%	25%	10%
USD	40%	55%	25%	35%	30%	5%	35%	35%	30%	30%	25%	5%
ZAR	45%	60%	45%	55%	50%	55%	55%	50%	50%	50%	50%	55%

	Against											
Ref Curr	HUF	IDR	ILS	INR	JPY	KRW	MXN	MYR	NOK	NZD	PEN	PHP
AUD	40%	45%	35%	35%	50%	30%	35%	35%	35%	20%	40%	35%
BRL	60%	60%	55%	55%	70%	50%	50%	50%	55%	55%	55%	55%
CAD	40%	40%	30%	25%	40%	25%	30%	25%	30%	30%	25%	25%
CHF	35%	50%	35%	35%	35%	40%	45%	35%	25%	40%	35%	35%
CLP	45%	45%	35%	30%	45%	30%	35%	30%	40%	40%	30%	30%
CNY	45%	35%	25%	15%	30%	25%	30%	15%	35%	40%	15%	15%
COP	50%	45%	35%	35%	50%	35%	35%	30%	40%	45%	35%	35%
CZK	25%	50%	35%	35%	45%	35%	40%	35%	25%	40%	35%	35%
DKK	25%	45%	30%	30%	35%	30%	40%	30%	20%	35%	30%	30%
EUR	25%	45%	30%	30%	35%	35%	40%	30%	20%	35%	30%	30%
GBP	35%	45%	30%	30%	40%	30%	35%	25%	30%	35%	30%	30%
HKD	45%	35%	25%	15%	30%	25%	30%	15%	35%	40%	15%	15%
HUF	0%	55%	40%	40%	55%	40%	45%	40%	30%	40%	45%	45%
IDR	55%	0%	40%	35%	50%	40%	45%	35%	45%	50%	35%	35%
ILS	40%	40%	0%	25%	40%	30%	30%	25%	35%	40%	25%	25%
INR	40%	35%	25%	0%	35%	25%	30%	20%	35%	35%	20%	20%
JPY	50%	50%	40%	35%	0%	40%	50%	35%	40%	50%	35%	35%
KRW	40%	40%	30%	25%	40%	0%	30%	25%	35%	35%	25%	25%
MXN	45%	45%	35%	30%	50%	30%	0%	25%	40%	40%	30%	30%
MYR	40%	35%	25%	20%	35%	25%	25%	0%	30%	35%	20%	20%
NOK	30%	45%	35%	35%	40%	35%	40%	30%	0%	35%	35%	35%
NZD	40%	50%	40%	35%	50%	35%	40%	35%	35%	0%	40%	40%
PEN	45%	35%	25%	20%	35%	25%	30%	20%	35%	40%	0%	20%
PHP	40%	35%	25%	20%	35%	25%	30%	20%	35%	35%	20%	0%
PLN	25%	50%	40%	40%	55%	35%	40%	40%	30%	40%	40%	40%
RON	30%	45%	30%	30%	40%	35%	40%	30%	30%	40%	35%	35%
RUB	50%	50%	40%	35%	50%	40%	40%	35%	40%	50%	35%	40%
SAR	45%	35%	25%	15%	30%	25%	30%	15%	35%	40%	15%	15%
SEK	25%	45%	35%	35%	45%	35%	40%	30%	20%	35%	35%	35%
SGD	35%	35%	20%	15%	30%	20%	30%	15%	25%	30%	15%	15%
THB	40%	35%	25%	20%	35%	25%	35%	20%	35%	35%	20%	20%
TRY	70%	75%	70%	70%	75%	70%	70%	70%	70%	70%	70%	70%
TWD	40%	35%	25%	15%	30%	20%	30%	15%	30%	35%	15%	15%
USD	45%	35%	25%	15%	30%	25%	30%	15%	35%	40%	15%	15%
ZAR	50%	60%	50%	50%	65%	45%	50%	45%	45%	50%	50%	50%

	Against										
Ref Curr	PLN	RON	RUB	SAR	SEK	SGD	THB	TRY	TWD	USD	ZAR
AUD	35%	40%	45%	40%	35%	30%	35%	55%	35%	40%	45%
BRL	55%	50%	60%	55%	55%	50%	55%	70%	55%	55%	65%
CAD	35%	30%	40%	25%	30%	20%	30%	55%	25%	25%	45%
CHF	35%	30%	45%	35%	30%	25%	35%	65%	30%	35%	55%
CLP	40%	40%	40%	30%	40%	30%	35%	60%	30%	30%	50%
CNY	40%	30%	35%	5%	35%	15%	20%	60%	10%	5%	50%
COP	45%	45%	45%	35%	45%	35%	35%	60%	35%	35%	55%
CZK	25%	25%	45%	35%	25%	30%	35%	60%	35%	35%	50%
DKK	25%	20%	40%	30%	20%	25%	30%	60%	25%	30%	50%
EUR	25%	20%	40%	30%	20%	25%	30%	60%	25%	30%	50%
GBP	35%	30%	40%	25%	30%	25%	30%	60%	25%	25%	50%
HKD	40%	30%	35%	5%	35%	15%	20%	60%	10%	5%	55%
HUF	25%	30%	50%	45%	25%	35%	40%	60%	40%	45%	50%
IDR	50%	45%	50%	35%	45%	35%	35%	70%	35%	35%	60%
ILS	35%	30%	40%	25%	35%	20%	25%	55%	25%	25%	50%
INR	40%	30%	35%	15%	35%	15%	20%	55%	15%	15%	50%
JPY	50%	40%	50%	30%	40%	30%	35%	70%	30%	30%	65%
KRW	35%	35%	40%	25%	35%	20%	25%	55%	20%	25%	45%
MXN	40%	40%	40%	30%	40%	30%	35%	60%	30%	30%	50%
MYR	35%	30%	35%	15%	30%	15%	20%	55%	15%	15%	45%
NOK	30%	30%	40%	35%	20%	25%	35%	60%	30%	35%	45%
NZD	40%	40%	50%	40%	35%	30%	35%	60%	35%	40%	50%
PEN	40%	30%	35%	15%	35%	15%	20%	60%	15%	15%	50%
PHP	40%	30%	40%	15%	35%	15%	20%	55%	15%	15%	50%
PLN	0%	30%	45%	40%	30%	35%	40%	55%	40%	40%	50%
RON	30%	0%	40%	30%	25%	25%	35%	60%	30%	30%	50%
RUB	45%	40%	0%	35%	45%	35%	40%	65%	35%	40%	55%
SAR	40%	30%	35%	0%	35%	15%	20%	60%	10%	5%	55%
SEK	30%	25%	45%	35%	0%	30%	35%	60%	30%	35%	50%
SGD	35%	25%	35%	15%	30%	0%	15%	55%	10%	15%	45%
THB	40%	30%	40%	20%	35%	15%	0%	55%	20%	20%	50%
TRY	70%	70%	75%	70%	70%	65%	70%	0%	70%	70%	75%
TWD	35%	30%	35%	10%	30%	10%	20%	55%	0%	10%	50%
USD	40%	30%	35%	5%	35%	15%	20%	60%	10%	0%	55%
ZAR	50%	50%	55%	55%	50%	45%	50%	60%	50%	55%	0%

7.3.7 Asset Concentration risk

Relevant Worksheet in Template:	*Candidate ICS > Insurance*

477. The Asset Concentration risk charge is an incremental risk charge above the Market and Credit risk charges, which acknowledges that assets held by IAIGs are not perfectly diversified. Assets in separate accounts or where the investment risks fully flow-through[28] to policyholders are excluded from the calculation of the Asset Concentration risk charge.

478. For real estate, a specified factor is applied to assets in excess of specified threshold.

479. The methodology to calculate the Asset Concentration risk charge is specified below.

7.3.7.1 Assets other than real estate

480. For assets other than real estate, the Asset Concentration risk charge is calculated as:

$$f \times \left(\frac{\sum_{E_i > T} (E_i - T)(d.K_i^{eq} + K_i^{cr})}{(d.K^{eq} + K^{cr})} + T \right)$$

where:

- $f = 0.71656$;
- $d = 0.95$;
- E_i is the net exposure to group of connected counterparties i;
- T is an exposure threshold determined by the IAIG in such a way that the number of groups of connected counterparties i for which $E_i > T$ is equal to or greater than 10 but does not exceed 100;
- K_i^{eq} is the Equity risk charge associated with counterparty i, before diversification and management actions;
- K_i^{cr} is the Credit risk charge associated with counterparty i, before diversification and management actions;
- K^{eq} is the total Equity risk charge of the IAIG, before diversification and management actions; and
- K^{cr} is the total Credit risk charge of the IAIG, before diversification and management actions.

481. Groups of connected counterparties are determined according to the definition provided by the Basel Committee on Banking Supervision (BCBS)[29]. Specifically, two or more natural or legal persons are considered a group of connected counterparties if at least one of the following criteria is satisfied:

[28] Not considering any guarantee to policyholders that may exist on the value of the overall investment fund(s) such as on variable annuity products.

[29] As specified in the BCBS publication *Supervisory framework for measuring and controlling large exposures* (April 2014), which also outlines criteria for assessing whether 'control' or 'economic interdependence' exists.

a. Control relationship: one of the counterparties, directly or indirectly, has control over the other(s); or

b. Economic interdependence: if one of the counterparties were to experience financial problems, the other(s), as a result, would also be likely to encounter financial problems.

482. Exposures to national governments are excluded from the Asset Concentration risk charge calculation. Public sector exposures, not issued or guaranteed by a national government, such as provincial, state or municipal debt, are included within the Asset Concentration risk charge calculation with their corresponding Credit and Equity risk charges.

483. The determination of the gross counterparty exposures includes both on- and off-balance sheet positions, and considers the following:

a. Exposures to reinsurance counterparties are included on a pre-stress basis[30];

b. The determination of OTC derivatives exposures is based on a credit-equivalent basis, as applicable, and exposures to central counterparties are excluded;

c. Exposures are based on a look-through approach for investment funds and structured products;

d. Non-affiliated (external) guarantees, commitments, bank deposits, receivables and any other items subject to the possibility of financial loss due to counterparty default are included; and

e. Gross exposures are calculated based upon the MAV basis described in Section 5, except where otherwise specified.

484. The determination of net counterparty exposures considers the following:

a. Exposures from assets held in separate accounts or life insurance contracts where the investment risks fully flow-through to policyholders are excluded. Nevertheless, assets backing any guarantees to policyholders are included;

b. Asset exposures may be netted against liability exposures to the extent that they are subject to a legally enforceable right of offset;

c. For exposures covered by collateral or unconditional and irrevocable guarantees, the substitution approach specified in Sections 7.4.2.1.1 and 7.4.2.2.3 may be used for the portion of the exposure covered by the collateral or the guarantees. The exposure to the primary counterparty is then replaced by the exposure to the collateral or guarantor. This approach should also be used for bank deposits if an explicit guarantee (such as a national government guarantee) exists. Where national government exposures are substituted for corporate exposures, the corresponding amounts are excluded from the determination of the Asset Concentration risk charge, in line with the provisions of paragraph 482; and

d. For collateralised non-life reinsurance exposures, the haircut approach specified in Section 7.4.2.1.2 is used in lieu of the substitution approach. The exposure to the reinsurer is the adjusted net exposure calculated in Section 7.4 on *Credit risk*. The collateral received is excluded from the counterparty exposure. However, the asset

[30] The contingent risk associated with catastrophe scenarios is not included in the exposure.

concentration risk for the collateral calculated on a standalone basis is one component of the haircut applied to the collateral.

7.3.7.2 Real estate

485. In order to calculate the Asset Concentration risk charge for real estate, property exposures are determined on the basis of single property, or group of properties within a 250 metres radius, including exposures from both direct and indirect holdings (such as funds of properties).

486. The Asset Concentration risk charge for any property exposure as defined above is calculated as 25% of the net property exposure exceeding 3% of the IAIG's total net investment assets relating to insurance activities. The net property exposures are calculated in line with paragraphs 483 and 484.

7.4 Credit Risk

Relevant Worksheet in Template:	*Candidate ICS > Insurance*

7.4.1 Calculation of Credit risk charge

487. The Credit risk charge is the determined by applying prescribed stress factors to specified net exposure amounts. The Credit risk charge is the sum of each stress factor applied based on the specified net exposures amounts. Management actions are taken into consideration in the calculation of the Credit risk charge.

7.4.1.1 Exposure classes

488. The Credit risk charge applies to all senior debt obligations of specified exposure classes of borrowers. Preferred shares and hybrid obligations, including subordinated debt, are excluded from the calculation of the Credit risk charge, and are instead subject to the Equity risk charge for hybrid debt/preference shares described in Section 7.3.4.

489. Credit exposures to national governments, multilateral development banks and supranational organisations are not subject to the Credit risk charge. Regional governments and municipal authorities and other government entities whose debt is not issued or guaranteed by the national government, are classified as public sector entities. Exposures to commercial undertakings owned but not guaranteed by governments or municipal authorities are classified in the corporates category.

490. The corporates category includes exposures to banks and securities dealers, but excludes exposures to reinsurers. Rated commercial mortgages are included in the corporate exposure class.

491. The infrastructure category includes debt exposures to infrastructure projects and corporates that meet definitions and criteria specified in sections 1 and 3 of Annex 3.

492. The securitisation category includes all holdings of mortgage-backed securities and other asset-backed securities. It also includes any other assets where the cash flow from an underlying pool of exposures is used to service payments by a SPV to bondholders. If any of the assets in the pool of exposures underlying a securitisation exposure is itself a securitisation, then the exposure belongs to the re-securitisation category.

493. The category short-term obligations of regulated banks includes demand deposits and other obligations that have an original maturity of less than three months, and that are drawn on a bank subject to the solvency requirements of the Basel Framework. All other bank exposures are included in the corporates category.

494. Assets that are held for unit-linked business or in separate accounts and for which all credit risk on the assets fully flows through to policyholders are excluded from the Credit risk charge. However, IAIGs calculate a Credit risk charge for the increase in related liabilities (eg due to decreased future fee income) that would result from a credit risk loss on those assets, calculated as specified in this section. The total amount of separate account assets excluded from Credit risk and the Credit risk charge for separate account liabilities should be reported in the table *Separate account* of the Template.

495. A non-paid-up financial instrument that qualifies for inclusion in capital resources is subject to the same Credit risk charge as a direct credit exposure to the contingent capital provider.

496. The Credit risk charge for off-balance sheet exposures is based on credit equivalent amounts calculated as specified in Section 7.4.1.4.

7.4.1.2 Distribution of exposures by maturity

497. For calculating the Credit risk charge, an effective maturity is calculated as follows for each credit exposure:

$$Effective\ Maturity = \frac{\sum_t t * CF_t}{\sum_t CF_t}$$

where:

CFt denotes the cash flows (principal, interest payments and fees) contractually payable by the borrower in period *t*.

498. This effective maturity should be used to report the Credit risk exposure in the corresponding maturity bucket.

499. Where it is not possible to calculate the effective maturity of the contracted payments as noted above, a conservative measure is used, such as the maximum remaining time (in years) that the borrower is permitted to take to fully discharge its contractual obligation (principal, interest, and fees) under the terms of the loan agreement.

500. For OTC derivatives subject to a master netting agreement, the maturity is calculated as the weighted average of the maturities of the transactions subject to netting, with the weights proportional to the transactions' notional amounts.

501. All exposures to a group are aggregated and split by rating category before calculating the effective maturity.

502. When an exposure is redistributed into another rating category due to the presence of an eligible guarantee or collateral, the effective maturity is calculated based on the term of the underlying exposure, not the term of the guarantee or collateral.

7.4.1.3 Reinsurance exposures

503. The use of AM Best credit ratings is restricted to the calculation of the Credit risk charge on reinsurance exposures. The mapping of AM Best insurer financial strength ratings to the ICS ratings categories is provided in Section 3.4.

504. Reinsurance exposures include all positive on-balance sheet reinsurance assets and receivables. Negative exposures are not included.

505. Reinsurance exposures are considered net of cessions to mandatory insurance pools that are backed by either a governmental entity or jointly by the insurance market. Cessions to these mandatory pools are subject to a separate calculation.

506. Reinsurance exposures include all credit recognised in the ICS risk charges due to the presence of reinsurance. When an IAIG reduces its ICS risk charges on account of reinsurance, the risk reduction should be reported in the table on *Reinsurance exposures other than collateralised non-life reinsurance exposures* in the Template.

507. In the case of catastrophe scenarios and life insurance stresses, the impact of the scenarios and stresses (before management actions) are calculated on a gross and net of reinsurance basis. The difference between the gross and net of reinsurance basis is then allocated to Credit risk categories based on the profile of the reinsurers that have provided cover. This calculation is made at the Catastrophe risk charge and Life insurance risk charge level (ie after diversification of the components of those risk charges).

508. Modified coinsurance and funds withheld arrangements are subject to a risk charge even if there is no on-balance sheet reinsurance asset or the reinsurance asset is fully offset by payables.

509. For funds withheld and similar arrangements, IAIGs may treat payables and other liabilities due to a reinsurer in the same manner as collateral provided that the arrangement meets all of the following conditions:

a. The IAIG has executed a written, bilateral netting contract or agreement with the reinsurer from which the asset is due that creates a single legal obligation. As a result of such an agreement, the IAIG would have only one obligation for payment or one claim to receive funds based on the net sum of the liabilities and amounts due in the event the reinsurer failed to perform due to any of the following: default, bankruptcy, liquidation or similar circumstances.

b. The IAIG has a written and reasoned legal opinion that, in the event of any legal challenge, the relevant courts or administrative authorities would find the amount owed under the netting agreement to be the net amount under the laws of all relevant jurisdictions. In reaching this conclusion, the legal opinion must address the validity and enforceability of the entire netting agreement under its terms.

    i. The laws of all relevant jurisdictions are:
        - The law of the jurisdiction where the reinsurer is incorporated and, if the foreign branch of a reinsurer is involved, the laws of the jurisdiction in which the branch is located;
        - The law governing the individual insurance transaction; and
        - The law governing any contracts or agreements required to effect the netting arrangement.

    ii. A legal opinion is recognised as such by the legal community in the IAIG's home jurisdiction or by a memorandum of law that addresses all relevant issues in a reasoned manner.

c. The IAIG has procedures in place to update legal opinions as necessary to ensure continuing enforceability of the netting arrangement in light of possible changes in relevant laws.

7.4.1.4 Off-balance sheet exposures

7.4.1.4.1 Credit equivalent amount for OTC derivatives

510. The credit equivalent amount for OTC derivatives is calculated using the current exposure method from Annex 4, section VII of the Basel Framework[31]. Under this method, IAIGs calculate the current replacement cost by summing:

a. The total replacement cost (obtained by marking to market) of all its contracts with positive value; and

b. An amount for potential future credit exposure calculated on the basis of the total notional principal amount of its book, split by residual maturity as specified in Table 23.

Table 23: Calculation of potential future credit exposure

Residual Maturity	Interest Rate	Exchange Rate and Gold	Equity	Precious Metals Except Gold	Other Commodities
One year or less	0.0%	1.0%	6.0%	7.0%	10.0%
Over one year to five years	0.5%	5.0%	8.0%	7.0%	12.0%
Over five years	1.5%	7.5%	10.0%	8.0%	15.0%

511. Within the Template, the credit equivalent amount of exposures to OTC derivatives counterparties should be reported in the column *OTC Derivatives*.

512. Credit derivatives are not subject to the current exposure method. Credit protection that is received is treated according to the provisions for guarantees and credit derivatives (cf. Section 7.4.2.2), while credit protection that is sold is treated as an off-balance sheet direct credit substitute subject to a 100% credit conversion factor (cf. Section 7.4.1.4.2).

513. For contracts with multiple exchanges of principal, the factors are multiplied by the number of remaining payments in the contract.

514. For contracts that are structured to settle outstanding exposure following specified payment dates and where the terms are reset so that the market value of the contract is zero on these specified dates, the residual maturity is considered to be the time until the next reset date. In the case of interest rate contracts with remaining maturities of more than one year and that meet the above criteria, the add-on factor is subject to a floor of 0.5%.

515. Contracts not covered by any category in Table 23 are treated as other commodities.

516. No potential credit exposure is calculated for single currency floating/floating interest rate swaps; the credit exposure on these contracts is evaluated solely on the basis of their mark-to-market value.

517. The add-ons are based on effective rather than stated notional amounts. Where the stated notional amount is leveraged or enhanced by the structure of the transaction, IAIGs use the actual or effective notional amount when determining potential future exposure.

[31] Accessible at http://www.bis.org/publ/bcbs128.pdf

518. Potential credit exposure is calculated for all OTC contracts (with the exception of single currency floating/floating interest rate swaps), regardless of whether the replacement cost is positive or negative.

519. IAIGs may net contracts that are subject to novation[32] or any other legally valid form of netting provided the following conditions are satisfied:

a. The IAIG has executed a written, bilateral netting contract or agreement with each counterparty that creates a single legal obligation, covering all included bilateral transactions subject to netting. The result of such an arrangement is that the IAIG only has one obligation for payment or one claim to receive funds based on the net sum of the positive and negative mark-to-market values of all the transactions with that counterparty in the event that counterparty fails to perform due to any of the following: default, bankruptcy, liquidation or similar circumstances.

b. The IAIG has a written and reasoned legal opinion that, in the event of any legal challenge, the relevant courts or administrative authorities will find the exposure under the netting agreement to be the net amount under the laws of all relevant jurisdictions. In reaching this conclusion, the legal opinion addresses the validity and enforceability of the entire netting agreement under its terms.

    i. The laws of all relevant jurisdictions are:

        - The law of the jurisdiction where the counterparties are incorporated and, if the foreign branch of a counterparty is involved, the laws of the jurisdiction in which the branch is located;
        - The law governing the individual insurance transactions; and
        - The law governing any contracts or agreements required to effect the netting arrangement.

    ii. A legal opinion is recognised as such by the legal community in the IAIG's home jurisdiction or by a memorandum of law that addresses all relevant issues in a reasoned manner.

c. The IAIG has internal procedures to verify that, prior to recognising a transaction as being subject to netting for capital purposes, the transaction is covered by a legal opinion that meets the above criteria.

d. The IAIG has procedures in place to update legal opinions as necessary to ensure continuing enforceability of the netting arrangements in light of possible changes in relevant laws.

e. The IAIG maintains all required documentation in its files.

520. Any contract containing a walkaway clause[33] is not eligible to qualify for netting for the purpose of calculating the Credit risk charge.

[32] Novation refers to a written bilateral contract between two counterparties under which any obligation to each other to deliver a given currency on a given date is automatically amalgamated with all other obligations for the same currency and value date, legally substituting one single amount for the previous gross obligations.

[33] A walkaway clause is a provision within the contract that permits a non-defaulting counterparty to make only limited payments, or no payments, to the defaulter.

521. Credit exposure on bilaterally netted forwards, swaps, purchased options and similar derivatives transactions is calculated as the sum of the net mark-to-market replacement cost, if positive, plus an add-on based on the notional principal of the individual underlying contracts. However, for purposes of calculating potential future credit exposures of contracts subject to legally enforceable netting agreements in which notional principal is equivalent to cash flows, notional principal is defined as the net receipts falling due on each value date in each currency.

522. These contracts are treated as a single contract because offsetting contracts in the same currency maturing on the same date will have lower potential future exposure as well as lower current exposure. For multilateral netting schemes, the current exposure (ie replacement cost) is a function of the loss allocation rules of the clearing house.

523. The calculation of the gross add-ons is based on the legal cash flow obligations in all currencies. This is calculated by netting all receivable and payable amounts in the same currency for each value date. The netted cash flow obligations is converted to the reporting currency using the current forward rates for each value date. Once converted the amounts receivable for the value date are added together and the gross add-on is calculated by multiplying the receivable amount by the appropriate add-on factor.

524. The future credit exposure for netted transactions is the sum of:

a. 40% of the add-on as calculated in paragraph 523; and

b. 60% of the add-on multiplied by the ratio of net current replacement cost to positive current replacement cost (NGR) where:

$$NGR = \frac{level\ of\ net\ replacement\ cost}{level\ of\ positive\ replace\ cost\ for\ transactions\ subect\ to\ legally\ enforceable\ netting\ arrangements}$$

525. The calculation of NGR can be made on a counterparty by counterparty basis or on an aggregate basis for all transactions subject to legally enforceable netting agreements. On a counterparty by counterparty basis, a unique NGR should be calculated for each counterparty. On an aggregate basis, one NGR should be calculated and applied to all counterparties.

7.4.1.4.2 Credit equivalent amount for other off-balance sheet exposures

526. Off-balance sheet exposures that are not arising from OTC derivatives are converted into credit exposure equivalents through the use of credit conversion factors (CCFs) applied to the item's notional amount:

a. Commitments with an original maturity up to one year and commitments with an original maturity over one year receive a CCF of 20% and 50%, respectively. However, any commitments that are unconditionally cancellable at any time by the IAIG without prior notice, or that effectively provide for automatic cancellation due to deterioration in a borrower's creditworthiness, receive a 0% CCF;

b. Direct credit substitutes[34] receive a CCF of 100%. If an IAIG has guaranteed, sold a credit derivative for, or otherwise assumed the credit risk of a debt security, the risk charge is the same as if the IAIG were directly holding the underlying security. Such exposures should be reported in the column *Other Off-Balance Sheet* of the Template, in the row corresponding to the guaranteed security.

[34] For example, credit derivatives sold, general guarantees of indebtedness (including standby letters of credit serving as financial guarantees for loans and securities) and acceptances (including endorsements with the character of acceptances).

c. Sale and repurchase agreements and asset sales with recourse, where the Credit risk remains with the IAIG, receive a CCF of 100%;

d. Forward asset purchases, forward deposits and partly-paid shares and securities, which represent commitments with certain drawdown, receive a CCF of 100%;

e. Transaction-related contingent items receive a CCF of 50%;

f. Note issuance facilities (NIFs) and revolving underwriting facilities (RUFs) receive a CCF of 50%;

g. Short-term self-liquidating trade letters of credit that an IAIG either issues or confirms arising from the movement of goods (eg documentary credits collateralised by the underlying shipment) receive a 20% CCF;

h. Where there is an undertaking to provide a commitment on an off-balance sheet item, IAIGs apply the lower of the two applicable CCFs;

i. Off-balance sheet securitisation exposures receive a CCF of 100%.

527. Off-balance sheet exposures that are not arising from OTC derivatives should be reported in the column *Other Off-Balance Sheet* of the Template.

7.4.1.5 Securities financing transactions

528. The rating category for a securities financing transaction is the lower of that of the counterparty to the transaction, or that of the securities lent. Collateral received under securities financing transactions is recognised according to the same criteria as collateral received under regular lending transactions (cf. Section 7.4.2.1).

529. Within the Template tables, exposures arising from on-balance sheet securities financing transactions should be reported in the column *Balance Sheet Assets*, and exposures arising from off-balance sheet securities financing transactions (full notional amount) in the column *Other Off-Balance Sheet*.

7.4.1.6 Credit risk stress factors

530. The following tables contain the ICS Credit risk stress factors for the exposure classes by ICS RC and maturity:

Table 24: Credit risk stress factors for public sector entities

ICS RC	Maturity: 0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14+
1 or 2	0.1%	0.4%	0.5%	0.6%	0.7%	0.8%	0.9%	1.0%	1.0%	1.1%	1.1%	1.2%	1.2%	1.2%	1.3%
3	0.4%	1.0%	1.3%	1.5%	1.8%	2.0%	2.2%	2.4%	2.5%	2.7%	2.8%	2.9%	3.0%	3.0%	3.1%
4	1.0%	2.2%	2.6%	3.0%	3.3%	3.6%	3.9%	4.1%	4.2%	4.4%	4.5%	4.6%	4.7%	4.8%	4.9%
5	2.5%	5.1%	6.0%	6.6%	7.0%	7.3%	7.5%	7.6%	7.6%	7.7%	7.8%	7.8%	7.9%	7.9%	7.9%
6	6.3%	10.8 %	11.8 %	12.3 %	12.5 %	12.7 %	12.7 %	12.7 %	12.7 %	12.7 %	12.7 %	12.7 %	12.7 %	12.7 %	12.7 %

7	22.0%	24.7%	25.2%	25.3%	25.3%	25.3%	25.3%	25.3%	25.3%	25.3%	25.3%	25.3%	25.3%	25.3%
Unrated	2.5%	5.1%	6.0%	6.6%	7.0%	7.3%	7.5%	7.6%	7.6%	7.7%	7.8%	7.8%	7.9%	7.9%	7.9%
In Default	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%

Table 25: Credit risk stress factors for corporates and reinsurance

ICS RC	Maturity: 0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14+
1 or 2	0.2%	0.7%	0.9%	1.2%	1.4%	1.6%	1.7%	1.9%	2.0%	2.1%	2.2%	2.3%	2.4%	2.4%	2.5%
3	0.6%	1.3%	1.6%	1.8%	2.1%	2.3%	2.6%	2.8%	3.0%	3.2%	3.3%	3.4%	3.5%	3.6%	3.7%
4	1.4%	3.0%	3.6%	4.1%	4.5%	4.9%	5.1%	5.3%	5.4%	5.6%	5.7%	5.8%	5.9%	6.0%	6.0%
5	3.6%	7.1%	8.3%	9.0%	9.4%	9.7%	9.8%	9.8%	9.8%	9.8%	9.8%	9.8%	9.8%	9.8%	9.8%
6	8.9%	14.4%	15.3%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%
7	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%
Unrated	6.3%	10.7%	11.8%	12.3%	12.5%	12.6%	12.7%	12.7%	12.7%	12.7%	12.7%	12.7%	12.7%	12.7%	12.7%
In Default	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%

Table 26: Credit risk stress factors for infrastructure

ICS RC	Maturity: 0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14+
1 or 2	0.2%	0.7%	0.9%	1.2%	1.4%	1.6%	1.7%	1.9%	2.0%	2.1%	2.2%	2.3%	2.4%	2.4%	2.5%
3	0.6%	1.3%	1.6%	1.8%	2.1%	2.3%	2.6%	2.8%	3.0%	3.2%	3.3%	3.4%	3.5%	3.6%	3.7%
4	1.4%	3.0%	3.6%	4.1%	4.5%	4.9%	5.1%	5.3%	5.4%	5.6%	5.7%	5.8%	5.9%	6.0%	6.0%
5	3.6%	7.1%	8.3%	9.0%	9.4%	9.7%	9.8%	9.8%	9.8%	9.8%	9.8%	9.8%	9.8%	9.8%	9.8%
6	8.9%	14.4%	15.3%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%
7	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%
Unrated	4.7%	8.0%	8.9%	9.2%	9.4%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%
In Default	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%

Table 27: Credit risk stress factors for securitisations

ICS RC	Maturity: 0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14+
1 or 2	0.2%	0.7%	0.9%	1.2%	1.4%	1.6%	1.7%	1.9%	2.0%	2.1%	2.2%	2.3%	2.4%	2.4%	2.5%
3	0.6%	1.3%	1.6%	1.8%	2.1%	2.3%	2.6%	2.8%	3.0%	3.2%	3.3%	3.4%	3.5%	3.6%	3.7%
4	1.4%	3.0%	3.6%	4.1%	4.5%	4.9%	5.1%	5.3%	5.4%	5.6%	5.7%	5.8%	5.9%	6.0%	6.0%
5	10.8%	21.3 %	24.9 %	27.0 %	28.2 %	29.1 %	29.4 %	29.4 %	29.4 %	29.4 %	29.4 %	29.4 %	29.4 %	29.4 %	29.4 %
6	100%	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
7	100%	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Unrated	100%	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
In Default	100%	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %

Table 28: Credit risk stress factors for re-securitisations

ICS RC	Maturity: 0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14+
1 or 2	0.4%	1.4%	1.8%	2.4%	2.8%	3.2%	3.4%	3.8%	4.0%	4.2%	4.4%	4.6%	4.8%	4.8%	5.0%
3	1.2%	2.6%	3.2%	3.6%	4.2%	4.6%	5.2%	5.6%	6.0%	6.4%	6.6%	6.8%	7.0%	7.2%	7.4%
4	2.8%	6.0%	7.2%	8.2%	9.0%	9.8%	10.2 %	10.6 %	10.8 %	11.2 %	11.4 %	11.6 %	11.8 %	12.0 %	12.0 %
5	21.6%	42.6 %	49.8 %	54.0 %	56.4 %	58.2 %	58.8 %	58.8 %	58.8 %	58.8 %	58.8 %	58.8 %	58.8 %	58.8 %	58.8 %
6	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
7	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Unrated	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
In Default	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

531. The Credit risk stress factor for policy loans (which are to be reported in the *Miscellaneous Assets* table in the Template) is 0%. The stress factor for short-term obligations of regulated banks, as defined in paragraph 493, is 0.4%. The stress factor for receivables from agents and brokers is 6.3%. All other assets receive a stress factor of 8%. IAIGs may exclude outstanding premiums from the exposure if insurance liabilities are recorded for the

contracts relating to the outstanding premiums and the outstanding premiums are unrecorded in line with the release of the insurance liabilities when the contracts expire upon the policyholder's default.

7.4.1.7 Mortgage Loans

7.4.1.7.1 Commercial and agricultural mortgages where repayment depends on property income

532. Depending on data availability, the risk charge is calculated using one of the three following methods, in decreasing order of preference:

a. Method 1: risk charge based on the ICS Commercial Mortgage (CM) category as determined by loan-to-value (LTV) and debt service coverage ratio (DSCR);

b. Method 2: risk charge based on the ICS CM category as determined by LTV only; or

c. Method 3: no Credit Quality Differentiator used.

533. For agricultural and commercial Method 1, the mapping of the ICS CM categories 1 to 5 to LTV and DSCR is provided in Table 29. Categories CM6 and CM7 are for delinquent loans and loans in foreclosure, respectively.

Table 29: Mapping of ICS CM categories, Method 1

		LTV					
	CM	<60%	60% to 69.9%	70% to 79.9%	80% to 89.9%	90% to 99.9%	>= 100%
DSCR	< 0.6	CM3	CM3	CM3	CM4	CM4	CM5
	0.6 to 0.79	CM3	CM3	CM3	CM4	CM4	CM5
	0.8 to 0.99	CM3	CM3	CM3	CM4	CM4	CM5
	1 to 1.19	CM2	CM2	CM3	CM3	CM4	CM4
	1.2 to 1.39	CM2	CM2	CM3	CM3	CM3	CM3
	1.4 to 1.59	CM1	CM2	CM2	CM2	CM3	CM3
	1.6 to 1.79	CM1	CM1	CM1	CM2	CM3	CM3
	1.8 to 1.99	CM1	CM1	CM1	CM2	CM2	CM2
	>= 2	CM1	CM1	CM1	CM2	CM2	CM2

534. For agricultural and commercial Method 1, the following stress factors are used:

Table 30: Stress factors for agricultural and commercial mortgages, Method 1

ICS CM Categories	**Stress factors**
CM1	4.8%
CM2	6.0%

CM3	7.8%
CM4	15.8%
CM5	23.5%
CM6	35%
CM7	35%

535. For agricultural and commercial Method 2, where only LTV data is available, the mapping of the ICS CM categories 1 to 4 to LTV and the associated stress factors are provided in Table 31. As for Method 1, categories CM6 and CM7 are for delinquent loans and loans in foreclosure, respectively.

Table 31: Stress factors for agricultural and commercial mortgages, Method 2

ICS CM Categories	Stress factors	LTV Minimum	LTV Maximum
CM1	4.8%	0%	59%
CM2	6.0%	60%	79%
CM3	7.8%	80%	99%
CM4	15.8%	100%	NA
CM5	Not applicable		
CM6	35%		
CM7	35%		

536. For agricultural and commercial Method 3, where LTV and DSCR data are not available, a flat 8% stress factor is used.

7.4.1.7.2 Commercial and agricultural mortgages where repayment does not depend on property income

537. When the LTV ratio of the mortgage is above 60%, the risk factor is that of a regular credit exposure to the borrower. When the LTV ratio of the mortgage is 60% or lower, the risk factor is the lower of 3.6% or the risk factor for a regular credit exposure to the borrower.

7.4.1.7.3 Residential mortgages

538. For performing[35] residential mortgage loans for which repayment depends on income generated by the underlying property, the factors applied are based on the mortgage's LTV ratio, as specified in the following table:

[35] The distinction between performing and non-performing is consistent with the Basel Committee's definition, which establishes criteria for categorising loans and debt securities that are centred around delinquency status (90 days past due) and the unlikeliness of repayment. As such, non-performing

Table 32: Factors for residential mortgages for which repayment depends on income generated by the underlying property

LTV	Stress factors
LTV ≤ 60%	4.2%
60% < LTV ≤ 80%	5.4%
LTV > 80%	7.2%

539. For performing residential mortgage loans for which repayment does not depend on income generated by the underlying property, the factors applied are based on the mortgage's LTV ratio, as specified in the following table:

Table 33: Factors for residential mortgages for which repayment does not depend on income generated by the underlying property

LTV	Stress factors
LTV ≤ 40%	1.5%
40% < LTV ≤ 60%	1.8%
60% < LTV ≤ 80%	2.1%
80% < LTV ≤ 90%	2.7%
90% < LTV ≤ 100%	3.3%
LTV > 100%	4.5%

540. For non-performing mortgage loans, the factor applied is 35%.

7.4.2 Recognition of collateral, guarantees and credit derivatives

541. In determining the net exposure value, collateral and guarantees may be taken into consideration.

7.4.2.1 Recognition of collateral

542. A collateralised transaction is one in which:

exposures encompass: (1) all exposures defaulted, as defined under the Basel framework; or (2) all exposures impaired (ie exposures that have undergone a downward adjustment to their valuation due to deterioration in their creditworthiness); or (3) material exposures that are more than 90 days past due or where there is evidence that full repayment of principal and interest without realisation of collateral is unlikely, regardless of the number of days past due.

a. An IAIG has a credit exposure or potential credit exposure; and

b. That credit exposure or potential credit exposure is hedged in whole or in part by collateral posted by a counterparty or by a third party on behalf of the counterparty.

543. Only the following collateral categories are eligible to be recognised:

a. Securities that are either issued by a sovereign entity or have ICS RC 4 or better;

b. Gold;

c. Mutual funds where:

i. a price is publicly quoted daily; and

ii. the mutual fund is limited to investing in the eligible collateral listed above;

d. Letters of credit.

544. The Credit risk charge calculation takes into account collateral provided all of the following requirements are met:

a. The effects of collateral are not double counted. In particular, collateral on claims for which an issue-specific rating is used that already reflects that collateral is not recognised. All criteria around the use of ratings remain applicable to collateral.

b. All documentation used in collateralised transactions are binding on all parties and legally enforceable in all relevant jurisdictions. The IAIG has conducted sufficient legal review to verify this and have a well-founded legal basis to reach this conclusion, and undertaken such further review as necessary to ensure continuing enforceability.

c. The legal mechanism by which collateral is pledged or transferred ensures that the IAIG has the right to liquidate or take legal possession of the collateral in a timely manner in the event of the default, insolvency or bankruptcy (or one or more otherwise-defined credit events set out in the transaction documentation) of the counterparty (and, where applicable, of the custodian holding the collateral). Furthermore, the IAIG has taken all necessary steps to fulfil those requirements under the law applicable to the IAIG's interest in the collateral for obtaining and maintaining an enforceable security interest, eg by registering it with a registrar, or for exercising a right to net or set off in relation to title transfer collateral.

d. The credit quality of the counterparty and the value of the collateral do not have a material positive correlation. For example, securities issued by the counterparty – or by any related group entity – are not eligible.

e. The IAIG has clear and robust procedures for the timely liquidation of collateral to ensure that any legal conditions required for declaring the default of the counterparty and liquidating the collateral are observed, and that collateral can be liquidated promptly.

f. Where collateral is held by a custodian, the IAIG takes reasonable steps to ensure that the custodian segregates the collateral from its own assets.

g. The collateral is pledged for at least the life of the exposure.

545. Where the collateral is denominated in a currency different from that in which the exposure is denominated, the amount of the exposure deemed to be protected is 80% of the amount of collateral, converted at current exchange rates.

7.4.2.1.1 Default approach to the recognition of collateral: the substitution approach

546. The portion of an exposure that is collateralised by eligible financial collateral valued at market is redistributed into the rating category applicable to the collateral instrument, while the remainder of the exposure is assigned the rating category appropriate to the counterparty.

547. The effect of the Credit risk mitigation will be to transfer the exposure from the class of the borrower to that of the collateral or the guarantor. This is done in the Template by including the negative amount of the exposure in column *Redistribution for Collateral and Guarantees* of the row corresponding to the class of the underlying exposure, and including the positive amount of the exposure in column *Redistribution for Collateral and Guarantees* of the row corresponding to the class of the collateral or of the guarantor. The total entry in each row of column *Redistribution for Collateral and Guarantees* is the net sum of the (positive) exposures redistributed into and (negative) exposures redistributed out of the exposure class. The sum of all entries in column *Redistribution for Collateral and Guarantees* taken over all exposure classes should be zero.

7.4.2.1.2 Alternative approach for collateralised non-life reinsurance exposures: the haircut approach

548. Under the haircut approach, collateral may be recognised if it satisfies requirements a) to f) of paragraph 544 and is pledged for at least one year.

549. The haircut approach reduces the exposure amount to account for collateral held by the ceding insurer. The adjusted reinsurance exposure is defined by:

$$\begin{aligned} &Adjusted\ reinsurance\ exposure \\ &\quad = Reinsurance\ assets\ and\ receivables + Capital\ Requirements \\ &\quad - Collateral \end{aligned}$$

Where:

Capital Requirements consist of the risk charges for Non-life risk, Catastrophe risk, Market risks and Credit risk on the reinsured business and/or its supporting collateral, aggregated using the correlations specified in Section 7.6.

550. The risk charges for Non-Life and Catastrophe risks are equal to the reduction in the ICS risk charges attributable to the reinsurance arrangement. This amount is aggregated with the Market risk charge and the Credit risk charges using 25% correlations.

551. The Credit and Market risk charges are specified as follows:

a. The Credit risk charge is calculated for all of the assets held as collateral.

b. The Asset Concentration risk charge is the granularity adjustment for all of the assets held as collateral, calculated on a standalone basis (ie in isolation from the ceding insurer's own asset portfolio).

c. The Currency risk charge is calculated on a standalone basis for the reinsured liabilities in combination with the assets held as collateral. For the purpose of this calculation, the base currency is taken to be the currency in which the ceded liabilities are denominated, and the deduction referred to in point g) of paragraph 465 is not applied.

d. The Interest Rate and Non-Default Spread risk charges are calculated on a standalone basis for the ceded liabilities in combination with the assets held as collateral.

e. The Equity and Real Estate risk charges are calculated for all of the assets held as collateral.

f. The Asset Concentration, Currency, Interest Rate, Non-Default Spread, Equity and Real Estate risk charges are aggregated to obtain the Market risk charge using the correlations specified in Section 7.3.1.

552. The resulting Credit risk charge for collateralised non-life reinsurance is equal to the adjusted reinsurance exposure multiplied by the Credit risk factor applicable to the reinsurer.

7.4.2.2 Recognition of guarantees and credit derivatives

553. In order to determine the ICS RC of their counterparties, IAIGs may take into account the credit protection provided by guarantees and credit derivatives, provided that all of the following conditions are met:

a. The guarantees or credit derivatives are direct, explicit, irrevocable and unconditional.

b. The guarantor or protection provider belongs to a higher rating category than the counterparty covered by the guarantee or protection.

c. The IAIG fulfils certain minimum conditions relating to risk management described in Section 7.4.2.2.1.

554. The capital treatment is founded on the substitution approach, whereby the protected portion of a counterparty exposure is assigned the rating category of the guarantor or protection provider, while the uncovered portion retains the rating category of the underlying counterparty.

7.4.2.2.1 Risk management requirements

555. The minimum conditions referred to in paragraph 553, applicable to both guarantees and credit derivatives, are the following:

a. The effects of credit protection are not double counted. In particular, no recognition is given to credit protection on claims for which an issue-specific rating is used that already reflects that protection. All criteria around the use of ratings remain applicable to guarantees and credit derivatives.

b. With the exception of credit protection provided by sovereigns as specified in paragraph 569, a guarantee, counter-guarantee or credit derivative must represent a direct claim on the protection provider and must explicitly refer to a specific exposure or pool of exposures, so that the extent of the cover is clearly defined and incontrovertible.

c. The credit protection contract is irrevocable, except in case of non-payment by the protection purchaser of money due in respect of the credit protection contract.

d. There is no clause in the contract that allows the protection provider to unilaterally cancel the credit cover or to increase the effective cost of cover as a result of deteriorating credit quality in the hedged exposure.

e. The contract is unconditional, ie there is no clause in the protection contract outside the direct control of the IAIG that could prevent the protection provider from being obliged to pay out in a timely manner in the event that the original counterparty fails to make the payment(s) due.

f. All documentation used for documenting guarantees and credit derivatives are binding on all parties and legally enforceable in all relevant jurisdictions. IAIGs have conducted sufficient legal review to verify this and have a well-founded legal basis to reach this conclusion, and undertake such further review as necessary to ensure continuing enforceability.

556. In addition to the requirements set in paragraph 555, the recognition of a guarantee is subject to all of the following conditions:

a. On the qualifying default/non-payment of the counterparty, the IAIG pursues the guarantor in a timely manner for any monies outstanding under the documentation governing the transaction. The guarantor makes one lump sum payment of all monies under such documentation to the IAIG, or the guarantor assumes the future payment obligations of the counterparty covered by the guarantee. The IAIG has the right to receive any such payments from the guarantor without first having to take legal action in order to pursue the counterparty for payment.

b. The guarantee is an explicitly documented obligation assumed by the guarantor.

c. Except as noted in the following sentence, the guarantee covers all types of payments the underlying obligor is expected to make under the documentation governing the transaction, for example notional amount, margin payments etc. Where a guarantee excludes certain types of payment, the corresponding amounts are treated as unsecured amounts.

557. In addition to the requirements set in paragraph 555, the recognition of a credit derivative contract is subject to all of the following conditions:

a. The credit events specified by the contracting parties cover at a minimum:

i. The failure to pay the amounts due under the terms of the underlying obligation that are in effect at the time of such failure (with a grace period that is in line with the grace period in the underlying obligation);

ii. The bankruptcy, insolvency or inability of the obligor to pay its debts, or its failure or admission in writing of its inability generally to pay its debts as they become due, and analogous events; and

iii. The restructuring of the underlying obligation involving forgiveness or postponement of principal, interest or fees that results in a credit loss event (ie charge-off, specific provision or other similar debit to the profit and loss account).

b. If the credit derivative covers obligations that do not include the underlying obligation, point g) below governs whether the asset mismatch is permissible.

c. The credit derivative does not terminate prior to the expiration of any grace period required for a default on the underlying obligation to occur as a result of a failure to pay.

d. Credit derivatives allowing for cash settlement are recognised for capital purposes insofar as a robust valuation process is in place in order to estimate loss reliably. There is a clearly specified period for obtaining post-credit event valuations of the underlying obligation. If the reference obligation specified in the credit derivative for purposes of

cash settlement is different than the underlying obligation, point g) below governs whether the asset mismatch is permissible.

e. If the protection purchaser's right/ability to transfer the underlying obligation to the protection provider is required for settlement, the terms of the underlying obligation provide that any required consent to such transfer be not unreasonably withheld.

f. The identity of the parties responsible for determining whether a credit event has occurred is clearly defined. This determination is not the sole responsibility of the protection seller. The protection buyer has the right/ability to inform the protection provider of the occurrence of a credit event.

g. A mismatch between the underlying obligation and the reference obligation under the credit derivative (ie the obligation used for purposes of determining cash settlement value or the deliverable obligation) is permissible if:

   i. The reference obligation ranks *pari passu* with or is junior to the underlying obligation; and

   ii. The underlying obligation and reference obligation share the same obligor (ie the same legal entity) and legally enforceable cross-default or cross-acceleration clauses are in place.

h. A mismatch between the underlying obligation and the obligation used for purposes of determining whether a credit event has occurred is permissible if:

   i. The latter obligation ranks *pari passu* with or is junior to the underlying obligation; and

   ii. The underlying obligation and reference obligation share the same obligor (ie the same legal entity) and legally enforceable cross-default or cross-acceleration clauses are in place.

i. Only credit default swaps and total return swaps that provide credit protection equivalent to guarantees are eligible for recognition. Where an IAIG buys credit protection through a total return swap and records the net payments received on the swap as net income, but does not record offsetting deterioration in the value of the asset that is protected (either through reductions in fair value or by increasing provisions), the credit protection is not recognised.

558. When the restructuring of the underlying obligation is not covered by the credit derivative, but the other requirements above are met, partial recognition of the credit derivative is allowed, up to a maximum of 60% of the lower of:

a. The amount of the credit derivative; and

b. The amount of the underlying obligation.

7.4.2.2.2 Eligible guarantors

559. Only the credit protection provided by the following counterparties are eligible for recognition:

a. Sovereigns;

b. Externally rated public sector entities, banks and securities firms with a higher rating category than that of the counterparty; and

c. Other entities, including parent, subsidiaries and affiliate companies of an obligor, provided they have a higher rating category than that of the obligor.

In addition, a guarantee or credit protection provided by a related party (parent, subsidiary or affiliate) of the IAIG is not eligible for recognition. This treatment follows the principle that guarantees within a corporate group are not a substitute for capital.

7.4.2.2.3 Capital treatment

560. The protected portion of a counterparty exposure is assigned the rating category of the protection provider. The uncovered portion of the exposure is assigned the rating category of the underlying counterparty.

561. Where the amount guaranteed or covered with credit protection is less than the amount of the exposure, and the secured and unsecured portions are of equal seniority (ie the IAIG and the guarantor share losses on a pro-rata basis), the protected portion of the exposure receives the treatment applicable to eligible guarantees and credit derivatives, and the remainder is treated as unsecured.

562. Where an IAIG transfers a portion of the risk of an exposure in one or more tranches to protection sellers and retains some level of risk, and the risk transferred and the risk retained are of different seniority, all tranches are considered as securitisation exposures based on the ratings of the guarantors. If a tranche does not carry a rating, it is considered as an unrated securitisation exposure even if the underlying exposure is rated. Where such treatment leads to a Credit risk charge higher than the risk charge calculated without taking the guarantee into account, IAIGs may ignore the guarantee.

563. Materiality thresholds on amounts due below which no payment is made in the event of loss are considered unrated securitisation exposures.

7.4.2.2.4 Currency mismatches

564. Where the credit protection is denominated in a currency different from that in which the exposure is denominated, the amount of the exposure deemed to be protected is 80% of the nominal amount of the credit protection, converted at current exchange rates.

7.4.2.2.5 Maturity mismatches

565. When the residual maturity of the credit protection is less than that of the underlying exposure (maturity mismatch) and the credit protection has either an original maturity of less than one year or a residual maturity of less than three months, the protection is not recognised.

566. In other cases of maturity mismatch, the following adjustment is applied:

$$P_a = P * \frac{t - 0.25}{T - 0.25}$$

where:

- P_a is the value of the credit protection adjusted for maturity mismatch;
- P is the nominal amount of the credit protection, adjusted for currency mismatch if applicable;

- T is the lower of 5 and the residual maturity of the exposure expressed in years; and
- t is the lower of T and the residual maturity of the credit protection arrangement expressed in years.

567. The residual maturity of the underlying exposure is taken as the longest possible remaining time before the counterparty is scheduled to fulfil its obligation, taking into account any applicable grace period.

568. For the credit protection, embedded options that may reduce the term of the protection are taken into account so that the shortest possible effective maturity is used. In particular:

a. Where a call is at the discretion of the protection seller, the residual maturity corresponds to the remaining time to the first call date.

b. Where a call is at the discretion of the IAIG buying protection but the terms of the arrangement at origination contain a positive incentive for the IAIG to call the transaction before contractual maturity, the residual maturity corresponds to the remaining time to the first call date. For example, where there is a step-up cost in conjunction with a call feature or where the effective cost of cover increases over time even if credit quality remains the same or improves, the effective maturity will be the remaining time to the first call.

7.4.2.2.6 Sovereign counter-guarantees

569. Claims covered by a guarantee that is indirectly counter-guaranteed by a sovereign may be treated as covered by a sovereign guarantee provided that:

a. The sovereign counter-guarantee covers all credit risk elements of the claim;

b. Both the original guarantee and the counter-guarantee meet all the operational requirements for guarantees, except that the counter-guarantee need not be direct and explicit to the original claim; and

c. The cover is robust, and there is no historical evidence suggesting that the coverage of the counter-guarantee is less than effectively equivalent to that of a direct sovereign guarantee.

7.4.2.2.7 Other items

570. Where an IAIG has multiple types of risk mitigation arrangements covering a single exposure (eg both collateral and a guarantee partially cover an exposure), this exposure is subdivided into portions covered by each type of risk mitigation arrangement (eg portion covered by collateral, portion covered by guarantee) and the rating category for each portion is determined separately.

571. When a credit protection provided by a single protection provider has different maturities, it is subdivided into separate protections.

7.4.3 Use of external credit ratings

572. External credit ratings may be used for the calculation of the Credit risk charge, provided that the rating agency has published default and transition statistics extending back over a sufficiently long period of time, and satisfying six criteria related to: objectivity, independence, international access/transparency, disclosure, resources and credibility. Those criteria, as well as the required time period for which statistics need to have been published, are specified below.

573. When external credit ratings are used in accordance with paragraph 572, they are mapped to ICS Rating Categories as described in Section 3.4.

574. IAIGs may use any ratings by a rating agency currently recognised by their supervisor for local capital determination purposes, subject to clear instructions provided by the supervisor on how to map those credit agency ratings to the ICS Rating Categories and explicit acceptance of the use of those ratings by the IAIS.

575. For the monitoring period, the IAIS will recognise ratings issued by credit agencies licensed with China Banking and Insurance Regulatory Commission (CBIRC). The table below provides a mapping of those ratings, which was established after determining that all of the ICS recognition criteria had been met with the exception of the regular publication of default statistics. The default data submission is currently made available to CBIRC only. The average 3-year cumulative default rates (CDRs) used in the mapping are based on the default statistics of the total public trading market from 2008 to 2015. The mapping is on an aggregate basis rather than separately for each agency, because it is very uncommon to differentiate the ratings issued by the above agencies in the China market.

Table 34: Mapping of Chinese domestic credit ratings to ICS RC

ICS RC	Chinese ratings
1	
2	
3	AAA
4	
5	AA/A1, A/A2
6	BBB/A3, BB, B
7	CCC and lower

7.4.3.1 Eligible external credit ratings

576. IAIGs may use ratings produced by rating agencies other than those referred to in paragraph 574, provided that both of the following requirements are met:

a. The rating agency is regulated or recognised by a suitable government authority in all of the jurisdictions in which the agency issues ratings that the IAIG chooses to use.

b. The rating agency publishes at least annually publicly available default and transition statistics extending back at least seven years, and satisfies all of the following six criteria:

   i. Objectivity: The rating agency's methodology for assigning credit assessments is rigorous, systematic, and subject to some form of validation based on historical experience. Moreover, assessments are subject to ongoing review and are responsive to changes in financial conditions. The agency has an assessment methodology for each market segment, including rigorous back testing that has been applied for at least one year and, preferably, three years.

   ii. Independence: The rating agency is independent and is not subject to political or economic pressures that may influence the rating. The assessment process is free from any constraints that could arise in situations where the composition of the board of directors or the shareholder structure of the assessment institution may be seen as creating a conflict of interest.

   iii. International access/Transparency: The individual assessments, the key elements underlining the assessments, and whether the issuer participated in the assessment process are made publicly available on a non-selective basis. In addition, the general procedures, methodologies and assumptions for arriving at assessments used by the rating agency are publicly available.

   iv. Disclosure: A rating agency discloses the following information: its code of conduct; the general nature of its compensation arrangements with assessed entities; its assessment methodologies, including the definition of default, the time horizon, and the meaning of each rating; the actual default rates experienced in each assessment category; and the transitions of the assessments, eg the likelihood of AA ratings becoming A over time.

v. Resources: A rating agency has sufficient resources to carry out high quality credit assessments. These resources allow for substantial ongoing contact with senior and operational levels within the entities assessed in order to add value to the credit assessments. Such assessments are based on methodologies that combine qualitative and quantitative approaches.

vi. Credibility: The rating agency's external credit assessments are widely used by independent parties (investors, insurers, trading partners). In addition, the rating agency has internal procedures to prevent the misuse of confidential information.

7.4.3.2 Definition of rating categories

577. The mapping of the agency's ratings to ICS RCs is based on the average of the three-year Cumulative Default Rates (CDRs) associated with the agency's ratings, as follows:

Table 35: Mapping of ratings by other rating agencies

ICS RC	Average 3-year CDR based on over 20 years of published data	Average 3-year CDR based on between 7 and 20 years of published data
1		
2	0 ≤ CDR ≤ 0.15%	
3	0.15% < CDR ≤ 0.35%	0 ≤ CDR ≤ 0.15%
4	0.35% < CDR ≤ 1.20%	0.15% < CDR ≤ 0.35%
5	1.20% < CDR ≤ 10.00%	0.35% < CDR ≤ 1.20%
6	10.00% < CDR ≤ 25.00%	1.20% < CDR ≤ 10.00%
7	CDR > 25%	CDR > 10%

7.4.3.3 Use of ratings

578. IAIGs choose the rating agencies they intend to rely on and use their ratings consistently for each type of credit exposure.

579. Any rating used to determine an ICS RC is publicly available, ie the rating is published in an accessible form and included in the rating agency's transition matrix.

580. If an IAIG is relying on multiple rating agencies and there is only one rating for a particular security, that assessment is used to determine the ICS RC. If there are two ratings from the rating agencies used by an IAIG, and those two ratings are mapped to different ICS RC, the IAIG uses the ICS RC corresponding to the lower of the two ratings. If there are three or more ratings for a security from an IAIG's chosen rating agencies, one of the ratings that corresponds to the highest ICS RC is excluded, and the rating that corresponds to the highest rating category of those that remain is used to determine the ICS RC of the security (ie the IAIG should use the second-highest rating from those that were initially available, allowing for

multiple occurrences of the highest rating). For example, if ratings are AA, AA and A, one AA is ignored, and the ICS category is based on the highest remaining, in this case AA, rating.

581. Where a particular security has one or more issue-specific rating, the ICS RC for that security is based on these ratings. Otherwise, the following principles apply:

a. Where the borrower has a specific rating for an issued debt security other than the one in which the IAIG is invested, an ICS RC of 4 or better on the rated security may only be applied to the IAIG's unrated investment if it ranks *pari passu* or senior to the rated security in all respects. If not, the credit rating cannot be used and the IAIG's investment is treated as an unrated obligation.

b. Where the borrower has an issuer rating, only senior securities issued by that issuer will benefit from an investment-grade (ICS RC 4 or better) issuer assessment; other unassessed securities issued by that issuer are treated as unrated. If either the issuer or one of its issues has an ICS RC of 5 or weaker, this rating is used to determine the ICS RC for an unrated claim on the issuer.

c. Short-term assessments for a given security or facility can be used only for that security or securities issued by that rated facility. They can neither be generalised to other short-term securities nor used to support a rating category assignment for an unrated long-term security.

d. Where the rating category for an unrated exposure is based on the rating of an equivalent exposure to the borrower, a foreign currency rating may be used only for exposures denominated in that foreign currency. Domestic currency ratings, if separate, are used to determine the rating category for securities denominated in the domestic currency only.

582. The following additional conditions apply to the use of ratings:

a. External assessments for one entity within a corporate group are not used to determine the rating category for other entities within the same group.

b. No rating based on assets that the entity possesses is inferred for an unrated entity. The use of internal ratings is not allowed.

c. IAIGs do not recognise collateral or guarantees in the Credit risk charge calculation if these credit enhancements have already been reflected in the issue-specific rating.

d. IAIGs do not use a rating that is at least partly based on unfunded support (eg guarantees, credit enhancement or liquidity facilities) provided by the IAIG itself or one of its affiliates.

e. Any assessment used takes into account the entire amount of Credit risk exposure an IAIG has with regard to all payments owed to it. In particular, if an IAIG is owed both principal and interest, the assessment fully takes into account the Credit risk associated with repayment of both principal and interest.

7.4.3.4 Exposures in default

583. Assets for which there is reasonable doubt about the timely collection of the full amount of principal or interest, including those assets that are contractually more than 90 days in arrears, are considered as defaulted exposures for the calculation of the Credit risk charge.

584. The exposure amount for a defaulted asset is taken net of all balance sheet write-downs and specific provisions that have been recorded for the asset.

7.5 Operational risk

Relevant Worksheet in Template:	*Candidate ICS > Insurance*

585. The Operational risk charge is determined by applying prescribed stress factors to specified risk exposures.

586. The calculation of the Operational risk charge is based on data items split into geographical segments and the following line of business segments:

- Non-Life – insurance products that do not relate to life or similar to life health insurance, often referred to as property and casualty or general insurance. Products include auto/motor, property, workers' compensation/employer's liability, other liability, and credit/ surety/pecuniary;
- Life (risk) – insurance products that relate to life or similar to life health insurance where the insurer bears investment risk. Products include individual life, group life, group pension and annuities (with a life aspect); and
- Life (non-risk) – products where the policyholder bears the investment risk. Products may be labelled as savings without guarantees or living benefits.

587. The Operational risk charge is calculated as follows:

$$\begin{aligned} Op\ risk\ charge\ = \ & \max\left[\text{non\_life\_premium\_exposure} * \text{factor}, \text{non\_life\_liability\_exposure} * \text{factor}\right] + \text{non\_life\_growth\_exposure} * \text{factor} \\ & + \max\left[\text{life\_(risk)\_premium\_exposure} * \text{factor}, \text{life\_(risk)\_liability\_exposure} * \text{factor}\right] + \text{life\_(risk)\_growth\_exposure} * \text{factor} \\ & + \text{life\_(non\_risk)\_liability\_exposure} * \text{factor} \end{aligned}$$

588. The Operational risk components are computed as factors multiplied by risk exposures. The same factors are applied across geographical segments as defined in 7.1.2.

589. The exposures and stress factors for Operational risk are specified in the following table.

Table 36: Operational risk exposures and stress factors

	Premium	Growth	Liabilities
Risk from Non-Life Operations			
Exposure	Gross written premium (GWP) in most recent financial year	GWP in most recent financial year in excess of the growth threshold (20%) compared to the previous year's GWP	Gross current estimate
Factor	2.75%	2.75%	2.75%
Risk from Life Operations			
Exposure	**Life (risk):** GWP in most recent financial year	**Life (risk):** GWP in most recent financial year in excess of the growth threshold (20%) compared to the previous year's GWP	**Life (risk):** Gross current estimate **Life (non-risk):** Gross current estimate
Factor	**Life (risk):** 4%	**Life (risk):** 4%	**Life (risk):** 0.45% **Life (non-risk):** 0.40%

590. GWP includes all business (new and renewal) written during the specified financial year before any allowance for reinsurance or other related recoverables. For single premium policies, premiums are included in full as written during the year. For other insurance policies, GWP includes premiums due to the IAIG during the specified time period (financial year) on all business in-force.

591. Gross current estimates are considered before any allowance for reinsurance or other related recoverables. The gross current estimate for life (sum of risk and non-risk) and non-life should equal the equivalent entries on the ICS Balance Sheet.

592. To calculate the growth risk component of Operational risk, the GWP for the two most recent financial years for non-life and life (risk) are used. The figures are considered before the effect of ceded reinsurance and on a consolidated basis.

7.6 Aggregation/Diversification of ICS Risk Charges

593. ICS Risk charges are aggregated together using multiple levels:

- A top-level aggregation between major risk categories (Life risk, Non-Life risk, Catastrophe risk, Market risk, Credit risk and Operational risk) using a correlation matrix;
- A medium-level aggregation between the sub-risks of Life risk, Catastrophe risk and Market risk, using correlation matrices; and
- An aggregation within individual risk charges (eg Interest Rate risk, Non-Life risk).

594. The aggregation of risk charges incorporates a degree of diversification between the individual risks, based on a specified dependency between the risks.

595. Correlation matrices are specified for the aggregation of the individual Life Risk charges and the aggregation of individual Market risks charges. A top-level correlation matrix is specified for the aggregation of Life, Non-Life, Catastrophe, Market and Credit risk charges. The Operational risk charge is then added to that aggregate to determine the overall ICS insurance risk charge.

596. The top-level aggregation matrix between major risk categories is:

Table 37: Aggregation matrix between risks

	Life	Non-Life	Catastrophe	Market	Credit
Life	100%	0%	25%	25%	25%
Non-Life	0%	100%	25%	25%	25%
Catastrophe	25%	25%	100%	25%	25%
Market	25%	25%	25%	100%	25%
Credit	25%	25%	25%	25%	100%

597. The aggregation of risk charges is automated in the Template. IAIGs are not required to enter any specific data with respect to aggregation.

7.7 Non-Insurance Risk Charges

Relevant Worksheet in Template:	*ICS > Non-Insurance & Baseline*

598. For insurance or insurance-related entities, the capital requirement is calculated as described in Sections 7.1 to 7.6.

599. For financial non-insurance entities with a sectoral capital requirement, the capital requirement is as follows:

a. For consolidated banking entities it is the maximum of Basel III risk-weighted assets or leverage ratio.

b. For consolidated non-banking entities it is equal to the maximum of the sectoral capital requirement and 15% of three year average gross income.[36] At the group wide supervisor's request, the requirement is equal to the maximum of the sectoral capital requirement and the Operational Risk Capital Requirement as calculated under the Basel III calculation for operational risk.[37]

c. For banking and non-banking entities reported as an equity method investment it is equal to the proportional sectoral charge.

d. For both banking and non-banking entities reported as a market value investment it is equal to the equity charge on the investment as described in Section 7.3.4.

600. This information should be reported in the worksheet *ICS > Non-Insurance & Baseline*, *ICS non-insurance risk charge* table under the section labelled *Financial non-insurance with a sectoral capital requirement*.

601. For financial non-insurance entities without a sectoral capital requirement, the capital requirement is as follows:

a. For consolidated banking entities it is equal to 4% of the exposure as determined by the leverage ratio.

b. For consolidated non-banking entities it is equal to 15% of three year average gross income or, at the group wide supervisor's request, to the Operational Risk Capital Requirement as calculated under the Basel III calculation for operational risk.[37] ~~.~~[45]

c. For banking entities reported as an equity method investment it is equal to the proportional sectoral leverage ratio.

d. For non-banking entities reported as an equity method investment it is equal to the proportional 15% of three year average gross income or, at the group wide supervisor's request, to the proportional Operational Risk Capital Requirement as calculated under the Basel III calculation for operational risk.[37] ~~45~~

[36] For asset managers, gross income relates only to third-party asset management, not the management of the IAIG's own assets where the risk is captured elsewhere. Gross income is defined in paragraph 650 of Basel II Comprehensive version (https://www.bis.org/publ/bcbs128.pdf).

[37] The Basel III calculation for operational risk capital requirement is specified in the following document: https://www.bis.org/basel_framework/chapter/OPE/25.htm?inforce=20230101&published=20221208&export=pdf

e. For both banking and non-banking entities reported as a market value investment it is equal to the equity charge on the investment as described in Section 7.3.4.

602. This information should be reported in the worksheet *ICS > Non-Insurance & Baseline*, *ICS non-insurance risk charge* table under the section labelled *Financial non-insurance without a sectoral capital requirement*.

603. For non-financial entities, the capital requirement is equal to the equity charge on the equity method or market value investment as described in paragraph 448, a) to d).

604. It may be necessary to estimate equity method investment balances for those non-financial entities that are consolidated for purposes of GAAP financial reporting.

605. This information should be input into the worksheet *ICS > Non-Insurance & Baseline*, *ICS non-insurance risk charge* table under the section labelled *Non-financial entities.*

7.7.1 Baseline Current Regulatory Reporting

606. IAIGs should report their existing group capital requirements and group capital resources, under the supervisory regime currently in force in their jurisdiction. This baseline information will be used to assess the impact of the ICS against existing or prospective group statutory requirements.

607. The worksheet *ICS > Non-Insurance & Baseline* is designed to obtain information about existing insurance-based group-wide capital requirements, as well as other sectoral capital requirements.

7.7.1.1 Insurance-related Baseline (Current regulatory reporting table)

608. The Insurance-related capital requirement is the existing group capital requirements and group capital resources, under the group-wide supervisory regime currently in force in the home jurisdiction of the IAIG. However, the following exception applies to IAIGs based in the United States who should provide a proxy baseline requirement as follows:

a. The analysis should start by identifying the top tier of regulated (insurance) entities. These top-tier entities should then be grouped by regulatory jurisdiction. The capital requirements and available regulatory capital should then be determined for those top-tiered entities based on existing capital rules in each jurisdiction. In doing so, consideration should be given to whether stacking is appropriately reflected. For instance, Risk-Based Capital (RBC) as used in the state-based insurance regulatory regime in the United States is structure-neutral for US entities, and assumes that the capital held for foreign subsidiaries is reasonable.

b. Several separate figures are to be aggregated as part of this process. The first is the minimum regulatory capital requirement of the IAIG as described in the next paragraph. The second is the available regulatory capital of the IAIG. In addition, for US life insurers, the Asset Valuation Reserve (AVR) and Interest Maintenance Reserve (IMR) should be aggregated and reported as memo accounts in the table *Other Information*.

c. For each of the top-tier US insurance entities in an insurance group, the RBC Company Action Level of each insurer should be re-calibrated to the point at which regulatory action can be taken in any state based on RBC alone, ie, the point at which the trend test begins which is one and a half times Company Action Level. The re-calibrated amounts for each top-tier US insurance entity should then be added together to approximate a combined re-calibrated RBC. This provides a combined company view

of the level at which regulatory action is triggered under the US approach to insurance regulation for the subject insurance legal entities domiciled in the United States. Thus, this aggregation approach is to be used rather than a fully detailed RBC calculation on the combined entities' annual statement data. This resulting aggregated level of required capital, in turn, would be combined with that of other jurisdictions as described above in paragraph a), pursuant to their respective existing capital requirements (as per the table below). For non-regulated entities, such as a US-based holding company, there is no minimum regulatory capital requirement.

d. In addition to capital requirements, firms should aggregate available regulatory capital. For US-domiciled insurers, this will be the statutory capital and surplus of each legal entity top-tier insurer per its year-end 2020 annual statement balance sheet. For insurers domiciled in other non-US jurisdictions, and for other regulated financial sectors, this will be pursuant to each jurisdiction's/sector's respective rules. Additional guidance for the major non-US jurisdictions is provided in the table below. For non-regulated entities, such as a US-based holding company, available capital will be based on capital resources held within that entity, excluding the book value of its investment in insurance subsidiaries.

609. Other examples of group PCRs or entity PCRs for the purposes of an aggregated group PCR are provided in the table below. If a specific jurisdiction is not listed within this table, IAIGs should consult with their GWS.

Table 38: Examples of jurisdictional group PCRs

Jurisdiction	Information provided
Australia	APRA's "Prudential Capital Requirement", as set out in prudential standards is the legal entity "MCR" under the ICPs. Groups also have to hold the "Prudential Capital Requirement" as set out in the prudential standards, again an MCR. The PCR is target capital as set by the insurer/group in accordance with APRA requirements. Effectively, this would be "Target capital under ICAAP". PCR is not a set multiple of MCR.
Bermuda	The Legal Entity PCR in Bermuda for medium and large commercial insurers is called "Enhanced Capital Requirement" (ECR) and is calibrated to Tail-VaR at 99% confidence level over a one-year time horizon.
Canada	The PCR for Life Groups is 100% of the LICAT Solvency Buffer. The PCR for P&C Groups is the MCT capital requirement at target level.
China	The PCR is 100% of the C-ROSS total capital.
European Union	The Group PCR is the Solvency 2 group SCR, calibrated at a VaR 99.5% level over a one-year time horizon.
Hong Kong	For Hong Kong, under the current rule-based capital regime, if applied similar to the concept of PCR of the IAIS data collection exercise, the

	regime's PCR would be 150% of MCR for life insurers and 200% of MCR for non-life insurers.
Japan	200% of solvency margin ratio is deemed as PCR.
Korea	100% of risk-based solvency margin ratio is deemed as PCR.
Singapore	The PCR at the legal entity level under the enhanced valuation and capital framework for insurers (RBC 2) is calibrated at the 99.5% VaR over a one year period.
South Africa	The PCR is 100% of the SAM group SCR.
Switzerland	The Group PCR under the "Swiss Solvency Test" (SST) is 100% of the target capital, which is calibrated to Tail-VaR at 99% confidence level over a one-year time horizon.
Chinese Taipei	The Chinese Taipei FSC does not impose a group PCR, and the capital requirement system for insurers (incl. Life, P&C, and Reinsurer) in Chinese Taipei is named "Risk-based Capital (RBC) System". The PCR level is set at 200% of RBC ratio, where RBC ratio = capital resources/risk-based capital requirement (based on a factor-approach).

610. *Qualifying Capital Resources* is the capital available to meet the capital requirement reported on the worksheet. Therefore, this should be reported on the same basis as the capital requirement.

611. *Equity*: Report the amount of equity that qualifies as capital resources within the jurisdictional capital framework.

612. *Deductions/exclusions from qualifying capital resources* is the amount deducted from capital resources within the jurisdictional capital framework and should be reported as a negative figure.

613. *Liabilities counted towards qualifying capital resources* is the amount of liabilities that qualifies as capital resources within the jurisdictional capital framework.

7.7.1.2 Securities-related Baseline (Current regulatory reporting table)

614. The securities-related capital requirement is any capital requirement imposed by a securities regulator on securities business within the group. The securities-related qualifying capital resources is the regulatory capital available to meet the capital requirement reported on the worksheet. Therefore, this should be reported on the same basis as the securities-related capital requirement.

7.7.1.3 Banking-related Baseline (Information on banking activities table)

615. For capital requirements related to banking activities, a separate table is provided in order to collect the total risk-weighted assets according to the Basel III Framework[38] (using the approach within the Basel III Framework that is used for regulatory reporting by banking entities in the group) and the total exposure measure for the Basel III leverage ratio framework.

[38] http://www.bis.org/bcbs/basel3.htm

616. The method of calculating risk-weighted assets (RWA) for regulated banking activities should be the same as that for reporting to the banking supervisor(s).

617. For unregulated banking business, IAIGs should apply the Basel III leverage ratio framework and the full RWA calculation under the Basel III Framework. The Basel III monitoring workbook is available to calculate these figures at http://www.bis.org/bcbs/qis/index.htm.

7.7.1.4 Assets under Management (Information on assets under management table)

618. There are two columns, one for asset management business that is subject to a capital requirement from a banking supervisor and one for asset management business not related to banking (ie where a banking supervisor does not apply a capital requirement in relation to that business). These columns are: *Regulated Banking Business* and *Not Related to Banking*.

619. For both types of asset management business, the last three years of positive gross annual income must be reported. This income should relate only to third-party asset management, not the management of the IAIG's own assets. Gross annual income is defined in paragraph 650 of the Basel II Comprehensive version[39].

620. For asset management business not related to banking, if any capital requirement is imposed by another supervisor (including an insurance supervisor[40]) this should be reported so as to facilitate a comparison to the calculation according to the Basel II standardised approach.

621. For asset management business subject to a capital requirement from a banking supervisor, the actual Operational risk charge reported to the banking supervisor(s) must be reported. If the banking supervisor(s) requires or allows the use of the standardised approach under Basel II, then this figure should be the same as that calculated from the input of the last three years of positive gross annual income from asset management business.

[39] http://www.bis.org/publ/bcbs128.pdf

[40] Only relevant where the asset management business is conducted off-balance sheet and not included in the capital requirement reported on the Current Regulatory Baseline.

8 Tax

Relevant Worksheet in Template:	*ICS Summary*

8.1 General principles

622. Deferred taxes, as recognised on the consolidated GAAP or SAP balance sheet ("consolidated GAAP"), are also recognised on the ICS balance sheet. DTA and DTL on the consolidated GAAP should be reported the same way on the ICS balance sheet, whether that be two numbers or a single number.

623. There are two areas of the ICS that are tax affected:

- Differences in valuation between the consolidated GAAP and the ICS balance sheet (ICS Adjustment), made in accordance with Section 5.1; and
- The ICS insurance capital requirement.

624. The ICS applies a group level calculation using a group effective tax rate (G-ETR) to calculate the change in deferred tax resulting from the ICS Adjustment and the tax effect on the ICS insurance capital requirement.

625. The G-ETR is calculated as a weighted average effective tax rate, weighted using the previous three-year average of GAAP earnings before tax on a sub-group/entity level basis. The scope of the weighted average calculation is limited to insurance-related activities, and GAAP earnings before tax is floored at zero.

626. Statutory tax rates that have been enacted or substantially enacted as of the reporting date are used for the G-ETR calculation.[41]

Example: G-ETR calculation

An insurance group consists of the following entities located in different jurisdictions:

- Entity A: Insurance entity in country X
- Entity B: Insurance entity in country Y
- Entity C: Reinsurance entity in country Z
- Entity D: Banking entity in country Z

		GAAP Earnings before tax		
Group entities	Effective tax rate	FY2016	FY2017	FY2018
Entity A	30%	500	700	-200
Entity B	25%	1,000	-100	900
Entity C	20%	2,000	500	1,500
Entity D	20%	200	500	300

[41] For example, a tax authority announces tax rate changes that would have a material impact for future periods. In such a case, the newly announced statutory tax rate is used in the G-ETR calculation.

- GAAP losses for Entity A in FY2018 and Entity B in FY2017 should be floored at zero.
- Entity D conducts non-insurance related activities, and should be excluded from the G-ETR calculation.

The G-ETR for this insurance group:

$$\frac{30\% * (500 + 700 + 0) + 25\% * (1{,}000 + 0 + 900) + 20\% * (2{,}000 + 500 + 1{,}500)}{7{,}100}$$

$$= 23.03\%$$

8.2 Deferred tax resulting from the ICS Adjustment

627. The valuation adjustments made to the consolidated GAAP in order to derive the ICS balance sheet give rise to corresponding adjustments to deferred tax assets and liabilities. Any additional DTAs, created as a consequence of the ICS Adjustment, are subject to an utilisation assessment. The conditions of calculation and recognition of those deferred tax adjustments, including the utilisation assessment, are specified below.

628. The adjustment to deferred tax is determined for each balance sheet line item that has been adjusted in order to arrive at the ICS balance sheet. Line items may yield an adjustment to deferred tax asset, deferred tax liability or no adjustment to deferred tax depending on the tax treatment of the line item. No adjustment for tax is made where the change in a line item, or component of a line item, does not result in a temporary tax difference (eg equity line items, line items representing permanent tax differences such as items that may not be expensed or generate revenue that is exempt for tax purposes). These line items or components of line items are excluded from the deferred tax adjustment calculation.

629. The deferred tax adjustment is calculated on a line by line basis. For all lines or components of lines, other than MOCE, where the adjustment creates a tax impact, the deferred tax is then calculated by multiplying the tax effected difference between consolidated GAAP and ICS balances by the G-ETR (as specified in paragraphs 625 and 626). The sum of DTA and the sum of DTL resulting from this line by line calculation are reported separately. The consolidated GAAP deferred tax is adjusted by the net outcome of the deferred tax resulting from the ICS Adjustment.

630. The MOCE is included as an ICS Adjustment and creates a DTA on the ICS balance sheet. The DTA created by MOCE is automatically calculated by the Template.

8.2.1 Utilisation assessment of DTAs recognised from the ICS Adjustment

631. Before the utilisation assessment, the DTA recognised from the ICS Adjustment is the sum of DTAs resulting from the line by line calculation specified in paragraph 629 and the DTA on MOCE specified in paragraph 630.

632. The DTA recognised from the ICS Adjustment after the utilisation assessment is limited to $a + \max(0, b - c - d)$, where:

a. The sum of DTLs resulting from the line by line calculation specified in paragraph 629;

b. Consolidated GAAP DTL;

c. GAAP DTL netted from assets deducted from Tier 1 capital resources, as specified in paragraph 214; and

d. Consolidated GAAP DTA.

633. The consolidated GAAP DTL and DTA referred to in paragraph 632 are limited to DTL and DTA reported from insurance-related activities.

8.3 Tax effect on the ICS insurance capital requirement

634. The mitigating effect of tax is taken into account when determining the ICS capital requirement. That tax effect on the ICS capital requirement is based on the increase in net DTA that would result from an instantaneous operational loss equal to the ICS capital requirement before tax, post diversification and post management actions. Any increase in net DTA is subject to an utilisation assessment as specified below.

635. The ICS insurance capital requirement is reduced by the amount of utilisable tax effect.

636. By default, the utilisable tax effect on the ICS insurance capital requirement is calculated as: $80\% * notional\ tax\ effect\ on\ insurance\ capital\ requirement$

where:

- $notional\ tax\ effect\ on\ insurance\ capital\ requirement = ICS\ insurance\ capital\ requirement \times G\text{-}ETR$;

637. When deemed appropriate by the group-wide supervisor, a limit to the utilisation of the tax effect on the ICS insurance capital requirement may be set. The utilisable tax effect on the ICS insurance capital requirement is then calculated using the following formula:

$$\max(0, \min(80\% * notional\ tax\ effect\ on\ insurance\ capital\ requirement, \sout{20\% \times ICS\ insurance\ capital\ requirement,} a + b + c - d))$$

where:

- $notional\ tax\ effect\ on\ insurance\ capital\ requirement = ICS\ insurance\ capital\ requirement \times G\text{-}ETR$;
- $a = 85\% * \sum_{Tax\ sub-group/entities} \min\begin{pmatrix} Tax\ loss\ carry\ back\ capacity, \\ Allocated\ notional\ tax\ effect\ on\ insurance\ capital\ requirement^{42} \end{pmatrix}$
- $b = post\text{-}stress\ future\ taxable\ income \times G\text{-}ETR$;
- $c = \max(0,$ *DTL for insurance-related activities on ICS balance sheet post-deduction in paragraph 641 – DTA for insurance-related activities on ICS balance sheet*$)$; and
- $d = \max[0, \min(15\% \times$ *ICS insurance capital requirement, DTA for insurance-related activities on ICS balance sheet – DTL for insurance-related activities on ICS balance sheet post-deduction in paragraph 641*$)]$.

[42] Allocated notional tax effect on insurance capital requirement – refer to paragraph 63939.

8.3.1 Component a: tax loss carry backs

638. A tax loss carry back is defined as a mechanism allowing a sub-group/entity to offset current net operating losses against tax obligations from previous years (whether tax loss carry backs are allowed and the number of years allowed differs by tax jurisdiction).

639. In order to perform the calculation of component *a* in the utilisable tax effect:

- The tax loss carry back capacity for insurance-related activities is evaluated at the legal entity or sub-group level where taxes are assessed, including any fiscal unity for corporate tax as of the ICS reporting date.
- The notional tax effect on the ICS insurance capital requirement is allocated between tax sub-groups/entities using a weighted average based on consolidated GAAP insurance liabilities.

8.3.2 Component b: post-stress future taxable income projections

640. In order to perform the calculation of component *b* in the utilisable tax effect:

- When the IAIG projects consolidated GAAP net losses for the cumulative five-year period, component *b* is set to zero.
- Otherwise, component *b* is approximated by 50% of the total historical five years' consolidated GAAP earnings before tax, adjusted for mergers, acquisitions and dispositions.

8.3.3 Components c and d: Deferred taxes

641. DTL used in components *c* and *d* represent the amount after the application of deferred tax from the ICS Adjustment, as described in Section 8.2 and after deduction of the DTL for insurance-related activities associated with assets subject to deduction from Tier 1 capital resources (see Section 6.4.1).

Example: Utilisable tax effect on the ICS insurance capital requirement calculation

An insurance group has insurance-related activities in the US, UK, Korea and Japan and does not apply a fiscal unity:

- Insurance capital requirement: 10,000
- G-ETR: 30%
- Notional tax effect on the insurance capital requirement: 3,000 (10,000 * 30%)
- DTA on ICS balance sheet: 300 (insurance activities 250, non-insurance activities 50)
- DTL on ICS balance sheet: 850 (insurance activities 700, non-insurance activities 150)

8.3.1 Component a: tax loss carry backs

	US	UK	Korea	Japan	Total
GAAP insurance liabilities	8,000	2,000	6,000	4,000	20,000

a. Allocated notional tax effect on insurance capital requirement	1,200	300	900	600	3,000
b. Maximum tax loss carry back	100	1,000	n/a	n/a	1,100
Limited maximum tax loss carry back before the 15% deduction (min (a,b))	100	300	n/a	n/a	400

Tax loss carry backs for the utilisation assessment: 340 = 400 * (1-15%)

8.3.2 Component b: post-stress future taxable income projections

- Total of the last five years of consolidated GAAP earnings before tax: 8,000
- IAIG acquired an entity during the five year period. Earnings before tax of the entity at the beginning of the period before being acquired: 100

Post-stress future taxable income projection from insurance business for the utilisation assessment: 1,215 = (8,000+100) * 30% * 50%

8.3.3 Components c and d: Deferred taxes

Net deferred tax liability for insurance activities: 450 = max (0, 700-250)

Net deferred tax asset for insurance activities: 0 = max [0, min (15% * 10,000, 250 - 700)]

Utilisable tax effect on the ICS insurance capital requirement calculation:

Tax loss carry backs (340) + post-stress future taxable income projections (1,215) + Net DTL for insurance activities (450) – Net DTA for insurance activities (0) = 2,005

Utilisable tax effect on the insurance capital requirement: 2,005~~0~~ = min (80% * 3,000, ~~10,000 * 20%,~~ 2,005)

9 Other methods

642. As an alternative to part or all of the specifications in section 7, IAIGs may make use of other methods for the calculation of the ICS capital requirement.

643. The other methods available for use are:

- Supervisor-owned and controlled credit assessments (SOCCA) for the calculation of the Credit risk charge for unrated exposures; and
- Internal models.

644. The use of other methods is subject to some conditions, as described in the sub-sections below. Also, during the monitoring period the use of other methods does not exempt IAIGs from reporting the full calculation of the ICS capital requirement following the specifications in section 7.

9.1 Supervisor-owned and controlled credit assessments (SOCCA)

645. A SOCCA process is an independent and objective process for assessing Credit risk, owned and controlled by a financial supervisory authority, and that relies upon credit assessment methodologies deemed suitable by the supervisory authority in determining the regulatory capital requirement for Credit risk of supervised entities. An example of a SOCCA is NAIC Designations.

646. A SOCCA process may be used for the calculation of the Credit risk charge for unrated exposures~~recognised in the ICS~~ if all the following criteria are met:

a. Objectivity: The SOCCA's methodology for assigning credit assessments is rigorous, systematic, and subject to some form of validation. Moreover, assessments are subject to ongoing review and responsive to changes in financial condition.

b. Independence: The SOCCA process is aligned with the regulatory objectives of the supervisor, evidenced by the supervisor's approval of the credit assessment process. Any outsourcing arrangement of the credit assessment is held to the same standards of competency and independence as the in-house credit assessment processes.

c. International access/transparency: IAIGs with operations outside the jurisdiction of the SOCCA process can request designations/ratings be assigned to securities they own. Public access to the credit assessment is available through third-party platforms.

d. Disclosure: Default statistics over time are developed for each designation/rating so that three-year cumulative default rates (CDRs) can be derived from published statistics.

e. Resources: Staff has appropriate qualifications and experience to undertake the credit assessment process. The SOCCA process relies on adequate resources to carry out the credit assessments required by the supervisor.

f. Credibility: The SOCCA process relies on internal procedures to prevent the misuse of confidential information. The SOCCA process has at least 10 years of demonstrable business history in assessing the Credit risk of a large number of securities such that statistical performance data can be derived. All designations/ratings are updated at least on a yearly basis; in addition, the designations/ratings are reviewed as soon as a significant event occurs that may affect them.

g. Alignment of interests with the purposes of prudential supervision: The entity performing the credit assessment is fully owned and controlled by a supervisory authority. There are policies approved by the supervisory authority as to how the credit assessment process is applied.

9.1.1 NAIC Designation example of a SOCCA

647. IAIGs that are able to use NAIC Designations should calculate and report the Credit risk charges using the following mapping table, for unrated exposures. The mapping table has been updated from the 2022 data collection exercise to reflect the broader range of NAIC designations that became effective as of year-end 2021, and now includes the designation modifiers (A-G) for exposures in category 1. Each designation has been mapped to the most relevant ICS rating category.

Table 39: Mapping of NAIC Designations to ICS RC

NAIC Designation	ICS RC
1A	1
1B-D	2
1E-G	3
2	4
3	5
4	6
5	7

648. In the reporting Template, the credit risk tables consist of two sections. The top section of each table should be filled by all IAIGs based on all exposures, whether or not a SOCCA process is available (eg those IAIGs that have access to NAIC Designations should report the affected exposures reflecting the designation). In the bottom section of the table, IAIGs that have access to a SOCCA process should report all exposures by ICS RC without recognition of the SOCCA (eg NAIC Designations).

9.2 Internal models

Relevant Worksheet in Template:	*Candidate ICS > Insurance | IM*

649. The main goal of internal models is to calculate capital requirements (at the risk level or at the aggregated level) more tailored to the risks borne by the IAIG. Specificities of an IAIG that cannot be captured in the standard method (eg specific risk mitigation arrangements) can be reflected by an internal model. Internal models can also capture risks that are not included in the standard method if these are material for a specific IAIG. Internal models are particularly relevant in the context of IAIGs, which are large and complex insurance groups operating in multiple jurisdictions.

650. An excerpt of draft version of the internal models requirements paper can be found in Annex 4. IAIGs are asked to self-assess in the Questionnaire whether they comply with the requirements laid down in Annex 4.

651. ~~Ten~~ These requirements~~prerequisites~~, largely based on ICP 17, have been determined for the submission of internal model results for the ICS ~~capital requirement during the monitoring period~~as a PCR.

- ~~In order to submit internal model results as part of the additional reporting during the monitoring period, IAIGs are required to complete a self-assessment template regarding prerequisites 1 to 10 as outlined in the subsequent sections, within which the IAIG must:Briefly describe the scope of application of the internal model (eg partial or full internal model).~~
- ~~Provide evidence that the internal model to calculate the group capital requirement has been validated independently (Prerequisite 2) (internally or externally) and signed-off by the IAIG's Board of Directors (Prerequisite 3).~~
- ~~Indicate the degree of compliance of the internal model with prerequisites 4 to 7:~~
  - ~~Statistical quality test;~~
  - ~~Calibration test;~~
  - ~~Use test and governance; and~~
  - ~~Documentation standards.~~
- ~~In the case of a partial internal model, the IAIG must also complete the self-assessment template regarding Prerequisites 8 to 10, ie they need to:~~
  - ~~Justify the reason for the limited scope of the internal model (ie absence of cherry-picking);~~
  - ~~Provide evidence that the resulting ICS capital requirement more appropriately reflects the risk profile of the IAIG; and~~
  - ~~Explain how the partial internal model's and standard method's results can be integrated.~~

652. Where the ~~prerequisites~~ requirements are not fully met, but the IAIG would like to submit internal model results during the monitoring period, then the IAIG should discuss this

with its GWS. Moreover, the IAIG should indicate the reasons for submitting results, despite not meeting all ~~prerequisites~~requirements~~, in its self-assessment template along with details of how the internal model does not meet the prerequisites~~.

653. Supervisory approval of the internal model for data submission is not a pre-requisite during the monitoring period. Further, a model does not have to be used for regulatory capital purposes to satisfy the ~~pre-requisites~~requirements for reporting of internal model results during the monitoring period.

654. The specific internal model results to be submitted as part of additional reporting are specified in Section 9.2.1.

~~*Prerequisite 1 – Description of the scope of application of internal models*~~

~~a. IAIGs must describe the scope of application of their internal model (ie the perimeter of the internal model's calculation). Two possible approaches are considered for the additional reporting of internal model results during the monitoring period:~~**~~Partial internal model~~** ~~– which involves the replacement of some parts of the standard method calculation. For example:~~

~~i. One or more risk charges of the ICS standard method capital requirement (eg Market risk);~~

~~ii. One or more sub-risk charges of the ICS standard method capital requirement (eg Equity risk);~~

~~iii. One or more risk charges or sub-risk charges not captured by the the ICS standard method capital requirement; or~~

~~iv. The whole business of the IAIG, or only to one or more major business units or legal entities.~~

~~b. **Full internal model** – which involves the replacement of the entire standard method calculation.~~

~~*Prerequisite 2: Validation*~~

~~Internal model validation requires IAIGs to demonstrate that a rigorous process is in place by which they can establish whether their internal model framework is sound or whether improvements are needed. Validation should enable them to understand the internal model's capabilities and limitations better and confirm that the internal model and the supporting processes are adequate and appropriate for the purpose. Validation should be an iterative process by which an IAIG using an internal model periodically refines validation tools in response to changing market and operating conditions. There is no universal validation method, and the structure of the validation approach depends on the technical specifications of the internal model, its purpose and its intended use.~~

~~ICP 17.13.6 Guidance states "…the insurer should review its own internal model and validate it so as to satisfy itself of the appropriateness of the model for use as part of its risk and capital management processes". In addition to an internal review, the insurer may consider a regular independent, external review of its internal model by appropriate specialists".~~

~~ICP 17.18 states, when an insurer uses an internal model to determine regulatory capital requirements, it should:~~

~~"… monitor the performance of its internal model and regularly review and validate the ongoing appropriateness of the model's specifications";~~

~~"… demonstrate that the model remains fit for regulatory capital purposes in changing circumstances against the criteria of the statistical quality test, calibration test and use test";~~

~~"… notify the supervisor of material changes to the internal model made by it…";~~

~~"… properly document internal model changes"; and~~

~~"… report information necessary for supervisory review…".~~

~~Validation should encompass both quantitative and qualitative elements. While it might be possible to think of validation as a purely technical/mathematical exercise in which outcomes are compared to estimates using statistical techniques, it is insufficient to focus solely on comparing predictions to outcomes. In assessing the overall performance of an internal model, it is important to assess the overall model and each of its building blocks regarding the structure, governance, data and processes.~~

~~Finally, to achieve an effective validation, an objective challenge is essential. Independent model validation helps IAIGs to evaluate and verify the overall performance of their internal models. Proper independence of the validation function is therefore important, whether the validation is internal or external, and individuals performing the validation must possess the necessary skills, knowledge, expertise and experience.~~

~~Prerequisite 3: Sign-off of the Board of Directors of the IAIG~~

~~This prerequisite aims to ensure that the Board of Directors has ownership of the internal model, and that the model complies with the validation process prescribed by the internal model governance process.~~

~~Moreover, ICP 17 recommends a certain level of engagement by the Board of Directors concerning the internal models as part of the use test, which will be further detailed in the section of prerequisite 6.~~

~~Prerequisite 4: Statistical quality test~~

~~Building on ICP 17.14 IAIGs need:~~

~~"… to conduct a 'statistical quality test' which assesses the base quantitative methodology of the internal model, to demonstrate the appropriateness of this methodology, including the choice of model inputs and parameters, and to justify the assumptions underlying the model"; and provide evidence~~

~~"… that the determination of the regulatory capital requirement using an internal model addresses the overall risk position of the insurer and that the underlying data used in the model is accurate and complete".~~

~~The statistical quality test addresses issues related technical aspects of the internal model, ie:~~

~~methodology and assumptions;~~

~~coverage of material risks;~~

~~data (including external data) and expert judgment;~~

~~aggregation of risks and diversification effects;~~

~~consistency with the method used for the calculation of technical provisions;~~

allowance for risk mitigation techniques and future management actions; and

financial guarantees and contractual options.

The statistical quality test concentrates on the individual building blocks of an internal model. The different elements making up the internal model and the inputs used must pass this test.

The statistical quality test set out in ICP 17 allows considerable modelling freedom to insurers. For example, ICP 17.14.1 Guidance states that *"A range of approaches could constitute an effective internal model for risk and capital management purposes, and supervisors should encourage the use of a range of different approaches appropriate to the nature, scale and complexity of different insurers and different risk exposures. There are several different techniques to quantify risk which could be used by an insurer to construct its internal model. In broad terms, these could range from basic deterministic scenarios to complex stochastic models. Deterministic scenarios would typically involve the use of stress and scenario testing reflecting an event, or a change in conditions, with a set probability to model the effect of certain events (such as a drop in equity prices) on the insurer's capital position, in which the underlying assumptions would be fixed. In contrast, stochastic modelling often involves simulating very large numbers of scenarios to reflect the likely distributions of the capital required by, and the different risk exposures of, the insurer"*. IAIGs should be at the high end regarding the nature, scale and complexity of the risks borne and the business models and structure and thus it is expected that the modelling approach is commensurate with such risk and business profile.

The statistical quality test also sets the boundaries within which IAIGs should take responsibility for specifying their approach to assess and aggregate risks. In conjunction with internal model validation requirements, the statistical quality test promotes a well-structured, documented and controlled process of model development and refinement which should be consistently applied across the IAIG, including the different modelling areas. For example, ICP 17.14.3 Guidance states that *"The IAIS considers that an insurer would generally be expected to decide how best to aggregate and account for the risks to the whole of its business. The determination of overall regulatory capital requirements by the internal model should consider dependencies within, as well as across, risk categories. Where the internal model allows for diversification effects, the insurer should be able to justify its allowance for diversification effects and demonstrate that it has considered how dependencies may increase under stressed circumstances"*.

Data used to build the internal model are one of the main drivers of its performance. ICP 17.14.4 Guidance states "Internal models need high-quality data in order to produce sufficiently reliable results. The data used for an internal model should be current and sufficiently credible, accurate, complete and appropriate. Hence, a 'statistical quality test' should examine the appropriateness of the underlying data used in the construction of the internal model". ICP 17.14.6 Guidance deals with the use of external data specifying that "… any data not specific to the insurer would need to be carefully considered before deciding it was appropriate for use as the basis for an insurer's 'statistical quality test'. Even where deemed appropriate, it may still be necessary to adjust the data to allow for differences in features between the data source and the insurer".

There is always a certain amount of expert judgement involved when selecting data for an internal model. To this end, ICP 17.14.7 Guidance states that *"In assessing suitability of data and of other inputs, eg assumptions, to the internal model, expert judgment should be applied and supported by proper justification, documentation and validation"*.

ICP 17.14.8 Guidance stresses the importance that "The methodology should also be consistent with the methods used to calculate technical provisions".

Moreover, ICP 17.14.9 states "statistical quality test should also include a review of the internal model to determine whether the assets and products as represented in the model truly reflect the insurer's actual assets and products. This should include an analysis of whether all reasonably foreseeable and relevant material risks have been incorporated, including any financial guarantees and embedded options. Insurers should also consider whether the algorithms used are able to take into account the action of management and the reasonable expectation of policyholders. Testing should include future projections within the model and to the extent practicable 'back-testing' (the process of comparing the predictions from the model with actual experience)".

Prerequisite 5: Calibration test

ICP 17.15 states IAIG should "… conduct a 'calibration test' to demonstrate that the regulatory capital requirement determined by the internal model satisfies the specified modelling criteria".

The ICP definition of calibration is different from the general definition of calibration used in statistics and actuarial science. For example, model calibration is often defined in statistics as the process of adjustment of the model parameters to obtain a model representation of the processes of interest that satisfies pre-agreed criteria (eg Goodness-of-Fit). ICP 17.15.2 Guidance states "*The 'calibration test' should be used by the IAIG to demonstrate that the internal model is calibrated appropriately to allow a fair, unbiased estimate of the capital required for the particular risk measure, level of confidence and time horizon specified by the supervisor*". In the case of the ICS standard method, the calibration target is VaR 99.5% over a one-year time horizon.

Where an IAIG uses a different confidence interval (eg 99.7% in order to maintain a certain investment grade rating), risk measure (eg TVaR for Cat Risk) or time horizon (eg to ultimate) than the one set out for the ICS standard method capital requirement calculations, it may need to recalibrate its model to the ICS capital requirement target criterion (ie VaR 99.5% over a one year time horizon). Alternatively, the IAIG can provide quantitative evidence on how this outcome compares to the ICS target criterion.

Prerequisite 6: Use test and governance

According to ICP 17.16, IAIGs need:

"… to fully embed the internal model, its methodologies and results, into the insurer's risk strategy and operational processes (the 'use test')";

their "…Board and Senior management to have overall control of and responsibility for the construction and use of the internal model for risk management purposes, and ensure sufficient understanding of the model's construction at appropriate levels within the insurer's organisational structure". In particular, insurers need to provide evidence that their Board and Senior management understand the consequences of the internal model's outputs and limitations for risk and capital management decisions; and

"… to have adequate governance and internal controls in place with respect to the internal model".

The use test is, in effect, the evidence that should support the relationship of trust between the supervisor and the regulated group. This trust is needed for the supervisor to gain

assurance that the internal model reflects the IAIG's view of its risks and is used in decision making, and not developed with the purpose of reducing regulatory capital.

Consistent with ICP 17.16.1 Guidance, the IAIG should demonstrate that its internal model is widely used and plays an important role in risk management and decision-making, at different levels of management in the organisation, and the assessment of the economic and solvency capital.

Moreover, ICP 17.16.5 Guidance states "The 'use test' is a key method by which the insurer can demonstrate that its internal model is integrated within its risk and capital management and system of governance processes and procedures". In other words, the IAIG must provide evidence that the internal model is fully embedded in its operational and organisational structure and demonstrate that the model remains useful and is applied consistently over time.

Furthermore, an IAIG "should demonstrate to the supervisor that an internal model used for regulatory capital purposes remains useful and is applied consistently over time and that it has the full support of and ownership by the Board and Senior management".

Another key aspect of the use test is that according to ICP 17.16.6 Guidance the IAIG's Senior management is responsible for the design and implementation of the internal model and for ensuring the ongoing appropriateness of the model.

ICP 17.16.7 Guidance also notes that "For a model to pass the 'use test' it would be expected that an insurer would have a framework for the model's application across business units. This framework should define lines of responsibility for the production and use of information derived from the model".

ICP 17.16.8 Guidance stresses the importance of the governance, communication, challenge and understanding of the model "An internal model should be subject to appropriate review and challenge so that it is relevant and reliable when used by the insurer. The key elements and results from the internal model should be understood by the key personnel within the insurer, including the Board, and not only by those who have constructed it. This understanding should ensure that the internal model remains a useful decision-making tool. If the internal model is not widely understood, it will not be achieving its purpose and adding value to the business. The 'use test' is key to ensuring the relevance of the internal model to the insurer's business".

Prerequisite 7: Documentation standards

Building on ICP 17.17 the IAIG should "… document the design, construction and governance of the internal model, including an outline of the rationale and assumptions underlying its methodology". ICP 17.17 states further that "The supervisor requires the documentation to be sufficient to demonstrate compliance with the regulatory validation requirements for internal models, including the statistical quality test, calibration test and use test.

The main aims of the documentation are:

reducing key person risk;

facilitating the supervisory review and approval of the model;

facilitating Senior Management's understanding; and

recognising the weaknesses of the model.

As stated in the ICP 17.17.1 Guidance, documentation should be thorough, detailed and complete enough to be "… sufficient for a knowledgeable professional in the field to be able to understand its design and construction. This documentation should include justifications for and details of the underlying methodology, assumptions and quantitative and financial bases, as well as information on the modelling criteria used to assess the level of capital needed".

Moreover, ICP 17.17.2 Guidance states, "The insurer should also document, on an ongoing basis, the development of the model and any major changes, as well as instances where the model is shown to not perform effectively. Where there is reliance on an external vendor/supplier, the reliance should be documented along with an explanation of the appropriateness of the use of the external vendor/supplier".

Prerequisite 8: Absence of cherry-picking

According to ICP 17.12.4 Guidance, "The IAIS supports the use of internal models where appropriate as they can be a more realistic, risk-responsive method of calculating capital requirements, but discourages any 'cherry-picking' practices by insurers".

From a supervisor's perspective, the possibility of mixing and matching internal models for some risks and businesses while using the standard method for the rest of the risks or businesses raises potential concerns about cherry-picking. To help mitigate these concerns, consistent with ICP 17.12.14 Guidance, the IAIG should *"… justify why it has chosen to only use internal models for certain risks or business lines"*. To this end, the IAIG should provide in its self-assessment the rationale for the limited scope of the internal model.

Prerequisite 9: The resulting ICS capital requirement more appropriately reflects the risk profile of the insurer

According to ICP 17.12.15, "…an insurer should be required to justify the limited scope of the model and why it considers that using partial internal modelling for determining regulatory capital requirements is more consistent with the risk profile of the business than the standardised approach or why it sufficiently matches regulatory capital requirements".

Prerequisite 10: Explain how the partial internal model and standard method's results can be integrated

It is essential that the integration of the partial internal model and the standard method results is being carried out prudently and consistently to derive the overall ICS capital requirement. To this end, the IAIG should provide evidence that the partial internal model and standard method results can be integrated. This prerequisite is particularly relevant for IAIGs whose internal model construction does not follow a similar design as the standard method (eg risks have not been defined or split along similar lines as in the standard method, the target criteria are different, etc.).

9.2.1 Reporting of Internal Model Data

655. Internal models may not be structured in the same way as the ICS. To facilitate the analysis, IAIGs are requested to provide data using two different approaches:

a. Approximate the results in a way similar to the structure of the ICS and its components (ie 99.5% VaR over a one-year time horizon), and

b. Use the results from their own internal model.

9.2.1.1 Internal model required capital

656. As IAIGs may use various risk measures, time horizons, confidence levels and assumptions within their internal models, it is requested that IAIGs provide the specifications of their internal models (risk measure, time horizon, confidence level) as well as their internal model results using these specifications. In the Questionnaire and Template, IAIGs should explain differences in the definition of risks, issues in restructuring internal models results, significant details about their internal model specifications (main assumptions, distribution and parameters used), methods used for the aggregation of internal model results as well as an indication of the materiality of the differences.

657. The risk charges should be provided using the same structure as in the ICS (using the ICS definitions for each risk). Where risk charges can only be reported at a high level of aggregation, for example, if total market risk is reported instead of its components interest rate risk, equity risk, etc. separately, only that aggregated figure should be reported. Where IAIGs can approximate the more granular risk charges credibly, please complete the additional granular data request.

658. There are two automatically computed columns to facilitate comparison of ICS and internal model results. These columns show:

a. The ICS risk charges for different risk categories; and

b. A percentage difference between the ICS and internal model risk charges.

659. If the ICS and internal model risk charges differ, IAIGs should provide additional information in the Questionnaire. To the extent possible the mapping of IAIG's own internal model should be mapped to the ICS structure in a way that the total capital requirement is the same. If an IAIG uses different targets with respect to risk measure, time horizon and/or confidence level the mapping onto the ICS structure using these targets should yield the same results as the IAIG's own internal model total capital requirement.

660. IAIGs may submit data for internal models that have been approved by their GWS to calculate regulatory capital requirements as well as internal models for internal risk management purposes that are not subject to regulatory approval. IAIGs should specify whether their GWS has approved the internal model. If the option "Other" is chosen in any of the dropdown menus, additional information should be provided in the Questionnaire.

9.2.1.2 Internal model required capital (using own classification of risks)

661. Risk charges should be provided according to the structure of the IAIG's internal model, which can be different from that used in the reference ICS. IAIGs should indicate the risk measure, time horizon and confidence level used. IAIGs should also provide information as to whether the model has been approved by their GWS. Risk charges should be reported at the same level of granularity as in the table *Internal model required capital* (ie sub-module risk charges, where available).

662. IAIGs should also report which risk modules from the reference ICS are covered by their risk modules. For example, an IAIG's risk module "business risk" may cover operational risk, and all types of expense and lapse risks (life and non-life).

9.2.1.2.1 Economic balance sheet items

663. IAIGs should complete the table *Balance sheet* indicating the changes between their economic balance sheet and the MAV balance sheet. Details on the valuation basis, including the approach to discounting liabilities, should be provided in the Questionnaire.

Glossary

Term	Acronym	Definition/Reference
Basel Committee on Banking Supervision	BCBS	https://www.bis.org/bcbs/
Common Framework for the Supervision of IAIGs	ComFrame	https://www.iaisweb.org/page/supervisory-material/insurance-core-principles-and-comframe
Deferred Tax Assets	DTAs	*See Section 6.3 on "Capital elements other than financial instruments" and Section 8 on "Tax"*
Deferred Tax Liabilities	DTLs	*See Section 6.3 on "Capital elements other than financial instruments" and Section 8 on "Tax"*
Financial Stability Board	FSB	http://www.fsb.org/
Future Discretionary Benefits	FDB	*See Section 5.2.1.4*
Generally Accepted Accounting Principles	GAAP	https://en.wikipedia.org/wiki/Generally_accepted_accounting_principles http://www.accountingfoundation.org/gaap
Insurance Capital Standard	ICS	http://www.iaisweb.org/page/supervisory-material/insurance-capital-standard
ICS Rating Category	ICS RC	*See Section 3.4*
Insurance Core Principles	ICP	https://www.iaisweb.org/page/supervisory-material/insurance-core-principles-and-comframe
International Association of Insurance Supervisors	IAIS	http://www.iaisweb.org/home
International Financial Reporting Standards	IFRS	http://www.ifrs.org/About-us/IASB/Pages/Home.aspx
International Monetary Fund	IMF	http://www.imf.org/external/index.htm
Internationally Active Insurance Group	IAIG	See the ICPs and ComFrame, adopted November 2019 https://www.iaisweb.org/page/supervisory-material/insurance-core-principles-and-comframe
Last Observed Term	LOT	*See Section 5.2.5 on "Discounting"*

Long Term Forward Rate	LTFR	*See Section 5.2.5 on "Discounting"*
Management Actions		*See Section 7.1.3 on "Management actions"*
Margin Over Current Estimate	MOCE	A margin that exceeds the current estimate in valuation of technical provisions to cover the inherent uncertainty of those obligations. http://www.iaisweb.org/page/supervisory-material/glossary See also ICP 14.7
Market-Adjusted Valuation	MAV	*See Section 5 on "Market-Adjusted Valuation (MAV)"*
National Association of Insurance Commissioners	NAIC	http://www.naic.org/
Net Asset Value	NAV	The value of assets minus the value of liabilities.
Non-Default Spread Risk	NDSR	*See Section 7.3.3 on "Non-Default Spread Risk"*
Supervisor-owned and controlled credit assessment processes	SOCCA processes	*See Section 9.1 on "Supervisor-owned and controlled credit assessment processes"*
Value at Risk	VaR	An estimate of the worst expected loss over a certain period of time at a given confidence level http://www.iaisweb.org/page/supervisory-material/glossary
Weighted Average of Multiple Representative Portfolios	WAMP	*See Section 5.2.5.3.2 on "Adjustments to the yield curve"*

Annex 1 Treatment of Non-Voting Interest Entities (Asset and Insurance Securitisations)

Asset Securitisations

Insurers must meet all of the following conditions in order to not consolidate a securitisation originated by the group (excerpted from Basel III):

a. Significant credit risk associated with the underlying exposures has been transferred to third parties.

b. The transferor does not maintain effective or indirect control over the transferred exposures. The exposures are legally isolated from the transferor in such a way (eg through the sale of assets or through sub-participation) that the exposures are put beyond the reach of the transferor and its creditors, even in bankruptcy or receivership. Banks should obtain legal opinion that confirms true sale.

c. The transferor is deemed to have maintained effective control over the transferred credit risk exposures if it: (i) is able to repurchase from the transferee the previously transferred exposures in order to realise their benefits; or (ii) is obligated to retain the risk of the transferred exposures. The transferor's retention of servicing rights to the exposures will not necessarily constitute indirect control of the exposures.

d. The securities issued are not obligations of the transferor. Thus, investors who purchase the securities only have claim to the underlying exposures.

e. The transferee is an SPE and the holders of the beneficial interests in that entity have the right to pledge or exchange them without restriction.

f. Clean-up calls must satisfy the following conditions: (i) the exercise of the clean-up call must not be mandatory, in form or in substance, but rather must be at the discretion of the originating bank; (ii) the clean-up call must not be structured to avoid allocating losses to credit enhancements or positions held by investors or otherwise structured to provide credit enhancement; and (iii) the clean-up call must only be exercisable when 10% or less of the original underlying portfolio or securities issued remains, or, for synthetic securitisations, when 10% or less of the original reference portfolio value remains.

g. The securitisation does not contain clauses that (i) require the originating bank to alter the underlying exposures such that the pool's credit quality is improved unless this is achieved by selling exposures to independent and unaffiliated third parties at market prices; (ii) allow for increases in a retained first-loss position or credit enhancement provided by the originating bank after the transaction's inception; or (iii) increase the yield payable to parties other than the originating bank, such as investors and third-party providers of credit enhancements, in response to a deterioration in the credit quality of the underlying pool.

h. There must be no termination options/triggers except eligible clean-up calls, termination for specific changes in tax and regulation or early amortisation provisions.

Asset Securitisations

Insurers must meet all of the following conditions in order to not consolidate a securitisation originated by the group (excerpted from Solvency II):

a. The SPE is any entity other than an insurer or reinsurer, which assumes risks from (re)insurers through reinsurance contracts or similar arrangements, and which funds in full its risk exposures by issuing debt or any other financing arrangement the repayment rights of which are subordinated to the reinsurance obligations of the (re)insurer.

b. Where the SPE assumes risks from more than one (re)insurer, the solvency of that SPE is not adversely affected by winding-up proceedings of any one of those (re)insurers.

c. The SPE meets at all time the following conditions:

    i. the SPE has at all times assets the market value of which is equal to or exceeds the maximum payments – including expenses – of the SPE, and the SPE is able to pay the amounts it is liable for as they fall due;

    ii. the proceeds of the debt issuance or other financing mechanism are fully paid-in.

d. The contractual arrangements relating to the transfer of risk from a (re)insurer to a SPE and from the SPE to the providers of debt or financing meet the following conditions:

    i. the transfer of risk is effective in all circumstances;

    ii. the extent of risk transfer is clearly defined and incontrovertible;

    iii. the claims of the providers of debt or financing mechanisms are at all times subordinated to the reinsurance obligations of the SPE to the (re)insurers of the IAIG;

    iv. no payments are made to the providers of debt or financing, if following those payments the SPE would no longer be fully funded;

    v. the providers of debt or finance to the SPEs have no rights of recourse to the assets of the (re)insurers;

    vi. the providers of debt or finance to the SPEs have no rights to apply for the winding-up of the SPE.

Annex 2 Definition of ICS Non-Life Segments

ICS Segment	Definition
EEA and Switzerland/Medical expense insurance	Insurance obligation that covers the provision or financial compensation for medical treatment or care including preventive or curative medical treatment or care due to illness, accident, disability or infirmity.
EEA and Switzerland/Income protection	Insurance obligation that covers the financial compensation arising from illness, accident, disability or infirmity (excluding medical expense insurance).
EEA and Switzerland/Workers' Compensation	Health insurance obligations which relate to accidents at work, industrial injury and occupational diseases and where the underlying business is not pursued on a similar technical basis to that of life insurance.
EEA and Switzerland/Motor vehicle liability - Motor third party liability	Insurance obligations which cover all liabilities arising out of the use of motor vehicles operating on land (including carrier's liability).
EEA and Switzerland/Motor, other classes	Insurance obligations which cover all damage to or loss of land vehicles (including railway rolling stock).
EEA and Switzerland/Marine, aviation and transport	Insurance obligations which cover all damage or loss to sea, lake, river and canal vessels, aircraft, and damage to or loss of goods in transit or baggage irrespective of the form of transport. Insurance obligations which cover liabilities arising out of the use of aircraft, ships, vessels or boats on the sea, lakes, rivers or canals (including carrier's liability).
EEA and Switzerland/Fire and other damage	Insurance obligations which cover all damage to or loss of property (other than those included in motor (other) and marine/aviation/transport) due to fire, explosion, natural forces including storm, hail or frost, nuclear energy, land subsidence and any event such as theft.
EEA and Switzerland/General liability - third party liability	Insurance obligations which cover all liabilities other than those in motor vehicle liability and marine, aviation and transport.
EEA and Switzerland/Credit and suretyship	Insurance obligations which cover insolvency, export credit, instalment credit, mortgages, agricultural credit and direct and indirect suretyship.

EEA and Switzerland/Legal expenses	Insurance obligations which cover legal expenses and cost of litigation.
EEA and Switzerland/Assistance	Insurance obligations which cover assistance for persons who get into difficulties while travelling, while away from home or while away from their habitual residence.
EEA and Switzerland/Miscellaneous financial loss	Insurance obligations which cover employment risk, insufficiency of income, bad weather, loss of benefit, continuing general expenses, unforeseen trading expenses, loss of market value, loss of rent or revenue, indirect trading losses other than those mentioned above, other financial loss (non-trading) as well as any other risk of non-life insurance not covered by the lines of business above.
EEA and Switzerland/Non-proportional health reinsurance	Reinsurance on a non-proportional basis of health insurance classes.
EEA and Switzerland/Non-Proportional Casualty reinsurance	Reinsurance on a non-proportional basis of casualty classes (motor vehicle liability and general liability).
EEA and Switzerland/Non-proportional marine, aviation and transport reinsurance	Reinsurance on a non-proportional basis of marine, aviation and transport.
EEA and Switzerland/Non-Proportional property reinsurance	Reinsurance on a non-proportional basis of property classes (other motor, fire, credit/suretyship, legal expenses and assistance)
Canada/Property - personal	Insurance against the loss of, or damage to, property, and includes insurance against loss caused by forgery. It includes such classifications as habitational property and multi-peril policies, including residential contents of buildings such as apartments, rooming houses, motels, manufacturing and mercantile buildings and the liability exposure of personal package policies issued with indivisible premiums. This line would include fire policies, householder contents and homeowner personal risks, residential burglary and theft and special residential glass coverage. Casualty coverage such as personal liability for bodily injury would not be included in this category.
Canada/Home Warranty	Refers to a contract of insurance issued by a warranty provider covering defects in the construction of a new home and consequential losses or costs incurred by the owner.

Canada/Product Warranty	Insurance not incidental to any other class of insurance against loss of, or damage to, personal property, other than a motor vehicle, under which an insurer undertakes to pay the costs of repairing or replacing the personal property.
Canada/Property - commercial	Insurance against the loss of, or damage to, property, and includes insurance against loss caused by forgery and all commercial property and multi-peril policies, but excludes all separate classes of insurance as defined by regulators
Canada/Aircraft	Insurance against: 1. liability arising from bodily injury to, or the death of, a person, or the loss of, or damage to, property, in each case caused by an aircraft or the use of an aircraft; or 2. the loss of, the loss of use of, or damage to, an aircraft.
Canada/Automobile - liability/personal accident	Insurance: 1. against liability arising from bodily injury to, or the death of, a person, or the loss of, or damage to, property, in each case caused by an automobile or the use or operation of an automobile; or 2. that falls within clause (i) or (ii) of the definition of accident and sickness insurance, if the accident is caused by an automobile or the use or operation of an automobile, whether or not liability exists in respect of the accident, and the policy includes insurance against liability arising from bodily injury to, or the death of, a person caused by an automobile or the use or operation of an automobile.
Canada/Automobile - other	Insurance against the loss of, the loss of use of, or damage to, an automobile.
Canada/Boiler and Machinery	Insurance against: 1. liability arising from bodily injury to, or the death of, a person, or the loss of, or damage to, property, or against the loss of, or damage to, property, in each case caused by the explosion or rupture of, or accident to, pressure vessels of any kind or pipes, engines and machinery connected to or operated by those pressure vessels; or 2. liability arising from bodily injury to, or the death of, a person, or the loss of, or damage to, property, or against the loss of, or damage to, property, in each case caused by a breakdown of machinery.
Canada/Equipment Warranty	The sub-class of boiler and machinery insurance that covers loss of or damage to a motor vehicle or to equipment arising from its mechanical failure, but does not include automobile insurance or insurance incidental to automobile insurance.

Canada/Credit Insurance	Insurance against loss to a person who has granted credit if the loss is the result of the insolvency or default of the person to whom the credit was granted.
Canada/Credit Protection	Insurance under which an insurer undertakes to pay off credit balances or debts of an individual, in whole or in part, in the event of an impairment or potential impairment in the individual's income or ability to earn an income.
Canada/Fidelity	Insurance against loss caused by the theft, the abuse of trust or the unfaithful performance of duties by a person in a position of trust; and insurance under which an insurer undertakes to guarantee the proper fulfilment of the duties of an office.
Canada/Hail	Insurance against the loss of, or damage to, crops in the field caused by hail.
Canada/Legal Expenses	Insurance against the costs incurred by a person or persons for legal services specified in the policy, including any retainer and fees incurred for the services, and other costs incurred in respect of the provision of the services.
Canada/Liability	Insurance, other than insurance that falls within another class of insurance: 1. against liability arising from bodily injury to a person or the disability or death of a person, including an employee; 2. against liability arising from the loss of, or damage to, property; or 3. if the policy includes the insurance described in sub-clause (i), against expenses arising from bodily injury to a person other than the insured or a member of the insured's family, whether or not liability exists. Includes general liability, cyber liability, directors & liability, excess liability, professional liability, umbrella liability and pollution liability.
Canada/Mortgage	Insurance against loss caused by default on the part of a borrower under a loan secured by a mortgage or charge on, or other security interest in, real property.
Canada/Surety	Insurance under which an insurer undertakes to guarantee the due performance of a contract or undertaking or the payment of a penalty or indemnity for any default.
Canada/Title	Insurance against loss or damage caused by: 1. the existence of a mortgage, charge, lien, encumbrance, servitude or any other restriction on real property; 2. the existence of a mortgage, charge, lien, pledge, encumbrance or any other restriction on personal property;

	3. a defect in any document that evidences the creation of any restriction referred to in sub-clause (i) or (ii); 4. a defect in the title to property; or 5. any other matter affecting the title to property or the right to the use and enjoyment of property.
Canada/Marine	Insurance against liability arising from: 1. bodily injury to, or the death of, a person; or 2. the loss of, or damage to, property; or 3. the loss of, or damage to, property, occurred during a voyage or marine adventure at sea or on an inland waterway, or during a delay or a transit other than by water that is incidental to a voyage or marine adventure at sea or on an inland waterway.
Canada/ Accident and Sickness	
Canada/Other Approved Products	Insurance against risks that do not fall within another class of insurance.
US/ Auto physical damage	Any motor vehicle insurance coverage (including collision, vandalism, fire and theft) that insures against material damage to an insured's vehicle.
US/ Homeowners/ Farm owners	Homeowners: coverage for personal property and/or structure with broad personal liability coverage, for dwelling, appurtenant structures, unscheduled personal property and additional living expenses. Farm owners: similar, for farming and ranching risks; property + liability coverages for personal and business losses, on farm dwellings and contents (eg mobile equipment and livestock), barns, stables, other farm structures and farm inland marine.
US/ Special property	Various, including: fire; allied lines; inland marine; earthquake; burglary and theft. Fire insurance includes the loss to real or personal property from damage caused by the peril of fire or lightning, including business interruption, loss of rents, etc. Allied lines are coverages generally written with property insurance, eg, glass; tornado; windstorm and hail; sprinkler and water damage; explosion, riot, and civil commotion; growing crops; flood; rain; and damage from aircraft and vehicle, etc. Inland marine is coverage for property that may be in transit, held by a bailee, at a fixed location, a movable good that is often at different locations (eg, off road construction equipment), or scheduled property (eg, Homeowners Personal Floater) including items such as live animals and property with antique or collector's value. This line also includes instrumentalities of transportation and communication, such as bridges, tunnels piers, wharves, docks, pipelines, power and phone lines, and radio and television towers.

US/ Private passenger auto liability/ medical	Coverage for financial loss resulting from legal liability for motor vehicle related injuries (bodily injury and medical payments) or damage to the property of others caused by accidents arising out of the ownership, maintenance or use of a motor vehicle. Does not include coverage for vehicles used in a commercial business.
US/ Commercial auto/ truck liability/ medical	Similar to private passenger auto liability/medical, except for commercial vehicles.
US/ Workers' compensation	Insurance that covers an employer's liability for injuries, disability or death to persons in their employment, without regard to fault, as prescribed by state or Federal workers' compensation laws and other statutes. Includes employer's liability coverage against the common law liability for injuries to employees (as distinguished from the liability imposed by Workers' Compensation Laws). Excludes excess workers' compensation.
US/ Commercial multi-peril	Two or more insurance coverages for a commercial enterprise, including various property and liability risks, that are included in the same policy. Includes multi-peril policies other than farmowners, homeowners and automobile policies.
US/ Medical professional liability -- Occurrence	For a licensed health care provider or health care facility against legal liability resulting from the death or injury of any person due to the insured's misconduct, negligence, or incompetence in rendering professional services. The insurance covers events occurring during the policy coverage period.
US/ Medical professional liability – Claims-Made	For a licensed health care provider or health care facility against legal liability resulting from the death or injury of any person due to the insured's misconduct, negligence, or incompetence in rendering professional services. The insurance covers claims presented during the period of coverage.
US/Other Liability– Occurrence	Insurance against legal liability resulting from negligence, carelessness, or a failure to act causing property damage or personal injury to others. Typically, coverage includes liability for the following: construction and alteration; contingent; contractual; elevators and escalators; errors and omissions; environmental pollution; excess stop loss, excess over insured or self-insured amounts and umbrella; liquor; personal injury; premises and operations; completed operations; nonmedical professional, etc. Also includes indemnification coverage provided to self-insured employers on an excess of loss basis (excess workers' compensation). The insurance covers events occurring during the policy coverage period.

US/Other Liability – Claims-Made	Same types of coverages as other liability – occurrence above except that the insurance covers claims presented during the period of coverage. The insurable event does not need to occur during the policy period.
US/Products liability	Products liability - occurrence: covers events occurring during coverage period. Products liability - claims made. - covers claims made during the coverage period. Coverage for the manufacturer, distributor, seller, or lessor of a product against legal liability resulting from a defective condition causing personal injury, or damage, to any individual or entity, associated with the use of the product. Products liability - occurrence: covers events occurring during coverage period. Products liability - claims made. - covers claims made during the coverage period. Coverage for the manufacturer, distributor, seller, or lessor of a product against legal liability resulting from a defective condition causing personal injury, or damage, to any individual or entity, associated with the use of the product. Products liability - occurrence: covers events occurring during coverage period. Products liability - claims made. - covers claims made during the coverage period. Coverage for the manufacturer, distributor, seller, or lessor of a product against legal liability resulting from a defective condition causing personal injury, or damage, to any individual or entity, associated with the use of the product.
US/Reinsurance – non-proportional assumed property	Non-proportional assumed liability reinsurance in fire allied lines, ocean marine, inland marine, earthquake, group accident and health, credit accident and health, other accident and health, auto physical damage, boiler and machinery, glass, burglary and theft and international (of the foregoing).
US/Reinsurance – non-proportional assumed liability	Non-proportional assumed liability reinsurance in farm owners multiple-peril, homeowners' multiple-peril, commercial multiple-peril, medical professional liability, workers' compensation, other liability, products liability, auto liability, aircraft (all perils) and international (of the foregoing).
US/Special liability	Various insurance coverages including ocean marine, aircraft (all perils), and boiler and machinery. Ocean marine is coverage for ocean and inland water transportation exposures; such as goods or cargoes; ships or hulls; earnings; and liability. Aircraft is coverage for aircraft (hull) and their contents; aircraft owner's and aircraft manufacturer's liability to passengers, airports and other third parties. Boiler and machinery is coverage for the failure of boilers, machinery and electrical equipment. Coverage includes the property of the insured, which has been directly damaged by an accident, costs of temporary repairs and expediting expenses and liability for damage to the property of others.

US/Mortgage insurance	Mortgage guaranty is indemnification of a lender from loss if a borrower fails to meet required mortgage payments.
US/Fidelity/surety	Fidelity is a bond covering an employer's loss resulting from an employee's dishonest act (eg, loss of cash, securities, or valuables). Surety is a three-party agreement where the insurer agrees to pay a second party or make complete an obligation in response to the default, acts, or omissions of a third party.
US/Financial Guaranty	Financial guaranty is a surety bond, insurance policy, or when issued by an insurer, an indemnity contract and any guaranty similar to the foregoing types, under which loss is payable upon proof of occurrence of financial loss to an insured claimant, oblige or indemnitee as a result of failure to perform a financial obligation.
US/Other	Coverages not included elsewhere which includes credit coverages, warranty, and, where considered part of property/casualty, accident/health coverages. The Schedule P "International" LOB should be allocated to the region(s) where risk is located, but if this is not possible could be included in this segment.
US/Reinsurance – non-proportional assumed financial lines	Non-proportional assumed reinsurance in the following lines: mortgage guaranty, financial guaranty, fidelity, surety, credit, and international (in the foregoing).
Japan/Fire	This insurance covers property damage for either commercial or household caused by fire, windstorm, hail, water damage and earthquake
Japan/Hull	This insurance covers damage of vessel.
Japan/Cargo	This insurance covers damage on good and property in transit by vessel.
Japan/Transit	This insurance is called as Inland marine, which covers property being transported by other than vessel or aircraft.
Japan/Personal Accident	This insurance covers loss by accidental bodily injury. Under this insurance, policyholder is reimbursed based on actual losses occurred or receives a fixed benefit due to a certain accident event.
Japan/Automobile	This insurance covers personal injury or automobile damage sustained by the insured and liability to third parties for losses caused by the insured. Please note fleet automobile insurance should be included here.
Japan/Aviation	This insurance covers aircraft, goods or property in transit by aircraft and launch to the space, and liability arising from the loss of or damage to the goods or property in transit or bodily injury or property loss or damage to third parties

Japan/Guarantee Ins.	This insurance covers financial loss caused by the insolvency or payment default of customers to whom credit has been granted
Japan/Machinery	This insurance protects the insured against loss incurred as a result of machinery breakdown.
Japan/General Liability	This insurance covers any legal obligations to pay compensation and costs for bodily injury, property loss or damage to third parties.
Japan/Contractor's All Risks	This insurance is purchased by contractors to cover damage to property under construction.
Japan/Movables All Risks	This insurance covers loss or damage to property other than motor, aircraft and vessel.
Japan/Workers' Compensation	This insurance covers no-fault basis compensation payments to employees who sustained bodily injury or occupational disease during or which arises out of the course of their employment, and provides employers with protections against claims which their employees make for bodily injury or occupational disease caused by tort.
Japan/Misc. Pecuniary Loss	This insurance provides the insured with tailor-made covers for consequential losses that are not covered by any other classes of business.
Japan/Nursing Care Ins.	This Insurance provides benefit to meet specified conditions requiring the insured to be nursed. Under this insurance, policyholder is reimbursed based on actual cost incurred or receives a fixed benefit for nursing care.
Japan/Others	Includes any other non-life insurance not listed above.
China/Motor	A vehicle insurance that the object of insurance is vehicle itself and related liability to pay compensation.
China/Property, including commercial, personal and engineering	Insurance that the object of insurance is property and related interests.
China/Marine and Special	Insurance that the object of insurance is watercraft and related liability to pay compensation.
China/Liability	Insurance that the object of insurance is assumed liability of the insurant to pay compensation to the third party.
China/Agriculture	Insurance that the object of insurance is the property loss of agriculture caused by disasters.

China/Credit	Insurance that the object of insurance is the economical loss of loaner because of the debtor's incapacity or refusing to pay for the debt.
China/Short-term Accident	A short-term accident insurance, the object of insurance is the death or disability of insurant because of accident. The period of insurance is usually no more than one year.
China/Short-term Health	Health insurance that the period of insurance is no more than one year and without guaranteed renewable terms.
China/Short-term Life	A short-term life insurance, the object of insurance is the lift of insured. The period of insurance is usually no more than one year.
China/Others	Other insurances.
Australia&NZ/ Householders	This class covers the common Householders policies, including the following classes/risks: contents, personal property, arson and burglary. Public liability normally attaching to these products is to be separated. This class also covers proportional reinsurance of householders business.
Australia&NZ/ Commercial Motor	Motor vehicle insurance (including third party property damage) other than insurance covering vehicles defined below under Domestic Motor. It includes long and medium haul trucks, cranes and special vehicles, and policies covering fleets. This class also covers proportional reinsurance of commercial motor.
Australia&NZ/ Domestic Motor	Motor vehicle insurance (including third party property damage) covering private use motor vehicles including utilities and lorries, motor cycles, private caravans, box and boat trailers, and other vehicles not normally covered by business or commercial policies. This class also covers proportional reinsurance of domestic motor.
Australia&NZ/ Other type A	Other classes of business with similar characteristics to householders and motor This class also covers proportional reinsurance of other type A.
Australia&NZ/ Travel	Insurance against losses associated with travel including loss of baggage and personal effects, losses on flight cancellations and overseas medical costs. This class also covers proportional reinsurance of travel insurance.
Australia&NZ/ Fire and ISR	Includes all policies normally classified as fire (includes sprinkler leakage, subsidence, windstorm, hailstone, crop, arson and loss of profits) and Industrial Special Risk

	This class also covers proportional reinsurance of fire and industrial special risk.
Australia&NZ/Marine and Aviation	Includes Marine Hull and Marine Liability (including pleasure craft), and Marine Cargo (including sea and inland transit insurance). Also includes Aviation (including aircraft hull and aircraft liability). This class also covers proportional reinsurance of marine and aviation.
Australia&NZ/ Consumer Credit	Insurance to protect a consumer's ability to meet the loan repayments on personal loans and credit card finance in the event of death or loss of income due to injury, illness or unemployment. This class also covers proportional reinsurance of consumer credit.
Australia&NZ/ Other Accident	Includes miscellaneous accident, all risks (baggage, sporting equipment, guns), engineering when not part of Fire & ISR, plate glass when not package, livestock, pluvius and sickness and accident. This class also covers proportional reinsurance of other accident.
Australia&NZ/ Other type B	Other classes of business with similar characteristics to Fire & ISR, marine, aviation, consumer credit and other accident. This class also covers proportional reinsurance of other type B.
Australia&NZ/ Mortgage	Insurance against losses to a lender in the event of borrower default on a loan secured by a mortgage over residential or other property. This class also covers proportional reinsurance of mortgage.
Australia&NZ/ CTP	Compulsory Third Party business. This class also covers proportional reinsurance of CTP.
Australia&NZ/ Public and Product Liability	Public Liability covers legal liability to the public in respect of bodily injury or property damage arising out of the operation of the insured's business. Product Liability includes policies that provide for compensation for loss and/or injury caused by, or as a result of, the use of goods and environmental clean-up caused by pollution spills where not covered by Fire and ISR policies. Includes builders warranty and public liability attaching to householders policies. This class also covers proportional reinsurance of public and product liability.
Australia&NZ/ Professional Indemnity	PI covers professionals against liability incurred as a result of errors and omissions made in performing professional services that has resulted in economic losses suffered by third parties. Includes Directors' and Officers' Liability insurance plus legal expense

	insurance. Cover for legal expenses is generally included in this type of policy. This class also covers proportional reinsurance of professional indemnity.
Australia&NZ/ Employers' Liability	Includes workers' compensation, seaman's compensation and domestic workers' compensation. This class also covers proportional reinsurance of employer's liability.
Australia&NZ/ Short tail medical expenses	Insurance obligation that covers the provision or financial compensation for medical treatment or care including preventive or curative medical treatment or care due to illness, accident, disability or infirmity usually made during the term of the policy or shortly (typically, up to 1 year) after the coverage period of the insurance has expired.
Australia&NZ/ Other type C	Other classes of business with similar characteristics to mortgage, CTP, and other liability. This class also covers proportional reinsurance of other type C.
Australia&NZ/ Householders - non-prop reins	Non-Proportional reinsurance of householders business (refer definition).
Australia&NZ/ Commercial Motor - non-prop reins	Non-Proportional reinsurance of commercial motor (refer definition).
Australia&NZ/ Domestic Motor - non-prop reins	Non-Proportional reinsurance of domestic motor business (refer definition).
Australia&NZ/ Other non-prop reins type A	Non-Proportional reinsurance of other type A business (refer definition).
Australia&NZ/ Travel - non-prop reins	Non-Proportional reinsurance of travel business (refer definition).
Australia&NZ/ Fire and ISR - non-prop reins	Non-Proportional reinsurance of Fire & ISR business (refer definition).
Australia&NZ/ Marine and Aviation - non-prop reins	Non-Proportional reinsurance of marine and aviation business (refer definition).
Australia&NZ/ Consumer Credit - non-prop reins	Non-Proportional reinsurance of consumer credit business (refer definition).
Australia&NZ/ Other Accident - non-prop reins	Non-Proportional reinsurance of other accident business (refer definition).

Australia&NZ/ Other non-prop reins type B	Non-Proportional reinsurance of other type B business (refer definition).
Australia&NZ/ Mortgage - non-prop reins	Non-Proportional reinsurance of mortgage business (refer definition).
Australia&NZ/ CTP - non-prop reins	Non-Proportional reinsurance of CTP business (refer definition).
Australia&NZ/ Public and Product Liability - non-prop reins	Non-Proportional reinsurance of public and product liability business (refer definition).
Australia&NZ/ Professional Indemnity - non-prop reins	Non-Proportional reinsurance of professional indemnity business (refer definition).
Australia&NZ/ Employer's Liability - non-prop reins	Non-Proportional reinsurance of employer's liability business (refer definition).
Australia&NZ/ Other non-prop reins type C	Non-Proportional reinsurance of other type C business (refer definition).
Hong Kong/ Accident and health	Providing fixed pecuniary benefits or benefits in the nature of indemnity (or a combination of both) against risks of the persons insured 1. Sustaining injury or dying as a result of accident; or 2.Becoming incapacitated in consequence of disease; or 3. Sickness.
Hong Kong/Motor vehicle, damage and liability	This includes 1. Insurance against the risk of the person sustaining injury or dying as a result of travelling as passenger on motor vehicle; 2. Insurance upon loss of or damage to vehicles used on land, including motor vehicles but excluding railway rolling stock; or 3. Insurance against damage arising out of or in connection with the use of motor vehicles on land, including third-party risks and carrier's liability.
Hong Kong/Aircraft, damage and liability	This includes 1. Insurance against the risk of the person sustaining injury or dying as a result of travelling as passenger on aircraft; 2. Insurance upon aircraft or upon the machinery, tackle, furniture or equipment of aircraft; or 3. Insurance against damage arising out of or in connection with the use of aircraft, including third-party risks and carrier's liability.

Hong Kong/Ships, damage and liability	This includes 1. Insurance against the risk of the person sustaining injury or dying as a result of travelling as passenger on marine transport; 2. Insurance upon vessels used on the sea or on inland water, or upon the machinery, tackle, furniture or equipment of such vessels; or 3. Insurance against damage arising out of or in connection with the use of vessels on the sea or on inland water, including third-party risks and carrier's liability.
Hong Kong/Goods in transit	Insurance upon loss of or damage to merchandise, baggage and all other goods in transit, irrespective of the form of transport (ie include goods in transit via motor, aircraft, ships and other transport).
Hong Kong/Fire and Property damage	This includes insurance against loss of or damage to property (other than property to which motor, aircraft, ships or goods in transit relates) due to 1. Fire, explosion, storm, natural forces other than storm, nuclear energy or land subsidence; or 2. hail or frost or to any event (such as theft) other than those mentioned in 1.
Hong Kong/General liability	Insurance against risks of the persons insured incurring liabilities to third parties, the risks in question not being risks to which motor, aircraft or ships relates.
Hong Kong/Pecuniary loss	This includes: 1. Insurance against risks of loss to the persons insured arising from the insolvency or failure of debtors of theirs; 2. Suretyship; 3. Insurance against risks attributable to interruptions of the carrying on of business carried on by them or to reduction of the scope of business so carried on; or 4. Insurance against risks of loss to the persons insured attributable to their incurring legal expenses (including costs of litigation).
Hong Kong/Non-proportional treaty reinsurance	In the event that it is impracticable to allocate the treaty reinsurance business to the respective eight accounting classes of general business above, such business may be shown under 2 broad classes, namely, Non-proportional Treaty Reinsurance and Proportional Treaty Reinsurance
Hong Kong/Proportional treaty reinsurance	In the event that it is impracticable to allocate the treaty reinsurance business to the respective eight accounting classes of general business above, such business may be shown under 2 broad classes, namely, Non-proportional Treaty Reinsurance and Proportional Treaty Reinsurance
Korea/ Fire, technology, overseas	This includes fire insurance, technology insurance, original overseas insurance, reinsurance assumed from overseas. - fire insurance: insurance for residential fire, factory fire, general fire (insurance for fire in any ordinary building and movable property therein, excluding residential houses and factories) and other fire. - technology insurance: insurance for construction, assembling, machinery, electronic devices and others. The definitions for each

	are set out below. 1) construction: protection against damage and liability for damage to a building under construction. 2) assembly: protection against damage and liability for damage to a structure in assembling progress. 3) machinery: insurance for damage to machinery. 4) electronic devices: insurance for damage to electronic devices and costs and expenses for restoration of data. - original overseas insurance: insurance for property damage, bodily injury, or liability for damages in connection with any goods located in a foreign country. - reinsurance assumed from overseas: assuming other insurer's risk as a reinsurer from overseas.
Korea/Package	This includes package insurance for household and for business. - for household: insurance for two or more types of damage among insurance for an individual person's property damage, bodily injury, and liability for damages. - for business: insurance for two or more types of damage among an enterprise's property damage, liability for damages, and insurance for bodily injury of its members.
Korea/Maritime	This includes Marine, Transportation and aviation. More specifically this includes cargo, ship, general maritime, marine liability, transportation, aviation, space, and other maritime. 1) cargo: insurance for risks in marine transportation of cargoes. 2) ship: insurance for damage to a ship. 3) general maritime: insurance for risks in marine activities, such as risks in marine construction. 4) marine liability: protection against liability for damage on the seas, such as insurance of liability for marine contamination (excluding ship and general marine). 5) transportation: insurance for risks in cargoes in inland transportation. 6) aviation: insurance for damage to aircraft, such as operation and navigation of aircraft (property) and protection against liability for damages related to accidents of aircraft (liability for damages). 7) space: insurance for risks in successful launching and performance of missions of artificial satellites (property) and protection against liability for damages related to accidents of artificial satellites (liability for damages). 8) other maritime: marine insurance products other than those classified above.
Korea/Personal injury	This includes injury, travel and others (excluding those for foreigners). 1) injury: insurance for an insured person's bodily injury caused by a sudden and unexpected accident.

	2) travel: insurance for injuries inflicted while travelling within the Republic of Korea (domestic travel), insurance for injuries inflicted while travelling abroad (overseas travel) and insurance for injuries inflicted on persons staying abroad for a long time, such as students studying abroad and personnel stationed abroad (long stay abroad). 3) others: injury insurance products not listed above.
Korea/Workers accident, liability	This includes insurance for workers' compensation for accidents and insurance for liability. - Workers' compensation for accidents includes: 1) domestic: indemnity for accidents and employer's liability. 2) overseas: indemnity for accidents and employer's liability. 3) seafarers: indemnity for accidents and employer's liability. 4) occupational trainee: indemnity for accidents and employer's liability. - Insurance for liability includes: 1) general liability: personal liability, business liability, ship owner's liability, excursion and ferry ship business, road transportation business, gas accident, sports facilities, local government and others. 2) product liability: product liability, product recall and product guarantee. 3) professional liability: malpractice and errors and omissions (E&O).
Korea/Foreigners	This includes insurance for injury, travel and others provided for foreigners.
Korea/Advance payment refund guarantee	Insurance purchased by a builder for damage that a buyer may sustain due to non-performance of repayment of advance payment in connection of building of a ship or construction of marine facilities.
Korea/Other Non-life	General insurance products other than those specified above.
Korea/Private vehicle(personal injury)	Insurance that indemnifies the policyholder from the liability for damages incurred to a victim by killing or injuring another person as a consequence of an accident incurred while the insured owns or manages a vehicle, among covers provided under an automobile insurance policy for a private motor vehicle, which shall include the liability insurance under Article 5 (1) of the Guarantee of Automobile Accident Compensation Act.
Korea/Private vehicle(property, vehicles damage)	Insurance that indemnifies the policyholder from the liability for damages incurred to another vehicle or the policyholder's own vehicle as a consequence of an accident incurred while the policyholder owns or manages a vehicle, among covers provided under an automobile insurance policy for a private motor vehicle.

Korea/Vehicle for commercial or business purpose(personal injury)	Insurance that indemnifies the policyholder from the liability for damages incurred to a victim by killing or injuring another person as a consequence of an accident incurred while the policyholder owns or manages a motor vehicle, among covers provided under an automobile insurance policy for a motor vehicle for commercial or business purpose, which shall include the liability insurance under Article 5 (1) of the Guarantee of Automobile Accident Compensation Act.
Korea/Vehicle for commercial or business purpose(property, vehicles)	Insurance that indemnifies the policyholder from the liability for damages incurred to another vehicle or the policyholder's own vehicle as a consequence of an accident incurred while the policyholder owns or manages a vehicle, among covers provided under an automobile insurance policy for a motor vehicle for commercial or business purpose.
Korea/Other motor	Automobile insurance other than insurance products specified above.
Singapore/Personal Accident	Refers to the insurance business of writing personal accident policy.
Singapore/Health	Refers to the insurance business of writing health policy.
Singapore/Fire	This insurance covers property damage for either commercial or household caused by fire, windstorm, hail, water damage and earthquake
Singapore/Marine and Aviation - Cargo	Includes insurance against risk of loss or damage of any cargo in transit, and any liability arising from such cargo in transit arising from the use of a vessel or ship or aircraft.
Singapore/Motor	Includes insurance against risk of loss, damage or liability arising out of or in connection with the use of motor vehicles.
Singapore/Work Injury Compensation	This insurance covers compensation payments to employees who sustained bodily injury or occupational disease during or which arises out of the course of their employment.
Singapore/Bonds	Includes maid insurance and insurance under which an insurer undertakes to guarantee (other than guarantees to which “Credit/ Credit related” relates to) the due performance of a contract or undertaking, or the payment of a penalty or indemnity for any default.

Singapore/Engineering Construction	Includes insurance against construction, erection, or engineering risks such as the loss or damage involved in a construction project, and installation and erection of ready built-engineering projects. It also includes boiler and pressure vessel insurance, construction all risk insurance, engineering all risk insurance, erection all risk insurance, machinery all risk insurance and insurance on any other specialised equipment or machinery that are excluded from the standard property insurance.
Singapore/Credit	Insurance protecting against the risk of non-payment of goods and services by buyers and importers.
Singapore/Mortgage	Insurance protecting against losses on mortgage loans arising from default by borrowers.
Singapore/Others- non liability class	Other non-liability classes not covered elsewhere.
Singapore/Marine and Aviation - Hull	Includes insurance against risk of physical loss or damage of vessel or ship used on sea or inland water or aircraft, any liability arising from such vessel or ship or aircraft, and damage of vessel or ship or aircraft while under construction. It also includes marine terminal operator insurance and airport operator insurance and insurance against aerospace risks.
Singapore/ Professional indemnity	Includes insurance for professionals against risk of their liability to their principals, clients, principal's clients, or any third parties arising out of neglect, omission or error in the discharge of their professional duties. It also includes directors and officers liability insurance, and errors and omission insurance.
Singapore /Public liability	Includes insurance against risk of the insured's liability to third party in respect of bodily injury, property damage or any monetary losses arising out of negligence (other than liability to which business classes "Cargo", "Marine Hull", "Aviation Hull" and "Motor" relate to).
Singapore /Others-liability class	Other liability classes not covered elsewhere.
Chinese Taipei / Fire - residence	Fire insurance for personal residence.
Chinese Taipei / Fire - commercial	Fire insurance for commercial building.
Chinese Taipei / Marine - inland cargo	Marine insurance for inland cargo.

Chinese Taipei / Marine - overseas cargo	Marine insurance for overseas cargo.
Chinese Taipei / Marine - hull	Marine insurance for hull.
Chinese Taipei / Marine - fish boat	Marine insurance for fish boat/vessel.
Chinese Taipei / Marine - aircraft	Aviation insurance for aircraft.
Chinese Taipei / Motor - personal vehicle	Motor insurance for personal vehicle.
Chinese Taipei / Motor - commercial vehicle	Motor insurance for commercial vehicle.
Chinese Taipei / Motor - personal liability	Motor insurance for personal liabilities.
Chinese Taipei / Motor - commercial liability	Motor insurance for commercial liabilities.
Chinese Taipei / Liability - public, employer, product, etc.	Public liability insurance, employer liability insurance, product liability insurance, etc.
Chinese Taipei / Liability - professional	Professional liability insurance.
Chinese Taipei/ Engineering	Engineering insurance.
Chinese Taipei / Nuclear power station	Insurance for nuclear power station.
Chinese Taipei / Guarantee - surety, fidelity	Surety insurance, fidelity insurance, mortgage insurance, etc.
Chinese Taipei / Credit	Trade credit insurance, credit card insurance, small-amount loan credit insurance, etc.
Chinese Taipei /Other property damage	Property damage insurances not included in other LOBs, eg cash insurance, theft insurance, glass insurance, etc.
Chinese Taipei / Accident	Accident insurance for personal injuries or death.

Chinese Taipei / Property Damage - commercial earthquake	Earthquake insurance (other than compulsory earthquake insurance).
Chinese Taipei / Comprehensive - personal property and liability	Comprehensive insurance for personal property and liabilities.
Chinese Taipei / Comprehensive - commercial property and liability	Comprehensive insurance for commercial property and liabilities.
Chinese Taipei / Property damage - typhoon and flood	Typhoon and flood insurance.
Chinese Taipei / Property damage - compulsory earthquake	Compulsory earthquake insurance (compulsory for personal residence).
Chinese Taipei / Health	Health insurance.
OTHER/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; and 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.
OTHER/ Property damage	This includes, but is not limited to: 1. 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. 2. Fire and industrial: Loss or damage and loss of earnings due to damage to commercial buildings and other physical infrastructure due to fire, windstorm and other perils. 3. Consequential losses: Products covering consequential losses (such as 'loss of profits' or 'business interruption') is also included in this segment; 4 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.

OTHER/ Accident, protection and health (APH)	This includes, but is not limited to: 1 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; 2 Other consumer accident: Property damage other than householders or motor vehicle. For example, travel insurance. 3. Other commercial accident: Commercial property insurance other than Fire and Industrial risk and MAT, and other than commercial long-term liability; 4 Consumer credit: Guarantee of repayments on consumer credit contracts due to involuntary loss of employment; 5. Consumer liability: Private individual's liability for personal injury through personal actions or property
OTHER/ Short tail medical expenses	Insurance obligation that covers the provision or financial compensation for medical treatment or care including preventive or curative medical treatment or care due to illness, accident, disability or infirmity usually made during the term of the policy or shortly (typically, up to 1 year) after the coverage period of the insurance has expired.
OTHER/ Other short tail	Any non-Life products which do not fit into the segments above, do not fit the definition of non-life medium-term business and where claims are usually made during the term of the policy or shortly (typically, up to 1 year) up to after the coverage period of the insurance has expired.
OTHER/ Marine, Air, Transport (MAT)	This includes: 1. All damage or loss of river, canal, lake and sea vessels, aircraft, goods in transit, liabilities from use of aircraft, ships and boats.; 2 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.
OTHER/ Workers' compensation	This insurance covers compensation payments to employees who sustained bodily injury or occupational disease during or which arises out of the course of their employment.
OTHER/ Public liability	Public liability insurance for bodily injury or damage to property.
OTHER/ Product liability	Product liability insurance for bodily injury or damage to property for claims attributed to the use of products.
OTHER/ Professional indemnity	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.
OTHER/ Other liability and other long tail	Any non-life products which do not fit into the defined segments above, do not fit the definition of non-life medium-term business

	and where claims may be made many years (typically 1 or more years) after the coverage period of the insurance has expired. All other liability classes not covered elsewhere.
OTHER/ Non-proportional motor, property damage, APH and MAT	Non-Proportional reinsurance of motor, property damage and accident/protection/health business, marine, aviation and transport (refer definition).
OTHER/ 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.
OTHER/ Non proportional liability	Non-Proportional reinsurance of public liability, product liability and other liability (refer definition).
OTHER/ Non-proportional professional indemnity	Non-Proportional reinsurance of professional indemnity (refer definition).
OTHER/ 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.
OTHER/ Commercial credit insurance	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.
OTHER/ Other medium-term	Any other non-life medium-term insurance products other than the above and not included in non-life 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.

Annex 3 Definitions and criteria applicable to infrastructure debt and equity

1 Infrastructure investments

665. Infrastructure (and by extension, infrastructure assets) means the physical structures, facilities, systems and networks that provide or support essential public services, for example:

- Water and waste, including water supply and distribution systems, and wastewater collection and treatment systems;
- Energy, including electricity generation, transmission, distribution and storage, oil and gas pipelines, production, distribution and storage of gas (incl. hydrogen);
- Transportation assets, including roads, bridges, tunnels, railroads, rapid transit links, seaports, airports, rolling stock (train or bus fleets or other means of transportation if they are used to service public transportation), ground transportation equipment, and facilities for alternative transportation (eg charging and refuelling stations);
- Digital assets, including telecommunication towers, cable systems, satellite networks, and data centres; and
- Social infrastructure assets, including schools, hospitals, courthouses, other government buildings, social housing, and privately run social infrastructure assets serving a public purpose.

666. Table 40 below provides an illustrative view of the different classes of infrastructure assets

Table 40: Infrastructure investments

General title	What is infrastructure	What is not infrastructure	What typically makes the infrastructure investment safer
Water utilities	Water supply/distribution, Waste water collection / treatment	Fixing water pipe leakages (unless as part of maintenance and repair of water supply/distribution systems)	Regulation relating to long-term concessions or pricing or return-on-assets or profit margin.
Waste management utilities	Facilities dedicated to waste management, treatment and recycling.	Using spare parts from scrapped vehicles for other vehicles.	Long-term concessions usually with the involvement of a local government or council.
Energy (including electricity and gas utilities)	Generation / transmission / distribution / storage / district heating	Batteries used in electric cars Insulation of houses.	Regulation relating to long-term concessions, or pricing, or return-on-assets or profit margin.

Transportation	Airports/ports/roadways/railway network, rolling stock used to service public transportation, ground transportation equipment, facilities for alternative transportation (charging and refuelling stations)	Car, aircraft, boat manufacture Spare parts for aircrafts, repairs, etc.	Long-term concessions or agreements usually with the involvement of a local government or council. Demand for such services.
Digital assets (including Telecom)	Core digital and telecom infrastructure such as broadband equipment, optical fibres, telecommunication towers, data centres.	Production and selling of telephones Internet Service Provider	Long-term contracts, mostly business-to-business.
Social infrastructure	Infrastructure that provides a service for the public that is regulated or governed by a government or a similar authority (eg courts, prisons, juvenile facilities, schools, universities, libraries, refugee camps, subsidised/social housing, hospitals, etc.); or privately run social welfare institutions serving a public purpose.		The infrastructure facility is consistent with the social policies of the relevant government or public needs of the society.

667. Infrastructure investments are debt or equity investments in entities that own, finance, develop or operate infrastructure assets.

668. Infrastructure investments can be segmented according to different criteria:

- The type of investment[43]:
    - Equity
    - Debt
        - Bonds (rated or unrated)
        - Loans
- The type of issuer
    - Corporate: an infrastructure corporate is an entity or a group that derives the substantial majority of its revenue from owning, financing, developing or operating infrastructure assets.

[43] Look-through should be applied to investment funds to identify underlying infrastructure investments that are eligible, unless it can be shown that the fund as a whole meets all the definitions and criteria.

- Project: an infrastructure project entity is an entity which was created specifically to support, own, finance, develop or operate one or several infrastructure assets.

  N.B.: with regard to debt financing, loans to infrastructure corporates are usually unsecured, while loans to infrastructure projects are generally collateralised.

- The involvement of the public sector (for instance through a PPP) or absence thereof
- The location of the infrastructure:
  - Developed markets
  - Emerging markets and developing economies (EMDEs[44])

2 Criteria applicable to infrastructure equity

669. The purpose of the criteria below is to identify subsets of infrastructure equity investments that can be recognised as infrastructure equity under paragraphs 442 and 448.

2.1 Subset of infrastructure corporate investments

670. Equity investments in infrastructure corporate are eligible to the specific risk charge for infrastructure equity when the investor can demonstrate all of the following:

a. Revenues generated by the infrastructure assets are predictable, evidenced by:
   i. Availability-based revenues;
   ii. Arrangements that are subject to rate-of-return regulations;
   iii. Arrangements that provide a high degree of contractual or regulatory certainty of payments from future revenues by mitigating demand and/or price risk through concessions;
   iv. Offtake contracts, such as take-or-pay contracts, or similar; or
   v. Resilient demand.

b. Revenues generated by the infrastructure assets are diversified in terms of activities, location, or payers unless the revenues are subject to rate-of-return regulations or a take-or-pay contract or the revenues are availability-based;

c. The equity issuer is either ICS RC 1-4, or:
   i. The infrastructure corporate is of strong credit quality;
   ii. The capital structure of the infrastructure corporate allows debt service under conservative assumptions based on an analysis of the relevant financial ratios; and
   iii. The infrastructure corporate has been active in its lines of business for at least five years, or in the case of an acquired business it has been in operations for at least five years.

d. The IAIG is committed to holding the investment for a long period; and

[44] Identified based on the World Bank classification of countries: all countries not classified as high income should be considered as EMDE.

e. Where the revenues of the infrastructure corporate are not funded by payments from a large number of users, the contractual or regulatory framework includes provisions that effectively protect investors against losses resulting from the termination of the project by the contracted purchaser of the goods or services, and require the contracted purchaser to be of good credit standing[45] or replaceable without a significant loss to equity investors.

2.2 Subset of infrastructure project investments

671. Equity investments in infrastructure projects are eligible to the specific risk charges for infrastructure equity when the investor can demonstrate all of the following:

a. Revenues generated by the infrastructure assets are predictable, resulting from:

   i. Availability-based revenues or arrangements that are subject to rate-of-return regulations;

   ii. Arrangements that provide a high degree of contractual or regulatory certainty of payments from future revenues by mitigating demand and/or price risk through concessions;

   iii. Offtake contracts, such as take-or-pay contracts, or similar; or

   iv. Resilient demand.

b. The infrastructure project can meet its financial obligations under sustained stressed conditions that are relevant for the risk of the project;

c. The infrastructure project is governed by a regulatory or contractual framework that provides equity investors with a high degree of protection, including the following:

   i. Where the revenues of the infrastructure project are not funded by payments from a large number of users, the contractual framework includes provisions that effectively protect investors against losses resulting from the termination of the project by the contracted purchaser of the goods or services, and require the contracted purchaser to be of good credit standing[45] or replaceable without a significant loss to equity investors; and

   ii. The infrastructure project has sufficient reserve funds or other financial arrangements to cover its contingency funding and working capital requirements;

d. The IAIG is committed to holding the investment for a long period.

e. Risks linked to the management of the project are significantly mitigated, resulting from:

   i. A good expertise and a track record of the sponsor of successfully overseeing infrastructure projects;

   ii. Established incentives for the sponsor to protect the interests of other investors;

   iii. A limited exposure of investors to the default of the sponsor;

[45] The contracted purchaser is assumed to be of good credit standing if it belongs to the following list: national governments, multilateral development banks, supranational organisations, or other entities with an ICS RC 1-4.

iv. Established safeguards to ensure completion of the project according to the agreed specifications, budget and completion date (including for example completion guarantees or the involvement of an experienced constructor and adequate contract provisions for liquidated damages); and

v. The use of tested technology and design.

f. The project has been in operational phase for at least 5 years;

g. The financial risks faced by the infrastructure project are significantly mitigated, resulting from:

i. The capital structure of the infrastructure project allows it to service its debt under conservative assumptions based on an analysis of the relevant financial ratios;

ii. The refinancing risk for the infrastructure project is low; and

iii. The infrastructure project uses derivatives only for risk mitigation purposes; and

h. Where operating risks are material, they are properly managed.

3 Criteria applicable to infrastructure debt

672. The purpose of the criteria below is to identify subsets of infrastructure debt investments that can be recognised as infrastructure debt under paragraph 491.

3.1 Subset of infrastructure corporate investments

673. Debt investments in infrastructure corporate are eligible to the specific risk charge for infrastructure debt when the investor can demonstrate all of the following:

a. Revenues generated by the infrastructure assets are predictable, evidenced by:

i. Availability-based revenues;

ii. Arrangements that are subject to rate-of-return regulations;

iii. Arrangements that provide a high degree of contractual or regulatory certainty of payments from future revenues by mitigating demand and/or price risk through concessions;

iv. Offtake contracts, such as take-or-pay contracts, or similar; or

v. Resilient demand.

b. Revenues generated by the infrastructure assets are diversified in terms of activities, location, or payers unless the revenues are subject to rate-of-return regulations or a take-or-pay contract or the revenues are availability-based;

c. The infrastructure corporate is of strong credit quality, evidenced by:

i. The capital structure of the infrastructure corporate allows debt service under conservative assumptions based on an analysis of the relevant financial ratios; and

ii. The infrastructure corporate has been active in its lines of business for at least three years, or in the case of an acquired business it has been in operations for at least three years.

d. The IAIG is committed to holding the investment to maturity; and

e. Where the revenues of the infrastructure corporate are not funded by payments from a large number of users, the contractual or regulatory framework includes provisions that effectively protect investors against losses resulting from the termination of the project by the contracted purchaser of the goods or services, and require the contracted purchaser to be of good credit standing[46] or replaceable without a significant loss to debt and equity investors.

3.2 Subset of infrastructure project investments

674. Debt investments in infrastructure projects are eligible to the specific risk charge for infrastructure debt when the investor can demonstrate all of the following:

a. Revenues generated by the infrastructure assets are predictable, resulting from:

   i. Availability-based revenues or arrangements that are subject to rate-of-return regulations;

   ii. Arrangements that provide a high degree of contractual or regulatory certainty of payments from future revenues by mitigating demand and/or price risk through concessions;

   iii. Offtake contracts, such as take-or-pay contracts, or similar; or

   iv. Resilient demand.

b. The infrastructure project can meet its financial obligations under sustained stressed conditions that are relevant for the risk of the project;

c. The infrastructure project is governed by a regulatory or contractual framework that provides debt investors with a high degree of protection, including the following:

   i. Where the revenues of the infrastructure project are not funded by payments from a large number of users, the contractual framework includes provisions that effectively protect investors against losses resulting from the termination of the project by the contracted purchaser of the goods or services, and require the contracted purchaser to be of good credit standing[46] or replaceable without a significant loss to debt investors;

   ii. The infrastructure project has sufficient reserve funds or other financial arrangements to cover its contingency funding and working capital requirements; and

   iii. The contractual framework provides a strong security package, which includes security in project assets and contracts, restrictions on the use of net operating cash flows, restrictions on permitted investments and activities, and on the issuance of new debt. Where the IAIG can demonstrate that the security in project assets and contracts is not essential for effective protection or recovery of the vast majority of its investment, a different security package may be relied upon. In that case, the security package includes at least one of the following:

[46] The contracted purchaser is assumed to be of good credit standing if it belongs to the following list: national governments, multilateral development banks, supranational organisations, or other entities with an ICS RC 1-4.

equity pledges, step in rights, lien over bank accounts, control over cash flows, provisions for assignment of contracts.

d. The IAIG is committed to holding the investment to maturity.

e. The risks during the construction phase of the project are significantly mitigated, resulting from:

   i. A good expertise and a track record of the sponsor of successfully overseeing infrastructure projects;

   ii. Established incentives for the sponsor to protect the interests of other investors;

   iii. A limited exposure of investors to the default of the sponsor;

   iv. Established safeguards to ensure completion of the project according to the agreed specifications, budget and completion date (including for example completion guarantees or the involvement of an experienced constructor and adequate contract provisions for liquidated damages); and

   v. The use of tested technology and design.

f. The financial risks faced by the infrastructure project are significantly mitigated, resulting from:

   i. The capital structure of the infrastructure project allows it to service its debt under conservative assumptions based on an analysis of the relevant financial ratios;

   ii. The refinancing risk for the infrastructure project is low;

   iii. The infrastructure project uses derivatives only for risk mitigation purposes; and

   iv. Debt ranks *pari passu* or senior to all claims other than statutory claims; and

g. Where operating risks are material, they are properly managed.

Annex 4 Internal models requirements

Annex 4 provides an excerpt of the DRAFT version of the internal models requirements.

1 Criteria for Internal model approval

1.1 Validation standards

The regular validation process aims to ensure the ongoing appropriateness of the design and operations of the internal model and that the internal model continues to appropriately reflect the risk profile of the IAIG.

The internal model validation process shall specify the following:

a) Scope of validation;
b) Processes, methods, and tools to be used;
c) Frequency of validation; and
d) Persons involved, roles, reporting lines and escalation paths.

The model validation process shall apply to all internal model parts and cover all requirements.

The IAIGs shall demonstrate that the model has been validated independently (externally or internally) from those who develop, change, update, run, and use the model.

Internal model validation requires IAIGs to have model validation reports covering model components and the entire model. The reports shall document the validation process and conclude on the adequacy of the model component or model being validated and the appropriateness of the resulting capital charge for the regulatory capital.

There shall be a clearly defined remediation and follow-up process for model validation findings, an action plan, and implementation monitoring.

As part of the validation process, IAIGs shall perform and obtain reasonable results and insights from inter alia:

a) Sensitivity testing, stress testing and scenario analysis, including reverse stress testing;
b) Back-testing;
c) Stability testing;
d) Profit and loss attribution; and
e) Other validation tools, such as benchmarking or alternative methods/models.

The GWS shall ensure there is an appropriate understanding of the validation process and results for external models.

1.2 Statistical quality test

1.2.1 Scope, theory and structure on the internal model

The scope of the internal model shall be complete by including all material quantifiable risks in assets, liabilities, legal entities and lines of business within its intended scope. The documentation of the scope of the internal model shall cover how materiality has been assessed.

The base quantitative methodology of the internal model shall be in line with generally accepted market practice and robust actuarial and statistical theory. More specifically, the methodology and technology implementation used for this should be perceived as an industry standard or better.

The structure of the model shall be clear, logical and consistent with how business is managed.

The IAIG shall explain the appropriateness of the chosen methodology taking into consideration the nature, scale and complexity of the risks.

In addition, for everything within the scope of the internal model, it shall have demonstrated an approach to differentiate between the materiality of the risks being taken by the IAIG. The internal model shall allow for changes in the risk profile over time adapt to foreseeable risks, this can be achieved by parameterisation or model changes. If future management actions are considered, they shall follow the principles below:

a) Be objective, realistic and verifiable;
b) They cannot be contrary to the IAIG's obligations to policyholders or legal provisions applicable to the IAIG;
c) Are consistent with the IAIG's current business practice and business strategy unless the GWS is satisfied that there is sufficient evidence that the IAIG will change its practices or strategy;
d) Can reasonably be expected to be carried out under the specific circumstances to which they apply; and
e) The assumptions about future management actions take into account the time needed to implement them, as well as any resulting incremental expenses.

Risk mitigation techniques may be recognised in the ICS risk charges provided they meet all of the following requirements:

a) The risk mitigation technique is effective and legally enforceable in all relevant jurisdictions and results in an effective transfer of risk to a third party;
b) The contractual arrangement has been reviewed to ensure that the risk transfer is clearly defined;
c) The calculation of the ICS risk charges allows for the effects of risk mitigation techniques through a reduction of the risk charge commensurate with the extent of risk mitigation. It makes a reasonable allowance for any basis risk effects due to changes in risk mitigation assumptions and relationships including during tail events , and there is an appropriate treatment for any corresponding risk embedded in the use of risk mitigation techniques (e.g. counterparty default). These two effects are treated separately;
d) There is no double-counting of mitigation effects; and
e) The documentation for the arrangement sets out a direct claim on the IAIG's counterparty in the event of its default, insolvency, bankruptcy or other credit events.
f) Consideration of the credit quality of the providers of the risk mitigation is made within the internal model.

The methodology to calculate the ICS capital requirement shall be consistent to the possible extent with the methods to calculate technical provisions.

IAIGs shall decide the best way to consolidate and account for the risks to the whole of its business.

The determination of overall regulatory capital requirements with the internal model shall consider dependencies within and across risk categories. Key variables leading to dependencies must be identified and modelled, tail dependencies and non-linear effects must be adequately captured. Where the internal model allows for diversification effects, the IAIG

shall justify its allowance for diversification effects and demonstrate that it has considered whether dependencies may increase under stressed circumstances.

1.2.2 Assumptions

The methods used in the internal model shall be based upon current and credible information and realistic assumptions.

The main assumptions of the model shall have a sound theoretical and empirical justification, including the circumstances under which the assumptions would be considered false and provide a rationale for not using alternatives.

Where simplifying assumptions are used, this shall be clearly defined and documented.

1.2.3 Data

The data used for an internal model shall be accurate, complete and appropriate.

The length of data shall have sufficient historical information to assess the characteristics of the underlying risks, and no relevant data shall be excluded from the use in the model without justification. Where historical data is deemed insufficient, this can be complemented with expert judgment.

The data shall be accurate and consistent, free of material errors and recorded consistently over time, and shall be part of the validation process.

The data shall be appropriate, fit for its purposes and reflect the relevant risks to which the IAIG is exposed.

Nonetheless, the model shall still allow for outcomes not directly observed in past data but to which the IAIG may be exposed in the future, e.g. new business classes or tail risks.

In addition, data extensions, capping or modification shall be documented and justified. The process for dealing with outliers and data-smoothing shall be performed in a way that does not materially underestimate the actual volatility of the risk.

The data used for estimations shall be up-to-date, recorded on time and updated at least annually, and the IAIG shall minimise the gap between the end-of sample data and the calibration date.

IAIGs shall have a data policy that is consistent with the provisions above and demonstrate that they comply with it.

1.2.4 Parameterisation

The parameterisation methods shall be in line with appropriate actuarial and statistical practices. The parameterisation approach shall be well justified, consistently implemented, tested and documented. The latter shall include an explanation for the input and the reasoning for the selection among several candidates.

When parameterisation is made using expert judgment, this shall be in compliance with the IAIG's policy on expert judgment.

Parameterisation results must be reasonable, up-to-date and validated. IAIGs shall define minimum fitting requirements, such as R^2, chi-square statistics, q-q plots, residual analysis, whenever possible. Whenever appropriate, IAIGs shall perform stress testing and sensitivity analysis when choosing model parameters. Parameter risk shall be taken into consideration whenever material.

The parameterisation shall be revised at least once a year. In the event of material differences in the parameters between exercises, this shall be explained and justified.

1.3 Calibration test

The IAIG may use a different confidence level, risk measure or time horizon than Value-at-Risk (VaR) at 99.5% confidence level over the one-year time horizon for internal modelling purposes as long as the outputs of the internal model can be used by the IAIG to calculate the ICS Requirement in a manner that provides policyholders and beneficiaries with an equivalent or higher level of protection.

Where an IAIG uses a different confidence, risk measure or time horizon than the one set out for the ICS standard method, capital requirement calculations shall provide evidence on how the model outcomes compare to the ICS target criterion (i.e. VaR 99.5% over a one-year time horizon).

Where practicable, the IAIG shall derive the ICS Capital Requirement directly from the probability distribution forecast generated by the internal model, using the VaR at 99.5% confidence level over the one-year time horizon.

Where the IAIG cannot derive the ICS Capital Requirement directly from the probability distribution forecast generated by the internal model, the supervisory authority may allow approximations to be used in the process to calculate the ICS Capital Requirement, as long the IAIG can demonstrate to the supervisory authority that policyholders are provided with a level of protection at least equivalent to VaR at 99.5% confidence level over the one-year time horizon.

1.4 Use test and governance

1.4.1 Use test

The IAIG shall explain the different uses of their internal model and how they ensure consistency between the different outputs where the internal model is used for different purposes.

The internal model shall adequately fit how business and risks are managed:

a) The modelling approaches reflect the nature, scale and complexity of the risks inherent in the activities of the IAIG, which are within the scope of the internal model;
b) The outputs of the internal model and the content of the internal and external reporting of the IAIG are consistent; and
c) The internal model is capable of producing outputs that are sufficiently granular to play an important role in the relevant management decisions of the IAIG. Furthermore, IAIG shall be able to run the model in a promptly and timely manner, in case model outputs are need to decision-making outside form the usual reporting timeline.

The model shall be widely used and play an important role in the system of governance of the IAIG and how business and risk are managed, for example in:

a) Strategic and business planning and business management;
b) Risk management, economic capital calculation, and own risk and solvency assessment;
c) Risk appetite setting;
d) Measurement of risk-adjusted performance and performance management;
e) Reporting, decision making, communication and feedback loop development; and

f) The internal model is sufficiently used in Profit and Loss (P&L) Attribution.

Profit and Loss (P&L) Attribution compares the internal model's predicted profit and loss with the actual profit and loss incurred.

The IAIGs should demonstrate that the model is fully embedded in its operational and organisational structure and confirm that it remains valid and is applied consistently over time.

The Board and Executive Management of the IAIG are able to demonstrate an overall understanding of the internal model.

The persons who effectively run (Executive and Senior Management) the IAIG and the officers who run the internal model shall be able to demonstrate a sufficiently detailed understanding of the parts of the internal model used in the area for which they are responsible.

The Board, executive and senior management shall receive appropriate training on the internal model.

1.4.2 Model Governance

Model governance structure, roles, and responsibilities shall be clearly defined by the IAIG and considered appropriate by the GWS.

The IAIG Board shall be responsible for ensuring the ongoing appropriateness of the design and operations of the internal model and that the internal model continues to appropriately reflect the risk profile of the IAIG.

The risk management function shall have Board delegated responsibility for the ongoing maintenance, use, application and validation of the internal model.

The model's governance structure shall be clearly defined and documented, and this shall include reporting lines, allocation of responsibilities and escalation paths. In addition, the IAIG shall have documented procedures for appropriate segregation of duties between those responsible for building, operating and maintaining the model and those responsible for making decisions based on the model's output.

Mechanisms to prevent conflicts of interest shall be in place and addressed in the model's governance framework.

The resources that operate the model shall be adequate.

There shall be adequate and effective controls in place in relation to the operation and maintenance of the internal model.

1.5 Documentation standards

Model documentation shall allow a knowledgeable third party to understand the design and details of the internal model and form a sound judgment as to its compliance with regulatory requirements.

The documentation shall provide a detailed description of the structure, scope, theory, data, assumptions, expert judgment, parameterisation, results, validation, model changes, model governance and model policies. Furthermore, the documentation shall detail all key software, external models (including their customisation) and data and the reasons for their use.

The model documentation, the respective processed including roles and responsibilities shall be covered by the model governance.

The documentation shall be appropriately structured and may include an inventory of all the documents forming the internal model documentation.

Finally, the documentation shall identify the main limitations and weaknesses of the internal model and conditions under which the model may not adequately determine the IAIGs capital requirement.

2 Additional considerations

2.1 Model change policy

Internal models may need to change over time, particularly when it no longer captures the underlying risk in its entirety.

There shall be a model change policy that sets out the governance requirements in relation to changes to the internal model, including internal approval, internal communication, documentation and validation of changes and implementation.

The policy shall address the following:

a) the definition of major and minor changes;
b) how these are assessed; and
c) the governance and decision-making process for such changes.

The model change policy shall define how minor model changes may be aggregated over time and when a combination of minor changes shall be considered a major change.

Major changes to the internal model, as well as changes to that policy, shall always be subject to prior supervisory approval.

Minor changes to the internal model shall not be subject to prior supervisory approval insofar as they are developed in accordance with that policy.

There shall be formal criteria and processes to assess model changes and ensure these are appropriate, these shall include:

a) impact on the ICS capital requirement and on the relevant risk charges and diversification benefits, changes in model scope;
b) structure and theory/methodology;
c) data sources and external models changes and changes in the system of governance;
d) validation framework;
e) model policies; and
f) model use.

Model changes are appropriately documented, implemented and communicated.

2.2 Expert judgment

IAIGs shall have strong governance concerning all inputs that are subjected to expert judgment, grade them by the level of uncertainty and impact in the model, and demonstrate that they comply with it.

Where expert judgment is employed, this shall be documented. The supporting documentation shall describe the assumptions used, their materiality, the rationale for the opinion, the experts involved, the qualification of the experts, the appropriateness of the judgment being made, the intended use and the period of validity.

Expert judgments shall be approved at levels of sufficient seniority according to their materiality. To assess the materiality of expert judgments, quantitative and qualitative indicators may be considered.

The process and the tools for validating the assumptions and using expert judgment shall be documented and in compliance with the expert judgment governance.

2.3 External models and data

External models used in parts of the internal model shall adhere to the same standards as the internally developed parts of the internal model.

Where external data is used, the IAIG shall demonstrate an appropriate understanding of its limitation and adherence to the risk profile, and it shall be in compliance with the data and expert judgment governance.

External data and expert judgement shall be in the scope of model validation.

2.4 Ongoing appropriateness of the model

IAIGs shall ensure the ongoing appropriateness of the design and operations of the internal model and that the internal model continues to appropriately reflect the risk profile of the IAIG.

IAIGs shall develop benchmarking studies that allow them to monitor the evolution of the model overtime, defining indicators that allow understanding of how the model evolved in comparison to its risks and the cumulative effect of model changes. Approximations for the cumulative effect can lead to appropriate results such that it may not be necessary for the IAIG to calculate the capital charges using different development stages of the internal model. The indicators shall not be limited to ICS standard method.

The persons who effectively run (Executive and Senior Management) the IAIG and the officers who run the internal model shall receive appropriate training on the IM periodically. They shall be able to demonstrate a sufficiently detailed understanding of the parts of the internal model used in the area for which they are responsible.

IAIGs shall ensure that the teams involved with the IM are adequately staffed and that the model knowledge is maintained over time.

The rigour of the validation process shall be maintained over time and ensure that the standards under which the IM was approved are maintained. The validation process shall include regular internal model reviews post-approval to assess whether the internal model deviates from the assumptions, portfolio characteristics, structure or parameterisation used in previously approved versions, and ad-hoc reviews in case such deviations have been identified. In addition, the validation process shall ensure that the IM continues to be perceived as an industry standard or perceived best practice.

2.5 Non-insurance entities

IAIGs shall document the rationale for the approach to determine the capital requirement for non-insurance entities and how the risks being run are covered and validated within the internal model.

3 General provisions on the use of partial internal models (PIM)

3.1 Framework for partial internal models

An IAIG may use an internal model if the requirements specified in earlier sections are met. The internal model is considered as partial if at least one of the conditions below are met:

- The scope of the PIM does not cover all risks identified according to ICP17 (16.1.1); and
- The scope of the PIM does not cover the entire insurance business within the group. For instance, a specific portfolio, or an entity is not covered.

A PIM should fulfil the requirements applicable to internal model specified in earlier sections taking into account the limited scope of the model.

3.2 Justification for the scope of partial internal models

An application for approval of a PIM shall include the evidence of such compliance, as well as a proper justification for the limited scope of the model. In particular, it shall explain how the capital requirement resulting from the PIM reflects more appropriately the risk profile of the IAIG.

In case the model is partial in terms of business coverage, the explanation provided shall specify the reasons for excluding certain business from the internal model and demonstrate that the overall risks to which the group is exposed are not underestimated by using a partial internal model.

When assessing an application for the use of a PIM, The GWS shall consider at least the following:

- the materiality and risk profile of the business excluded with respect to the risk profile of the IAIG; and
- the appropriateness of the standard approach for the calculation of the capital requirement of both the business included in the scope of the internal model and for the business excluded from the scope of the PIM. In particular, supervisors should assess whether the exclusion of a business could lead to:
    - an inadequate capital requirement in relation to the risk profile of the group;
    - an improper allocation of own funds based on the capital requirements of the excluded business rather than on its contribution to the risk profile of the IAIG; and
    - weaknesses in risk management of the IAIG and its business resulting from the limited scope of the internal model.

When assessing an application for the use of a PIM that only covers certain risks, or part of the business of an IAIG, supervisory authorities may require the IAIG to develop a realistic transitional plan to extend the scope of the model. The transitional plan should set out the manner in which the IAIG plans to extend the scope of the model to other risks, portfolios or entities, in order to ensure that the model covers a predominant part of their insurance operations with respect to that specific risk module. In such case, supervisory authorities should consider whether mitigation measures are necessary until the transitional plan is completed, such as terms and conditions or a capital add-on.

3.3 Integration of partial internal models

The capital requirement resulting from a PIM shall be fully integrated into the capital requirement obtained from the standard approach and vice versa.

In the case of a PIM, it might be more appropriate to calculate the capital requirement for different risk components separately and integrate them directly into the standard approach without further aggregation in the internal model use. For instance, the PIM could cover the market risk module and the non-life underwriting risk module, which are not integrated under the same probability distribution but directly integrated to the standard approach.

The integration technique used is considered part of the PIM and should be approved by the supervisor.

As a default integration technique, IAIG should consider the correlation matrices and formulas of the standard approach set out in the ICS Technical Specifications

If the IAIG demonstrates to the supervisor that it would not be appropriate to use the standard approach correlations, an alternative technique can be submitted for approval to the supervisor. The IAIG should demonstrate the appropriateness of the integration technique proposed. The integration technique used should ensure a level of protection for policyholders in line with the ICS risk measure and time horizon. It should also reflect the IAIG's risk profile.

The assessment of the integration of PIM results should be regularly validated by the IAIG, in particular when there is a material change to the PIM or to the IAIG's risk profile.

The annual reporting to supervisors should allow identifying the capital requirements stemming both from the PIM and from the standard approach in a way that allows the estimation of the diversification benefit obtained from the integration of both parts.