



IAIS

INTERNATIONAL ASSOCIATION OF
INSURANCE SUPERVISORS

Public

Level 2 Document: ICS Version 2.0 for the monitoring period

About the IAIS

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

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

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

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1 Introduction

No additional information compared to the Level 1 document.

2 Components of ICS Version 2.0 for the monitoring period

No additional information compared to the Level 1 document.

3 General Guiding Principles

3.1 Substance over Form

No additional information compared to the Level 1 document.

3.2 Proportionality

No additional information compared to the Level 1 document.

3.3 Look-Through

1. 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 Internationally Active Insurance Group (IAIG).

2. When a full look-through is not possible, a partial look-through may be applied, along the lines provided by the Basel III framework¹.

3. When no look-through is possible, the full investment is considered as unlisted equity for the purpose of calculating the insurance capital standard (ICS) risk charges.

3.4 ICS Rating Categories

4. Whenever the use of an ICS Rating Category (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

¹ <http://www.bis.org/publ/bcbs266.htm>.

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

5. 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).

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

7. The use of ICS RCs is further developed in section 7.4.3.

4 Reference ICS: Perimeter of the ICS Calculation

4.1 Scope for Starting ICS Balance Sheet

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

9. The starting point to derive the balance sheet of the insurance group, prior to application of any Market-Adjusted Valuation (MAV) adjustments, is the consolidated Generally Accepted Accounting Principles (GAAP) balance sheet of the Head of the IAIG, as defined in the Common Framework for the Supervision of IAIGs (ComFrame). For entities that do not have consolidated GAAP financials, see paragraph 15.

10. 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.

11. 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.
12. 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 ventures², a proportional consolidation method is used unless it is determined through consultation with the group-wide supervisor (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 operations³ 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 recognizing 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.
13. Adjustments related to non-voting interest entities⁴:
- 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 risk⁵ 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.

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 asset's or revenue, in the aggregate, may indicate that other entities should be consolidated in order to avoid missing material risks.

14. 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.

15. 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.

4.2 Development of Starting MAV Balance Sheet

No additional information compared to the Level 1 document.

5 Reference ICS: Market-adjusted valuation

5.1 Valuation Principles

16. 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 7.7.
- 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. **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.

5.2 Calculation of the Current Estimate

5.2.1 Basis for calculation and cash-flow projection

5.2.1.1 General considerations

17. 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.

18. 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.

19. 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.

20. 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.

21. 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.

22. 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

23. 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.

24. All options and guarantees are valued using arbitrage-free techniques⁶ based on the adjusted yield curve as a proxy for the risk-free curve.

5.2.1.3 Policyholder behaviour

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

26. 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.

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

28. 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

29. 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.

30. 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.

31. 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.

5.2.2 Contract recognition, contract boundaries and time horizon

32. 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.

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

34. 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.

35. 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

⁶ This implies in particular that where relevant, path dependency is taken into account in the valuation of options and guarantees.

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.

36. 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.

5.2.3 Data quality and setting of assumptions

37. 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.

38. 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.

39. 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

40. 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.

41. 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.

42. 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.

43. 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

No additional information compared to the Level 1 document.

5.2.5.2 Determination of the risk-free yield curve

44. For all currencies, the start of the third segment as referred to in paragraph 47 of the ICS Level 1 document is the later of the following:

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

45. 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%

46. The Long Term Forward Rate (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:

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

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

- b. The expected inflation target, computed as follows:
 - 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.
- 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.

47. 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.

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

- 1.8% for geographical area 1;
- 2.4% for geographical area 2; and
- 3.0% for geographical area 3.

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

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

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.

50. The following spread over the LTFR is added to all LTFR calculated according to paragraphs 46 to 49 above:

- 20 basis points for geographical area 1;
- 25 basis points for geographical area 2; and
- 35 basis points for geographical area 3.

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

5.2.5.3.1 Classification criteria

51. 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.⁷
- 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 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.

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

53. 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.⁷
- 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 yield

⁷ 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.

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.

54. No unbundling is allowed when assessing eligibility for the Middle Bucket.

55. All liabilities that are not in the Top or Middle Bucket belong to the General Bucket.

5.2.5.3.2 Adjustments to the yield curve

5.2.5.3.2.1 Eligible investments

56. 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

57. 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 of the ICS Level 1 Document.

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

59. 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.

5.2.5.3.2.2 Top Bucket

60. 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.

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

62. 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.

63. The spread is adjusted for credit risk and any other risk, using the same risk correction parameters as specified in paragraph 68.

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

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

66. 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.

67. 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.

5.2.5.3.2.3 Middle Bucket

68. 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.

69. 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 currency specific but not portfolio-specific; it is applied to all Middle Bucket portfolios in the same currency.

70. 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.

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

72. The $Wamp_{spread}$ for a given currency is calculated as follows:

$$\begin{aligned}
 Wamp_{spread} = & \\
 & w_{gov} \times spread_{gov \text{ after } RC} \\
 & + w_{ICS RC1} \times \left(\sum_{durations} w_{duration \text{ band}}^{ICS RC1} \times spread_{duration \text{ band}}^{ICS RC1 \text{ after } RC} \right) \\
 & + w_{ICS RC2} \times \left(\sum_{durations} w_{duration \text{ band}}^{ICS RC2} \times spread_{duration \text{ band}}^{ICS RC2 \text{ after } RC} \right) \\
 & + \dots \\
 & + w_{Non \text{ eligible}} \times 0
 \end{aligned}$$

where:

- w_{gov} is the weight of government bonds;
- $w_{ICS RCi}$ is the weight of debt instruments belonging to ICS risk category i;
- $w_{duration \text{ band}}^{ICS RCi}$ is the weight of debt instruments that belong to ICS risk 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;
- $spread_{gov \text{ after } RC}$ 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
- $spread_{duration \text{ band}}^{ICS RCi \text{ after } RC}$ is the spread after risk correction corresponding to debt instruments that belong to ICS risk category i within the considered duration band.

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

74. 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.

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

$$TOM = \min \left(\frac{M - 1}{\min(LOT, \text{lifetime of liability})}, 100\% \right)$$

where:

lifetime of liability is the maturity after which the insurance liabilities are not expected to generate any cash flow, and *M* is the first maturity for which, under the cash flow test described in paragraph 51.c, either the cash carry forward limit of 10% is breached or the remaining cash becomes negative. 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.

76. The final spread applied to the yield curve is computed in a way to ensure that the spread adjustment for the Middle Bucket is greater or equal to the spread adjustment for the General Bucket.

$$\begin{aligned} Spread Adj_{MB} = \max [& 90\% \cdot (TOM \cdot Wamp_{spread} \\ & + (1 - TOM) Spread Adj_{GB}), 80\% \cdot Spread Adj_{GB}] \end{aligned}$$

77. The spread adjustment determined according to this methodology is applied as a parallel 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.

5.2.5.3.2.4 General Bucket

78. The spread adjustment for the General Bucket (*Spread Adj_{GB}*) is provided by the IAIS, based on a representative portfolio that reflects the assets typically held by IAIGs in a particular currency.

79. The spread adjustment includes a correction for credit risk and any other risk.

80. 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.

81. 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.

82. 80% 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.

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

5.2.5.3.3 Alternative adjustments for the General Bucket

84. 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.

85. 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

86. 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

87. 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

$$S_{rc} = S_{rcrncy} + 50\% * (S_{rcadjusted} - S_{rcrncy})$$

where:

S_{rcrncy} = spread for currency *crncy* and Risk Category *rc*, as provided by the IAIS

$S_{rcadjusted}$ = 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

No additional information compared to the Level 1 document.

5.3.2 Calculation of the MOCE

88. 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

No additional information compared to the Level 1 document.

5.4 Obligations replicable by a portfolio of assets

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

90. 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.

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

6 Reference ICS: Qualifying Capital Resources

6.1 General considerations

No additional information compared to the Level 1 document.

6.2 Classification of financial instruments

6.2.1 Tier 1 unlimited financial instruments

92. 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

93. 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 IAIGs⁸, 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-in⁹ 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.
- 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.

⁸ 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.

⁹ 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.

- 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).

6.2.3 Tier 2 financial instruments (other than structurally subordinated)

94. 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.

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.¹⁰

¹⁰ 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:

- 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 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).

6.2.4 Structurally subordinated Tier 2 financial instruments

95. 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.

96. 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 supervisor receives prior notification upon redemption, or
 - call dates are fixed and known and the supervisor monitors potential redemption; and
- The supervisor has the power to prevent redemption of the instrument.
-

The requirement for supervisory approval of redemptions after a minimum of five years can be fulfilled through supervisory approval¹¹ 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 approval¹¹ 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 subsidiaries¹².

6.2.4.1 National discretion on acceleration clauses

97. Criterion i) in paragraph 94 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.

98. 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

99. 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.

100. 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.

¹¹ 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.

¹² 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 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.

- 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.

6.3 Capital elements other than financial instruments

6.3.1 Tier 1 capital elements

No additional information compared to the Level 1 document.

6.3.2 Tier 2 capital elements

101. 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

6.4.1 Deductions from Tier 1 capital resources

No additional information compared to the Level 1 document.

6.4.2 Deductions from Tier 2 capital resources

No additional information compared to the Level 1 document.

6.4.3 Treatment of encumbered assets

102. 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.

103. 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.

6.5 Capital composition limits

104. 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.
105. For the purpose of paragraph 104, 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.
106. 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 Reference ICS: Capital Requirement – The Standard Method

7.1 ICS Risks and Calculation Methods

7.1.1 Risk mitigation techniques

107. 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.

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

109. 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.

110. 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.

111. 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 cost¹³; and
- c. Any additional risk stemming from the risk mitigation arrangement (eg Credit risk) is taken into account in the relevant ICS risk charges.

112. 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
- c. Any additional risk stemming from the risk mitigation arrangement (eg Credit risk) is also taken into account in the natural catastrophe risk modelling.

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

7.1.2 Geographical segmentation

114. 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.

¹³ Costs may include, but are not limited to, ceded premiums to the reinsurer and commissions.

115. The jurisdictions included in each region are listed in Table 4:

Table 4: 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 ¹⁴ and Canada
China	Mainland China and Macao SAR
Japan	Japan
Other developed markets ¹⁵	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 ¹⁶ . For completeness, if a country is not listed in the regions above, it is classified as “Other emerging markets”.

7.1.3 Management actions

116. 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.

117. 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.

7.2 Insurance risks

7.2.1 Grouping of policies for life insurance risks

118. 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.

¹⁴ Including American Samoa, Guam, Northern Mariana Island, Puerto Rico and US Virgin Islands.

¹⁵ ‘Other developed’ taken from IMF list of advanced economies minus countries mentioned in other regions as of April 2016.

¹⁶ See <http://www.imf.org/external/pubs/ft/weo/2016/01/pdf/text.pdf> (accessed on 12 May 2016).

119. 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.

120. 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.

7.2.2 Calculation of life insurance risk charge

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

Table 5: 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

122. 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.

123. The stress factors for Mortality risk are given in Table 6:

Table 6: Mortality risk stress factors

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

7.2.2.2 Longevity risk

124. 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.

125. The stress factors for Longevity risk are given in Table 7:

Table 7: 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 %

7.2.2.3 Morbidity and Disability risk

7.2.2.3.1 Segmentation

126. 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 obligations¹⁷.

7.2.2.3.2 Sub-risks to be covered

127. 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.

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.

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.

¹⁷ 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.

d) Category 4: Long-term recurring payments

- Products providing a fixed annuity in case of long-term/permanently deteriorated health status.

128. 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.

129. 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.

130. 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.

7.2.2.3.3 Calculation

131. 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 8 and Table 9.

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 8 and Table 9; 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 8: Morbidity/Disability risk stress factors – Location of risk Japan

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

Table 9: 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%

7.2.2.4 Lapse risk

132. The calculation of the maximum of the level and trend component and mass lapse component, referred to in paragraph 109 of the ICS Level 1 document, is performed at the level of each region listed in section 7.1.2.

133. 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

134. 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.

135. 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.

136. 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.

137. The stress factors are specified in Table 10:

Table 10: 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%

138. 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.

139. 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.

140. When the calculation of the current estimate involves the use of a dynamic lapse function¹⁸, the Level and Trend component stress is applied to the base rate of the dynamic lapse function.

7.2.2.4.2 Mass Lapse Component

141. 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.

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

143. 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.

7.2.2.5 Expense risk

144. 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 11.

¹⁸ 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.

Table 11: 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%

145. The stresses to the unit expense and expense inflation assumptions are applied simultaneously.

7.2.3 Calculation of Non-Life Risk Charge

7.2.3.1 Segments/Lines of Business

146. 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 13. Any jurisdiction not explicitly listed in Table 13 is allocated to either Other developed markets or Other emerging markets according to Table 4.

7.2.3.2 Definition of ICS Segments and Risk Charges

147. Each ICS segment is assigned:

- An ICS category: a high level grouping of the type of business (property-like, liability-like, motor-like, other, mortgage and credit); and
- A risk factor for the purpose of calculating the risk charge.

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

149. 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.

150. Table 13 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

151. The calculation of non-life risk charges for each ICS segment takes into account diversification effects.

152. 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).

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

154. 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 12 below:

Table 12: Within Category Correlation Factors

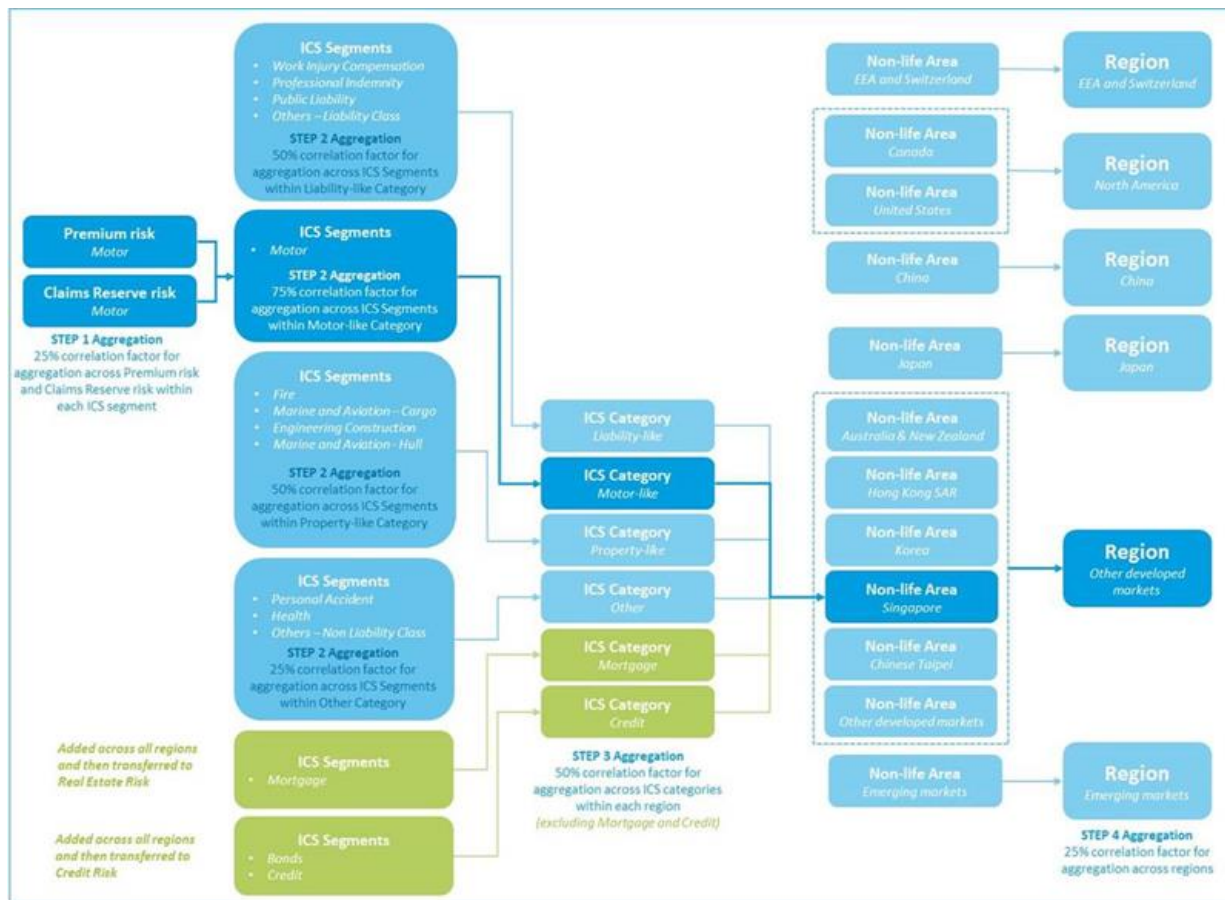
ICS Categories	Correlation factor between segments within the category
Liability-like	50%
Motor-like	75%
Property-like	50%
Other	25%

155. 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.

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

157. As an example, Figure 1 shows how non-life risk exposures are categorised into regions, geographical segments, ICS categories and ICS segments.

Figure 1: Categorisation of non-life risk exposure, showing how Singapore Motor-like ICS Category is aggregated



7.2.3.4 Input Data Required

158. 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.

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

Table 13: 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%

ICS Segment		ICS Category	Premium risk factor	Claims Reserve risk factor
	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%
	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%

ICS Segment		ICS Category	Premium risk factor	Claims Reserve risk factor
	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%
	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%

ICS Segment		ICS Category	Premium risk factor	Claims Reserve risk factor
	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%
	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%

ICS Segment		ICS Category	Premium risk factor	Claims Reserve risk factor
	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%
	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%

ICS Segment		ICS Category	Premium risk factor	Claims Reserve risk factor
	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%
	General liability	Liability-like	45%	26%
	Pecuniary loss	Other	45%	35%
	Non-proportional treaty reinsurance	Property-like	45%	25%

ICS Segment		ICS Category	Premium risk factor	Claims Reserve risk factor
	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%
	Bonds	Credit	35%	30%
	Engineering Construction	Property-like	35%	30%
	Credit	Credit	35%	30%

ICS Segment		ICS Category	Premium risk factor	Claims Reserve risk factor
	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%
	Property Damage - commercial earthquake	Property-like	45%	35%

ICS Segment		ICS Category	Premium risk factor	Claims Reserve risk factor
	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

7.2.4.1 Scope of Calculation

160. When calculating the Catastrophe risk charge, all lines of business exposed to Catastrophe risk are considered. 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 the 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.

7.2.4.2 Covered Perils

161. 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;
 - Other risks.
- b. Other catastrophes (Man-Made Perils/Scenarios):
 - i. Terrorist attack;
 - ii. Pandemic; and
 - iii. Credit and Surety.

162. The impact of catastrophe claim events include both the main peril and any secondary perils associated with the main peril.

7.2.4.3 Natural Catastrophe

163. Stochastic catastrophe models may be used to calculate loss amounts resulting from natural catastrophe events.

164. 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.

165. 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

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

167. 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.

7.2.4.4.1 Terrorist Attack

168. 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.

169. 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.

170. 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.

171. 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.

172. 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.

7.2.4.4.2 Pandemic

173. 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

174. 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

175. 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.

7.2.4.4.3.2 Trade Credit

176. 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.

Table 14: Credit stress factors for trade credit

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

7.2.4.4.3.3 Surety

177. 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.

7.2.4.5 Aggregation of Catastrophe Risks

178. 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 capital 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

179. 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.

180. 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.

7.2.4.7 Safeguards for Natural Catastrophe Models

181. In order to assess the appropriateness of stochastic natural catastrophe models, IAIGs provide information on the following safeguards.

- Safeguard 1 – Description of the scope of application: IAIGs describe the perimeter of the natural catastrophe model's calculation.
- 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.
- 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.
- 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.
- Safeguard 5 – Use test and governance: The use test reflects the IAIG's view of its risks and is used in decision making.
- 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.
- 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.

7.3 Market Risks

7.3.1 Calculation of the market risk charge

182. The correlation matrix used for aggregating the market risk charges is the following:

Table 15: 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

183. 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.

184. For current estimates of insurance liabilities 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.

185. The Interest Rate risk charge is calculated as:

$$\max\left(0, \sum_i MR_i + \text{VaR}_{99.5}\left(\sum_i LT_i\right)\right)$$

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 188; 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 186.

186. 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 188;
- 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 188; and
- X_i and Y_i are independent random variables following a standardised normal distribution.

187. In addition, the random variables X_i and Y_i are such that:

- For any $i \neq j$, $\text{corr}(X_i, X_j) = \text{corr}(Y_i, Y_j) = 0.75$; and
- For any i and j , $\text{corr}(X_i, Y_j) = 0$.

188. 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 189 to 197.

189. 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:

$$\Delta L. \text{Level curve} + \Delta S. \text{Slope curve} + \Delta C. \text{Curvature curve}$$

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 model¹⁹ 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:

¹⁹ 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

$$dV_t = K(\mu - V_t)dt + \Sigma dW_t$$

- $V_t = \begin{pmatrix} \beta_{1t} \\ \beta_{2t} \\ \beta_{3t} \end{pmatrix}$, where β_{1t} , β_{2t} and β_{3t} correspond to the Nelson Siegel parameters¹⁹ 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.

190. For the mean reversion scenario, the value of the LTFR remains unchanged.

191. 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:

$$s \cdot N^{-1}(0.995) \cdot [sl_1 \cdot \text{Level curve} + sl_2 \cdot \text{Slope curve} + sl_3 \cdot \text{Curvature curve}]$$

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 189, 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 $N^T N$;
- $N = \begin{pmatrix} LOT & 0 \\ 0 & a & b \end{pmatrix} M$;
- $a = \sum_{\tau=1}^{LOT} \frac{1-e^{-\lambda\tau}}{\lambda\tau}$ and $b = \sum_{\tau=1}^{LOT} \left(\frac{1-e^{-\lambda\tau}}{\lambda\tau} - e^{-\lambda\tau} \right)$;
- $\theta = \text{Arctan} \frac{\sum_{\tau=1}^{LOT} h_2(\tau)}{\sum_{\tau=1}^{LOT} h_1(\tau)}$;
- $h_i(\tau) = \left(1, \frac{1-e^{-\lambda\tau}}{\lambda\tau}, \frac{1-e^{-\lambda\tau}}{\lambda\tau} - e^{-\lambda\tau} \right) Me_i, i = 1, 2$; and
- $s = \begin{cases} 1 & \text{if } (sl_1 \cdot \text{Level curve}_{LOT} + sl_2 \cdot \text{Slope curve}_{LOT} + sl_3 \cdot \text{Curvature curve}_{LOT}) \geq 0 \\ -1 & \text{otherwise} \end{cases}$

192. For the level up scenario, the LTFR is increased by 10%.

193. 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:

$$-s \cdot N^{-1}(0.995) \cdot [sl_1 \cdot \text{Level curve} + sl_2 \cdot \text{Slope curve} + sl_3 \cdot \text{Curvature curve}]$$

194. For the level down scenario, the LTFR is decreased by 10%.

195. 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:

$$\begin{pmatrix} st_1 \\ st_2 \\ st_3 \end{pmatrix} = \cos(\theta)Me_1 - \sin(\theta)Me_2$$

196. 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:

$$- N^{-1}(0.995). [st_1. Level curve + st_2. Slope curve + st_3. Curvature curve]$$

197. For the twist scenarios, the LTFR remains unchanged.

7.3.3 Non-Default Spread risk

198. 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.

199. 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.

200. The 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 5.2.5 for valuation purposes.

201. The upward and downward stresses used for the calculation of the NDSR charge are specified in Table 16.

Table 16: 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%

7.3.4 Equity risk

202. The following definitions apply to the equity segments listed in the ICS Level 1 document.

203. Listed equity in developed markets includes equities listed on the securities exchanges of equity markets included in the FTSE Developed Index: Australia, Austria, Belgium, Luxembourg, Canada, Denmark, Finland, France, Germany, Hong Kong SAR, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Poland, Portugal, Singapore, South Korea, Spain, Sweden, Switzerland, UK, and US.

204. Any equity market not included in the FTSE Developed Index is considered an emerging market.

205. Investments in subordinated debt are included in the equity risk charge within the segment hybrid debt/preference shares.

206. The segment other equity is comprised of all investments not included in the previous equity segments.

207. The four level scenarios (one for each asset segment) and volatility scenario are defined as:

- a. An instantaneous decrease by 35% of the market prices of all listed shares in developed markets.
- b. An instantaneous decrease by 48% of the market prices of all listed shares in emerging markets.
- c. An instantaneous decrease of the market prices of hybrid debt/preference shares by x%, which x based on the ICS rating category (RC) of the asset, as specified in Table 17.

Table 17: 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% of the market prices of all assets classified as other equity, as defined in paragraph 206.
- 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 18. For maturities not specified, the increase is interpolated linearly.

Table 18: 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%

208. 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 using the following correlation matrix:

Table 19: 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.

7.3.5 Real estate risk

209. The stress scenario referred to in the ICS Level 1 document 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

210. 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.

211. The deduction referred to in point g) of paragraph 210 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.

212. The net open currency position excludes assets that are fully deducted from capital resources, and liabilities that qualify for inclusion in consolidated capital resources.

213. 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.

214. Forward currency positions are valued at spot market exchange rates as at the reporting date.

215. 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 20 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 20 below.
216. 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 20: Currency risk stress factors

Ref Curr	Against											
	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%

Ref Curr	Against											
	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%

Ref Curr	Against										
	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

7.3.7.1 Assets other than real estate

217. For assets other than real estate, the Asset concentration risk charge is calculated as:

$$f \times \left(\frac{\sum_{E_i > T} (E_i - T)(d \cdot K_i^{eq} + K_i^{cr})}{(d \cdot K^{eq} + K^{cr})} + T \right)$$

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.

218. Groups of connected counterparties are determined according to the definition provided by the Basel Committee on Banking Supervision (BCBS)²⁰. 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:

- 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.

219. 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.

220. The determination of the gross counterparty exposures includes both on- and off-balance sheet positions, and considers the following:

²⁰ 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. Exposures to reinsurance counterparties are included on a pre-stress basis²¹;
 - 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.
221. 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. 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 219; 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.

7.3.7.2 Real estate

222. 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.

223. 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 220 and 221.

²¹ The contingent risk associated with catastrophe scenarios is not included in the exposure.

7.4 Credit Risk

7.4.1 Calculation of Credit risk charge

7.4.1.1 Exposure classes

224. 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 7.3.3.

225. 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.

226. 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.

227. 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.

228. 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.

229. 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.

230. 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.

231. 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

232. For calculating the Credit risk charge, an effective maturity is calculated as follows for each credit exposure:

$$\text{Effective Maturity} = \frac{\sum_t t * CF_t}{\sum_t CF_t}$$

where CF_t denotes the cash flows (principal, interest payments and fees) contractually payable by the borrower in period t .

233. 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.

234. 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.

235. All exposures to a group are aggregated and split by rating category before calculating the effective maturity.

236. 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

237. 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.

238. Reinsurance exposures include all positive on-balance sheet reinsurance assets and receivables. Negative exposures are not included.

239. 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.

240. Reinsurance exposures include all credit recognised in the ICS risk charges due to the presence of reinsurance.

241. 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).

242. 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.

243. 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 the 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

244. The credit equivalent amount for OTC derivatives is calculated using the current exposure method from Annex 4, section VII of the Basel Framework²². 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 21.

Table 21: 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%

²² Accessible at <http://www.bis.org/publ/bcbs128.pdf>

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%

245. 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).

246. For contracts with multiple exchanges of principal, the factors are multiplied by the number of remaining payments in the contract.

247. 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%.

248. Contracts not covered by any category in Table 21 are treated as other commodities.

249. 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.

250. 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.

251. 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.

252. IAIGs may net contracts that are subject to novation²³ 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.

²³ 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.

- 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.
253. Any contract containing a walkaway clause²⁴ is not eligible to qualify for netting for the purpose of calculating the Credit risk charge.
254. 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.
255. 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.
256. The future credit exposure for netted transactions is the sum of:

²⁴ 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.

- a. 40% of the add-on as calculated in paragraph 255; and
- b. 60% of the add-on multiplied by the ratio of net current replacement cost to positive current replacement cost (NGR) where:

$$NGR = \frac{\text{level of net replacement cost}}{\text{level of positive replace cost for transactions subject to legally enforceable netting arrangements}}$$

7.4.1.4.2 Credit equivalent amount for other off-balance sheet exposures

257. 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 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;
- 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 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%.

7.4.1.5 Securities financing transactions

258. 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).

7.4.1.6 Credit risk stress factors

259. The following tables contain the ICS Credit risk stress factors for the exposure classes by ICS RC and maturity:

Table 22: 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%	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 23: 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 24: 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 25: 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%

260. The Credit risk stress factor for policy loans is 0%. The stress factor for short-term obligations of regulated banks, as defined in paragraph 228, 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

261. Depending on data availability, the risk charge is calculated using one of the three following methods, in decreasing order of preference:

- 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);
- Method 2: risk charge based on the ICS CM category as determined by LTV only; or
- Method 3: no Credit Quality Differentiator used.

262. For agricultural and commercial Method 1, the mapping of the ICS CM categories 1 to 5 to LTV and DSCR is provided in Table 26. Categories CM6 and CM7 are for delinquent loans and loans in foreclosure, respectively.

Table 26: 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	

263. For agricultural and commercial Method 1, the following stress factors are used:

Table 27: 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%

264. 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 28. As for Method 1, categories CM6 and CM7 are for delinquent loans and loans in foreclosure, respectively.

Table 28: 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%		

265. 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

266. 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

267. For performing²⁵ 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:

²⁵ 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 unlikelihood of repayment. As such, non-performing exposures encompass: (1) all exposures defaulted, as defined under the Basel framework; or (2) all

Table 29: Factors for residential mortgages for which repayment depends on income generated by the underlying property

LTV	Stress factors
$LTV \leq 60\%$	4.2%
$60\% < LTV \leq 80\%$	5.4%
$LTV > 80\%$	7.2%

268. 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 30: Factors for residential mortgages for which repayment does not depend on income generated by the underlying property

LTV	Stress factors
$LTV \leq 40\%$	1.5%
$40\% < LTV \leq 60\%$	1.8%
$60\% < LTV \leq 80\%$	2.1%
$80\% < LTV \leq 90\%$	2.7%
$90\% < LTV \leq 100\%$	3.3%
$LTV > 100\%$	4.5%

269. For non-performing mortgage loans, the factor applied is 35%.

7.4.2 Recognition of collateral, guarantees and credit derivatives

7.4.2.1 Recognition of collateral

270. A collateralised transaction is one in which:

- An IAIG has a credit exposure or potential credit exposure; and
- 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.

271. Only the following collateral categories are eligible to be recognised:

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 realization of collateral is unlikely, regardless of the number of days past due.

- a. Securities that are either issued by a sovereign entity or have ICS RC 4 or better;
- b. Gold;
- c. Mutual funds where:
 - a price is publicly quoted daily; and
 - the mutual fund is limited to investing in the eligible collateral listed above.
- d. Letters of credit.

272. 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.

273. 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

274. 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.

7.4.2.1.2 Alternative approach for collateralised non-life reinsurance exposures: the haircut approach

275. Under the haircut approach, collateral may be recognised if it satisfies requirements a) to f) of paragraph 272 and is pledged for at least one year.

276. The haircut approach reduces the exposure amount to account for collateral held by the ceding insurer. The adjusted reinsurance exposure is defined by:

Adjusted Reinsurance Exposure

= Reinsurance Assets and Receivables + Capital Requirements – Collateral

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.

277. 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.

278. 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 210 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.

279. 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*

280. 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.

281. 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

282. The minimum conditions referred to in paragraph 280, 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 296, 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.

283. In addition to the requirements set in paragraph 282, 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.

284. In addition to the requirements set in paragraph 282, 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.

285. 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

286. 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.

7.4.2.2.3 Capital treatment

287. 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.

288. 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.

289. 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.

290. 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

291. 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

292. 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.

293. 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.

294. 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.

295. 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.

7.4.2.2.6 Sovereign counter-guarantees

296. 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

297. Where an IAIG has multiple types of risk mitigation arrangements covering a single exposure, this exposure is subdivided into portions covered by each type of risk mitigation arrangement and the rating category for each portion is determined separately.

298. 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

7.4.3.1 Eligible external credit ratings

299. IAIGs may use ratings produced by rating agencies other than those referred to in paragraph 149 of the ICS Level 1 document, 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

300. 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 31: 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	$0 \leq \text{CDR} \leq 0.15\%$	
3	$0.15\% < \text{CDR} \leq 0.35\%$	$0 \leq \text{CDR} \leq 0.15\%$
4	$0.35\% < \text{CDR} \leq 1.20\%$	$0.15\% < \text{CDR} \leq 0.35\%$
5	$1.20\% < \text{CDR} \leq 10.00\%$	$0.35\% < \text{CDR} \leq 1.20\%$

6	10.00% < CDR ≤ 25.00%	1.20% < CDR ≤ 10.00%
7	CDR > 25%	CDR > 10%

7.4.3.3 Use of ratings

301. IAIGs choose the rating agencies they intend to rely on and use their ratings consistently for each type of credit exposure.

302. 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.

303. 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.

304. 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.

305. 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

306. 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.

307. 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.

7.4.4 Supervisor-owned and controlled credit assessment (SOCCA) processes

308. A SOCCA process may be recognised in the ICS if all of 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.

7.5 Operational risk

309. The Operational risk charge is calculated as follows:

$$\begin{aligned} Op\ risk\ charge = & \max [non_life_premium_exposure * factor, non_life_liability_exposure \\ & * factor] + non_life_growth_exposure * factor \\ & + \max [life_ (risk)_premium_exposure * factor, life_ (risk)_liability_exposure \\ & * factor] + life_ (risk)_growth_exposure * factor \\ & + life_ (non_risk)_liability_exposure * factor \end{aligned}$$

310. 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.

311. The exposures and stress factors for Operational risk are set in the following table.

Table 32: 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%

312. 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.

313. Gross current estimates are considered before any allowance for reinsurance or other related recoverables.

314. 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

315. The top-level aggregation matrix between major risk categories is:

Table 33: 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%

7.7 Non-Insurance Risk Charges

316. For insurance or insurance-related entities, the capital requirement is calculated as described in sections 7.1 to 7.6.

317. For financial non-insurance entities with a sectoral capital requirement, the capital requirement is as follows:

- For consolidated banking entities it is the maximum of Basel III risk-weighted assets or leverage ratio.
- For consolidated non-banking entities it is equal to the maximum of the sectoral capital requirement and 15% of three year average gross income.
- For banking and non-banking entities reported as an equity method investment it is equal to the proportional sectoral charge.
- 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.

318. For financial non-insurance entities without a sectoral capital requirement, the capital requirement is as follows:

- 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.
- 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.
- 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.

319. 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 207, a) to d).

8 Reference ICS: Tax

8.1 General principles

320. The group effective tax rate (ETR) is calculated as a weighted average statutory 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.

321. Statutory effective tax rates that have been enacted or substantially enacted as of the reporting date are used for the group ETR calculation.²⁶

8.2 Deferred tax from the ICS Adjustments

322. DTAs and DTLs arising from ICS Adjustments, before the utilisation assessment defined by paragraph 323, may be offset if both of the following criteria are met:

- a. The entity has a legally enforceable right to offset current tax assets against current tax liabilities.
- b. Deferred taxes relate to income taxes levied by the same taxation authority on either:
 - The same taxable entity; or
 - Different taxable entities that intend either to settle current tax liabilities and assets on a net basis, or to realise the assets and settle the liabilities simultaneously, in each future period in which significant amounts of deferred taxes are expected to be settled or recovered.

8.2.1 Utilisation assessment of DTAs recognised from the ICS Adjustments

323. The DTA recognised as a result of the ICS Adjustments is capped at any net GAAP DTL plus gross DTL recognised from the ICS Adjustments according to the following calculation:

Add:

²⁶ 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 effective tax rate is used in the group ETR calculation.

- a. Gross jurisdictional audited GAAP DTL; and
- b. Gross DTL recognised from the ICS Adjustments.

Subtract:

- c. Gross jurisdictional audited GAAP DTA; and
- d. DTL associated with assets subject to deduction from Tier 1 capital resources (as per section 6.4.1 of the Level 1 Document).

324. If the calculation is negative, the DTA recognised as a result of the ICS Adjustments is zero.

325. The gross jurisdictional audited GAAP DTL and DTA referred to in paragraph 323 are limited to DTL and DTA from insurance-related activities.

8.3 Tax effect on the ICS insurance capital requirement

326. The ICS insurance capital requirement is reduced by the amount of utilisable tax effect.

327. The utilisable tax effect on the ICS insurance capital requirement is calculated using the following formula:

$$\max(0, \min(\text{notional tax effect on insurance capital requirement}, 20\% \times \text{ICS insurance capital requirement}, a + b + c - d))$$

where:

- notional tax effect on insurance capital requirement = ICS Insurance capital requirement * group ETR;
- $a = 85\% * \sum_{\text{Tax sub-group/entities}} \min \left(\begin{matrix} \text{Tax loss carry back capacity,} \\ \text{Allocated notional tax effect on insurance capital requirement} \end{matrix} \right)$
- $b = \text{post-stress future taxable income} * \text{group ETR}$;
- $c = \max(0, \text{DTL for insurance-related activities on ICS balance sheet} - \text{DTA for insurance-related activities on ICS balance sheet})$; and
- $d = \max[0, \min(15\% * \text{ICS insurance capital requirement}, \text{DTA for insurance-related activities on ICS balance sheet} - \text{DTL for insurance-related activities on ICS balance sheet})]$.

8.3.1 Component a: tax loss carry backs

328. 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 (the number of years allowed differs between jurisdictions).

329. 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, 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 GAAP/SAP insurance liabilities.

8.3.2 *Component b: post-stress future taxable income projections*

330. In order to perform the calculation of component *b* in the utilisable tax effect:

- When the IAIG projects 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' GAAP earnings before tax on the consolidated financial statement, adjusted for mergers, acquisitions and dispositions.

8.3.3 *Components c and d: Deferred taxes*

331. DTA and DTL used in components *c* and *d* are net of deferred taxes associated with assets subject to deduction from Tier 1 capital resources (as per section 6.4.1 of the Level 1 Document).

9 Additional Reporting

9.1 GAAP Plus

9.1.1 Overview

332. GAAP Plus begins with the group balance sheet as outlined in Section 4. The following GAAP Plus approaches provide guidelines and specific examples for adjustments under the various jurisdictional GAAPs applicable for IAIGs so that each can arrive at a consolidated GAAP Plus balance sheet following the application of these adjustments. Like the MAV approach under the Reference ICS, GAAP Plus adjustments address only the most significant or material items on the balance sheet, specifically, insurance-related liabilities and invested assets.

333. GAAP Plus consists of four main approaches: US GAAP/SAP, Japanese GAAP, IFRS and Chinese C-ROSS. Japanese GAAP Plus (J-GAAP Plus) is subject to the Monitoring Period as specified in this document. US GAAP/SAP, IFRS and Chinese C-ROSS Plus approaches are excluded from this document as they remain under development and subject to Field Testing.

334. For J-GAAP Plus, the following considerations apply:

- a. A liability is recognised and derecognised in accordance with the IAIG's jurisdictional GAAP.
- b. The definition of contract boundaries is in accordance with the IAIG's jurisdictional GAAP.
- c. GAAP Plus estimates of insurance liabilities (and related reinsurance recoverables) are calculated using discounting yield curves or rates as specified under applicable jurisdictional GAAP rules or as outlined in the applicable specific GAAP Plus approach.
- d. The calculation of GAAP Plus adjustments are based on up-to-date information and credible assumptions.
- e. Policy loans are reported gross of insurance liabilities.

- f. Non insurance liabilities (ie issued debt) are reported in accordance with jurisdictional GAAP. Balances reported at cost are not adjusted to fair value.
- g. Risk margins, conservatism in assumptions and provisions for adverse deviation are removed from the valuation of insurance liabilities where insurance liabilities are not calculated as a whole.
- h. MOCE, as defined under the standard method, is added to the balance sheet as a liability.
- i. Any adjustments to deferred taxes follow the reference method as outlined in section 7.7.

335. When the insurance liability balances are calculated under more than one set of GAAP rules, the IAIG uses the most appropriate GAAP Plus jurisdictional approach for each component of insurance liabilities in the aggregated balance sheet to adjust balances to a current estimate liability.

336. An AOCI adjustment is included in capital resources in order to exclude any unrealised gains and losses on available for sale debt securities that meet defined criteria provided in section 9.1.2.1.

337. Aside from the AOCI adjustment, all adjustments detailed in section 6 apply equally to J-GAAP Plus as for the Reference ICS.

338. J-GAAP Plus provides specific methodologies for certain risk charges. Unless otherwise specified, the risk charges are calculated consistently with Section 7. These calculations are detailed in sections 9.1.2.2 to 9.1.2.5.

9.1.2 Japanese GAAP (J-GAAP) Plus Approach

339. The following pertains to IAIGs reporting audited consolidated financial statements on the basis of Japanese GAAP.

340. Invested Assets: No adjustment is required. Invested assets are reported consistent with the treatment under J-GAAP. Certain assets backing life liabilities are subject to the AOCI adjustment that reverses unrealised gains and losses reported in AOCI and, in essence, restates asset values from fair value to cost. See the GAAP Plus AOCI adjustment in section 9.1.2.1.

341. Life Insurance Liabilities (excluding group policies): Life insurance liabilities are adjusted to a current estimate by reflecting balances as derived from the Japanese GAAP statutory cash flow test assuming a full time horizon.

- a. Under the full time horizon cash flow analysis, life insurers are required to assess whether future cash flows generated from current assets cover the future cash flows (net of cash-inflows and cash-outflows) from insurance liabilities.
- b. The net amount in shortage or excess of insurance liabilities at the end of in-force business is discounted and the resulting value is added to (or deducted from) insurance liabilities.

- c. The discount rate is the current portfolio investment yield (book yield) plus reinvestment assumption that is consistent with cash flows generated on the asset side defined in paragraph 341 d).
- d. For purposes of projecting cash flows, investment returns from reinvestments and new money are defined based on an assumption that an IAIG invests in Japanese Government bonds with an average duration equal to the average duration of Japanese government bonds in which the IAIG invested in the previous financial year.
- e. The actual current experience, including mortality, lapse, expense ratio and interest rate, is used in the calculation of the future cash flows for insurance liabilities.
- f. New business is not taken into consideration.
- g. The current portfolio investment yield (book yield) is used to generate the future cash flows from the current asset portfolio.
- h. The future cash flow projection is on a pre-tax basis.

342. Group Life Insurance Liabilities: Group insurance contracts are scoped out from the Japanese GAAP statutory cash flow test. The J-GAAP Plus valuation approach for group contracts is the same as Japanese GAAP and therefore no adjustment is required.

343. Non-life Insurance Liabilities: Non-life insurance liabilities are adjusted to reflect balances as derived from the Japanese GAAP statutory cash flow test assuming a full time horizon.

- a. Under the full time horizon cash flow analysis, non-life insurers are required to assess whether reported insurance liabilities (GAAP basis premium provision) is adequate to cover all expected future cash flow.
- b. The net amount in shortage or excess of insurance liabilities is discounted and the resulting value is added to (or deducted from) insurance liabilities.
- c. The actual experience including claim frequency, lapse, expense ratio and interest rate is used for the calculation of future cash flows in the insurance liability. New business is not taken into consideration.
- d. Discounting is based on a government bond yield curve as specified under the future cash flow analysis defined by the article 121 of the Japanese Insurance Act.]

344. Liabilities for Options and Guarantees: Options and guarantees are adjusted for J-GAAP Plus using the method described under the MAV approach.

9.1.2.1 Capital Resources: AOCI Adjustment

345. The AOCI adjustment is applicable under J-GAAP Plus where life insurance liabilities are discounted using an asset book yield and available for sale debt securities backing those liabilities are reported at fair value. The AOCI adjustment is not applicable where liabilities are discounted using a market rate/curve. In order to address the asymmetry in accounting and the resulting volatility in capital resources, an AOCI adjustment has been defined under J-GAAP Plus such that unrealised gains/losses associated with available for sale debt securities are deducted from Tier 1 capital resources if all of the following criteria are met:

- a. IAIGs must meet all operational criteria in order to be eligible to use the AOCI adjustment:
 - i. The IAIG maintains Asset/Liability Management Policies that provides for specific identification and duration matching of asset/liability portfolios.
 - ii. The IAIG maintains systems and processes to evaluate the effectiveness of the duration matching including independent verification, regular tests and reporting to the Board of Directors.
 - iii. Evaluation of the effectiveness of duration matching includes the following test which must be met in order for assets to be included in the AOCI adjustment:
 - iv. $0.8 \leq \frac{D(L)}{D(A)} \leq 1.25$ where D is duration.
- b. The net unrealised gain/loss to be excluded must relate to debt securities that are classified as available for sale and back long-term liabilities.
- c. The portfolio is segregated for the purpose of asset/liability matching.
- d. The unrealised gain/loss is not likely to be realised.

346. The related asset balances are restated to amortised cost for purposes of calculating the Credit risk charge (Section 7.4) but are not restated on the reported J-GAAP Plus balance sheet. The AOCI adjustment is reported as a direct adjustment to Capital Resources.

347. The AOCI adjustment is calculated beginning with the *Accumulated unrealised gains (losses) on AFS debt securities reported in OCI* balance as reported in the J-GAAP Plus balance sheet. Deductions from this balance are applied for any unrealised gains/losses relating to the following:

- a. Debt securities that are backing short-term insurance liabilities. Short-term is defined as having a contract duration of one year or less.
- b. Debt securities that are backing liabilities discounted using a market based rate/curve.
- c. Debt securities designated as fair value accounting hedges.
- d. Debt securities not meeting the operational criteria (eg not specifically identified in a separate portfolio for asset/liability matching or not meeting the operational criteria effectiveness test).
- e. Debt securities where, based on management judgment, it is more likely than not that unrealised gains/losses would be realised through sale, conversion, prepayment, etc. For example, this could include certain callable bonds where the call price is lower than the market price or residential mortgage backed securities (RMBS), student loans, consumer or other asset backed securities (ABS) that are likely to be prepaid. A more likely than not assessment in this context is defined as a greater than 50% probability of occurrence based on facts and circumstances known to management as of the reporting date.
- f. Debt securities that have experienced significant credit impairment.

348. The AOCI adjustment is calculated net of tax, consistent with how unrealised gains and losses are recorded in AOCI.

9.1.2.2 *Capital Requirement: Interest Rate Risk*

9.1.2.2.1 Background

349. Under J-GAAP Plus, the valuation of life insurance current estimates utilises a discount rate that is equivalent to the current asset book yield plus a reinvestment assumption equal to a government bond rate. Available for sale debt securities backing those liabilities are essentially reported at amortised cost via an adjustment to capital resources referred to as the AOCI adjustment (see Section 9.1.2.1). Other assets such as loans and held to maturity or held for reserves securities are also reported at cost. For non-life insurance products under J-GAAP Plus, insurance liabilities are discounted using a government bond yield curve, and available for sale debt securities are generally measured at fair value.

350. A shock to a market based curve does not translate to a change in value for assets valued at cost (including assets subject to the AOCI adjustment). In addition, it does not impact the book yield that is applied to discount cash flows used to measure certain life insurance liabilities. The shock only has an impact on any reinvestment assumption portion of the discount rate. For this reason, IAIGs apply the following method to calculate their J-GAAP Plus Interest Rate risk charge.

9.1.2.2.2 Liabilities

351. For those insurance liabilities on the J-GAAP Plus balance sheet that are valued using yield curves/rates based on current market information, the Interest Rate risk charge is calculated using the Reference ICS standard method approach. Thus, the standard method Interest Rate risk approach is applicable for all non-life products under J-GAAP Plus as well as any reported options and guarantees.

352. Where life insurance liabilities on the J-GAAP Plus balance sheet are discounted using a book yield and a reinvestment assumption, the stressed IAIS yield curve scenarios only apply to the portion of the rate reflecting the reinvestment assumption at each tenor and currency.

9.1.2.2.3 Assets

353. For assets measured at market value on the J-GAAP Plus balance sheet, the stresses are the same as that used in the Reference ICS standard method.

354. For assets measured at amortised cost on the J-GAAP Plus balance sheet (eg loans and bonds classified as held to maturity or held for reserves), interest rate risk stresses are not applied.

355. Where unrealised gains and losses are added back to capital resources via the AOCI adjustment (See Section 9.1.2.1), assets are essentially measured at amortised cost. The interest rate risk stresses, applied through the change in asset value, are offset by the change in the AOCI adjustment. Therefore, the net impact of the stresses are zero, or the same as for assets measured at cost.

9.1.2.3 *Capital Requirement: NDSR*

9.1.2.3.1 Background

356. Under J-GAAP Plus, the valuation of life insurance current estimates utilises a discount rate that is equivalent to a book yield plus a reinvestment assumption equal to a government

bond yield. Assets backing those liabilities are essentially reported at amortised cost via an adjustment to capital resources referred to as the AOCI adjustment (see Section 9.1.2.1). Other assets such as loans and debt securities held to maturity or held for reserves may also be reported at cost. For non-life insurance products under J-GAAP Plus, insurance liabilities are valued using a government bond yield curve, and available for sale securities are generally measured at fair value.

357. The NDSR stress does not translate to a change in value for assets valued at cost (either via the AOCI adjustment or for assets valued at cost on the J-GAAP Plus balance sheet). In addition, it does not impact the discount rate used to measure life liabilities or the government bond yield curve used to discount non-life liabilities. For this reason, IAIGs apply different methodologies to calculate their GAAP Plus NDSR charge, depending on how insurance liabilities and assets are valued.

9.1.2.3.2 Liabilities

358. For non-life insurance liabilities on the J-GAAP Plus balance sheet measured using a government bond yield curve, the NDSR stress is not applicable.

359. For life insurance liabilities on the J-GAAP Plus balance sheet that are discounted using a book yield with a reinvestment rate based on the government bond rate (eg Japanese life liabilities), a NDSR stress is not applicable.

9.1.2.3.3 Assets

360. For assets measured at fair value on the J-GAAP Plus balance sheet using yield curves based on current market information, the impact of the NDSR stress is calculated by applying the Reference ICS standard method approach.

361. For assets measured at cost on the J-GAAP Plus balance sheet, an NDSR stress is not applicable.

362. Where unrealised gains and losses are added back to capital resources via the AOCI adjustment (see Section 9.1.2.1), assets are essentially being measured at amortised cost. The NDSR stress is applied through the change in asset value, which is offset by the change in the AOCI adjustment. Therefore, the net impact of the stress is zero, or the same as for assets measured at cost.

9.1.2.4 *Capital Requirement: Credit Risk*

363. Under J-GAAP Plus, available for sale debt securities that are included in the AOCI adjustment to capital resources are reported on an amortised cost basis for purposes of determining the credit risk charge. The credit risk factor is applied to the amortised cost balances in order to remain consistent with the valuation method reflected in capital resources.

9.1.2.5 *Capital Requirement: Real Estate Risk*

364. Under J-GAAP Plus, the real estate risk charge for owner-occupied property is calculated as the difference, if positive, of the J-GAAP Plus balance sheet value on the reporting date less 75% of the property's fair value on the reporting date. If the fair value of such a property is not available, the risk charge is 25% of the property's book value. The risk charge is determined on a property-by-property basis.

9.2 Other methods of calculation of the ICS capital requirement (“other methods”)

9.2.1 Internal Models

365. 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.

366. Ten 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.

367. 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.

368. Where the prerequisites are not fully met, but the IAIG would like to submit internal model results during the monitoring period, then the IAIG should discuss this with its GWS. Moreover, the IAIG should indicate the reasons for submitting results, despite not meeting all prerequisites, in its self-assessment template along with details of how the internal model does not meet the prerequisites.

369. Supervisory approval of the internal model for data submission is not a pre-requisite during the monitoring period. Further, a model does not have to be used for regulatory capital

purposes to satisfy the pre-requisites for reporting of internal model results during the monitoring period.

370. The specific internal model results to be submitted as part of additional reporting are specified in the Level 3 document.

9.2.1.1 Prerequisite 1 – Description of the scope of application of internal models

371. 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:

- a. **Partial internal model** – which involves the replacement of some parts of the standard method calculation. For example:
 - i. One or more risk charges of the ICS standard method capital requirement (eg Market risk);
 - ii. One or more sub-risk charges of the ICS standard method capital requirement (eg Equity risk);
 - iii. One or more risk charges or sub-risk charges not captured by the the ICS standard method capital requirement; 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.

9.2.1.2 Prerequisite 2: Validation

372. 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.

373. 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".

374. 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...”.

375. 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.

376. 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.

9.2.1.3 Prerequisite 3: Sign-off of the Board of Directors of the IAIG

377. 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.

378. 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.

9.2.1.4 Prerequisite 4: Statistical quality test

379. 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”.

380. 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.

381. 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.

382. 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.

383. 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”*.

384. 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”.

385. 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”*.

386. ICP 17.14.8 Guidance stresses the importance that “The methodology should also be consistent with the methods used to calculate technical provisions”.

387. 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)”.

9.2.1.5 Prerequisite 5: Calibration test

388. 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”.

389. 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.

390. 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.

9.2.1.6 Prerequisite 6: Use test and governance

391. 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”.

392. 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.

393. 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.

394. 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.

395. 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”.

396. 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.

397. 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”.

398. 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”.

9.2.1.7 Prerequisite 7: Documentation standards

399. 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.

400. 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.

401. 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".

402. 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".

9.2.1.8 Prerequisite 8: Absence of cherry-picking

403. 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".

404. 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.

9.2.1.9 Prerequisite 9: The resulting ICS capital requirement more appropriately reflects the risk profile of the insurer

405. 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".

9.2.1.10 Prerequisite 10: Explain how the partial internal model and standard method's results can be integrated

406. 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.).

9.2.2 Dynamic Hedging

407. The reference ICS does not make allowance for the effect of market risk mitigation techniques in the capital requirement beyond the basis of assets and liabilities existing at the reporting date of the ICS calculation. The principles of the ICS standard method ensure that the only risk mitigation arrangements recognised are those that mitigate risk borne by the IAIG as at the reporting date of the calculation.

408. Dynamic hedging arrangements are not recognised for their risk mitigating properties as this would conflict with this principle for the standard method. This is because the risk charges in the standard method are calculated using instantaneous shocks which, by their construction, do not capture any mitigating effects of subsequent hedging adjustments.

409. However, IAIGs are able to provide relevant information on dynamic hedging programmes in order to support a future decision on its inclusion in the ICS. The IAIS is examining whether there are any other methods for valuing these arrangements that could better reflect the risk exposures of IAIGs and be incorporated into the ICS, rather than using the standard method for specific products and risks.

Glossary

Term	Acronym	Definition/Reference
Accumulated Other Comprehensive Income	AOCI	See section 9.1 on “GAAP with Adjustments”
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 Treatment”
Deferred Tax Liabilities	DTLs	See section 6.3 on “Capital elements other than financial instruments” and section 8 on “Tax Treatment”
Financial Stability Board	FSB	http://www.fsb.org/
Future Discretionary Benefits	FDB	See section 5.2.1.4
GAAP with Adjustments	GAAP Plus	See section 9.1 on “GAAP with Adjustments”
Generally Accepted Accounting Principles	GAAP	https://en.wikipedia.org/wiki/Generally_accepted_accounting_principles http://www.accountingfoundation.org/gaap
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) approach”
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
Supervisor-owned and controlled credit assessment processes	SOCCA processes	See section 7.4.4
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, obligee 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,	Insurance that the object of insurance is property and related interests.

personal and engineering	
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.