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# Outcomes of Industry Consultation on proposed RBC refinements by RBC Task Force

Report to Insurance Regulatory Commission of Sri Lanka

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# Section 1: Introduction

1.1 Solvency Margin (Risk-based Capital) Rules, 2015 ("**RBC Rules**", "**Rules**", "**framework**", "**regulations**") were implemented by Insurance Regulatory Commission of Sri Lanka (IRCSL) with effect from 1 January 2016. These Rules focused on ensuring adequate liability and capital assessments by insurers in Sri Lanka, reflective of risks undertaken by life and general insurers. Since the implementation of the Rules, there have been evolving asset markets, dynamic economic conditions of Sri Lanka and developments by global regulatory forums (Risk-based Global Insurance Capital Standard, issued by International Association of Insurance Supervisors). These factors have led IRCSL to initiate a holistic review of current RBC Rules to ensure that the Rules remain relevant to current Sri Lankan Market conditions and consistent to global standards.

1.2 The purpose of this report is to provide requested outcome to IRCSL by leveraging industry knowledge and actuarial experience to identify pros and cons of implementing changes for proposed targeted improvements, together with analysis of possible implementation approach for each improvement.

## Process adopted for industry consultation

1.3 As part of such review of the liability and capital adequacy framework, IRCSL shared industry consultation forms with insurers to gather industry perspective on areas of improvement in RBC Rules. Responses were submitted both collectively through the Insurance Association of Sri Lanka (IASL) with some entities also sharing their individual representations directly with the IRCSL.

1.4 IRCSL consolidated and considered all the all industry feedback received and conducted further internal discussions with key stakeholders of IRCSL to identify any remaining gaps in the RBC Rules. These discussions also aimed to identify and address additional gaps, if any, that were not captured during the industry consultation process.

1.5 IRCSL appointed industry experts as part of RBC Task-Force to gain industry's insights on proposed approaches to tackle identified improvement areas and subsequently submit a comprehensive report to IRCSL on industry's perspective on the identified improvement areas, possible approaches to implement the improvement, associated benefits and risks in each approach.

## List of abbreviations

1.6 The table below summarises list of abbreviations used in the report:

| | |
|---|---|
| AASL | Actuarial Association of Sri Lanka |
| ARA | Actuarial Report and Abstract |
| BE | Best Estimate |
| BEL | Best estimate liabilities |
| CBSL | Central Bank of Sri Lanka |
| CoC | Cost of Capital |
| CP | Convergence point |

| | |
|---|---|
| CR | Combined ratio |
| CSE | Colombo Stock Exchange |
| CSM | Contractual Service Margin |
| DLT | Deep, Liquid and Transparent |
| DNS | Dynamic Nelson Siegel |
| EEA | European Economic Area |
| GBL | Guaranteed Benefit Liability |
| GDP | Gross Domestic Product |
| GI | General Insurance |
| GMM | General Measurement Model |
| HRG | Homogeneous Risk Groups |
| IAIS | International Association of Insurance Supervisors |
| IASL | Insurance Association of Sri Lanka |
| ICP | Insurance Core Principles |
| ICS | Insurance Capital Standard |
| IRCSL | Insurance Regulatory Commission of Sri Lanka |
| IRDAI | Insurance Regulatory and Development Authority of India |
| LLP | Last liquid point |
| LOT | Last observed term |
| LR | Loss Ratio |
| LTFR | Long term forward rate |
| MAS | Monetary Authority of Singapore |
| MOCE | Margin over Current Estimates |
| NAV | Net Asset Value |
| NITF | National Insurance Trust Fund |
| OECD | Organisation for Economic Co-operation and Development |
| PAD | Provision for Adverse Deviation |
| PDR | Premium Deficiency Reserve |
| PL | Premium liability |
| PRAD | Provision of Risk Margin for Adverse Deviation |
| QIS | Quantitative Impact Study |
| RA | Risk adjustment |
| RBC | Risk Based Capital |
| RCR | Risk Capital Required |
| RFR | Risk-free rates |
| RM | Risk Margin |
| SCR | Solvency Capital Requirement |
| SLFRS | Sri Lanka Financial Reporting Standard |

| | |
|---|---|
| SVCC | Surrender Value Capital Charge |
| TAC | Total Available Capital |
| TBL | Total Benefit Liability |
| UFR | Ultimate Forward rate |
| UPR | Unexpired Premium Reserve |
| URR | Unexpired Risk Reserve |
| VaR | Value-at-Risk |
| VFA | Variable Fee approach |

# Section 2: Industry task force on Risk-based capital

2.1 The industry task force is a committee of industry experts in insurance domain, and representing Sri Lankan insurance industry and industry bodies like IASL and AASL.

2.2 The industry task force is governed by below terms of reference:

a. **Assess gaps and Develop Consensus:** Evaluate and build industry consensus on the identified gaps and targeted improvements to the current RBC Rules, 2015.

b. **Facilitate Discussions and Timely Completion:** Convene regular meetings of task force members to discuss all identified gaps and targeted improvements, ensuring progress and completion within the agreed timelines set with IRCSL.

c. **Provide Industry Perspectives:** Present the industry's views on the relative merits, including the pros and cons, of implementing the proposed targeted improvements to the IRCSL.

d. **Propose Implementation Approaches:** Articulate preferred implementation approaches for each targeted improvement, reflecting the industry’s collective stance.

e. **Engage in Presentations:** Facilitate presentations by task force members to the wider group and to IRCSL on individual gaps and targeted improvements identified by the task force.

f. **Submit a Comprehensive Report:** Prepare a detailed report summarizing the industry’s views on each identified gap, including recommendations for IRCSL's consideration for revising the RBC Rule.

g. **Address Additional Requirements:** Participate in discussions and address any additional issues related to the implementation of improvements to the RBC Rules, as directed by IRCSL.

2.3 The industry task force is represented by members listed in Annexure A.

# Section 3: Approach

3.1 The task force members initiated discussion on 20th December 2024 and developed consensus on the list of targeted improvement areas identified within RBC Rules. The task-force also established a timeline within which the identified improvement areas will be discussed and a report to provide industry insights on these improvement areas will be submitted to IRCSL.

3.2 Weekly discussions on different identified topics have been subsequently held during January 2025 to April 2025; to gather insights from task-force members on possible approaches to revise the RBC Rules for each identified improvement area. Such meetings were held weekly, separately for life insurance and general insurance specific topics.

3.3 During April and May 2025, 4 milestone meetings have been held within the task-force members to present these improvement areas to all members of the task force and to IRCSL. At each milestone meeting, topics have been presented with proposed solution(s) of the improvement area and additional industry insights have been provided on any potential concerns around such solution(s). Each topic has been presented in detail to include:

- Explanation of the current gap and why is it a potential issue in RBC Regime
- Benefits/Issues of retaining current approach
- Possible approaches to implement revisions in RBC Rules to implement the targeted improvement – including any data requirement from the industry (if any)
- Benefits/Issues of different implementation approaches
- Industry's comments on implementation approach – gathered by task-force members via internal discussions of the task-force and via discussions with industry stakeholders who are not a part of the task-force.

Subsequent sections of this report summarise the above for each topic.

3.4 The table below summarises the areas of improvements and their description, as identified via consultation forms issued to Sri Lankan insurance industry and via internal discussions amongst key stakeholders at IRCSL. The table also summarised the outcome from consultation within the task-force. The user of the report is recommended to read subsequent sections in the report to develop a better understanding about the underlying improvement area, approach adopted by the task-force to evaluate possible outcomes and considerations to be kept in mind while proceeding with the proposed outcomes.

| S.No | Improvement Area | Description | Consultation outcome |
|---|---|---|---|
| 1 | Introduction of mass lapse risk charge and eliminate SVCC | • Removal of SVCC to floor RCR<br>• Introduction of mass lapse stress within liability risk charge estimates | • The industry is supportive of an introduction of mass lapse stress instead of a Surrender Value Capital Charge.<br>• Proposed approach to use ICS prescribed risk charges for mass lapse; noting lack of historic events in Sri Lanka to calibrate the stress. Capital will be floored to zero.<br>• Noting high initial lapses in Sri Lanka, the stress factor is to be applied additive to current lapse assumption irrespective of policy year.<br>• Granularity of assessment set to a) retail non-participating (including universal life), b) retail participating (including universal life) c) Retail unit-linked and d) Group life and health<br>• Topic to be assessed in correlation with “Re-assessment of risk margins and liability risk capital charges for life insurance business” and “Zeroisation of long-term insurance liabilities”. |
| 2 | Catastrophe risk charge for long term insurance business | Introduction of Catastrophe risk for long term insurance business | • Industry supportive of introduction of catastrophe risk charge to holistically account for all risks applicable to the insurance business written; as well as to align with the International Capital Standards (ICS) principles and technical specifications.<br>• Catastrophe stress factor is not proposed to be calibrated noting lack of data in Sri Lanka. The proposed stress is 1.5 per 1000 lives insured (applied as an absolute increase of 0.15% increase in annual mortality rate over the next 12 months from the valuation date).<br>• Capital is proposed to be assessed net of re-insurance including any catastrophe reinsurance cover (double-counting of reinsurance credit to be avoided)<br>• Task force’s view is that the catastrophe risk charge should not include a morbidity stress given that the types of morbidity risk written by life insurance companies in Sri Lanka are not affected to a great extent by catastrophe risk.<br>• The Catastrophe Risk Capital Charge would be incorporated alongside Market Risk Capital Charge, Liability Risk Capital Charge, Operational Risk Capital Charge, and other relevant risk charges to determine the overall diversified risk capital at the entity level. |

| S.No | Improvement Area | Description | Consultation outcome |
|---|---|---|---|
| | | | • If catastrophe reinsurance cover has certain catastrophe event exclusions (for which the underlying insurer is liable to policyholders), the Appointed Actuary should justify the rationale of treatment of such reinsurance cover in calculation of catastrophe risk capital charge/seek appropriate clarifications from IRCSL |
| 3 & 4 | Re-assessment of risk margins and liability risk capital charges for life insurance business | • Reassessment of risk margins to align to more recent industry data<br>• Limiting mortality and morbidity shocks to 4 years for non-guaranteed business<br>• Reassessment of methodology behind risk charges for each category, with more detailed justification for liability risk charges | • Mixed industry view on availability of data/credibility of data for re-evaluation of risk margins and risk charges. Overall data concerns raised by task-force such as lack of credibility of data, good-quality data only available for last 3-5 years, heterogeneity of data, significant time required for providing data to IRCSL (atleast six months).<br>• Proposed approach of aligning with ICS prescribed risk margins and risk charges for liability risk capital charge<br>• The task-force has voiced that any changes in the current method to converge towards the ICS principles should, in their entirety, be aligned with the ICS framework in determining RM and LRCC. The committee warns against any partial adaptation that may lead to over- or under-estimation of RM and LRCC.<br>• ICS prescribes use of correlation matrix – task-force has voiced concern that data is not available in Sri Lanka to calibrate own correlation matrix.<br>• Some task-force members have expressed concerns about using the 85$^{th}$ percentile margin instead of the current 75$^{th}$ percentile for the confidence interval approach.<br>• For future calibrations, some task-force members suggested gathering the required data for calibration for a reasonable time period and then carrying out the calibration exercise. |
| 5 | Universal Life - Single solvency reporting template to account for cashflows changes under interest rate stresses | • Incorporate single template allowing alteration of universal life cashflows in interest risk capital charge.<br>• Additional considerations (e.g.: in crediting rate philosophy) to such extent | • Task-force is of the view that the use of stressed liability cashflows affected by the change in interest rates under interest rate stresses is consistent with the ICS principles and similar solvency regimes used in other countries such as Solvency II.<br>• The proposal also allows companies to do away with dual reporting and submit single template going forward.<br>• Industry is supportive of developing board approved crediting rate policy to ensure consistency in the liability cashflows under base and stress scenarios. These need to be approved by the appointed actuary also.<br>• Stressed crediting rate and unit fund growth rate under both interest up and interest down scenario should be included in the ARA or the quarterly RBC reports (whichever relevant) along with the rationale of deriving the same. |

| S.No | Improvement Area | Description | Consultation outcome |
|---|---|---|---|
| 6 | Valuation of participating business | Single liability assessment with bonus rates aligned to RFR; thereby removing concept of two liabilities under participating business | • Task-force aligned to calculating a single liability for participating business using all future cashflows; discounted at RFR, wherein the future bonus rates can be derived such that they are aligned to the bonuses supportable by RFR.<br>• Task-force is also aligned to calculation of interest risk capital charge by changing underlying cashflows for participating business to allow for future bonus assumption under stressed scenarios; though noting that the above implies calculation of 4 bonus rates i.e. bonus as per current participating fund yield, as per base risk-free rate, as per RFR stressed up and RFR stressed down; leading to potential operational complexities.<br>• Further comments of the task-force have been reserved for post QIS. |
| 7 | Zeroisation of long-term insurance liabilities | • Current RBC Rules allow for negative liability<br>• Proposed zeroisation of negative liability arising – at chosen level of granularity | • Zeroisation of liabilities might dilute the market consistent principle by adding additional prudence in the liability calculation while assets would be at the market value.<br>• Zeroisation will also impact product pricing and lead to higher premiums (due to higher solvency costs). For profitable products, it will lead to higher solvency capital requirements for profitable products, thereby disincentivizing insurers from writing such products.<br>• The task force acknowledges that under the proposed SLFRS 17 framework, for profitable contracts measured under GMM/VFA, negative liabilities will effectively be zeroized and held as Contractual Service Margin (CSM) upon initial recognition for new business written post-implementation. However, there remains a lack of clarity on the financial statements to be used for determining the distribution basis post SLFRS 17 implementation.<br>• Noting current RBC Rules allows for negative liabilities, which is balanced by the application of the SVCC in the RCR calculation; task force recommends further clarity on the extent and application of zeroisation, with a preference for applying zeroisation at the balance sheet level, accompanied by allowing 100% credit of the zeroised liability in the TAC calculation.<br>• Noting that in event of negative liabilities, the corresponding surplus so derived is representing future profitability, and hence should be recognized as distributable surplus if operating assumptions underlying liabilities hold true, the task force recommends that concerns regarding the distribution basis should be addressed independently of the solvency framework |

| S.No | Improvement Area | Description | Consultation outcome |
|---|---|---|---|
| 8 | Derivation of risk-free interest rate yield curve | Propose suitable discount rate, noting limitations of current risk-free rates (e.g.: flat rate post year 10, deep and liquid market assessment) | • 3 segment approach proposed as<br>  ○ Use of market data over period where market is sufficiently deep and liquid. Last liquid point chosen as 10 years by task-force; while noting that the market may be deep and liquid until 3 to 5 years, majority of the insurers hold investments until 10 years (which may not be actively traded).<br>  ○ Convergence of last liquid point to ultimate forward rate using Smith-Wilson approach.<br>  ○ Ultimate forward rate derived using medium to long term estimates of target inflation by the CBSL and expected real interest rate derived based on historic GDP growth rates for last 20 years for Sri Lankan market; to be reviewed at regular intervals. Currently discussed to be kept as 8% with convergence period of 60 years (determined as per ICS framework).<br>• Suggestion of mean reversion post a certain period was declined, noting that market historically has been volatile and smoothing of this volatility is being sufficiently dealt with via ultimate forward rate.<br>• Historically, negative forward rates have also been assumed for which the task-force agreed to use Nelson-Siegel-Svensson (NSS) approach to smoothen market yields till 10th year.<br>• Task force also re-iterated that RFR is a very important piece in the solvency calculation therefore as highlighted above, rates deviation beyond 10th year under proposed method compared to current method needs further consideration given the possible impact on CAR position of the companies therefore need to be further deliberated during QIS stage |
| 9 | Interest rate risk charge and interest rate shock calculations | Interest rate risk charges - shock factors to be re-evaluated, noting high-interest rate scenario in Sri Lanka. | • Methodology to calculate interest rate risk charge: Task-force aligned to determine interest rate risk charge as difference in net asset value, wherein the value of liabilities underlying net asset value under base, interest up and interest down scenarios shall be based on best estimate liabilities cashflows ***(excluding risk margins),*** discounted at base, and stressed yield curves.<br>• Stress factors applicable to RFR: While market data was used to re-calibrate stress factors, the underlying results were regarded to not be sufficiently credible, noting information across tenors was available for upto 10- years only while other jurisdictions have used much higher data points; e.g., in Solvency II, historical data spanning up to 30 years was used for calibration. |

| S.No | Improvement Area | Description | Consultation outcome |
|---|---|---|---|
| | | | Further, Sri Lanka has experienced an economic crisis during this period, meaning that including the entire dataset would treat the crisis as a 1-in-10-year event, affecting the calculated shock factors (both upward and downward). If the crisis period were excluded from the analysis, the remaining data points would be even less credible<br>• Task-force was hence aligned to continue with current stress factors. However, noting change in approach to calculate RFR, the ultimate forward rate was suggested to be stressed at +/-10%. Task-force was also aligned to use underlying model used for calculation of base RFR, to determine stressed RFR by inputting stressed market yields and stressed UFR.<br>• Further comments of the task-force have been reserved for post QIS. |
| 10 | Cashflow timings in RBC template | Change cashflow timings in RBC template from yearly to monthly/frequency at which companies calculate their liability cashflows. | • Task force suggested giving an option to companies to provide cash flows in appropriate frequency (monthly/quarterly/semi-annual/annual etc.) based on their underlying cash flow models.<br>• More clarification is sought for overall change in template to account for cashflow timing change amidst other changes proposed. Further comments on the templates may be provided once IRCSL issues updated template formats. |
| 11 | Premium liability assessment - RBC framework on assessing premium deficiency within premium liability | • Consider fund-level determination of premium liabilities to be higher of UPR or URR, instead of current treatment at line of business level<br>Alternatively, allow for premium liability risk charge to be estimated as:<br>Max [0, (Premium liability X Risk charge) – (Premium liability – Value of URR)]<br>• Allow companies to manage premium deficiencies (as part of premium liabilities) at portfolio level, instead of current approach of line of business level | • The industry requested credit to be provided in premium liability by setting higher of UPR vs URR at company level (against current approach of sub-fund level) as premium liability.<br>• The industry further suggested full credit of difference in UPR and URR shall be provided when setting up premium liability risk charge (instead of 50% so proposed), with suitable strengthening of URR calculation methodology and approach so that adequate URR is setup by companies<br>• Task-force noted above proposal is in line with regional RBC regimes such as Malayasia and Singapore therefore since Sri Lankan RBC regime has been enforced for 10 years, there is no reason(s) as not to provide capital cushion as mentioned above.<br>• It is unclear whether the 50% credit is optimal or if a different percentage would better reflect risk exposure.<br>• While premium risk charges may be potentially lower than regions like Malaysia, underlying risk exposures can be different among different jurisdictions; hence this is not a like-to-like comparison. |
| 12 | Catastrophe risk under general insurance | Introduction of catastrophe risk charge as part of liability risk charge/RCR | • While several data points were requested from the industry to calibrate catastrophe risk charge (Internal loss assessments and analysis undertaken while purchasing catastrophe |

| S.No | Improvement Area | Description | Consultation outcome |
|---|---|---|---|
| | | | reinsurance arrangements, internal reinsurance arrangements for last 3-years i.e. protection layers purchased, premium rates, no of free / paid reinstatements etc. , data like exposure, loss incurred in historic catastrophe events in Sri Lanka, exposure (sum insured) for insurers by geographical region catastrophe risk assessments) - the task-force noted that industry will not be able to provide such data noting lack of availability of above data; and that the industry lacks the system infrastructure to segregate exposures by peril.<br>• Subsequently, while the task-force recognises insurers may not be exposed to all natural catastrophe risks, a suitable charge can be levied for key risks, which the insurers in Sri Lanka might be exposed to (typically being flood risks, cyclones etc)<br>• The task-force also iterated that companies don't have sophisticated models which can determine internal catastrophe risk charge, hence the industry can work towards building these models in the long term<br>• As an intermediate solution for accounting for this risk in RCR, the task-force suggested to introduce a factor based approach, applicable to sum assured exposure to relevant risks – applicable for natural catastrophe events. |
| 13 | Re-assessment of risk margins and risk charges for general insurance business | Re-evaluation of risk margins and risk charges underlying premium and claims liability; noting the same is unchanged since 2015 but market has evolved over last 10 years. | • While the task-force was initially of the view to carry out calibrations subject to data availability, however, based on discussions with the industry it was observed that credible data can be provided only for last 3-5 years and it may not be sufficient to derive reasonable results. Further, concerns were raised on data quality and groupings requested may not be consistently available across insurers.<br>• ICS prescribed risk margins (though calibrated specifically for developing markets) are much higher than current factors, hence the task-force suggested retaining the current risk margins and risk charges.<br>• Task-force was aligned to test the factors and calculation methodology proposed by ICS, during QIS for an indicative assessment. |
| 14 | NITF reinsurance receivable | Noting NITF is a government body, hence zero risk agency, reinsurance receivables older than 6 months from NITF should not be deducted from TAC; instead, they should have 0% risk charge or some % instead of 100% deduction from TAC | • Task-force doesn't deem current approach of treating NITF net receivables for longer than 6 months to be inadmissible, as appropriate treatment – noting NITF is a government backed entity with minimal risk of default.<br>• Task-force noted following alternatives:<br>  ○ Based on argument of NITF being Government backed entity, there is no necessity of deduction |

| S.No | Improvement Area | Description | Consultation outcome |
|---|---|---|---|
| | | | ○ Instead of 6 months, could consider a longer period such as 2 years and instead of deducting the overdue reinsurance recoverable it is recommended that a risk charge be applied.<br>○ In addition to increasing the period to be considered admissible (from the current six months) it is proposed that either a deduction or a risk charge be applied on NITF's solvency calculation for reinsurance payables over a certain period too<br>• The task-force additionally iterated that overall period of 6 months across private reinsurers is also a short period and requested the same to be increased to 1-2 years – noting practice adopted in countries evaluated like India, Malaysia, Singapore. |
| 15 | Treatment of Co-insurance claims | • Co-insurance claims currently deducted from TAC; regardless of aging; allow treatment of co-insurance similar to reinsurance claims<br>• Lack of clarity on when co-insurance claims receivables should be regarded as inadmissible – proposed to establish criteria or timelines around this | • Task force suggested aligning treatment of co-insurance receivables and payables to be aligned to reinsurance, noting that co-insurance in Sri Lanka works in the same manner as reinsurance.<br>• Task force endorses that co-insurance receivables are treated same as other reinsurance receivables (keeping consistent period of admissibility) as for reinsurance. Further, gross liabilities shall be gross premium and claims liability gross of co-insurance arrangement i.e. aligned to the manner in which gross of reinsurance liabilities are determined. Similarly, net premium and claim liability shall be calculated as net of premiums payable under co-insurance (for calculation of premium liability) and net of expected claims receivable (for calculation of claims liability). Risk charges for co-insurance will be calculated in the same manner as reinsurance risk capital charge for co-insurance received and liability transferred to the co-insurer. |
| 16 | Premium receivable over 60 days | • Market practice is 90-day period of credit to brokers and leasing companies, hence align the period over which premium receivable is considered in admissible<br>• Considering above issue in light of Rule 89 of the Act (requiring brokers to remit premium collected on behalf of an insurer, within two weeks of collection) &circular 1 of 2023 (maximum credit period of 60 days to customer on premium receivables). | • Discussions on this topic within CEO forum and other platforms suggests that industry is aligned to shift to "cash before cover" model over a period of 3 to 5 years.<br>• Accordingly, for short term the admissibility may be increased to accommodate Rule 89 of the Act in conjunction with Circular 1 of 2023; the period of admissibility will be reduced to nil over 3 to 5 years. |
| 17 | Updates to rating agencies | Few rating agencies have exited the market; proposal to update to Schedules for new rating agencies allowed by the IRCSL, with sufficient time allowed to seek rating from a new | • Task-force was aligned that this topic lies outside the purview of RBC Rule change and also lies outside the purview of the function of IRCSL. |

| S.No | Improvement Area | Description | Consultation outcome |
|---|---|---|---|
| | | agency (if current rating agency removing coverage or withdrawing rating) | |
| 18 | Asset risk charges - Credit Risk Capital Charge and Market Risk Capital Charge | • Credit risk charges on unrated commercial papers are 16% which may not reflect risk charges suitably (e.g.: for "Unlisted shares and corporate debt investments (except investments in related parties)-held in shareholders' fund" the risk charge is 45%)<br>• Separate equity risk charges for blue-chip shares (S&P Sri Lanka 20) and others calibrated separately.<br>• Proposal to recalibrate current shock of 35% on equities based on if equity pertains to related party of not<br>• Separate risk charge for private equity investments by the insurers<br>• Higher risk charges noted for assets like property, unit-trusts | • Task-force agreed retention of current market risks charges, noting that the preliminary analysis of market data to calibrate risk charges suggested lack of credible market data noting that historical data is impact from one-off events like economic crisis, COVID-19 etc.<br>• For select risk charges like property risk charges, gold risk charges, no underlying data is available. Due to the lack of reliable data to calibrate the risk factor specifically for Sri Lanka, risk factors can be maintained at the current level. |
| 19 | Treatment of new asset classes | • Measurement and allowance of new assets like green bonds<br>• Treatment of Basel III compliant sub-ordinated debentures with buy-in provisions<br>• Leasehold land and building occupied by the insurer<br>• Development bonds issued by development banks | • For green bonds, the task-force is aligned to promote preferential investment in green bonds by proposing lower risk charges.<br>• No further change is proposed by task-force on Basel III compliant sub-ordinated debentures and development bonds.<br>• For leasehold buildings, task-force is aligned that insurers may seek case-by-case clarification from IRCSL on treatment of building constructed by lessee on leasehold land, with such assessment typically based on factors such as the nature of the underlying lease, terms and conditions, the fair value of the construction, etc. |

3.5 There were additional areas of improvement identified via consultation form but these areas were either not directly related to RBC refinements or these areas didn't require further industry discussions. For such topics, it was discussed with the task-force that IRCSL shall internally deliberate and suggest further changes, if necessary.

| S.No | Improvement Area | Description |
|---|---|---|
| 1 | Balance Sheet representation in RBC Template | • Construct TAC as Market Consistent Asset less Market Consistent Liabilities less deductions, rather than Tier I and II, since then it needs bridging entries.<br>• Additional disclosures on difference in asset and liability in RBC vs SLFRS basis to be provided as part of questionnaire/tables<br>*The task-force discussed this item pertains to changes in template with respect to SLFRS17, hence it doesn't fall within purview of this report.* |
| 2 | Treatment of one-off surplus | Allowing treatment of one-off surplus as Tier I Capital<br>*The task-force was informed that this industry request will be evaluated by IRCSL.* |
| 3 | Increase in minimum share capital | Increase minimum share capital requirements to algin with time value of money<br>*The task-force was informed that this industry request will be evaluated by IRCSL.* |

# Section 4: Introduction of mass lapse risk charge and eliminate SVCC

### *Current treatment*

As per paragraph 60 of RBC Rules, 2015, RCR shall be floored to SVCC by long-term insurers. SVCC is calculated as higher of zero or aggregate of surrender value less policy liability (i.e. best-estimate liability plus risk margin; for unit linked business this includes sum of unit and non-unit liability). SVCC is calculated at a line of business level separately for participating business, non-participating business (including universal life), and unit-linked business; and then aggregated. In the event that surrender value is not yet acquired for a policy, or the policy liability is negative, surrender value is taken as zero.

The above treatment implicitly accounts for mass lapse risk for a long-term insurer, by flooring RCR (and hence total capital) assuming 100% policies will surrender.

### *Possible alternatives*

Removal of SVCC as floor to RCR. Going forward, mass lapse risk shall be introduced within calculation of liability risk charge in RCR. Mass lapse intends to capture sudden, large increase in lapses occurring over a short time period, potentially due to loss in public confidence, or due to general financial crisis leading to a general loss of public confidence in the insurance industry. the stress factors for lapse risk shall be redefined as higher of:

a. 50% permanent increase in lapse rates
b. 50% permanent decrease in lapse rates
c. Mass lapse event where X% policies are immediately surrendered as at valuation date

This change potentially allows for more holistic calculation of capital pertaining to lapse risk.

**Determining mass lapse risk charge:**

**Option 1:** Identify an insurance company in Sri Lanka, which has gone through a mass lapse scenario (e.g.: reputational damage, or any other situation causing mass lapses). During such period for this company, impact on lapse experience of the company can be analysed and quantum of stress can be determined.

**Option 2:** Analysis of mass lapse stresses in other countries where RBC (or equivalent risk-based capital regime) is prevalent and benchmark stress for Sri Lanka.

Below table summarises the countries evaluated and corresponding mass lapse stress applicable

| Country | Prescribed mass lapse stress |
|---|---|
| Singapore | 30% immediate surrender of individual policies<br>50% immediate surrender of group policies |
| Malaysia | 30% immediate surrender of individual policies<br>50% immediate surrender of group policies |
| Hong Kong | 30% immediate surrender of individual policies<br>50% immediate surrender of group policies |
| Japan | 30% immediate surrender of retail policies |

| Country | Prescribed mass lapse stress |
|---|---|
| | 50% immediate surrender of non-retail policies |
| Solvency II (UK) | 40% immediate surrender of retail policies<br>70% immediate surrender of non-retail policies |
| Insurance Capital Standard (ICS) | 30% immediate surrender of retail policies<br>50% immediate surrender of non-retail policies |

*Note: India and Vietnam were additionally analysed as well, however these countries don't follow RBC*

**Additional considerations from context of Sri Lankan market:**

Noting high lapses in Sri Lankan market amidst all long term insurers (with typically first year lapses being in excess of 30%), market benchmarking suggests lower mass lapse stress than lapses in first year for company. To account for such market environment:

a. mass lapse stress can be applied as additive to current lapse assumption (vis-à-vis replacing the lapse rate with 30%/50%).

b. Separate mass lapse stress can be determined for policies in policy year 1 and in subsequent policy years.

### *Proposed solution discussed with RBC task force*

SVCC can be removed as a floor on RCR and instead mass -lapse risk can be introduced as part of liability risk charge assessment. The risk factors can be based on market benchmarking and specific benchmarking with ICS i.e. 30% immediate surrender for individual business and 50% for group business.

Noting high lapse experience in Sri Lankan market, these stresses can be applied as additive stresses to current lapse assumptions used by Companies.

### *Consultation questions addressed by RBC Task Force via internal consultation and industry feedback*

In response to the introduction of mass lapse risk charge instead of the present SVCC the industry response post discussion of other related topics linked to discussion on negative liabilities, insurance stress margins and correlation of stress factors are as follows.

**Question 1**: Is the approach of removing SVCC as floor to RCR and introduction of mass lapse risk within lapse risk in liability risk charge calculation appropriate? If a member has alternative suggestions, please share suggestions and rationale.

***Response:*** *The industry has noted the following: The industry is supportive of an introduction of mass lapse stress instead of a Surrender Value Capital Charge.*

**Question 2**: Which of the options of evaluating mass lapse risk is superior compared to other options? Please share rationale

***Response:*** *The industry has noted the following: The industry believes Option 2 outlined in the paper to apply the stress factor to be comparable in magnitude and application in overseas jurisdictions and the International Capital Standard (ICS) is appropriate. Further on sub-topics related to this;*

**Question 3**: Is option 1 of evaluating mass lapse risk charge feasible for Sri Lanka? If yes, share name of company(s) and period(s) over which mass lapse would be noted.

***Response:*** *The industry has noted the following: This is not feasible as there is no past history of mass lapse events.*

**Question 4**: Is option 2 of carrying out a market benchmarking of mass lapse risk charge in other countries a feasible solution for Sri Lanka? Please share your thoughts.

***Response:*** *The industry has noted the following: This is not feasible due to the lack of data.*

**Question 5**: If neither of the option is suitable, please provide alternative method for measuring the mass lapse stress for Sri Lanka.

***Response:*** *The industry has noted the following: Not applicable.*

**Question 6**: In option 2, in addition should any other country be evaluated? If yes, please share name of the country and mass lapse risk present in the same.

***Response:*** *The industry has noted the following: There isn't sufficient data to be able to ascertain which country would be suitable for Sri Lanka.*

**Question 7**: As per benchmarking provided in option 2, what shall be the mass lapse risk stress for Sri Lanka – please provide your suggestions accompanies with the rationale.

***Response:*** *The Industry has noted the following: The ICS prescribed factors are appropriate. This is a stress factor of +/- 30% for Individual Business and +/- 50% for Group Business is appropriate*

**Question 8**: Under additional considerations presented above from Sri Lankan Context, do you agree that mass lapse assumption implied from market benchmarking can be applied as an additive stress or separate stress in PY1 and subsequently (noting the high initial years' lapses prevalent in Sri Lanka)? If not in agreement, please share an alternative view on how this issue can be addressed.

***Response:*** *The Industry is of the following view: The stress factor is additive to current lapse assumption irrespective of policy year.*

**Question 9**: Flooring of mass lapse stress shall be set as 0 – what is your view on zeroizing capital arising from mass lapse stress?

***Response:*** *The Industry is of the following view: Flooring of mass lapse stress to 0 such that no credit is provided from the scenario.*

**Question 10**: What level of granularity shall assessment of onerousness of mass lapse stress, +/-50% lapse stress be undertaken (policy level, product level, or any other granularity)?

***Response:*** *The Industry is of the following view: Granularity should be at product category level proposed as*

- *Non-Participating Traditional and Universal Life*
- *Retail Participating Traditional and Universal Life*
- *Retail Unit Linked and Non-Unit Linked*
- *Group Life and Group Health*

**Question 11**: Should any product category be excluded while applying mass lapse stress? If yes, please share product categories and rationale.

***Response:*** *The industry is of the following view: All products should be covered by the mass lapse charge and retail and group insurance products should have different charges.*

**Question 12**: Has any of the company applied mass lapse stress for their internal reporting. If yes, please provide stress applied and rationale for the applied stress.

***Response:*** *The Industry feedback is as follows: No.*

**Question 13**: Please provide your thoughts on the reasonableness of applying the mass lapse stress in the current actuarial models.

***Response:*** *The industry feedback is as follows:*

- *While this will require modifications to the current model, it shouldn't require significant work.*
- *Connected to the above the mass lapse risk charge should be included in the correlation matrix alongside other risk charges to reflect diversification between this stress and other stresses.*

*Connected to the above on the topic of negative reserves the industry is of the view that negative policy reserves should continue to be allowed. Industry is of the view that the concerns around negative reserves and capital distribution by Insurers should be handled outside the solvency framework along with other requirements related to dividend distribution.*

### *Amendment to proposed solution by RBC task-force*

The current approach doesn't allow for mass lapse risk capital and instead floors RCR to SVCC.

***Task-force therefore, endorses the proposed solution discussed for this area of improvement.***

- Removing SVCC as a floor on RCR and instead introducing mass -lapse risk as part of liability risk charge assessment.

- Prescribe risk charge of. 30% immediate surrender for individual business and 50% for group business – aligned to ICS prescribed charges.

- Above stresses are applied as additive stresses to current lapse assumptions used by insurers, by increasing the lapse assumption as at valuation date by 30% (for individual business) and 50% (for group business)

# Section 5: Introduction of catastrophe risk charge for long term insurance business

### *Current treatment*

There is no capital requirement for catastrophe risk within RCR for long-term insurance business.

The purpose of making changes in RBC Rules is to holistically account for all risks applicable to insurance companies, encourage proactive risk management by shareholders (driven via lower risk capital for better risk management), align the regulations with ICS principles and technical specifications, and ensuring consistency with accounting basis/distribution basis while protecting policyholder interests.

### *Possible alternative*

As per principle 17.7 of ICP[1], risk-based capital approach should address and allow for all relevant and material risks in valuations and / or regulatory capital requirement. However, the current risk-based capital rules don't allow for catastrophe risk. In order to accommodate all relevant risks, it has been proposed to introduce catastrophe risk within the life insurance risks module. Catastrophe risk intends to capture risk of loss due to low frequency and high impact events such as pandemic, natural disasters terrorism etc. that often result in multiple claims originating from a single source. This change potentially allows for more holistic calculation of capital pertaining to risks faced by life insurance companies.

**Determining Catastrophe risk charge:**

**Option 1:** Calibrating the catastrophe stress factor for life insurance business based on sophisticated catastrophe risk modelling.

Typically, catastrophe events don't occur frequently within an economy, hence gathering market data within Sri Lanka relating to catastrophe events like floods, terrorism etc. (historic catastrophe events experienced within Sri Lanka) shall not provide adequate data points to determine the stress, but yield as a reference sense check on the proposed assumption.

When Solvency II catastrophe stress was calibrated, Swiss Re[2] had estimated the same by developing catastrophe models to analyse historic data to determine 99.5% confidence interval.

Typically, catastrophe risk modelling is also undertaken by considering data points for catastrophe events globally vis-à-vis specific country(s).

**Option 2:** Determine catastrophe stress quantum based on benchmarking with calibrations and resulting stress factors defined within ICS and other countries where RBC (or equivalent risk-based capital regime). The inclusion of catastrophe stress within the RCR calculation may be undertaken using one of the following approaches:

1. **Integration within Entity-Level Diversified Risk Capital**: Catastrophe risk would be incorporated alongside market risk capital charge, liability risk capital charge, operational risk

[1] https://www.iais.org/uploads/2025/01/IAIS-ICPs-and-ComFrame-adopted-in-December-2024.pdf
[2] https://register.eiopa.europa.eu/CEIOPS-Archive/Documents/Advices/CEIOPS-L2-Final-Advice-on-Standard-Formula-Life-underwriting-risk.pdf

charge, and other relevant risk charges to determine the overall diversified risk capital at the entity level.

2. **Implementation of a Correlation Matrix within the Life Insurance Risk Module**: This method would facilitate a structured evaluation of catastrophe risk in conjunction with discussions on risk margins and risk charges, ensuring a comprehensive and coherent integration within the solvency assessment framework.

The table below summarises the countries evaluated and corresponding catastrophe stress applicable

| Country | Prescribed catastrophe stress | Granularity of inclusion within required capital |
|---|---|---|
| Singapore[1] | ***Stress quantum:*** Absolute increase of 1 per 1000 to best estimate mortality rate<br>The stress is only applied to policies exposed to mortality risk | Catastrophe risk is included in the life insurance risk module. |
| Malaysia[2] | Absolute increase of 1.5 per 1000 to best estimate mortality rate<br>Increase of 20% in expected medical payments over next 12 months for medical and health insurance contracts providing medical reimbursement benefits, unless these contracts exclude coverage under a pandemic event.<br>The stress is only applied to policies exposed to mortality risk | Catastrophe risk is excluded from the life insurance risk module and included at the entity level aggregation (similar treatment as market risk, operation risk etc.) |
| Hong Kong[3] | Absolute increase of 1.5 per 1000 to best estimate mortality rate<br>This is applied to all insurance contracts, but the risk capital is zeroised while aggregating if negative. | Catastrophe risk is included in the life insurance risk module. |
| Solvency II (UK)[4] | Absolute increase of 1.5 per 1000 to best estimate mortality rate<br>This is applied for policies with positive capital requirement. | Catastrophe risk is included in the life insurance risk module. |
| Insurance Capital Standard (ICS)[5] | Absolute increase of 1 per 1000 to best estimate mortality rate for pandemic risk.<br>Additional allowance for terrorist risk required under ICS.<br>The stress is only applied to policies exposed to mortality risk | Catastrophe risk is excluded from the life insurance risk module and included at the entity level aggregation. |

*Note: India and Vietnam were additionally analysed as well, however these countries don't follow RBC*

From life insurers, ICS requires calculation of catastrophe risk as sum of capital required for pandemic risk and terrorist risk. The terrorist stress capital is calculated by identifying a largest geographical risk concentration partly or fully located within a radius of 500 meters and making following assumptions in respect of the fatalities:

a. 15% fatality rate within a circular zone of a 200-meter radius; and

b. 1.5% fatality rate between 200 and 500 meters.

[1] https://www.mas.gov.sg/-/media/mas-media-library/regulation/notices/id/notice-133/mas-notice-133_14-june-2024.pdf
[2] https://www.bnm.gov.my/documents/20124/948107/ed_rbc_for_Insurers_and_TOs_june2024.pdf
[3] https://www.elegislation.gov.hk/hk/cap41R
[4] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015R0035
[5] https://www.iais.org/uploads/2024/12/ICS-Level-1-and-Level-2-texts.pdf

For Singapore, the stress specified above is in respect of pandemic risk only as risk capital for terrorist risk is included in the operational risk capital requirement. No such demarcation is provided in any other RBC regime.

**Additional considerations: Approach to include catastrophe risk within RCR**

If catastrophe risk factor is estimated bearing reference to global frameworks like ICS, the integration of corresponding risk capital should be consistent as well. Hence, catastrophe risk can be integrated within entity-level diversified risk capital (similar treatment as market risk, operational risk) –

Integrating catastrophe risk within total diversified risk capital also allows for diversification of associated risk capital as well.

Further, insurance risks typically shall include risk of loss (and hence capital requirement) in the event that operating assumptions are not set correctly/actuarial experience is worse than expected/maintaining capital within reasonable confidence interval as prescribed. Catastrophe event leading to sudden deaths is not a risk pertaining to correctness of assumption setting process, hence is not an insurance risk. Therefore, catastrophe risk can be integrated within entity-level diversified risk capital (similar treatment as market risk, operational risk).

### *Proposed solution discussed with RBC task force*

It is proposed to introduce the catastrophe risk in the RCR calculation. Since the calibration of catastrophe risk is typically done on a global level with no country specific analysis, we propose to base the stress on the market benchmarking with the proposed stress factor is 1.5 per 1000 life insured. This is applied as an absolute increase of 0.15% in the annual mortality rate over the next 12 months from the valuation date. The value of change in liabilities by applying an additive stress of 0.15% on mortality rate for next 12 months would represent the additional capital in respect of catastrophe risk. It is also proposed to apply the stress to all products which are exposed to mortality risk.

Further, an insurer can consider the effect of reinsurance, including any catastrophe reinsurance, wherever applicable provided there is no double counting of the effect of the contract. **Where reinsurance credit is taken, appropriate reinsurance capital risk charge shall be applied; consistent to application of such reinsurance risk capital charge on reinsurance credit in liability calculations.**

The proposed application in respect of granularity, calculation of capital etc. for catastrophe risk would be in conjunction with the overall discussion on the calculation of risk margins and risk charges. Thus, any proposed changes to approach would be applicable for this as well.

### *Consultation questions addressed by RBC Task Force via internal consultation and industry feedback*

In response to the questions posed to the task-force;

**Question 1:** Does committee agree with inclusion of catastrophe risk in the calculation of RCR for life insurance companies.

***Response:*** *The industry response is as follows: Yes.*

**Question 2:** Is option 1 of evaluating catastrophe risk charge using catastrophe data points for Sri Lankan insurers feasible for Sri Lanka?

***Response:*** *The industry view is as follows: It is not feasible to calibrate a risk charge based on data points for the Sri Lankan market.*

**Question 3:** Is option 2 of carrying out a market benchmarking of catastrophe risk charge in other countries a feasible solution for Sri Lanka? If option 2 is a feasible solution, do you agree with the catastrophe risk stress quantum proposed for Sri Lanka.

***Response:*** *The industry view is as follows: It is supportive of benchmarking the risk charge to other relevant countries.*

**Question 4:** If neither of the option is suitable, please provide alternative method for measuring the catastrophe stress for Sri Lanka

***Response:*** *The industry notes the below: Not Applicable based on response to Question 3 above.*

**Questions 5:** Should the catastrophe risk capital assessment for life insurance also include the morbidity stress along with the mortality stress? Please share your thoughts along with the rationale. If yes, what shall be the stress factor for the morbidity stress.

***Response:*** *The RBC Task Force's view is that the Catastrophe Risk Charge should not include a morbidity stress given that the types of morbidity risk written by life insurance companies in Sri Lanka are not affected to a great extent by catastrophe risk.*

**Question 6:** Should any product category be excluded while applying catastrophe stress? If yes. please share product categories and rationale.

***Response:*** *The industry is of the following view: Given the proposed risk charge only applies to mortality risk, there are no product categories to be excluded while applying the catastrophe stress.*

**Question 7:** What is the preferred approach for inclusion of catastrophe risk capital in the entity level diversified risk capital charge i.e. whether this should be included in the liability risk capital charge calculation or should this be included in the aggregation of all risk charges to arrive at entity level risk capital. Please provide your thoughts along with the rationale.

***Response:*** *The industry is of the following view: It is supportive of including the capital charge at the entity level (including diversification benefit). This particular risk is faced and managed at an entity level and therefore should be allowed for in that manner.*

**Question 8:** Please provide your thoughts on the reasonableness of applying the catastrophe stress in the current actuarial models.

***Response:*** *The industry view is as follows: While implementation of the risk charge could be challenging for the segment of the market represented on the task force, implementation is still possible.*

### *Additional clarifications sought by the RBC Task Force:*

*Please confirm what approach the IRCSL will take when considering the applicability of catastrophe reinsurance cover? For example, what is the IRCSL's view on the permissibility of the reinsurance credit where the reinsurance cover includes a terrorism exclusion?*

If catastrophe reinsurance cover has certain catastrophe event exclusions (for which the underlying insurer is liable to policyholders), the Appointed Actuary should justify the rationale of treatment of

such reinsurance cover in calculation of catastrophe risk capital charge/seek appropriate clarifications from IRCSL.

### *Amendment to proposed solution by RBC task-force*

The IRCSL has proposed to introduce a Catastrophe Risk Charge for Long Term Insurance business. The existing Risk Based Capital (RBC) framework does not have a Catastrophe Risk Charge; therefore, the proposal represents the introduction of a new capital charge. The purpose of introducing the new risk charge is to holistically account for all risks applicable to the insurance business written and to encourage companies to proactively manage the risk as well as to align with the International Capital Standards (ICS) principles and technical specifications.

***Task-force endorses the proposed solution discussed for this area of improvement.***

- The catastrophe stress factors for life insurance business (long term business) will be determined by benchmarking to ICS and other countries where RBC (or equivalent risk-based capital regimes) apply.
- The proposed stress will be a 1.5 per 1000 lives insured (applied as an absolute increase of 0.15% increase in annual mortality rate over the next 12 months from the valuation date).
- The value of the change in liabilities by applying the additive stress of 0.15% on the mortality rate for the 12-month proceeding the valuation will represent the additional capital in respect of catastrophe risk (applied to all produced exposure to mortality risk).
- The insurer is allowed to consider the effect of reinsurance (including any catastrophe reinsurance cover). Provided there is no double counting of the effect of the contract. Any credit of reinsurance taken would attract a reinsurance risk capital charge in line with the existing risk charges.
- The Catastrophe Risk Capital Charge would be incorporated alongside Market Risk Capital Charge, Liability Risk Capital Charge, Operational Risk Capital Charge, and other relevant risk charges to determine the overall diversified risk capital at the entity level.

# Section 6: Re-assessment of risk margins and liability risk capital charges for life insurance business

## *Current treatment*

As per Paragraph 44 of the RBC Rules (2015), the following risk margins apply to life insurance business for determining policy liabilities. The onerous direction for each parameter is tested per product type. Subsequently, a single scenario run is conducted where all risk factors are stressed in the direction that produces the highest liability value (the "combined stressed scenario"). The risk margin is calculated as the difference between the policy liability under the combined stress scenario and the best estimate liability.

As per rule 59, the risk charges below are used to determine liability risk capital charges. The approach for testing the onerous direction for each parameter aligns with the calculation underlying risk margin. The liability risk capital charge is computed as the difference between stressed liability (calculated using the factors below) and the base scenario liability (set as BEL plus risk margin).

| Valuation parameters | Stress factors for risk margin | Stress factors for liability risk capital |
|---|---|---|
| **Mortality (non-annuity)** | | |
| Guaranteed premium* | +/- 10% | +/- 20% |
| Non-guaranteed premium | +/- 7.5% | +/- 15% |
| **Mortality (annuity)** | -15% | -25% |
| **Total and permanent disability and critical illness** | | |
| Guaranteed premium* | +20% disability assumption<br>-20% recovery assumption | +35% disability assumption<br>-30% recovery assumption |
| Non-guaranteed premium | +10% disability assumption<br>-10% recovery assumption | +30% disability assumption<br>-25% recovery assumption |
| **Renewal expenses** | +10% | +20% |
| **Persistency** | +/- 20% | +/- 50% |

**Guaranteed means guaranteed for three years or more*

The above risk charges were last calibrated during the introduction of RBC Rules in 2015. Given market developments, a re-evaluation is warranted.

## *Possible alternatives*

**Option 1:** Re-assess the risk charges and risk margins applicable to insurance risks, by collecting relevant data from the life insurance industry and re-calibrate stresses.

**Option 2:** In absence of availability of sufficiently granular data from the industry, benchmark risk margins and risk charges against ICS prescribed margins and margins prescribed in other regions.

**Option 3:** No change in risk margins and risk charges for liability risk capital charges

**Risk margins and risk charges specified by ICS:**

ICS[1] prescribes margin over current estimate (MOCE) is calculated as 85$^{th}$ percentile of the normal distribution characterised by:

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

Hence, MOCE includes a diversification benefit as well. Calculation method can be found in ICS template[2].

Life risk charges are classified by nature of risks and region. Sri Lanka shall be present under ICS categorisation "Other emerging markets". These represent 99.5% percentile over a 1 year period. The corresponding risk capital for each risk category is calculated as change in net asset value (difference in assets and best-estimate liabilities) i.e. ICS assumes MOCE is constant during the stress.

Below stress scenarios are applied at the level of homogeneous risk groups, consistent to the grouping of liability cashflows in pre-stress cashflows. Homogenous risk groups encompasses a collection of policies with similar risk characteristics. These remain stable over time; and have similar underwriting policies, claims patterns, risk profiles, product features, future management actions.

For each of the five sub-risks, the risk charge is calculated both with and without the impact of management actions. ICS has prescribed qualifying criteria for considering impact of management actions.

| Risk category | Stress factor |
|---|---|
| Mortality | +12.5% |
| Longevity | -17.5% |
| Morbidity | *Refer to table below* |
| Lapse: *calculated as higher of 3 prescribed stresses** | +/-40%; *subject to a maximum of 100%*<br>Mass lapse: Immediate surrender of 30% for retail and 50% for non-retail policies |
| Expense | Simultaneous stress of increase in:<br>Unit expenses: +8%<br>Expense inflation: Absolute increase in year 1 to 10: 3%; Year 11 to 20: 2%; 1% thereafter |

**For each homogenous risk group, higher of lapse up and lapse down stress will constitute lapse risk charge for the "Level and Trend component", and will be aggregated across all HRGs in a region. Mass lapse risk charge (zeroised at HRG level) shall also be aggregated across all HRGs in a region, and higher of lapse risk charge for level and trend component and mass lapse risk charge for each region shall constitute lapse risk capital*

[1] https://www.iais.org/uploads/2024/12/ICS-Level-1-and-Level-2-texts.pdf
[2] https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.iais.org%2Fuploads%2F2024%2F06%2F2024-ICS-data-collection-Template.xlsx&wdOrigin=BROWSELINK

For determination of risk capital under morbidity stress, risks were categorised as below,

| | Medical expenses | Lump-sum in case of health event | Short term recurring payment | Long-term recurring payment |
|---|---|---|---|---|
| Categorisation | Providing fixed or reimbursable compensation for medical expenses | Single payment at the occurrence of a specified health event/accidence causing disability. | Recurring compensation for a period based on time spent in a given temporary health status | Fixed annuity in case of long-term/permanently deteriorated health status |
| Indicative product examples | Medical expense / supplemental medical contracts providing benefits for practitioner fees, medication fees, vision and dental expenses etc. | Accident, critical illness, and permanent disability policies that provide a lump sum payment on occurrence of a claim, accidental death and dismemberment policies. | Hospital indemnity, personal accident / loss of income policy, short-term disability income protection (generally in the context of group insurance). | Personal or group policies for permanent disability and long-term care |
| Stress factor – short term* | 20% | 25% | 20% | Inception rate + 25%<br>Recovery rate – 20% |
| Stress factor – long term* | 8% | 20% | 12% | Inception rate: +20%<br>Recovery rate: -20% |
| Calculation approach | Where benefits modelled using inception rates/recovery rates, stress is applied to inception rates (if only recovery rates modelled, decrease in recovery rate assumed).<br>Where no explicit inception rates/recovery rates, stress directly applied to medical claim payment amounts. | | | Maximum of inception rate risk charge or recovery rate risk charge. |

**Short term contracts refers to contracts with policy term of upto 5 years. Long term contracts refers to contracts with term longer than 5 years.*

ICS also calculates diversification benefit using below correlation matrix across specified life risk categories:

| | 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% |

The aggregated life risk capital would be calculated as:

$$\sqrt{\sum_{m,n} correlation\ matrix_{m,n} * risk\ capital\ amount_m * risk\ capital\ amount_n}$$

*Where m, n represents corresponding sub risks in the above correlation matrix.*

**Treatment in other countries:**

In Singapore[1], provision for adverse deviation (PAD), which is added to best-estimate liability, is defined as value of the insurance liabilities that relates to the inherent uncertainty in the best estimate experience. Monetary Authority of Singapore doesn't prescribe a minimum confidence interval for PAD and leaves it to the judgement of Appointed Actuary (though for accident and health and non-life business, this is prescribed as 75% level of sufficiency).

Liability risk capital, referred to as C1 requirement, is determined as difference in base BEL and stressed BEL (stress factors as defined below), calculated at homogenous risk group levels. Risk capital for each parameter is calculated and diversification benefit is allowed using correlation matrix. Resulting capital requirement post diversification is reduced by PAD to determine reported C1 requirement. Such reported C1 capital requirement is aggregated for all homogenous risk groups.

| Risk category | Stress factor |
|---|---|
| Mortality | +20% |
| Longevity | -25% |
| Disability | +20% |
| Dread disease | +40% where premium rates are guaranteed<br>+30% where premium rates are not guaranteed<br>**Post premium payment term, 40% shock is applied* |
| Other insured event (Accident and Health) | +40% where premium rates are guaranteed<br>+30% where premium rates are not guaranteed |
| Expense | 20% in first year, followed by 10% thereafter<br>*Applied on unit expenses and expense inflation* |
| Conversion of options | +/-50% on option conversion rate |
| Lapse: *calculated as higher of 3 prescribed stresses* | +/-50%; *subject to a maximum of 100%*<br>Mass lapse: Immediate surrender of 30% for individual and 50% for group policies |
| Catastrophe | Absolute increase in mortality rate by 1 per 1000 over first year; no change in thereafter |

[1] https://www.mas.gov.sg/-/media/mas-media-library/regulation/notices/id/notice-133/mas-notice-133_14-june-2024.pdf

*Correlation matrix*

| | Mortality | Longevity | Disability | Morbidity | Other insured event | Catastrophe | Expense | Lapse | Conversion of option |
|---|---|---|---|---|---|---|---|---|---|
| **Mortality** | 100% | -25% | 25% | 50% | 50% | 25% | 25% | 0% | 0% |
| **Longevity** | -25% | 100% | 0% | 25% | 25% | 0% | 25% | 25% | 25% |
| **Disability** | 25% | 0% | 100% | 50% | 50% | 25% | 50% | 0% | 0% |
| **Morbidity** | 50% | 25% | 50% | 100% | 50% | 50% | 50% | 0% | 0% |
| **Other insured event** | 50% | 25% | 50% | 50% | 100% | 75% | 50% | 0% | 0% |
| **Catastrophe** | 25% | 0% | 25% | 50% | 75% | 100% | 25% | 25% | 25% |
| **Expense** | 25% | 25% | 50% | 50% | 50% | 25% | 100% | 50% | 50% |
| **Lapse** | 0% | 25% | 0% | 0% | 0% | 25% | 50% | 100% | 0% |
| **Conversion of option** | 0% | 25% | 0% | 0% | 0% | 25% | 50% | 0% | 100% |

In Malaysia[1], new exposure draft (yet to be implemented) for RBC2 allows Actuary to use judgement to determine PRAD, whilst ensuring the valuation of cash flows relating to guaranteed/protected benefits, i.e. excluding discretionary payments, secures a 75% level of sufficiency.

In order to estimate life insurance capital charge, following risk charges are prescribed. Capital is calculated at homogenous risk group levels, as impact on Net Asset Value (NAV). For the purpose of determining the change in NAV after applying the specified stresses under a stress-based approach, the change in liabilities must only include the change in central estimate liabilities i.e. PAD remains constant, and any negative value of the base and stressed central estimate liabilities is not zeroised. While calculating NAV under stresses, Actuary can take allowance for management actions with respect to bonus revisions in participating business, and re-pricing of medical reimbursement contracts. The regulator has prescribed several criteria to demonstrate credit for management action recognised; e.g.: comparison of management actions with relevant past actions actually undertaken in a similar scenario, consistency with internal policies, consideration of suitable time lag applicable in management actions etc.

Stress factors defined below correspond to a Value-at-Risk (VaR) at 99.5% confidence level over a one-year period.

Risk capital for each parameter is calculated & diversification benefit is allowed via correlation matrix.

[1] https://www.bnm.gov.my/documents/20124/948107/ed_rbc_for_Insurers_and_TOs_june2024.pdf

Capital is calculated at Homogenous Risk Group level (HRG). HRG is based on similar product features, risk drivers of contracts, risk profile of policyholders, nature/duration of exposure to risks, underwriting practices, amidst other factors.

| Risk category | Stress factor |
|---|---|
| Mortality | +25% |
| Longevity | -17.5% |
| Morbidity/Disability | +40% |
| Medical payments | +25% *(applied on medical payments)* |
| Lapse: *calculated as higher of 3 prescribed stresses* | +45%; *subject to a maximum of 100%*<br>-45%; *subject to a minimum of 0%*<br>Mass lapse: Immediate surrender of 30% for individual and 50% for group policies |
| Expenses | Unit expenses: +20%<br>Inflation rate: absolute increase of 1% |

*For lapse risk, for each HRG, lapse up, lapse down and mass lapse stressed are applied and resulting impact on NAV is floored to 0. The resulting capital under individual HRGs is floored to 0, aggregated at a company level, and higher of lapse up, lapse down and mass lapse risk is used.*

| | Mortality | Longevity | Morbidity/ Disability plus medical payment | Lapse | Expense |
|---|---|---|---|---|---|
| **Mortality** | 100% | -25% | 25% | 0% | 25% |
| **Longevity** | -25% | 100% | 0% | 25% | 25% |
| **Morbidity/ Disability plus medical payment** | 25% | 0% | 100% | 0% | 50% |
| **Lapse** | 0% | 25% | 0% | 100% | 50% |
| **Expense** | 25% | 25% | 50% | 50% | 100% |

The exposure draft on RBC2 indicates that the regulator has prescribed below changes, likely to align with ICS technical specifications:

1. Assessment of risk capital by individual assessment of each risk vs collectively applying all onerous risks together in a single scenario run
2. Assessment of onerous direction of each stress at homogenous risk group level vs product level.
3. Calculation of capital as difference in stress BEL and base BEL vs calculation of capital as difference in stress BEL and base liability (BEL+RM)
4. Application of correlation matrix
5. Introduction of mass lapse and medical payment risk charge.
6. Re-calibration of risk charges.

In Hong Kong[1], margins over current estimates (MOCE) are determined over best-estimate liabilities, to obtain 75% percentile adequacy at a Company level. Actuary is also allowed to allow for

[1] https://www.elegislation.gov.hk/hk/cap41R?SEARCH_WITHIN_CAP_TXT=premium%20liabilit&xpid=ID_1717557936459_728

diversification of risks from different lines of business. The regulations prescribe 75th percentile of the normal distribution characterized as:

1. Mean value of best-estimate liabilities

2. 99.5th percentile set as life risk capital requirement (calculation approach described below) – hence allowance for diversification is included.

Life insurance risk capital is determined using below risk charges, wherein capital arising from stressing individual parameters is determined and correlation matrix is applied. Capital arising from an individual parameter stress is floored to zero prior to application of correlation matrix. Capital is assessed for homogenous risk groups – defined is collection of insurance liabilities with similar risk characteristics, such that there is no significant offset between the risks associated with the insurance liabilities in the group.

Capital is calculated at homogenous risk group levels, as impact on Net Asset Value (NAV). For the purpose of determining the change in NAV after applying the specified stresses under a stress-based approach, the change in liabilities must only include the change in central estimate liabilities i.e. MOCE remains constant, and any negative value of the base and stressed central estimate liabilities is not zeroised. While calculating NAV under stresses, Actuary can take allowance for management actions with respect to change in future discretionary benefits. The regulator has prescribed several criteria to demonstrate credit for management action recognised; e.g.: comparison of management actions with relevant past actions actually undertaken in a similar scenario, consistency with internal policies, consideration of suitable time lag applicable in management actions etc.

| Risk category | Stress factor |
|---|---|
| Mortality | +12.5% |
| Longevity | -17.5% |
| Morbidity | *Refer to below table* |
| Lapse: *calculated as higher of 3 prescribed stresses* | +40%; *subject to a maximum of 100%*<br>-40%; *subject to a minimum of 0%*<br>Mass lapse: Immediate surrender of 30% for individual and 50% for group policies |
| Expenses | Unit expense: +6% or +8%, dependent on region<br>Expense inflation: Absolute increase in year 1 to 10: 3% to 1%; Year 11 to 20: 2% to 1% ; 1% thereafter – dependent on region. |
| Catastrophe | Absolute increase of 1.5 per 1000 to best-estimate mortality in first projection year. |

*For lapse risk, for each HRG, lapse up and lapse down stress is applied & resulting impact on NAV is floored to 0. Higher of lapse up or lapse down stress for each HRG (with change win NAV floored to 0 in each stress) is aggregated across all HRGs. The resulting capital from lapse up/down stress is compared with total capital from mass lapse stress (also floored to 0) to determine the onerous stress and resulting capital. Lapse stress of +/-40% is applied for policy lapse, surrenders, premium persistency, partial withdrawals, option changes.*

*For determination of risk capital under morbidity stress, risks were categorised as below,*

| | Medical expenses | Lump-sum in case of health event | Short term recurring payment | Long-term recurring payment |
|---|---|---|---|---|
| Categorisation | Providing fixed or reimbursable compensation for medical expenses | Lump sum compensation upon occurrence of a specified, & usually severe, health event, such as the diagnosis of cancer or another type of dread disease, or the occurrence of an accident resulting in a certain level of disability; | Recurring compensation for a period based on time spent in a given temporary health status | Fixed annuity in case of long-term/permanently deteriorated health status |
| Stress factor – short term* | 20% | 25% | 20% | Inception rate + 25%<br>Recovery rate – 20% |
| Stress factor – long term* | 8% | 20% | 12% | Inception rate: +20%<br>Recovery rate: -20% |
| Calculation approach | Where benefits modelled using inception rates/recovery rates, stress is applied to inception rates (if only recovery rates modelled, decrease in recovery rate assumed).<br>Where no explicit inception rates/recovery rates, stress directly applied to medical claim payment amounts. | | | Maximum of inception rate risk charge or recovery rate risk charge. |

**Short term contracts refers to contracts with policy term of upto 5 years. Long term contracts refers to contracts with term longer than 5 years.*

*Diversification matrix used for MOCE is same as below (without factors for catastrophe risk)*

| | Mortality | Longevity | Life CAT | Morbidity | Expense | Lapse |
|---|---|---|---|---|---|---|
| **Mortality** | 100% | -25% | 25% | 25% | 25% | 0% |
| **Longevity** | -25% | 100% | 0% | 0% | 25% | 25% |
| **Life CAT** | 25% | 0% | 100% | 25% | 25% | 25% |
| **Morbidity** | 25% | 0% | 25% | 100% | 50% | 0% |
| **Expense** | 25% | 25% | 25% | 50% | 100% | 50% |
| **Lapse** | 0% | 25% | 25% | 0% | 50% | 100% |

In Solvency II[1], risk margin is calculated using a COC approach wherein the Solvency capital requirement (SCR), with COC rate of 6%.

SCR is calculated by applying below stresses, wherein stress factors defined below correspond to a Value-at-Risk (VaR) at 99.5% confidence level over a one-year period. Testing onerousness of each parameter is carried out at a policy level. Capital is assessed as change in technical provisions without risk margin.

[1] https://www.3blocks.co/wp-content/uploads/2020/10/SII_Delegated_Acts1.pdf

Risk capital for each parameter is calculated and diversification benefit is allowed using correlation matrix.

| Risk category | Stress factor |
|---|---|
| Mortality | +15% |
| Longevity | -20% |
| Morbidity | Incidence rates: +35% first year, 25% thereafter<br>Recovery rates: -20% across all years |
| Revision | 3% increase in amount of annuity benefits |
| Lapse: *calculated as higher of 3 prescribed stresses** | +50%; *subject to a maximum of 100%*<br>-50%; *absolute decrease shall not exceed 20%*<br>Mass lapse: Immediate surrender of 40% for individual and 70% for group pension policies |
| Expenses | Unit expense: +10%<br>Expense inflation: Absolute increase of 1% |
| Catastrophe | Absolute increase of 1.5 per 1000 to best-estimate mortality in first projection year. |

**Capital from lapse up, down and mass lapse is estimated for each policy (each being floored to 0). Resulting capital is aggregated at company level & higher of the three stresses is considered.*

**Additional considerations for risk calibrations:**

If risk factors are to be re-calibrated, a regulator must decide the approach for calibration and underlying percentile/confidence level to achieve over a defined period of time. Typical approaches tested by regulators includes: VaR, Tail VaR etc. By virtue of potential benefits of using VaR approach and noting data limitations noted by ICS and other regulators in using Tail VaR as part of its consultation papers, using VaR approach for a one-year time horizon seems appropriate from Sri Lankan context. The percentile level for risk margin and for risk capital charges shall be assessed noting the data provided and variability noted.

In a market consistent valuation framework, policyholder liabilities shall represent the value ascribed to insurance portfolio at which an investor is willing to accept such liabilities and discharge the same as and when they arise i.e. fair value of liabilities. Policyholder liabilities are calculated as best-estimate liabilities (typically discounted value of all future values based on best-estimate assumptions) plus risk margin. Risk margin can be calculated using cost of capital approach (similar to solvency II) or prudence approach (similar to current Sri Lankan approach and other regions detailed above). If policyholder liability value is to represent the fair value of liabilities, either measurement approaches for risk margin shall represent the compensation payable for risk undertaken while writing an insurance business, and not represent the additional prudence over best-estimate. Noting that such risk margin is not a source of additional prudence, calculation of required risk capital should be based on difference in best-estimate liability and stressed liability (vis-a-vis current approach in Sri Lanka where liability risk capital charge is based on difference in best-estimate liability + risk margin and stressed liability).

ICS has undertaken multiple field testing on both COC and prudence/percentile approach to determine such Margin Over Current Estimate (MOCE); eventually concluding on using percentile approach of 85$^{th}$ percentile, whilst maintaining the stance that though the percentile level maybe perceived as a source of prudence, this is reflecting the market value of liabilities/fair value of liabilities – this is explained in ICP 14, point 4 "***The valuation of assets and liabilities is an economic valuation which reflects the risk-adjusted present values of their cashflows***."

**Calculation of risk capital/risk margin – at an individual stress level vs combined stress:**

Current calculation of risk-margin and risk capital in Sri Lanka involves carrying out a single scenario run with onerous stresses, assessment of onerousness undertaken at product level. This doesn't provide a diversification benefit across products and across risks. Insurance risks have some level of correlation/diversification benefits associated, hence combining all onerous risks into a single run can potentially lead to an over-estimation of risk capital/risk-margin. Risk-based capital regime works on an overarching principle that an insurer should receive credit of writing a portfolio which balances insurances risks. Individual stress direction assessed at different level of granularity and aggregated using correlation matrix to allow for diversification.

As part of calibration papers published by ICS, the correlation factors are based on expert judgement whether the corelation between two sub-risks is negative, negligible, low, medium or high. Accordingly, no data is required for determining correlation matrix, rather reliance can be placed on judgement/ICS prescribed matrix, in a Sri Lankan context.

### *Proposed solution discussed with RBC task force*

Carry out calibrations specific to Sri Lankan market for risk margins and risk charges, subject to data availability. Data required has been setup in embedded excel "DataRequirement_RiskCalibration_Life.xlsx"

DataRequirement_RiskCalibration_Life.xlsx

Calibrations to be undertaken at different percentiles of confidence for risk margin. For risk capital, stress factors are proposed to correspond to a Value-at-Risk (VaR) at 99.5% confidence level over a one-year period. Liability risk charge shall be calculated as difference in best-estimate liability and stressed liability for each stress and combined via correlation matrix; similar approach shall be used for risk-margin as well. Correlation matrix as prescribed by ICS shall be used for QIS testing.

Risk capital under each stress shall be floored to zero, in the event that resulting capital is negative. Direction of onerousness for each stress, and subsequent risk capital assessment shall be carried out at policy level, product level, fund level, or any other level deemed fit (e.g.: HRG).

In the event that industry data is volatile/not credible, ICS prescribed risk charges can be evaluated noting ICS specifications are based on calibrations across several regions and hence based on credible information. Further, ICS has split calibrations by regions and hence the resulting risk margins are potentially based on similar regions.

New risk charges such as mass lapse and catastrophe risk shall be evaluated on the above basis as well.

### *Consultation questions addressed by RBC Task Force via internal consultation and industry feedback*

In response to the questions posed to the task force;

**Question 1**: Does the committee agree to the proposed approach?

***Response:*** *Yes, the committee principally agrees with the methodology for calculating the Risk Margin and the Liability Risk Capital Charge as stated by the Insurance Capital Standards (ICS).*

**Question 2**: If response to Q1 is no, please provide alternate approach and rationale (considering maintenance of sufficient liability and capital strength under alternate proposed approach)?

***Response:*** *N/A*

**Question 3:** Does the committee have an understanding as to if the data required for risk calibrations are available with insurance companies? If no, what granularity/quality of data is available with insurance companies?

***Response:*** *The Committee acknowledges the data requirements necessary for accurate risk calibration. However, considering the concerns outlined below, the Committee agrees to utilize the ICS-prescribed stress factors and correlation matrix when assessing the RM and LRCC.*

*Industry date concerns:*

- *Credibility of data: The scale and size of the industry often result in insufficient data volume, leading to significant variability and volatility in the risk factor estimation. This is a significant concern for medical expenses related to morbidity risk classes.*
- *Heterogeneity of data: Differences in product mix, underwriting philosophy, claims management, policy conditions, and distribution channels contribute to data heterogeneity, complicating accurate risk estimation.*
- *Inconsistency in definitions: Variations in data definitions (e.g., age definitions or smoker status) and the unavailability of granular data, combined with potential errors and omissions, could lead to inaccuracies in the data used for risk assessment*
- *Data collection time and costs: The data collection process can take over six months, imposing time and cost burdens on market participants, which may delay the application.*

**Question 4:** Does the committee agree to proposed change in calculation formula for risk capital required for life risks? If no, please provide rationale for disagreement, along with alternate approach and its rationale.

***Response:*** *The committee has a mixed view.*

- *The committee has voiced that any changes in the current method to converge towards the ICS principles should, in their entirety, be aligned with the ICS framework in determining RM and LRCC. The committee warns against any partial adaptation that may lead to over- or under-estimation of RM and LRCC. For example, changing the existing method of calculating the LRCC, which is set as the difference between the BEL+RM and super-stressed liability, to the difference between BEL and stressed liability without changing the corresponding stress factors may lead to an over-estimation of LRCC.*
- *Some members of the committee raised their concern of calibrating the correlation matrix to the industry given that there is no experience related to the catastrophic risk or mass lase risks.*
- *Furthermore, some committee members have expressed concerns about using the 85th percentile margin instead of the current 75th percentile for the confidence interval approach*

**Question 5**: Are there any other considerations to be included as part of risk calibrations?

***Response:*** *Some committee members suggested gathering the required data for calibration for a reasonable time period in the future and then carrying out the calibration exercise.*

### *Amendment to proposed solution by RBC task-force*

Current calculation method of risk margin (RM) and liability risk capital charge (LRCC) and associated concerns were discussed by task-force and listed below for reference:

**RM:**

a. The RM is determined to ensure that the sum of the Best Estimate Liability (BEL) and the RM represents a 75% confidence interval for the underlying distribution of possible outcomes.

b. For each risk parameter (e.g., mortality, lapses, expenses), the onerous direction, the stress that increases liability, is determined individually. These individual stresses are combined to create a single “combined stressed scenario,” where all risk factors are simultaneously stressed in their onerous direction.

c. The RM is calculated as the difference between the stressed liability under this combined scenario and the corresponding BEL.

d. The RM can either be explicitly calculated to achieve a 75% confidence interval (BEL + RM) using an internal model or set using the default RM stress factors prescribed under Paragraph 44 of the RBC Rule 2015.

**LRCC**:

a. The LRCC is calculated as the difference between the super stressed and the base liabilities, where the base is defined as BEL + RM. The methodology for calculating the super-stressed liability is consistent with that used for calculating BEL + RM liability.

b. Risk charges for LRCC are prescribed under Paragraph 59 of the RBC Rule 2015.

Main concerns on the current method:

a. Testing each risk factor individually for onerous direction and then combining them into a single “combined stressed scenario” at the product level may not allow for the benefit of diversification across similar product classes or different risk classes. This may lead to overly conservative liability estimates.

b. The stress factors prescribed under Paragraphs 44 and 59 do not explicitly cover morbidity risks related to medical expense products or riders, leaving gaps in risk coverage.

c. In some cases, the method of testing the onerous direction and constructing the combined stressed scenario can result in BEL + RM liability that is less than the BEL alone, which is conceptually inconsistent.

d. The current Rules do not explicitly account for catastrophic risks (e.g., pandemic mortality, large natural disasters), and there is no dedicated provision for mass lapsation risk under the current RBC framework.

e. The risk charges were last calibrated during the introduction of the RBC rule in 2015, and may not be relevant with the development of the market post-pandemic and economic crisis.

While Task-force endorses the proposed solution(s) discussed for this area of improvement, practical limitations regarding data collection and associated data quality/credibility were raised, as listed below:

- Lack of data for calibration of liability risk charges and risk margins specific to Sri Lankan market – concerns raised over data credibility, data quality, heterogeneity of data etc. Hence task-force suggests using ICS prescribed factors.

- With a long term aim to calibrate risk charges specific to Sri Lankan market, task-force also suggested IRCSL to gather data for a reasonable period in future can carry out the calibration exercise.

***The task-force therefore, endorses adopting ICS prescribed risk charges and risk margins, and associated methodology***. Some task-force members have reservations regarding using 85$^{th}$ percentile vis-à-vis current approach of using 75$^{th}$ percentile for risk margins.

# Section 7: Single solvency reporting template to account for cashflows changes under interest rate stresses

### *Current treatment*

As per paragraph 52 (1) of RBC Rules, 2015, interest rate risk charge should be calculated as:

a. Computing the present value of cashflows underlying net guaranteed liabilities and interest rate sensitivity asset exposures using the base risk-free rate.

b. Recompute the present values mentioned in point (a) using interest rate up and interest rate down scenario.

c. Compute the value of surplus as the difference between present value of interest rate sensitive asset cashflows and net guaranteed liabilities cashflows (net asset value) under base and each stress scenario mentioned above.

d. Determine the reduction in surplus under both increasing and decreasing risk-free rate scenario.

e. the interest rate risk charge is the greater of the reduction in surplus under the increasing and decreasing interest rate scenarios

The original solvency reporting template doesn't allow for the change in the liabilities cashflows driven by the interest rate risk movement. For instance, a fall in the interest rates might result in a fall in the crediting rate for universal life business, resulting in a change in liabilities cashflows. However, no such change in liabilities cashflows was allowed for in the original template.

Subsequently during the period of economic crisis, high interest rates environment and correspondingly high-interest rate stresses, IRCSL allowed insurance companies to stress liabilities cashflows as well under a dual reporting mechanism i.e. they were required to submit the revised template in addition to the original template.

### *Potential approach*

It is proposed to remove the dual reporting and use a single solvency reporting template under the new RBC Rules. The new template shall allow for stressing of liabilities cashflows affected by the change in interest rates under interest rate stresses. Thus, under revised approach, the insurance companies are allowed to incorporate the impact of change in the interest rates on discretionary benefits under universal life business, as well as other liability cashflows which may be impacted by change in the interest rate such as non-unit cashflows for linked business.

The above change will result in the calculation of interest rate impact on universal life and linked business through a total balance sheet impact where we are separately calculating the impact of change in the interest rate on both assets and liabilities to compute the impact under each of the stress direction.

This change potentially allows for more holistic calculation of capital pertaining to interest rate risk.

***ICP principles in respect of adjustment to the discretionary benefits***

As per Principle 17.8.6 of ICP 17 issued in December 2024:

*The impact on cash flows of each stress that is assumed to occur during the shock period should be calculated over the effect horizon for the relevant cash flows. In many cases this is the full term of the insurance obligations. In some cases, realistic allowance for reducing discretionary benefits to policyholders or other offsetting management actions may be considered where they could and would be made and would be effective in reducing policy obligations or in reducing risks in the circumstances of the stress.*

Hence, the above principle suggests that the impact of the stress on the cashflows shall be calculated. Further, the principle allows for the adjustment to the discretionary benefits due to such stress, if applicable.

***Treatment in other countries***

It has been observed that for countries analysed below, RBC implemented allows for the change in underlying liability cashflows due to the stress for universal life and unit linked business (if applicable).

- Singapore
- Malaysia
- Hong Kong
- Solvency II
- ICS v2.0

Further, it has been allowed to change the discretionary benefits in line with the change in the underlying assumptions impacting those benefits including those for future bonuses for participating policies as well impacted by change in interest rate. The aspect of deriving bonus rates and likely impact and allowance of change in bonus assumption under interest rate stresses would be covered in a separate note around valuation of participating business.

***Additional considerations from context of Sri Lankan market:***

In Sri Lanka, universal life products are extensively sold by life insurance companies. Benefits defined on these products are a function of underlying accumulated fund value calculated for each policyholder. Accumulated fund value grows based on the crediting rate declared by the company from time to time. Hence, currently each insurer derives a current and future crediting rate assumption to project future cashflow. The crediting rate declared as well as future crediting rate assumptions is typically dependent on the actual and expected investment return earned on the assets underlying the assets, amongst other factors.

Further, to ensure effective governance of universal life products in respect of crediting rate declared to the policyholders, each life insurer should have a board approved crediting rate policy such that the declared rate is in line with this policy. It is observed that all insurers generally have an internal mechanism to derive the declared crediting rate however, they might not have a board approved policy as it is not compulsorily required by RBC Rules. As part of the revised Rules, each life insurance company should have a board approved crediting rate policy. The requirement to set a crediting rate policy is also in line with Direction 16 – Identification and Treatment of One-off surplus by the life insurance companies.

In line with the above, the impact of change in risk free rate under interest rate stresses should also be calculated in line with the crediting rate i.e. in case any life insurers give very less weightage to risk-free rates in the derivation of crediting rate, then corresponding movement under the interest rate stresses should also be minimal and in line with the crediting rate policy.

The final decision in respect of this topic would also be affected by decision on measurement of assets, discount rates, interest rate stresses and valuation of universal life business. Hence, any discussion in respect of these topics might require revisiting this topic as well.

### *Proposed solution discussed with RBC task force*

It is proposed to change the solvency reporting template to allow for stressed liabilities cashflows under interest up and interest down scenarios for universal life and non-unit cashflows under linked business. The stressed crediting rate should be based on internally defined board approved policies and approved by the appointed actuary as well.

It is further proposed to include the stressed crediting rate and unit fund growth rate under both interest up and interest down scenario (along with the rationale for derivation) in the ARA or quarterly reserve report, whichever applicable.

### *Consultation questions addressed by RBC Task Force via internal consultation and industry feedback*

In response to the questions posed to the task force;

**Question 1:** Is the approach for stressing of liabilities cashflows under interest rate stresses seems reasonable? If response to Q1 is yes, is it agreed to make no change in current approach?

***Response:*** *The industry is of the following view:*

i. *The use of stressed liability cashflows affected by the change in interest rates under interest rate stresses is consistent with the ICS principles and similar solvency regimes used in other countries such as Solvency II*

ii. *This will allow companies to submit a single RBC template and stop the dual submission requirement.*

iii. *The industry is supportive of the change the solvency reporting template to allow for stressed liabilities cashflows under interest up and interest down scenarios for universal life and non-unit cashflows of linked business.*

**Question 2:** If the response to Q1 is no, please provide the alternative along with the rationale for the same?

***Response:*** *The industry response is as follows: Not applicable.*

**Question 3:** Are there any other considerations that task force needs to be considered in respect of this topic or in respect of universal life business? Please elaborate along with the rationale.

***Response:*** *The industry noted the following:*

i. *To develop board approved crediting rate and unit-fund growth rate policies to ensure consistency in the liability cashflows under base and stress scenarios. These need to be approved by the appointed actuary also.*

ii. *The stressed crediting rate and unit fund growth rate under both interest up and interest down scenario should be included in the ARA or the quarterly RBC reports (whichever relevant) along with the rationale of deriving the same.*

iii. *With the use of stressed liability cashflows for universal life business, the liability duration of those businesses will drive closer to 1. Since the asset duration of the underlying asset portfolio is expected to be longer, this will lead to an increase in the difference between asset and liability durations. This will be reflected adversely in the interest rate risk capital charge in the RBC calculations. Hence, this could lead to misleading conclusions such as the need to shorten the duration of assets to have a better match with liabilities.*

iv. *Related to the prior point (iii), actuarial judgement to be allowed in setting the crediting rate for interest rate up and down scenarios given both scenarios represent a point of stress to the firm.*

### *Amendment to proposed solution by RBC task-force*

The original RBC solvency template does not allow for the changes in liability cashflows in a stressed interest rate scenario when calculating the interest rate risk capital charge. The companies are submitting two RBC templates currently, one without stressing the liability cashflows (i.e. original template) and another with the stressed liability cashflows when calculating the interest rate risk capital charge.

***Task-force therefore, endorses the proposed solution discussed for this area of improvement.***

- Single solvency reporting template which allows for stressed liabilities cashflows under interest up and interest down scenarios for universal life and non-unit cashflows under linked business.

- The stressed crediting rate used to determine stressed liability cashflows to be based on internally defined board approved policies and approved by the appointed actuary as well.

- Including stressed crediting rate and unit fund growth rate under both interest up and interest down scenario (along with the rationale for derivation) in the ARA or quarterly reserve report, whichever applicable.

# Section 8: Valuation of participating business

### *Current treatment*

As per paragraph 34 of RBC Rules 2015, every insurer should calculate the value of participating policy liabilities as the higher of guaranteed benefits liability (GBL) and total benefits liabilities (TBL), determined at the participating insurance fund level where,

- Guaranteed benefits liability includes only guaranteed benefits (including bonus declared till date) discounted at risk free rate
- Total benefits liability includes guaranteed and non-guaranteed benefits discounted at fund-based yield for the participating insurance fund.

Hence, for participating business, two sets of liabilities are calculated and the maximum of two is taken to be the central estimate of liability.

Further as per paragraph 52 (1a), the interest rate risk charge shall be calculated only using the cashflows underlying guaranteed benefit liability.

As per paragraph 10 (f), Tier I capital shall also include 50% of the potential future bonuses projected for participating policies calculated as the difference between the guaranteed benefit liabilities and total benefits liabilities.

### *Possible alternative*

Current approach of calculating two separate liabilities is not consistent with the market consistent principle wherein GBL though discounted using risk-free rate of return, doesn't allow for the future discretionary benefits while TBL, though allows for all future cashflows, but is discounted using fund-based yield and not the risk-free rate. Hence, this leads to an inconsistency in the valuation of assets and liabilities. The current approach also doesn't require the life insurers to have a board approved bonus philosophy to ensure robust bonus declaration mechanism. Thus, a change is proposed to have a forward-looking approach for solvency calculation and encourage proactive risk management by shareholders (driven via lower risk capital for better risk management).

**Option 1:** Calculate single liability for participating business using a market consistent approach with inclusion of future discretionary benefits in the cashflows. These cashflows are discounted at risk free rates and the future discretionary benefits allowed should be consistent with underlying discount rate and in line with the board approved bonus policy. There is a consistent change in calculation of TAC where no credit to the extent of 50% of difference between TBL and GBL will be allowed however, the insurance companies would be allowed to alter their liability cashflows in the risk charge calculations to the extent of expected change in the discretionary benefits based on their management actions. Further, there will be a cap on the amount of benefit taken through revision of future discretionary benefits on the overall risk charge calculated.

**Option 2:** No change in the current approach

***ICP principles in respect of proposed alternative[1]***

As per Principle 14.7.1 of ICP 14 issued in December 2024:

*The current estimate should reflect the present value of projected future cash flows under an existing insurance contract to the extent that they are integral to the fulfilment of the obligations under that contract. This encompasses any cash flows,* ***including non-guaranteed optional or discretionary cash flows****, where they stem from the contractual relationship between the insurer and the policyholder. This reflects the commercial substance of the contract and therefore reflects economic reality.*

As per Principle 14.7.10,

*When establishing the future cash flows to include in the determination of technical provisions for solvency purposes, consideration should be given to all payments whether or not these payments are contractually guaranteed under an insurance contract. For example, future discretionary bonuses that the insurer expects to make should be included.*

Similarly, as per section 3.2.1.4 of Insurance Capital Standard[2] issued in December 2024,

***L2-30:*** *The current estimate recognises future discretionary benefits expected to be paid consistently with expected future developments, the economic scenarios on which the liability valuation is based and policyholders' reasonable expectations.*

***L2-31:*** *The projection of future discretionary benefits is also consistent with the yield curve applicable to the contract.*

***Treatment in other countries***

We have analysed the approach used under various regimes for the treatment of participating policies under solvency calculations.

| Regime | Liability valuation | Calculation of risk charges | Credit for future discretionary benefits |
|---|---|---|---|
| ICS[3] | Present value of future cashflows including future discretionary benefits. | Future discretionary benefits allowed to change under risk charges in line with the expected management actions under such scenarios. | **TAC –** no credit allowed<br>**RCR –** Credit allowed which is capped at total RCR level to present value of future discretionary benefits |
| Malaysia (exposure draft on revised RBC)[4] | Present value of future cashflows including future discretionary benefits. | Future discretionary benefits allowed to change under risk charges in line with the expected management actions under such scenarios. | **TAC –** no credit allowed<br>**RCR –** Credit allowed which is capped at a level defined below * |

[1] https://www.iais.org/uploads/2025/01/IAIS-ICPs-and-ComFrame-adopted-in-December-2024.pdf
[2] https://www.iais.org/uploads/2024/12/ICS-Level-1-and-Level-2-texts.pdf
[3] https://www.iais.org/uploads/2024/12/ICS-Level-1-and-Level-2-texts.pdf
[4] https://www.bnm.gov.my/documents/20124/948107/ed_rbc_for_Insurers_and_TOs_june2024.pdf

| Regime | Liability valuation | Calculation of risk charges | Credit for future discretionary benefits |
|---|---|---|---|
| Solvency II[1] | Present value of future cashflows including future discretionary benefits. | Future discretionary benefits allowed to change under risk charges in line with the expected management actions under such scenarios. | **TAC –** no credit allowed<br>**RCR –** Credit allowed which is capped at total RCR level to present value of future discretionary benefits |
| Hong Kong[2] | Present value of future cashflows including future discretionary benefits. | Future discretionary benefits allowed to change under risk charges in line with the expected management actions under such scenarios. | **TAC –** no credit allowed<br>**RCR –** Credit allowed which is capped at a level defined below # |
| Singapore[3] | Calculated as maximum of GBL, TBL or net asset values under participating fund (details below) | Calculated on guaranteed cashflows only | **TAC –** credit allowed subject to certain conditions as mentioned below<br>**RCR –** No credit allowed and calculated on guaranteed cashflows only |

** Caping of reduction in RCR in Malaysia*

The regulator is analysing the total cap to be allowed. Currently the method prescribed is to limit the reduction in capital required for each participating life insurance fund based on the impact of bonus revisions under a scenario of simultaneous stresses for LIFT, market and credit risks where the scenario is determined by the licensed person to reflect the target risk level corresponding to VaR at 99.5% confidence level over a one-year period.

*# Caping of reduction in RCR in Hong Kong*

a. Firstly, determine the amount of usage of the loss absorbing capacity of future discretionary benefits under each sub-risk as difference in the present value of future discretionary benefits before and after additional management actions based on the same stressed assumptions ***multiplied by*** the ratio of the present value of future discretionary benefits based on the base assumptions before additional management actions to the present value of future discretionary benefits based on the stressed assumptions before additional management actions for interest rate risk module.

b. Determine a cap on the total amount of adjustment for the loss absorbing capacity of future discretionary benefits as the difference between present value of future discretionary benefits under the base scenario, net of reinsurance, based on the base assumptions and present value of the lowest allowed future discretionary benefits in accordance with the insurer's board-approved policy, net of reinsurance, based on the base assumptions

[1] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015R0035
[2] https://www.elegislation.gov.hk/hk/cap41R?xpid=ID_1717557733914_189
[3] https://www.mas.gov.sg/-/media/mas-media-library/regulation/notices/id/notice-133/mas-notice-133_14-june-2024.pdf

c. If the total amount of adjustment on total prescribed capital amount (difference between capital before management action and after management action) is higher than the cap determined in point b) above, the amount of excess must be added back.

d. For simplicity, risk capital amount before management action for each sub-risk will be calculated as Risk capital amount $_{\text{without add mgmt. action}}$ = Risk capital amount $_{\text{with add mgmt. action}}$ + LAC usage

*Treatment under Singapore*

For Singapore[1], participating fund liability is calculated as max of the three liabilities – Guaranteed benefit liabilities calculated at risk free rates, total benefit liabilities (including future non-guaranteed benefits) discounted at the best estimate investment return of participating fund or the value of policy assets of the fund less the reinsurers' share of policy liabilities.

Under Singapore RBC, companies are allowed to take the credit of present value of future discretionary benefits in Tier I capital calculation subject to condition on unadjusted capital ratio being lower than the adjusted capital ratio. Further, no allowance of change in future discretionary benefits is allowed while calculating of interest rate risk capital. Unadjusted capital ratio means the ratio of the financial resources of the insurer (including the financial resources of any participating fund) to the total risk requirement of the insurer (including such requirement arising from any participating fund) while adjusted capital ratio is ratio of the financial resources of the insurer (excluding the financial resources of any participating fund) to the total risk requirement of the insurer (excluding such requirement arising from any participating fund)

***Additional considerations from context of Sri Lankan market:***

At present, it is not mandatory for long-term insurers to have a board-approved bonus policy to determine the bonus rates paid to participating policyholders, including reversionary and terminal bonuses. Currently, some of the insurers are in the process of developing these policies or the distribution of bonuses are based on internal guiding principles / pricing assumptions. Additionally, there are limited mechanisms in the industry to ensure that each policyholder receives a fair share of their asset share throughout the life of the policy. It is important for each life insurer with participating policies to have a board approved bonus policy to ensure:

- Fair and equitable treatment across all generations of policyholders so that the surplus within the participating fund is distributed to the policyholders in equitable and fair manner at the same time ensuring policyholders reasonable expectations are met.
- Important for running-off participating business to avoid tontine effect
- Required under Direction 16 for release of one-off surplus.
- Bonus rates are set in line with the policyholder reasonable expectation, future earning capacity, rates declared by competitors, insurer's historic practice around bonus declaration and other factors that can affect bonus declaration for an insurance company.
- The bonus policy can also be used for other aspects such as pricing of a product etc.
- Board approved policy would ensure that the future bonus assumption under different scenarios aligns to realistic management actions.

In Sri Lanka, insurers don't have a board approved bonus policy and would require a time to setup and test a robust framework. In calculation of varying liability cashflows under various stress scenarios in

[1] https://sso.agc.gov.sg/SL/IA1966-S498-2004?DocDate=20120326&ProvIds=P1V-#pr20A-

RCR, such policy should also allow for how realistic projection of future discretionary benefits. To ensure effective implementation of the suggested change, companies are allowed to take a maximum period of 3 years from the day the revised rules are effective to comply with the requirement. For the interim period, insurer can continue with the current approach for liability and capital valuation of participating policies.

### *Proposed solution discussed with RBC task force*

#### *Valuation of liabilities for participating business*

It is proposed to remove the concept of two separate liabilities in respect of the participating business and instead have one liability estimate for participating business which includes the following cashflows discounted at the risk-free rate:

a. All guaranteed cashflows including premium and guaranteed benefits

b. Expenses and commissions

c. Reinsurance related cashflows

d. Any other cashflows; and

e. Future discretionary benefits – including reversionary bonus, cash bonus and terminal bonus

For calculation of participating business liabilities under RBC, future bonus rate assumption should be determined consistent with the risk-free rate used for valuation and other factors such as policyholder reasonable expectations through communications, benefit illustrations etc.; bonus declared by competitors, past bonus declarations etc. To ensure bonus rates determined account for such factors, all insurers shall establish board approved bonus policy. Such bonus philosophy would ensure equitable and fair distribution of surplus to all generations of participating policyholders and align future bonus assumption to actual bonus setting philosophy. To ensure effective implementation of the suggested change, companies are allowed to take a maximum period of 3 years from the day the revised rules are effective to comply with the requirement. For the interim period, insurer can continue with the current approach for valuation of participating policies along with the calculation of total available capital and required risk capital.

**Considerations in respect of interest rate risk and other charges as well as allowance for credit under calculation of Total Available Capital**

Since, there will be a single liability for participating policies, adjustment for 50% of future bonuses under Tier I capital will be removed. This shall also ensure a consistency to the total balance sheet approach of determining regulatory capital resources.

Under interest rate risk charge, future discretionary benefits should be included with the liability cashflows, and these should be allowed to change in line with the change in the future risk-free rates i.e. under stressed risk-free rates. This will ensure that the impact of stress is calculated on the total balance sheet allowing for the management actions in line with the board approved policy for future discretionary benefits.

In calculation of capital for interest rate risk charge, insurer can alter liability cashflows to the extent of change expected in future discretionary benefits under stressed risk-free rates. Such change shall be driven via bonus philosophy of the insurer – to the extent that the bonus rates depend on prevailing interest rates. Hence, the insurance company can evaluate stressed liabilities on realistic bonus rates, in line with what would generally be taken by the insurance company in the stressed interest scenario.

It should be noted that in case of low-interest rate environment, the insurer can reduce the bonus rates to a minimum lower level however, that might not be zero, since bonus rates are driven by other principles like meeting policyholder reasonable expectations, competitive constraints, treating customers fairly. Thus, companies are incentivized to have lower RCR through a robust bonus policy. This is also in line with the treatment proposed for universal life policies where the companies are allowed to alter their liabilities cashflows to extent of change in crediting rate due to change in the risk-free rates.

It can be argued that liability cashflows (to the extent of future discretionary benefits) can change under other market risks (such as equity risk, credit risk etc). If an insurer intends to take credit of the same in risks other than interest risk capital, prior approval from IRCSL can be taken. Companies would be required to demonstrate readiness of their systems as well as demonstrate that such allowances are in line with their board approved policies.

The overall reduction in RCR due to revision of future discretionary benefits should be limited to the extent of present value of all future discretionary benefits allowed in the calculation of base liabilities i.e. RCR before revision of future discretionary benefits less RCR after revision to future discretionary benefits is less than or equal to the present value of future discretionary benefits under BE + RM liability.

### *Consultation questions addressed by RBC Task Force via internal consultation and industry feedback*

In response to the questions posed to the task force;

**Question 1**: Does that task force agree to the change in the approach for calculation of participating policies liabilities. Please provide your views.

***Response:*** *The industry holds the following view: Yes, the industry agrees that the current approach to valuation of the par liabilities is not considered fully market consistent.*

**Question 2**: If yes, is the approach of calculating the participating life policies as a single estimate appropriate. If the answer to this question is yes, is it agreed to make no change to the proposed approach?

***Response:*** *The industry view is as follows: Yes, subject to the results seen at QIS testing.*

**Question 3**: If the suggested approach is not acceptable, please provide an alternative approach along with the rationale.

***Response:*** *The industry has the following view: Not applicable*

**Question 4**: Does the task force agree with the proposed cap on the benefit of revision in future discretionary benefits on the total capital required? Please provide your thoughts.

***Response:*** *The industry has the following view: Agreed. However, the operational complexities in calculating this at each valuation (particularly if monthly valuations are continued) will need to be considered during QIS testing.*

**Question 5**: Should the revision of future discretionary benefits be allowed for in any other risk capital calculation apart from interest rate risk capital. Please share your thoughts.

***Response:*** *The industry view is as follows: No.*

**Question 6**: Are there any other considerations in respect of the participating business which should be analysed along with this topic.

***Response:*** *The industry view is as follows: No.*

### *Amendment to proposed solution by RBC task force*

The current RBC guidelines value participating liabilities by taking the maximum of the GBL and TBL liabilities. However, this method is not considered to be fully market consistent because the GBL method uses RFR rates to discount but doesn't take future bonuses into account, whilst the TBL method takes into account all future cashflows but is discounted on a fund based yield and not the RFR.

***Task-force therefore, endorses the proposed solution discussed for this area of improvement.***

a. Calculates a single liability for Par using all future cashflows.

b. Discount using the RFR

c. The bonuses then used need to be derived in line with the RFR; This would mean that there is a possibility that a company needs to maintain 4 bonus rate structures under the following discount rates:

    i. Current Par Fund Yield

    ii. RFR

    iii. RFR stressed up

    iv. RFR stressed down

d. The TAC will then no longer be allowed to take credit of the 50% difference between TBL and GBL.

e. Board approved bonus philosophy to be maintained.

Further comments may be provided post any practical considerations that may be noted during QIS.

# Section 9: Zeroisation of long-term insurance liabilities

## *Current treatment*

Part V of the RBC Rules, 2015 outlines the methodology for calculating long-term insurance liabilities. Section 36 (1) permits insurers to take credit of negative liabilities.

Negative liabilities reflect future profitability which is subject to achieving the underlying operating assumptions. Negative liabilities can be a function of the underlying risk-free curve as well. Such negative liabilities are treated as positive adjustments in TAC, and hence provide additional credit.

When calculating the Capital Adequacy Ratio (CAR), the impact of negative liabilities is balanced through the flooring of Surrender Value Capital Component (SVCC). If liabilities are negative and the surrender value for certain products is zero, SVCC is floored at the level of the negative liability. Since Risk Capital Requirement (RCR) is floored by SVCC, this mechanism may increase RCR, thereby offsetting the credit derived from negative liabilities within TAC.

## *Possible alternatives*

**Option 1:** Zeroise liabilities at a level of granularity deemed fit via QIS analysis. Credit of negative liabilities is provided in TAC calculation.

**Option 2:** No change in current practice.

***ICS Technical specifications:***

ICS technical specifications allow recognition of negative liabilities. Further, credit of such negative liability is available in TAC as well.

***Treatment in other countries:***

In India[1], as per IRDAI (Actuarial, Finance and Investment Functions of Insurers) Reg 2024 – liabilities are zeroized at a policy level, additional flooring to the extent of surrender value is also applicable. In calculation of available solvency margin, no credit for negative liability is provided.

In Singapore[2], liabilities are zeroized at policy level, unless there are moneys due to the insurer when the policy is terminated on valuation date, in which event the value of the liability (net of reinsurance) may be negative to the extent of the amount due to the insurer.

Further, Tier I capital includes a “regulatory adjustment”, determined at Homogenous Risk Group (HRG) levels, by applying the insurance shocks for the C1 requirement (risk-capital with respect to life insurance risk requirements) to each policy in the HRG, to determine the amount of negative reserve for the HRG after the application of the C1 shocks.

[1] https://irdai.gov.in/web/guest/document-detail?documentId=4589093
[2] https://www.mas.gov.sg/-/media/mas-media-library/regulation/notices/id/notice-133/mas-notice-133_14-june-2024.pdf
https://sso.agc.gov.sg/SL/IA1966-S498-2004?DocDate=20120326&ProvIds=P1V-#pr20-

In Malaysia[1], liabilities is zeroized at a fund level by the insurer. No credit of such negative liabilities is provided in TAC

However, under proposed RBC2 Rules in Malaysia[2] (which are yet to be formally implemented), while negative liabilities continue to be zeroized at a fund level by the insurer, credit of such negative liabilities (based on BEL+provision of risk margin for adverse deviation) is now permissible in TAC, to the extent of 100% of such negative liabilities in participating business, and 50% for other insurance funds.

*Funds categorization in Malaysia for long-term insurance business include: ordinary participating life policies; ordinary non-participating life policies; annuities participating in profits; annuities not participating in profits; investment-linked unit fund; and investment-linked operating fund.*

In Hong Kong[3], negative liabilities are allowed to be held. Following adjustments are made with respect to negative liabilities, in calculation of TAC:

1. Tier 1 capital: Deducting negative liabilities at the total level of long term business, in excess of the corresponding prescribed capital amount in respect of that business
2. Tier 2 capital includes amount of insurer's negative reserves at the total level of long term business in excess of the corresponding prescribed capital amount in respect of that business, as deducted from the Tier 1 capital of the insurer.

Tier 2 capital shall not exceed 50% of prescribed capital amount.

The above implies that the credit of negative liabilities is removed from Tier 1 capital, but instead added to Tier 2 capital, hence potentially limiting the credit of insurer's negative liability in TAC (in the event that Tier 2 capital exceeds 50% of prescribed risk capital).

In solvency II standard formula[4], technical provisions are not zeroized and hence, negative provisions can be held. Such negative provisions will be used to determine surplus to determine available capital.

***Additional considerations:***

The purpose of making changes in RBC Rules is to holistically account for all risks applicable to insurance companies, encourage proactive risk management by shareholders (driven via lower risk capital for better risk management) and ensuring consistency with accounting basis/distribution basis while protecting policyholder interests.

Regulatory frameworks strive to maintain policyholder protection throughout the life-cycle of operations of insurance companies, while incentivizing shareholders to

a. maintain continued interest in managing insurance business
b. better manage insurance business to avail solvency benefits.

If negative liabilities were allowed (in absence of any direct or indirect floors), higher surplus is estimated within the policyholder fund when new business is written, however in reality, such surplus is arising from future profitability, and hence should be recognized as distributable surplus if operating assumptions underlying liabilities hold true. Sufficient checks and balances are required while

[1] https://www.bnm.gov.my/documents/20124/948107/RBC+policy+document.pdf/9a7c4529-481e-aa3e-edae-41291e341b5f?t=1594083008094
[2] https://www.bnm.gov.my/documents/20124/948107/ed_rbc_for_Insurers_and_TOs_june2024.pdf
[3] https://www.elegislation.gov.hk/hk/cap41R?SEARCH_WITHIN_CAP_TXT=premium%20liabilit&xpid=ID_1717557936459_728
[4] https://www.3blocks.co/wp-content/uploads/2020/10/SII_Delegated_Acts1.pdf

distributing such surplus arising due to negative liabilities, giving due consideration to maintaining continued health of the life insurance business through lifetime of policies underwritten.

However, negative liabilities imply that such future profitability is a source of capital for the insurer, which can be recognized while assessing solvency of a company. Hence, even if liabilities are zeroized, a suitable credit can be potentially allowed within solvency estimates to incentivize insurers to write and maintain profitable business.

***Accounting treatment of negative liability post SLFRS17:***

The Sri Lanka Financial Reporting Standard (SLFRS 17), effective from 1 January 2026, mandates that policy liabilities be determined as the sum of BEL, Risk Adjustment (RA), and Contractual Service Margin (CSM). Upon initial recognition, CSM is calculated as the negative sum of BEL and RA, effectively zeroizing BEL at the policy level. Resulting policy level liability is aggregated at cohort level. If a consistent flooring of negative liabilities was adopted on solvency basis, this can potentially benefit insurance companies to maintain similar liabilities in both solvency and accounting basis, ease of comparison of movement in liabilities on both basis and continue to maintain sufficient buffer within liabilities.

### *Proposed solution discussed with RBC task force*

**Liabilities:** Zeroisation of liabilities at a suitable level of granularity, by testing via QIS. Testing shall be undertaken at a policy level, product level, fund level, company level or any other level deemed fit (e.g. HRG).

**TAC**: Where negative liabilities are zeroised, credit of such negative liabilities (based on BEL+RM) shall be evaluated for permissibility in TAC.

*As recommended by the committee, interdependent modifications should be assessed collectively. Accordingly, the potential removal of SVCC for mass lapse stress considerations should be evaluated alongside the zeroisation of liabilities (with zeroization at appropriate level of granularity).*

### *Consultation questions addressed by RBC Task Force via internal consultation and industry feedback*

In response to the questions posed to the task force;

**Question 1**: Does the committee agree to analysing zeroization of liabilities collectively with related topics like SVCC?

*Response: The industry has noted the following observations:*

- *Zeroisation of liabilities might dilute the market consistent principle by adding additional prudence in the liability calculation while assets would be at the market value.*
- *The proposed change is not aligned with ICS principles regarding valuation of liability.*
- *Zeroising liabilities would impact product pricing, likely leading to higher premiums and a reduction in the affordability of insurance products.*
- *It would also lead to higher solvency capital requirements for profitable products, thereby disincentivising insurers from writing such products*

**Question 2**: Does the committee agree that zeroizing liabilities, whist giving the credit of such zeroized liabilities in TAC maintains an adequate balance of ensuring prudence within liabilities/surplus distribution, capital recognition of writing profitable business when determining

solvency (and hence incentivizing insurers to design profitable products), consistency with methodology under current and proposed accounting regimes? The stressed crediting rate and unit fund growth rate under both interest up and interest down scenario should be included in the ARA or the quarterly RBC reports (whichever relevant) along with the rationale of deriving the same.

*Response: The industry has noted the following observations:*

- *The distribution basis of a company can be independent of the solvency basis, as the former is based on each company's internal accounting policy for profit distribution. The task force is of the view that any concerns related to the distribution basis should be addressed separately, without impacting the solvency basis.*
- *Further, the task force acknowledges that under the proposed SLFRS 17 framework, for profitable contracts measured under GMM/VFA, negative liabilities will effectively be zeroised and held as Contractual Service Margin (CSM) upon initial recognition for new business written post-implementation. However, there remains a lack of clarity on the financial statements to be used for determining the distribution basis post SLFRS 17 implementation.*

**Question 3**: If response to question 2 is no, kindly provide alternative approach with rationale, keeping in mind the driving principles of making changes to RBC Rules.

***Response:*** *The industry has identified the following key drivers behind the proposed changes to the RBC Rules:*

- *As noted in the topic paper, the current RBC framework allows for negative liabilities, which is balanced by the application of the SVCC in the RCR calculation. However, under the proposal to remove SVCC (as outlined in the paper 'Introduction of mass lapse risk charge and elimination of SVCC'), this balance is disrupted.*

  *To address issue **#a**, the task force recommends further clarity on the extent and application of zeroisation, with a preference for applying zeroisation at the **balance sheet level**, accompanied by allowing **100% credit of the zeroised liability** in the TAC calculation*

- *If negative liabilities were allowed (in absence of any direct or indirect floors), higher surplus is estimated within the policyholder fund when new business is written, however in reality, such surplus is arising from future profitability and hence should be recognized as distributable surplus if operating assumptions underlying liabilities hold true.*

  *To address issue **#b**, the task force reiterates that concerns regarding the distribution basis should be addressed independently of the solvency framework*

**Question 4**: Should any other areas be considered with respect to the above identified gap in RBC Rules? If yes, kindly list the same.

***Response:*** *No.*

### *Amendment to proposed solution by RBC task-force*

The current RBC regulations allow insurers to take credit of negative liabilities that reflect future profitability, subject to operating assumptions and the underlying risk-free curve holding true. As this provides additional credit to the CAR, the Taskforce has investigated this topic in more detail.

Task-force suggested preference to apply zeroization of liability at balance sheet level, accompanied by allowing 100% credit of such zeroized liability in TAC calculation.

For addressing issue of higher surplus estimated to the extent of negative liabilities (noting such surplus is arising from future profitability and hence should be recognized as distributable surplus if operating assumptions underlying liabilities hold true), this issue should be addressed independent of solvency framework.

# Section 10: Derivation of risk-free interest rate yield curve

## *Current treatment*

As per paragraph 32 of RBC Rules, 2015, every insurer shall use a risk-free interest rate yield curve to discount liability cashflows (including only non-unit cashflows for unit-linked business) except for calculation of Total benefit liabilities for participating business where participating fund yield is used.

Rules also allow insurer to use a risk-free interest rate yield curve developed using an appropriate mathematical internal model and consistent with current Sri Lankan government bonds subject to approval from the IRCSL.

We understand that all insurers are currently using the risk-free interest rate yield curve provided by IRCSL for their solvency calculations.

Currently, risk-free interest rate yield curve is calculated using Two-way Quotes (Treasury Bills) data and Two-way Quotes (Treasury Bonds) data published by CBSL corresponding to Friday which is closest to the month end. Treasury bills are used for derivation of spot rates for 6 month and 1 year term to maturity. For later terms to maturity, treasure bonds closest to the required term to maturity are selected from the above reports. The calculations are done for half-yearly intervals till term to maturity equal to 10 years. Bootstrapping technique is then used to derive spot rate for each term to maturity using the average prices and coupon rates from the data. Risk free rates are assumed to continue at a flat constant spot rate beyond 10-year term to maturity.

## *Possible alternative*

**Option 1:** Re-assess the calculation of risk-free interest rate yield curve in line with the methodology prescribed by ICS and other regimes

**Option 2:** No change in the current methodology for derivation for yield curve.

***ICS prescribed approach[1]***

As per section 3.2.5.2 of ICS v2 issued in December 2024:

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

- Segment 1: based on market information from government bonds or swaps, including a credit risk correction, where necessary;
- Segment 2: extrapolation between the first and third segments; and
- Segment 3: based on a stable currency specific long-term forward rate (LTFR), to which a spread is added in order to represent the expected spread that may be earned from reinvestments in the long-term.

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

[1] https://www.iais.org/uploads/2024/12/ICS-Level-1-and-Level-2-texts.pdf

Hence, a DLT assessment is carried out at regular intervals in order to identify the financial instruments and maturities for which a DLT market exists.

The base yield curves are derived from financial instruments that are traded in deep, liquid and transparent (DLT) financial markets. Thus, DLT assessment determines whether swaps/ government bonds are the relevant financial instruments for the risk-free interest rates and what the LOT is.

Both the interpolation between Segment 1 maturities and the extrapolation beyond the LOT are based on the Smith-Wilson methodology with parameter alpha, which controls the speed of convergence is set at the lowest value that produces a yield curve reaching the convergence tolerance of the LTFR by the convergence point. A lower bound for alpha is set at 0.05. The convergence tolerance is 0.1 basis point and is achieved at the tenor which marks the end of Segment 2. The convergence point is set as maximum of (LOT + 30 years or 60 years).

Long term forward rate (LTFR) is calculated as sum of expected real interest rate and an inflation target. These two components of LTFR are reviewed annually however the magnitude of annual change is capped at 15 basis points.

For inflation rate target, following approach is prescribed in case inflation target is prescribed by the central bank:

- 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 where the inflation target is not announced, 2% is used unless the past inflationary trends and projection of inflation indicates inflation is materially higher or lower than 2%, in which case inflation shall be chosen in line with those indicators.

For assessment of expected real interest rate, ICS has split the geographies in three categories:

- Geographical area 1, comprised of following currency areas: AUD, CAD, CHF, CZK, DKK, EUR, GBP, JPY, NOK, NZD, SEK, SGD, USD with initial value of expected real interest rate of 1.8%
- Geographical area 2, comprised of following currency areas: HKD, ILS, KRW, TWD with initial value of expected real interest rate of 2.4%
- Geographical area 3, all other currency areas with initial value of expected real interest rate of 3% Sri Lanka has been identified in geographical category 3 with 3% expected real interest rate.

ICS publishes risk free rate of returns for various currencies at regular intervals however, Sri Lanka is not included in the list of currencies.

***Treatment in other countries***

**Malaysia (under exposure draft for RBC2)[1]**

Malaysia has also used the three-segment approach in line with the approach prescribed by ICS where:

| Segment | Duration | Methodology |
|---|---|---|
| 1 | Up to last liquid point | The rates are based on market information, where available. For durations where market information is not available, the rates are interpolated using the Smith-Wilson method. |
| 2 | From LLP up to the convergence point | The rates are extrapolated between Segment 1 and Segment 3 using the Smith-Wilson method. |
| 3 | From convergence point | Rates determined based on LTFR |

Similar to ICS, an insurer must determine the alpha parameter used in the Smith-Wilson method, as the lowest value that would result in the difference between the extrapolated forward rate at the duration before the CP and the LTFR to be no more than 0.001%, rounded up to the nearest 0.05 and subject to a floor of 0.1.

**Singapore[2]**

Similar approach is used for Singapore as well with the only difference being the tolerance level of alpha parameter for Smith-Wilson approach which is set to 0.5 basis points.

**Hong Kong[3]**

Same approach as outlined by ICS is used under Hong Kong RBC

**Solvency II[4]**

Solvency II also has the approach similar to Solvency II with the difference being the tolerance level of alpha parameter for Smith-Wilson approach which is set to 1 basis points.

***Additional considerations from context of Sri Lankan market:***

In Sri Lanka, the overall returns on treasury bonds and treasury bills have been quite volatile leading to resultant risk-free interest rate yield curve. Given the limited availability of treasury bonds within the Sri Lankan market at various tenures along with the limited trades in these bonds, no deep, liquid and transparent analysis is performed currently to identify the last liquid point till which the market data for Sri Lankan economy can be used.

## *Proposed solution discussed with RBC task force*

It is proposed to re-assess the determination of risk-free rate for Sri Lanka. Similar to other regimes and to ensure consistency with the ICP guidelines, it is proposed to use the three-segment approach

[1] https://www.bnm.gov.my/documents/20124/948107/ed_rbc_for_Insurers_and_TOs_june2024.pdf
[2] https://www.mas.gov.sg/-/media/mas-media-library/regulation/notices/id/notice-133/mas-notice-133_14-june-2024.pdf
[3] https://www.elegislation.gov.hk/hk/cap41r?xpid=ID_1717557733628_067
[4] https://www.eiopa.europa.eu/document/download/1fc961ef-2198-4e1c-ad6e-d2a1914215bf_en?filename=EIOPA-BoS-24-310-RFR-Technical-Documentation.pdf

for derivation of risk-free interest rate yield curves. Further details in respect of the calculation of risk-free interest rate yield curve are provided below:

- **Choice of financial security:** Given the lack of reliable data in respect of interest rate swaps, it is proposed to use the market data based on treasury bonds and treasury bills (for term less than and equal to 1 year) to derive the yield curve.

- **Deep, liquid and reliable analysis:** DLT analysis shall be undertaken periodically to identify the last liquid point and to accommodate changes in the financial market. Given the lack of data, a qualitative analysis based on the current market practice can be performed. Under this approach, a survey with the investment teams of all insurers shall be undertaken to gather views on last liquid point.

- **Mean reversion to long term historic averages:** Given that there is material short to medium term fluctuations in the market prices of the treasury bond, extrapolated rates based on this data can lead to unnecessary fluctuations and jumps in the derived yield curve. Hence, a mean reversion in rates can be introduced with greater emphasis on long term averages where such averages are also with reference to market data. The mean reversion is proposed to be included only if the DLT assessment suggests a shorter LLP to avoid unnecessary movement at the short to medium terms. In that case, a mean reversion of interest rates from 10 years to 15 years duration can be allowed. The historic rates for Sri Lanka suggest that mean reversion to 10% - 11%.

- **Smoothing of market rates:** Spot rates derived from the average prices and coupon rates from the yields on treasury bonds and treasury bills without any smoothing can result in volatility in the rates which can also result in negative forward rates. Hence, it is proposed to smoothen the market rates by fitting a Nelson-Siegel-Svensson (NSS) equation to market rates till LLP.

- **Interpolation and Extrapolation:** It is proposed to use the Smith-Wilson approach for interpolation between maturities where reliable market data is not available and extrapolation beyond the last liquid point.

  For Smith-Wilson approach alpha is set at the lowest value that produces a yield curve reaching the convergence tolerance of the LTFR by the convergence point. A lower bound for alpha is set at 0.05. The convergence tolerance is 0.1 basis point and is achieved at convergence point.

- **Convergence point:** It is proposed to set the convergence point to later of last liquid point plus 30 years or 60 years in line with the approach prescribed for ICS as well as Solvency II.

- **Ultimate forward rate:** Ultimate forward rate is derived as sum of expected inflation and expected real rate of returns. For Sri Lanka, the expected real rate of returns is proposed to be calculated as simple average of GDP growth rate in real terms from 2000 is 3.9%[1] p.a.

  For inflation, the inflation target prescribed by CBSL can be used. Currently CBSL has prescribed an inflation target of 5%[2], hence, based on the guidelines provided by ICS, 4% has been used the expected inflation.

[1] https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=LK&skipRedirection=true
[2] https://www.cbsl.gov.lk/sites/default/files/cbslweb_documents/press/pr/press_20250129_Monetary_Policy_Review_No_1_2025_e_Ky4f5.pdf

Based on the above, it is proposed to set the UFR for Sri Lanka to 8% p.a. UFR assumption shall be reviewed periodically in case of change in the underlying economic and financial conditions. The year-on-year change in UFR is limited to 15 basis points.

An MS-Excel model has been developed for derivation of risk-free rates to be used by IRCSL and discussed with the task-force. The derivation of risk-free rates as at 31 December 2024 using this model has been provided below:


RFR derivation_withMR.xls


RFR derivation_noMR.xlsx

MS-Excel model developed to derive risk-free rates to be used by IRCSL post smoothing the market yields using Nelson-Siegel-Svensson equation as at 31 December 2023 is provided below:


RFR derivation_31Decemb

## *Consultation questions addressed by RBC Task Force via internal consultation and industry feedback*

In response to the questions posed to the task force;

**Question 1**: Does that task force agree to the proposed change in the methodology for derivation of risk-free interest rate yield curve, in particular to align with ICS prescribed methodology? Please share your thoughts.

***Response:*** *Task force agreed to the above methodology but check the impact during QIS stage and deliberate accordingly.*

**Question 2**: If the suggested methodology is not acceptable, please provide an alternative approach along with the rationale.

***Response:*** *The suggested method was aligned towards what is mentioned above.*

**Question 3**: Based on the investment criteria for insurers in Sri Lanka, what shall be the last liquid point for treasury bonds in the Sri Lankan market?

***Response:*** *Liquidity assessment to be carried out based on the market data.*

**Question 4**: In case of absence of LLP, please share your thoughts (and underlying rationale) on the suitability of use of the available bond data till term to maturity of 20 years for the derivation of yield curve?

***Response:*** *Use either 10 or 15 as the LLP and derive the curve till LLP using market data and Bootstrapping align with current method.*

**Question 5**: Does the task force agree with the proposed introduction of a mean reversion rate of interest? If yes, does the task agree with introduction of in case the LLP is shorter? If yes, what should be the mean reversion rate in the view of task force? Please provide your thoughts.

***Response:*** *Agreed not to introduce mean reversion rate.*

**Question 6**: Does the task force agree with the use of Smith-Wilson approach for interpolation and extrapolation with the parameters set consistently with the approach provided by ICS? If not, please share your thoughts on the alternative approach along with the rationale.

***Response:*** *Agreed to use Smith-Willson method but check the impact during QIS stage.*

**Question 7**: Does the task force agree with the proposed approach and quantum for derivation of UFR, limit on year-on-year change in UFR and the convergence point? Please share your thoughts.

***Response:*** *Agreed to use 8% as the UFR and 60 as the convergence point*

**Question 8**: Are there any other considerations in respect of the derivation of risk-free rates which should be analysed?

***Response:*** *RFR is a very important piece in the solvency calculation therefore as highlighted above, rates deviation beyond 10th year under proposed method compared to current method needs further consideration given the possible impact on CAR position of the companies therefore need to be further deliberated during QIS stage.*

### *Amendment to proposed solution by RBC task-force*

The current methodology for derivation of risk-free rates uses bootstrapping technique to derive spot rate for each term to maturity using the average prices and coupon rates from the yields on treasury bonds and treasury bills without any further smoothing. Risk-free rates are assumed to remain flat post the 10th year term to maturity. Given the overall volatility in the market yields and absence of any interpolation technique can introduce volatility, sometimes resulting in negative forward rates.

**Task-force therefore, endorses the proposed solution of re-assessing the calculation of risk-free interest rate yield curve in line with the methodology prescribed by Insurance Capital Standards (ICS) and other regimes.**

**Proposed methodology:**

***Step 1:*** Decision on the Last liquid Point (LLP) and curve derivation till LLP. It is agreed to use a pragmatic LLP rather theoretical point based on any possible deep, liquidity assessment given the limited no of observable trades for certain tenures. It is agreed to use 10 years as the LLP however 15 years also can be considered to have consistency with assets available and limit the deviation from current method where beyond 10th year spot rate is kept constant at 10th year rate throughout. It is agreed to derive RFR till LLP using the current method of Bootstrapping already adopted. In order to address the issue of negative forward rates and volatility in market data, it is proposed to apply smoothing techniques to the risk-free rates derived from market data by fitting a Nelson-Siegel-Svensson equation to the market rates.

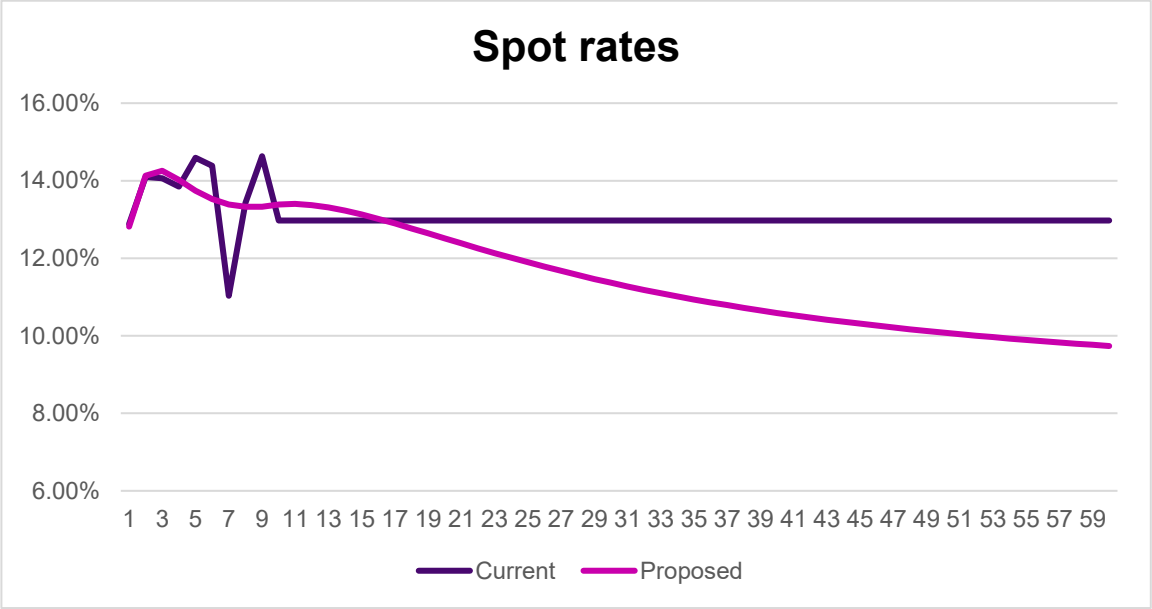
***Step 2:*** Decision on Convergence point and Ultimate Forward Rate (UFR). It was agreed to use 60 years as the convergence point and use of 8% as the UFR considering expected real interest rate and target inflation rate by the CBSL (this is supposed to be periodically reviewed).

***Step 3:*** Extrapolation beyond LLP to UFR at convergence point using Smith-Willson extrapolation method.

Additionally, during periods of one-off events, the market data-based derivation of risk-free rates may lead to anomalies. It was agreed that the IRCSL and IASL should collectively review and analyze the

approach for overall evaluation of solvency (including derivation of risk-free rate, asset valuation etc.) during such periods; with prior approval from the IRCSL.

Please see the RFR (spot rates) derived under current method and proposed method for 31st December 2023.




*Source: Proposed- Shared Template by IRCSL/Current- Published rates by IRCSL for 31st December 2023*

**Observations:**

1. It is clearly observable that beyond the 10th year curve starts getting downward till the convergence point and beyond under the proposed method whereas rates are kept constant at 10th year rate beyond 10th year under current method.

2. This will lead to having a significant impact on liability calculation under proposed method leading to require higher liability to be held.

### *Outcome of industry survey on qualitative assessment of last liquid point*

In order to assess if a deep, liquid and transparent market exists for treasury bonds traded in Sri Lanka, and if so the last liquid point, a survey form was shared with Chief Investment Office/ Investment managers of all insurance companies in Sri Lanka.

14 insurance companies responded to the survey, of which:

- 11 insurance companies believe there are many buyers and sellers of Sri Lankan secondary bonds, and there is high volume of outstanding bonds for these durations.

- 10 insurance companies believe that it is easy to buy or sell bonds without causing significant price movement i.e. can enter or exit positions quickly and at a fair price

- 11 insurance companies believe that the information on bond prices, trade volumes, yields etc. are clearly and publicly available.

- Insurance companies have varied opinion on the last liquid point for the secondary bonds traded in Sri Lankan market – with 6 insurers suggesting LLP as 5 years, 3 insurers each suggesting 3 years and 10 years, and 1 insurer each suggesting 7 years and 25 years.

# Section 11: Interest rate risk charge and interest rate shock calculations

### *Current treatment*

As per paragraph 52 (1) of RBC Rules, 2015, interest rate risk charge should be calculated as:

a. Computing the present value of cashflows underlying net guaranteed liabilities and interest rate sensitive asset exposures using the base risk-free rate.

b. Recompute the present values mentioned in point (a) using interest rate up and interest rate down scenario.

c. Compute the value of surplus as the difference between present value of interest rate sensitive asset cashflows and net guaranteed liabilities cashflows (net asset value) under base and each stress scenario mentioned above.

d. Determine the reduction in surplus under both increasing and decreasing risk-free rate scenario.

Interest rate risk charge is then calculated as the greater of the reduction in surplus under the increasing and decreasing interest rate scenarios

As per paragraph 52 (6), the shocked term structure shall be derived by multiplying the risk-free interest rate yield curve by (1+ shock factor) under both shock up and shock down scenario.

Paragraph 52 (7) and 52 (8) further suggests that the absolute change of interest rates in the downward scenario shall be at least 1% and where the base rate is lower than 1%, the shocked rate in the downward scenario shall be 0%.

Defined shock factors under current regime are as follows:

| Maturity t (years) | Shock up(t) factor | Shock down(t) factor |
|---|---|---|
| 0.25 | 70% | -75% |
| 0.5 | 70% | -75% |
| 1 | 70% | -75% |
| 2 | 70% | -65% |
| 3 | 64% | -56% |
| 4 | 59% | -50% |
| 5 | 55% | -46% |
| 6 | 52% | -42% |
| 7 | 49% | -39% |
| 8 | 47% | -36% |
| 9 | 44% | -33% |
| 10 | 42% | -31% |
| 11 | 39% | -30% |
| 12 | 37% | -29% |
| 13 | 35% | -28% |

| Maturity t (years) | Shock up(t) factor | Shock down(t) factor |
|---|---|---|
| 14 | 34% | -28% |
| 15 | 33% | -27% |
| 16 | 31% | -28% |
| 17 | 30% | -28% |
| 18 | 29% | -28% |
| 19 | 27% | -29% |
| 20 | 26% | -29% |
| 21 | 26% | -29% |
| 22 | 26% | -30% |
| 23 | 26% | -30% |
| 24 | 26% | -30% |
| 25 – 29 | 26% | -30% |
| 30 and above | 25% | -30% |

The above shock factors were calibrated during the introduction of RBC Rules in 2015. Given market developments, these factors are being re-evaluated.

### *Possible alternative*

**Option 1:** Re-assess shock factors applicable for calculation of interest rate risk charge based on the relevant historic market data and re-calibrate these shock factors. Approach for calculation of interest rate risk charge is also re-assessed to align to ICS and other markets where RBC valuation is prescribed.

**Option 2:** Re-assess the current shock factors and benchmark these against shock factors prescribed in other regions such as Solvency II. Approach for calculation of interest rate risk charge is also re-assessed to align to ICS and other markets where RBC valuation is prescribed.

**Option 3:** No change in the current shock factors or in calculation approach.

***ICS prescribed approach***[1]

As per section 5.3.2 of ICS v2 issued in December 2024:

The calculation of interest rate risk charge is based on the combination of three stressed applied to the entire risk-free yield curve:

- A mean reversion scenario;
- A level up scenario; and
- A level down scenario.

Further, the interest rate risk charge is calculated as:

$$max\,(0,\ \sum MRi + VaR_{99.5}\ (\sum LTi))$$

[1] https://www.iais.org/uploads/2024/12/ICS-Level-1-and-Level-2-texts.pdf

where,

- i is an index over all currencies in which the insurer is exposed to interest rate risk
- $MR_i$ is the result of mean reversion scenario; and
- $LT_i$ is a random variable encompassing the results of the level up and level down scenarios for currency

For currency $i$, $LTi$ is defined as:

[1 / $N$−1(0.995)]× ($LUi$ max($Xi$ , 0) − $LDi$ min($Xi$ , 0))

where,

- $N$ −1 (0.995) is the 99.5% quantile of the standardised normal distribution
- $LUi$ and $LDi$ are the results of the level up and level down scenarios respectively; and
- $Xi$ is a random variable following a standardised normal distribution

For currency $i$, $MRi$, $LUi$ and $LDi$ correspond to the change in Net Asset Value when recalculating the value of all relevant assets and liabilities (best-estimate liability) using the mean reversion, level up and level down stressed yield curves respectively.

Further, ICS prescribes the detailed methodology on calculation of mean reversion, level up scenario and level down scenario based on econometric models.

The stress approach is aligned with the three-segment approach used for the calculation of base risk-free interest rate yield curve within ICS, where the interest rate shock factors have been defined only for the period till last liquid point of market information and the long term forward rate. Shocked rates are extrapolated between last liquid point and convergence point using the Smith-Wilson approach.

In arriving at the shocked curve, the long term forward rate is subject to a shock factor of 10% under both level up and level down scenario subject to a maximum annual change of 15bps in line with the maximum year on year change in long term forward rate for risk-free rate derivation.

**Calibration of interest rate shock factors[1]**

For ICS, the stress scenario calculation is based on the simplified Dynamic Nelson Siegel (DNS) model. For each currency, calibrating the stresses is based on determining the optimum parameters for the DNS model. This optimisation is performed by formulating the time series of the DNS parameter as a state space model and using the Kalman Filter technique8 to find the set of parameters ($\kappa$11, $\kappa$22, $\kappa$33, $\theta$1, $\theta$2, $\theta$3, $\sigma$11, $\sigma$21, $\sigma$22, $\sigma$31, $\sigma$32, $\sigma$33) which maximise the log-likelihood.

The dataset used for this calibration is made of weekly interest rate observations starting at 1 January 2010 up to the relevant date of the interest rate curve. Maturities used for the calibration are (in years) 1,2,3,4,5,6,7,8,9,10,20,30 to the extent available (e.g. if the Last Observable Term is at year 10, then no data for years 20 and 30 are used). For each successive calibration, the

[1] https://www.iais.org/uploads/2024/12/ICS-calibration-document.pdf

starting point of the optimisation process is the optimum set of parameters found the previous year. No filtering adjustment is applied to the raw dataset to derive the calibration.

***Treatment in other countries***

**Calibration of interest rate shock factors**

**Malaysia (under exposure draft for RBC2)[1]**

For Malaysia, upward and downward risk-free yield curve is to be derived using the prescribed approach (outlined in the consultation paper on derivation of risk-free yield curve) by applying a shock on the market information and long term forward rate used for the derivation of risk-free yield curve. These factors have been prescribed separately for cashflows denominated in Malaysian currency and other currencies. For other durations in between, those specified above, the risk-free rates are interpolated based on the Smith-Wilson approach

Shocks applied on market information is as follows:

**Stresses for MYR denominated cash-flows***

| Parameter | Duration | Upward stress | Downward stress |
|---|---|---|---|
| Market information | 1 | 75% | 60% |
| | 2 | 70% | 57.5% |
| | 3 | 65% | 55% |
| | 5 | 35% | 50% |
| | 7 | 25% | 45% |
| | 10 | 20% | 40% |
| | 15 | 15% | 35% |
| LTFR | | 10% | 10% |

**For other durations in between, those specified above, the risk-free rates are interpolated based on the Smith-Wilson approach*

**Stresses for non-MYR denominated cash-flows**

| Parameter | Duration | Upward stress | Downward stress |
|---|---|---|---|
| Market information | 1 | 125% | 65% |
| | 2 | 125% | 65% |
| | 3 | 120% | 65% |
| | 4 | 120% | 65% |
| | 5 | 120% | 65% |
| | 6 | 120% | 65% |
| | 7 | 120% | 65% |
| | 8 | 120% | 60% |
| | 9 | 115% | 60% |
| | 10 | 115% | 60% |
| | 11 | 115% | 60% |
| | 12 | 115% | 60% |
| | 13 | 110% | 60% |
| | 14 | 110% | 55% |
| | 15 | 105% | 55% |
| | 16 | 105% | 55% |
| | 17 | 100% | 55% |
| | 18 | 100% | 50% |
| | Till LLP | 95% | 50% |
| LTFR | | 10% | 10% |

[1] https://www.bnm.gov.my/documents/20124/948107/ed_rbc_for_Insurers_and_TOs_june2024.pdf

### Singapore[1]

Shock factors for Singapore were calibrated[2] using 10 years' historic daily data for Singapore and US government yield curves at various durations as proxy.

The raw data was converted to a stationary time series of daily 1- year rolling returns, resulting in more than 2500 data points in the empirical distribution. The interest rate adjustments were derived by taking the lower 0.5% percentile of the resulting distribution, with some smoothing.

The derived factors were later revised based on the QIS and public consultations.

Current shock factors for Singapore are as follows. Insurer must ensure that the calculated absolute interest risk adjustments are subject to maximum of 200bps, for both upward and downward scenarios.

| Maturity t (years) | Shock up(t) factor | Shock down(t) factor |
|---|---|---|
| 0.25 | 100% | -75% |
| 0.5 | 100% | -70% |
| 1 | 100% | -70% |
| 2 | 100% | -70% |
| 3 | 95% | -65% |
| 4 | 95% | -65% |
| 5 | 90% | -60% |
| 6 | 85% | -55% |
| 7 | 80% | -50% |
| 8 | 80% | -50% |
| 9 | 75% | -45% |
| 10 | 70% | -40% |
| 11 | 65% | -40% |
| 12 | 60% | -35% |
| 13 | 60% | -35% |
| 14 | 55% | -30% |
| 15 | 50% | -30% |
| 16 | 45% | -30% |
| 17 | 40% | -30% |
| 18 | 35% | -25% |
| 19 | 30% | -25% |
| 20 and above | 25% | -25% |

### Hong Kong[3]

Upward and downward stressed risk-free yield curves are generated by applying a shock on market information and long term forward rate used for the derivation of risk-free yield curve. Adjustment shall not be applied to the observable market rate if they are negative.

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[1] https://www.mas.gov.sg/-/media/mas-media-library/regulation/notices/id/notice-133/mas-notice-133_14-june-2024.pdf
[2] https://www.mas.gov.sg/-/media/mas/resource/publications/consult_papers/2014/consultation-paper_rbc-2_2014.pdf
[3] https://www.elegislation.gov.hk/hk/cap41r?xpid=ID_1717557733628_067

Further, the absolute change in risk-free yield curve at each term is capped at 200 basis points under both upward and downward stressed risk-free yield curve.

Shock factors applied to the market information and long term forward rates under HK RBC are:

| Maturity t (years) | Shock up(t) factor | Shock down(t) factor |
|---|---|---|
| 1 | 307% | -75% |
| 2 | 194% | -66% |
| 3 | 181% | -64% |
| 4 | 173% | -63% |
| 5 | 160% | -61% |
| 6 | 144% | -59% |
| 7 | 134% | -57% |
| 8 | 125% | -55% |
| 9 | 119% | -54% |
| 10 | 114% | -53% |
| 15 | 99% | -49% |
| 20 | 76% | -43% |
| 30 | 73% | -42% |
| 50 | 73% | -42% |
| Long term forward rate | 10% | -10% |

**Solvency II[1]**

Interest rate shock factors have been calibrated[2] based on the historic data for following three instruments:

- EUR government zero coupon term structures – derived based on daily data for approximately 12 years
- GBP denominated government zero coupon term structures – derived based on daily data from year 1979 to 2009
- Euro and GBP LIBOR / swap rates – daily data for a period of 12 years.

Solvency II used the Principal Component Analysis to derive the stress scenarios. Under this analysis, based on the all the data sets identified above, number of principle factors that explains the variance in the annual percentage rate changes were identified. There were four principal factors identified for all the data sets above – level, slope, curvature and twist in certain maturity points.

The position of the yield curve is affected by current short-term interest rates, denoted by the 'level', whilst the slope is mainly affected by the difference between long-term and short-term interest rates. The curvature of the interest rates is associated with the volatility of the underlying interest or forward rate and the twists represent shocks to specific maturity point on the interest rate yield curve.

[1] https://www.eiopa.europa.eu/document/download/8128de4e-dfd8-47f9-92e5-7c657b29abb4_en?filename=Guidelines%20on%20Classification%20of%20Own%20Funds.pdf
[2] https://register.eiopa.europa.eu/CEIOPS-Archive/Documents/Advices/CEIOPS-Calibration-paper-Solvency-II.pdf

Derived principal factors are standardised and fit into the regression model. The purpose of this model is to calculate the sensitivity of each yield to maturity, expressed as annual percentage rate change, to the principal factors. Post this, stressed 99.5$^{th}$ percentile factors are derived from the model.

The analysis was carried out using four different data sets to introduce controls against any uncertainties that could result from using just one data set in isolation. A higher data set would also introduce additional balance and a greater depth of information to the results by covering a wider range of economic conditions and points in the economic cycle than the other three data sets.

For upward scenario, the absolute increase in risk-free rate shall not be less than 1% at each term to maturity. Further for maturities not included in the table above, the stress factor shall be linearly interpolated.

For negative risk-free rates, the decrease under the downward scenario shall be nil.

| Maturity t (years) | Shock up(t) factor | Shock down(t) factor |
|---|---|---|
| Less than 1 year | 70% | 75% |
| 1 | 70% | 75% |
| 2 | 70% | 65% |
| 3 | 64% | 56% |
| 4 | 59% | 50% |
| 5 | 55% | 46% |
| 6 | 52% | 42% |
| 7 | 49% | 39% |
| 8 | 47% | 36% |
| 9 | 44% | 33% |
| 10 | 42% | 31% |
| 11 | 39% | 30% |
| 12 | 37% | 29% |
| 13 | 35% | 28% |
| 14 | 34% | 28% |
| 15 | 33% | 27% |
| 16 | 31% | 28% |
| 17 | 30% | 28% |
| 18 | 29% | 28% |
| 19 | 27% | 29% |
| 20 | 26% | 29% |
| 90 | 20% | 20% |

Additional methodology choices used to calibrate interest risk shock factors are detailed below for comparison:

| Considerations | Malaysia RBC2 | Singapore | Hong Kong | Solvency II |
|---|---|---|---|---|
| Application of shock on the risk-free curve | Shock factors defined for market information and parameters; stressed yield curve derived using same approach as prescribed for base RFR. | Shock factors are defined as adjustment factors applied on the base risk-free yield curve | Shock factors defined for market information and parameters; stressed yield curve derived using same approach as prescribed for base RFR. | Shock factors are defined as factors applied on the base risk-free yield curve |
| Calibration methodology | Not defined in exposure draft or public consultation documents | Calibrated based on daily 1- year rolling returns | Not defined in exposure draft or public consultation documents | Based on daily 1- year rolling returns using Principal Component Analysis (PCA) |

**Methodology to calculate interest rate risk charge**

For calculation of interest rate risk charge, the table below summarises comparison of approach across various regimes: ***Additional considerations from context of Sri Lankan market:***

When RBC was introduced in 2015, data was only available for 4 years and till 4 year term to maturity as long dated bonds were not issued. Accordingly, interest rate shock factors were set with reference to the shock factors prescribed for Solvency II QIS5 based on the internal discussion and industry feedback.

For the purposes of current re-calibration, data for multiple tenors is available as per the period mentioned below; this is based on the date from which bonds of each tenor have been issued in the market except for cases mentioned below. Analysis has been performed on daily 1-year rolling returns on treasury bonds for 1 year to 10-year maturities spaced out in annual intervals for below mentioned dates, including the period of COVID-19 and economic crisis.

- Treasury bonds with term 1 to 5*: Data analysed from 1 January 2009 onwards (4,244 data points considered)
- Treasury bonds with terms 6: Data analysed from 21 October 2009 onwards (4,052 data points considered)
- Treasury bonds with terms 7, 8 and 10: 2 September 2014 (2,816 data points considered)
- Treasury bonds with terms 9: 26 July 2016 onwards (2,325 data points considered)

**even though the data was available for dates prior to 1 January 2009, the data was only available at specific dates (with no data between 17 September 2007 and 24 December 2008).*

Following analysis has been performed on the observed data:

- Calculate $0.5^{th}$ percentile and $99.5^{th}$ percentile from the observed data
- Fitted a log-normal distribution on the observed data to arrive at the $0.5^{th}$ percentile and $99.5^{th}$ percentile

Existence of a mean-reversion point is dependent on the DLT analysis. In case of existence of a mean-reversion point for Sri Lankan which has been used for derivation of base risk-free interest rate yield curve, the corresponding shock factor applied at such rate should be interpolated based on the shock factor applied at the last liquid point (at which market data is available and used for base risk free rate calculations) and at the convergence point with adjustment made to allow for mean-reversion point to be comparatively stable.

**Analysis of the historical yields**[1]

Analysis has been performed on daily 1-year rolling returns on treasury bonds for 1 year to 10-year maturities spaced out in annual intervals. The outcome of the analysis:

| Term | Down | | | | | Up | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Current rules | Shock factors are per data (all data) | Shock factors are per data (excluding economic crisis) | Based on log-normal distribution (all data) | Based on log-normal distribution (excluding economic crisis) | Current rules | Shock factors are per data (all data) | Shock factors are per data (excluding economic crisis) | Based on log-normal distribution (all data) | Based on log-normal distribution (excluding economic crisis) |
| 1 | -75.0% | -68.1% | -67.4% | -66.8% | -54.7% | 70.0% | 296.7% | 82.8% | 153.4% | 103.0% |
| 2 | -65.0% | -65.8% | -65.5% | -65.3% | -51.7% | 70.0% | 288.8% | 81.0% | 144.7% | 92.7% |
| 3 | -56.0% | -64.4% | -64.2% | -64.0% | -48.8% | 64.0% | 275.7% | 87.7% | 137.7% | 83.7% |
| 4 | -50.0% | -60.2% | -60.1% | -60.8% | -46.5% | 59.0% | 238.0% | 76.1% | 124.1% | 77.1% |
| 5 | -46.0% | -59.6% | -59.3% | -59.5% | -44.3% | 55.0% | 235.1% | 72.4% | 118.4% | 71.2% |
| 6 | -42.0% | -55.7% | -55.4% | -61.1% | -39.6% | 52.0% | 224.0% | 69.8% | 124.9% | 60.0% |
| 7 | -39.0% | -53.7% | -53.6% | -62.1% | -39.7% | 49.0% | 215.1% | 67.9% | 129.5% | 60.1% |
| 8 | -36.0% | -51.6% | -51.4% | -60.9% | -39.0% | 47.0% | 210.3% | 67.4% | 124.4% | 58.5% |
| 9 | -33.0% | -55.4% | -55.2% | -62.7% | -38.1% | 44.0% | 205.1% | 66.0% | 132.6% | 56.7% |
| 10 | -31.0% | -58.3% | -58.2% | -60.7% | -36.7% | 42.0% | 211.5% | 64.8% | 123.2% | 53.5% |

[1] Source of data used: https://in.investing.com/rates-bonds/

## *Proposed solution discussed with RBC task force*

### Calculation of interest rate risk charge

Calculation approach shall remain unchanged except to the following extent:

- Value of liabilities underlying net asset value under base, interest up and interest down scenarios shall be based on best estimate liabilities cashflows (excluding risk margins), discounted at base, and stressed yield curves. Difference between the discounted value of asset cashflows and resulting liability value under each scenarios will be used to derive interest rate risk charge.

- Best estimate liabilities cashflows can alter under stressed interest scenarios to the extent of change in future discretionary benefits (bonuses for participating business and future crediting rate for universal life business subject to the maximum permissible benefit).

### Calibration of shock factors

Given that data across multiple tenors is available for approximately 10 years, this may not provide a sufficiently credible number of data points to calibrate shock factors (e.g., in Solvency II, historical data spanning up to 30 years was used for calibration). Furthermore, Sri Lanka has experienced an economic crisis during this period, meaning that including the entire dataset would treat the crisis as a 1-in-10-year event, affecting the calculated shock factors (both upward and downward). If the crisis period were excluded from the analysis, the remaining data points would be even less credible. There is an argument to be made about whether such a period of economic crisis should be excluded, as the purpose of risk charges is to account for extreme events like this.

Considering the limitations of the current data, it is proposed to retain the existing shock factors for the market-observable period, with a stable (lower) shock factor suggested for the Ultimate Forward Rate (UFR). The shock factor for the UFR is based on judgment, as the UFR is expected to be less volatile than current market rates. Therefore, a lower stress is proposed for the UFR, with the stress level being benchmarked against the stress factors in the Insurance Capital Standard (ICS), which have also been adopted in other regions, including Malaysia and Hong Kong.

Proposed shock factors are as follows:

| Parameter | Duration | Upward stress | Downward stress |
|---|---|---|---|
| Market information | 1 | 70% | -75% |
| | 2 | 70% | -65% |
| | 3 | 64% | -56% |
| | 4 | 59% | -50% |
| | 5 | 55% | -46% |
| | 6 | 52% | -42% |
| | 7 | 49% | -39% |
| | 8 | 47% | -36% |
| | 9 | 44% | -33% |
| | 10 | 42% | -31% |
| | Mean reversion point | Based on calibration between shock factor in LLP and chosen convergence point | |
| UFR | | 10% | 10% |

**Derivation of upward and downward stressed risk-free yield curves**

Stressed risk-free yield curve shall be derived separately for upward and downward shocks using the methodology used for derivation of base risk-free yield curve. The parameters / market information used for base risk-free yield curve shall be shocked by applying the prescribed shock factors to these parameters and a revised curve shall be derived for both upward and downward shock scenario.

## *Consultation questions addressed by RBC Task Force via internal consultation and industry feedback*

In response to the questions posed to the task force;

**Question 1**: Does that task force agree to the proposed approach for calculation of interest rate risk charge? Please provide your views. If not, please provide an alternative approach along with the rationale for the said approach.

***Response:*** *Agreed but need to be further deliberated during QIS stage.*

**Question 2**: Does task force agree with the proposed approach of keeping the stress factors unchanged for terms with market observable rates? If not, please provide the rationale for the same.

***Response:*** *Agreed*

**Question 3**: In respect of application of shock factors, does the task force agree with the proposed approach of application of stresses on market information and deriving the revised risk-free yield curve?

***Response:*** *Agreed but need to be further deliberated during QIS stage.*

**Question 4**: Is task force aligned to the methodology used to determine prescribed stresses for interest rate at mean reversion and ultimate forward rate? If not, please provide an alternative approach.

***Response:*** *Agreed except Mean Reversion Point since it is agreed not to have the such a point.*

**Question 5**: Are there any other considerations in respect of the interest rate shocks which should be analysed along with this topic?

***Response:*** *No*

## *Amendment to proposed solution by RBC task-force*

The current approach calculates the interest rate risk capital as:

Base scenario ➔ $NAV_0=S_0= A_0- (BEL_0+RM_0)$

Shock up scenario ➔ $NAV_1=S_1= A_1- (BEL_1+RM_1)$

Shock down scenario ➔ $NAV_2=S_2= A_2- (BEL_2+RM_2)$

Interest rate risk charge =

$Max\{| S_0- S_1|,| S_0- S_2|\} =$

Max{| ($A_0$- $A_1$)+ ($BEL_1$-$BEL_0$)+($RM_1$-$RM_0$)|,| ($A_0$- $A_2$)+ ($BEL_2$-$BEL_0$)+($RM_2$-$RM_0$)|

Further, stress factors applied to the base risk-free rates have been prescribed.

**Task-force endorses that calculation approach shall remain unchanged compared to current method except to the following extent**:

Value of liabilities underlying net asset value under base, interest up and interest down scenarios shall be based on best estimate liabilities cashflows (excluding risk margins), discounted at base, and stressed yield curves. Under the proposed Risk Margin (RM) calculation, it is noted that cashflow vector may not be available for BEL+RM calculation therefore it is suggested to use Net Asset Value as the present value of asset cash flows and best estimate liability cash flows in absence of BEL+RM cash flows.

Task force is of the view that in absence of RM numbers in the proposed calculations, interest rate risk charge can be either higher or lower compared to the current calculation.

**Interest rate shock calculations**

Considering the limitations of the current data, it is agreed to retain the existing shock factors for the market-observable period, with a lower shock factor (10%) suggested for the Ultimate Forward Rate (UFR). Revised shocked risk-free rate curve will be derived based on the shocked market inputs.

# Section 12: Timings for projection of cashflows in RBC template

### *Current treatment*

As part of MS Excel RBC solvency template, insurers are required to provide cashflow projections used to estimate total policyholder liabilities. These include premiums, commissions, expenses, death outgoes, maturity outgoes, other outgoes and other incomes – all cashflows are projected as yearly projections.

The above cashflows are provided separately for non-participating fund, participating fund (guaranteed liability cashflows), non-unit cashflows for unit-linked business – on gross of reinsurance and net of reinsurance basis.

The cashflows are provided on best-estimate + risk margin basis in worksheet “Table 5 Liability Cash flows” and on stressed margins (to calculate liability risk charge) in worksheet “Table 6 Stressed Liability cfs”.

These cashflows are used to determine:

a. Total policyholder liability

b. Liability risk capital charge

c. Interest risk capital charge – to the extent of impact on liability due to interest stress

### *Possible alternatives*

Since liability cashflows are provided on yearly projections whereas actuarial cash flow models developed by various life insurers might be projecting cash flows on a monthly (or non-annual) frequency, differences arise when comparing liabilities against present value of net cashflows provided in above mentioned worksheets. Further, present value of net cashflows under best-estimate + risk margin basis (used in liability risk charge and interest risk capital charge) and stressed margin basis (used in liability risk charge) are potentially understated due to yearly cashflows being discounted to determine corresponding liability values.

**Option 1:** Calculations of policyholder liabilities, interest risk capital charge and liability risk capital charge are performed within actuarial models used by insurers. Relevant information on present value of underlying cashflows will be included in RBC Solvency template – on best-estimate + risk margin basis and stresses margin basis; on gross and net of reinsurance basis (with present value of best-estimate + risk margin basis provided on base and stressed risk-free rate). Such information will be used to calculate liability and relevant risk capital charges mentioned above.

Annexures to solvency template will include projection of cashflows under above calculation basis, at an appropriate projection period frequency, in line with policy liability calculations.

**Option 2:** No change in current submissions with respect to cashflow projection provided.

***Prescribed ICS[1] template doesn't request for any liability cashflows and relies on output from actuarial models to determine liability and prescribed risk capital.***

***Cashflow submissions in other regions:***

The table below summarises countries evaluated for this consultation paper along with disclosure requirement on liabilities, and relevant risk charges.

| Country | Disclosure requirement for liabilities | Disclosure requirement for risk charges | Granularity of presenting information | Frequency of submission |
|---|---|---|---|---|
| India[2] | Present value of cashflows on gross of reinsurance, and reinsurance ceded<br>• Premium<br>• Expenses and commission<br>• Benefits (death, maturity, surrender)<br>• Annuity benefit<br>• Bonuses -split into vested bonus, future bonus, terminal bonus, cost of bonus<br>• Zeroisation adjustment<br>• Surrender value flooring adjustment<br>• Reinsurance ceded | NA – India doesn't follow risk-based capital regime, and calculates required capital on factor-based approach | Separate disclosures for:<br>• Line of business split into sub-funds like life, pension, group, annuity etc.<br>• Product level for each line of business<br>*Refer to form NLB and ULB for exact disclosure* | Annual |
| Malaysia[3] | Present value of cashflows on gross of reinsurance, and reinsurance ceded<br>• Premium<br>• Expenses<br>• Benefits<br>• PRAD<br>• Zeroization adjustment<br>• Reinsurance ceded | • Liability risk charge is directly input into reporting template.<br>• Change in liability in interest up and interest down scenario to calculate interest risk capital. | Separate disclosure for:<br>• Line of business split into sub-funds like individual/group, annuities, investment linked, others.<br>• Detailed split of line of business by various product categories (e.g.: whole of life, endowment, term, riders etc.). The main categorization is same as mentioned above. | All forms except E2-1 are submitted monthly/quarterly.<br>E2-1 is submitted at financial year-end only. |

[1] https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.iais.org%2Fuploads%2F2024%2F06%2F2024-ICS-data-collection-Template.xlsx&wdOrigin=BROWSELINK
[2] https://irdai.gov.in/document-detail?documentId=605037
[3] https://bnm.gov.my/documents/20124/948107/RBC+Forms+Version+3+Release+3.xls/8c0bc704-35e1-507a-b4a4-28bf13f441ff?t=1594083040446
https://bnm.gov.my/documents/20124/948107/SoSA+Reporting+Manual+for+Insurers.pdf/15b1089c-a757-8dd5-8111-50cca8d6c90d?t=1594083056730

| Country | Disclosure requirement for liabilities | Disclosure requirement for risk charges | Granularity of presenting information | Frequency of submission |
|---|---|---|---|---|
| | | | • Product level for each line of business<br>*Above is separately presented for business written within Malaysia and outside.*<br>*Refer to form E2, E2-1, C3-1 for exact disclosure* | |
| Singapore[1] | • Best-estimate liability post zeroization<br>• Provision made for any adverse deviation<br>• Negative reserve | • Below values are provided for mortality, longevity, disability, dread disease, lapse (split into +/-50% lapse, mass lapse), other insured event, conversion for options, catastrophe risks, which are aggregated in reporting template using correlation matrix:<br>  • Best-estimate liability post zeroization<br>  • Negative reserve<br>• Net asset value under interest up and interest down sensitivity | • Line of business split into participating, non-participating and investment-link – further sub-categorised into<br>  • Portfolio with and without matching adjustment.<br>  • Homogeneous risk groups within each portfolio<br>*Above is separately presented for business written within Singapore and outside.* | Quarterly |
| Solvency II[2] | • Technical provisions gross of reinsurance and reinsurance ceded – split by best-estimate liability and risk margin<br>• Present value of cashflows on gross of reinsurance, and reinsurance ceded<br>  • Future guaranteed & discretionary benefit<br>  • Expenses and other outgoes | • Capital requirement under each life risk (mortality, longevity, disability, lapse, expense, revision, catastrophe)<br>  • Asset value pre shock<br>  • Liability value pre shock<br>  • Asset value post shock<br>  • Liability value post shock | • Line of business split<br>• Split of total company level, life other than health, and health. | Details on technical provisions are provided quarterly<br>All other information is provided yearly. |

[1] https://www.mas.gov.sg/-/media/mas/regulations-and-financial-stability/regulations-guidance-and-licensing/insurance/regulations-guidance-and-licensing/notices/notices-to-all-insurers/mas_rbc-2-main-workbook_20200402.xlsx

[2] https://www.3blocks.co/solvency-2-materials/
*Refer to "Solo QRT log files"*

| Country | Disclosure requirement for liabilities | Disclosure requirement for risk charges | Granularity of presenting information | Frequency of submission |
|---|---|---|---|---|
| | • Premiums<br>• Other cash inflows<br>• Risk margin<br>• Above cashflow projections from 1st projection year to 30th projection year, then aggregated for year 31 to 40, then 41 to 50 and 50+. | • Net asset value under interest up and interest down sensitivity | | |

Above details imply regulators rely on output provided from actuarial models of insurers, with additional information requested to gain comfort on the accuracy of modelled output.

### *Proposed solution discussed with RBC task force*

Calculations of liability and risk charges associated to liability cashflows are undertaken within actuarial models used by insurers. Relevant details on present value of cashflows, and monthly cashflow projections constituting liability and risk charges shall be requested via annexures to quarterly/annual reporting templates and questionnaires.

Updated disclosures and template changes shall be considered holistically with other proposed changes to RBC. Monthly cashflow projections shall be requested in same format as currently requested for yearly projections – as part of an additional annexure (any associated changes due to other proposed RBC changes shall be taken into consideration).

### *Consultation questions addressed by RBC Task Force via internal consultation and industry feedback*

In response to the questions posed to the task force;

**Question 1**: Does the committee agree to the proposed approach?

***Response:*** *Yes.*

**Question 2**: If response to Q1 is no, please provide alternate approach and rationale.

***Response:*** *Not applicable.*

**Question 3**: Are there any other considerations to be included as part of this paper – please list the same.

***Response:***

- *The proposed approach suggests provision of cash flows as supplementary information to be provided in 'monthly' frequency as default. The task force would like to suggest giving an option to companies to provide cash flows in appropriate frequency (monthly/quarterly/semi-annual/annual etc.) based on their underlying cash flow models.*
- *Since cash flows are currently also used to determine Liability Risk Capital Charge, Interest Rate Risk Capital charge etc. clarification on the same is requested within respective topic papers.*

### *Amendment to proposed solution by RBC task-force*

The current RBC template allows annual projections of the liability cashflows to be input. However, most actuarial models project the cashflows on a monthly basis. Therefore, the present value of cashflows are potentially understated due to yearly cashflows being used in the template.

***Task-force therefore endorses proposed solution discussed for this area of improvement, with clarification that "monthly" frequency may not be a default position, and companies are provided option to provide cashflows in appropriate frequency based on underlying cashflow models.***

Further clarification is sought on template formats to accommodate this change, while keeping in mind the proposed amendments to other aspects of RBC Rules.

# Section 13: RBC framework on assessing premium deficiency within premium liability

### *Current treatment*

As per paragraph 39 of RBC Rules, 2015, a general insurer shall calculate premium liability as higher of unearned premium reserve vs sum of unexpired risk reserve and risk margin on unexpired risk reserve – these calculations are to be performed for each sub-class of general insurance business.

Premiums Liability (PL) = Max { UPR, [ BE (URR) + RM (URR) ] }

As per paragraph 45 and underlying table 5 of RBC Rules, 2015, sub-classes of general insurance business have been defined as below:

| Sub-classes in general insurance business |
|---|
| ***High volatility*** |
| Liability insurance |
| Aviation and marine hull |
| Other liability (except motor) |
| ***Medium volatility*** |
| Cargo |
| Engineering |
| Motor Liability |
| Workers' compensation |
| ***Low volatility*** |
| Fire |
| Motor damage or loss |
| Personal accident |
| Health |
| Other (non-annuity) |

As per section 58 of the RBC Rules, premium liability risk charge is estimated by multiplying the URR determined at a 75% confidence interval, by the corresponding premiums liability risk factor.

Current RBC regime doesn't provide the insurer any benefit of holding a higher liability (to the extent of difference in UPR and URR determined at a 75% confidence interval) in TAC or RCR.

### *Possible alternatives*

**Option 1:** Assess premium deficiency reserve (i.e. cases where URR is held instead of UPR, hence implying premium deficiency) within premiums liability at a more aggregated level such as portfolio level/fund level or company level.

**Option 2:** No change in the level of granularity at which assessment of premiums liability is undertaken, instead cushion provided to reduce premiums liability risk charge – to the extent of excess of UPR held over URR. Hence, assessment of premiums liability risk charge (at a sub-class level) as follows:

Max [ 0, (URR X Risk charge) – (Premium liability – Value of URR) ]; where URR is determined at a 75% confidence interval and hence set as sum of BE URR and RM.

**Option 3:** No change in current practice

***Principle laid out by ICS:***

ICS principles don't specify granularity at which premium liability should be calculated; neither does it detail if above credit shall be provided in premium liability risk charges. ICP 14 lays out below principles to determine technical provisions:

ICP 14.7.2: The cash flows associated with fulfilling an insurer's insurance obligations include the premiums receivable, the claims payable under the insurance policies, any other policy cash flows (e.g. future distributions under participating contracts) and the future expenses of administering the policies.

ICP 14.8.1: The Margin Over Current Estimate (MOCE) is an estimated measure of the uncertainty inherent in the cash flows associated with fulfilling an insurer's insurance obligations. To achieve a consistent, reliable and decision-useful valuation, the MOCE should reflect all of the inherent uncertainty attached to the policy obligations over the full period of those obligations including the variability of all relevant future cash flows to the extent to which this uncertainty is borne by the insurer and not the policyholder.

ICP 14.8.2: Different methods may be used to measure this uncertainty. In choosing a methodology, due consideration should be given to the uncertainty being measured. For some cases, observable market prices may be available. Other methods include quantile, conditional tail expectation, cost of capital and explicit assumption. The results from different methods will not be identical and calibration and consistency checks should be applied so that methodological differences are reduced to an acceptable level. Once established, the methodology should not be changed from one valuation to the next unless there is a reasonable rationale for change.

ICP 14.8.3: Only uncertainty inherent to the policy obligations should be reflected in the MOCE. Other risks should be reflected in regulatory capital requirements. Where risks are reflected in both the MOCE and regulatory capital requirements to provide an overall level of safety, double counting should be avoided as far as practical.

ICP 14.8.4: In some jurisdictions it may be considered appropriate, due to inherent uncertainty in policy obligations and profit, that no component of premium related to such considerations should be recognised in profit at Public the inception of a contract. In those jurisdictions, the inherent uncertainty is effectively represented by the difference between premium received and the current estimate. Other jurisdictions may take the view that one of the other methodologies provides a decision-useful

estimate of the level of uncertainty in determining the MOCE and may allow potential gain to be recognised at inception of a contract.

ICP 14.8.6: In determining the appropriate methodology for the MOCE, the supervisor should consider the extent to which possible methodologies promote transparency and comparability between insurers and insurance markets.

ICP 14.8.7: An appropriate method for the determination of the MOCE would be expected to exhibit the following characteristics:

a. insurance obligations with similar risk profiles have similar MOCEs;

b. the less that is known about the cash flows; the higher the MOCE;

c. for the same level of probability, risks with higher impact result in higher MOCEs than those with lower impact;

d. risks with low frequency and high severity will generally have higher MOCEs than risks with high frequency and low severity;

e. for risks of the same or a similar nature, contracts that persist over a longer timeframe will have higher MOCEs than those of shorter duration;

f. risks with a wide probability distribution have higher MOCEs than those risks with a narrower distribution; and

g. to the extent that emerging experience reduces uncertainty, MOCEs should decrease, and vice versa.

In ICS technical specifications[1], premium liability is estimated as UPR if combined ratio is less than 1. It is silent on the granularity at which such assessment shall be done. It also suggests that alternatively, premium liability can be calculated as:

PL = (Combined Ratio – Acquisition expense ratio)* UPR + (Combined ratio – 1)* Present value of future premiums arising from within contract boundaries

Premium risk charge is calculated at ICS segment as relevant risk factor (defined by segment and region) multiplied with higher of :

- Net earned premium earned in the last financial year prior to valuation date
- Net premium expected to be earned in the next financial year from valuation date
- Net written premium for the last financial year (only to be used if net earned premium is not available)

***Treatment in other countries:***

In India[2], as per IRDAI (Actuarial, Finance and Investment Functions of Insurers) Reg 2024 – premiums deficiency reserve (calculated as excess of sum of expected claim costs, expenses and

[1] https://www.iais.org/uploads/2024/06/2024-ICS-data-collection-Technical-Specifications.pdf
[2] https://irdai.gov.in/web/guest/document-detail?documentId=4589093

maintenance costs over related unearned premium reserve) is maintained at insurer level. Though PDR is maintained at an insurer level, PDR on segmental basis would be monitored for assessing the sustainability of products and maintaining at lines of business level. Hence, IRDAI submissions include assessment of PDR on segmental basis as well and demand necessary action in the event that sustainability of profits within a line of business are threatened.

In Singapore[1], premium liability (calculated as higher of URR and UPR) is assessed at a fund level i.e. Singapore Insurance Fund and Offshore Insurance Fund – any premium deficiency arising at a fund level is then split into each line of business in a manner that the resulting premium liability for a line of business is lower than its corresponding URR.

Additionally, for each volatility category (high, medium and low) premium liability risk charge is defined as product of premium liability risk charge factor and URR less premium liability OR zero, whichever is higher. Hence, for each volatility category, if UPR is held as premium liability, premium liability risk charge can be reduced to the extent of difference in UPR and URR.

In Malaysia[2], premium liability (calculated as higher of URR and UPR) is assessed at a fund level any premium deficiency arising at a fund level is then split into each life of business in a manner that the resulting premium liability for a line of business is lower than its corresponding URR. For general insurance business, fund level is same as company level.

Additionally, if an insurer holds UPR as value of premiums liability, the below formula is used to calculate premium liability risk charge for each class of general insurance business:

Max [ 0, (Value of URR X Risk charge) – (Premium liability – Value of URR) ]; where URR is computed at the 75% level of confidence for each class of business after allowing for diversification

Risk classes are defined as: Aviation, Bonds, Cargo, Contractor's All Risks & Engineering, Fire, Liabilities, Marine Hull, Medical and Health, Motor "Act", Motor "Others", Offshore Oil and Gas related, Personal accident, Workmen's Compensation & Employer's Liability and Others.

As per proposed RBC2 Rules in Malaysia[3] (which are yet to formally be implemented), premium liability assessment remains unchanged to current RBC Rules. Premium liability risk charge is calculated for each class of general insurance business as factor of premium risk multiplied by higher of :

- Net earned premium earned in the last financial year prior to valuation date
- Net premium expected to be earned in the next financial year from valuation date, as per company's business plan

Further, in Tier I capital, positive adjustment is allowed to the extent of 75% of the amount of net UPR less net URR (including PRAD), calculated at a company level, floored to 0.

[1] https://www.mas.gov.sg/-/media/mas/regulations-and-financial-stability/regulations-guidance-and-licensing/insurance/regulations-guidance-and-licensing/notices/notices-to-all-insurers/mas-129_clean_15032021.pdf
[2] https://www.bnm.gov.my/documents/20124/948107/RBC+policy+document.pdf/9a7c4529-481e-aa3e-edae-41291e341b5f?t=1594083008094
[3] https://www.bnm.gov.my/documents/20124/948107/ed_rbc_for_Insurers_and_TOs_june2024.pdf

In Hong Kong[1], premium liability is calculated based on UPR. Additionally, calculation of premium liability risk charge is calculated at line of business level as higher of below figures, multiplied by risk charge factor.

a. Insurer's net earned premium for the general insurance line of business for the period commencing 12 months immediately preceding the valuation date and ending on the valuation date

b. Insurer's estimated net earned premium for the same line of business during the period commencing on the date immediately after the valuation date and ending 12 months after that date,

Hence, no credit is allowed for holding an excess of URR vs UPR. However, the idea of the above assessment is to ensure that the capital maintained for next 12 months by the time any solvency issue is figured out.

In solvency II standard formula[2], approach similar to Hong Kong is adopted.

***Additional considerations from context of Sri Lankan market:***

Sri Lankan general insurance market is still developing – in the context of having suitably qualified and experienced actuarial resources to manage liabilities of the insurer. The actuarial team is typically small in general insurers in Sri Lanka with high reliance on actuarial expertise provided by external appointed actuaries appointed by the insurers. Further, data systems are still developing in Sri Lanka to provide more granular data at a line of business level – typically insurers group multiple lines of business while assessing liability (and underlying assumptions). Data systems used to generate data used in assumption analysis underlying liabilities have limited credibility in current Sri Lankan market.

***Other considerations:***

In Malaysia, the liability risk charges underlying premium liability are also higher than those in Sri Lanka, despite being a relatively more developed market; implying relatively greater strength/prudence in the risk charges (and if compared to Sri Lanka, this offsets some of the credit received by reducing liability risk charge by the difference of UPR and URR).

## *Proposed approach discussed with RBC task force*

No change in current treatment with respect to calculation of premium liabilities. However, credit to the extent of upto 50% (noting global practices whilst being limited by considerations of Sri Lankan market) of difference in premium and URR can be provided in the estimation of premium liability risk charge – at a line of business level. Hence, below formula can be used to estimate premium liability risk charge:

Max [ 0, (URR X Risk charge) – 50%*(Premium liability – Value of URR) ] ; where URR is determined at a 75% confidence interval and hence set as sum of BE URR and RM.

Comparison of risk charges and risk margins in Sri Lanka vs other countries where credit for UPR vs URR is allowed in liability risk charge estimates shall also be undertaken to avoid extra credit being provided by the above proposed approach.

As part of the QIS, alternate approach can also be assessed as follows: No change in calculation of premium liability. Premium liability risk charge to be calculated consistent to as prescribed by ICS i.e. on higher of net earned premium in last 12 months from valuation date or net expected earned

[1] https://www.elegislation.gov.hk/hk/cap41R?SEARCH_WITHIN_CAP_TXT=premium%20liabilit&xpid=ID_1717557936459_728
[2] https://www.3blocks.co/wp-content/uploads/2020/10/SII_Delegated_Acts1.pdf

premium for the next 12 months from valuation date as per business plan of the Company. Additionally, as part of TAC, credit to the extent of 50% of difference in UPR and URR shall be provided as a positive adjustment.

### *Consultation questions addressed by RBC Task Force via internal consultation and industry feedback*

In response to the questions posed to the task force;

**Question 1:** Does the committee agree to the proposed approach, including the alternative provided to be evaluated as part of QIS?

***Response:*** *The industry has noted the following: No. the taskforce does not agree with the current proposed approach, however, we would like to discuss and provide comments on the alternative approaches, post QIS analysis.*

**Question 2:** If response to Q1 is no, please provide alternate approach and rationale (considering maintenance of sufficient liability and capital strength under alternate proposed approach).

***Response:*** *The industry has noted the following:*

a. *Taskforce requests that credit be provided in premium liability by setting higher of UPR vs URR at Company level (against current approach of LoB level).*

b. *Also, we request full credit of difference in UPR and URR shall be provided instead of only proposed 50%, with suitable strengthening of URR calculation methodology and approach.*

**Question 3:** Should any other country be evaluated in addition to the countries evaluated above? If yes, please share name of country and approach to determine premium liability premium liability risk charge.

***Response:*** *The industry has noted the following: No, the countries considered seem appropriate*

**Question 4:** Should any other areas be considered with respect to the above identified gap in RBC Rules?

***Response:*** *The industry has noted the following: Please refer to the response given below for Question 5*

**Question 5:** Are there any other considerations to be evaluated while assessing the proposed reduction in premium liability risk charge? If yes, kindly list the same.

***Response:*** *The industry has noted the following:*

a. *Capital relief to be received to both aspects where, Premium liability (calculated as higher of URR and UPR) to be assessed at a fund level (i.e. same as company level.). Additionally, if an insurer holds UPR as value of premiums liability at given LoB level, a cushion provided to reduce premiums liability risk charge to the extent of excess of UPR held over URR. This proposal is in line with regional RBC regimes such as Malayasia and Singapore (this was mentioned in the IRCSL paper on this topic) therefore since Sri Lankan RBC regime has been enforced for 10 years, we do not see any reason(s) as not to provide capital cushion as mentioned above.*

b. *Premium deficiency reserves (URR) are calculated and certified by the respective Appointed Actuaries for LoBs of each GI company at every year-end valuation. Therefore sufficient and necessary attention should have been made with appropriate granularly in assessing loss ratios (expected/ultimate) along expected vs actual analysis.*

c. *The comment that Sri Lanka's general insurance market lacks actuarial expertise, and granular data should not be a justification for solvency rule changes.*

   i. *Solvency regulations should prioritize financial stability, risk exposure, and policyholder protection rather than being influenced by the availability of skilled professionals or data quality.*

   ii. *If resource constraints affect liability calculations, they could be addressed through separate regulatory measures, such as actuarial capacity-building programs. Moreover, all GI companies engage reputed actuarial consultants, and some companies have in-house actuarial teams apart from consultant actuaries.*

   iii. *Improvements in data quality should be pursued through targeted recommendations and other measures, rather than through adjustments to solvency calculations. Even if granular data is available companies could be grouping them for statistical credibility.*

d. *While the proposal suggests Quantitative Impact Studies (QIS), it would be good if a preliminary impact analysis on industry solvency levels is done.*

e. *It is unclear whether the 50% credit is optimal or if a different percentage would better reflect risk exposure. Could we get further quantitative validation and a stronger justification for the 50% credit approach as we expect full credit. (The proposed 50% credit, instead of full credit, seems to be for regulatory prudence while it could be considered with the industry's need for capital relief.)*

f. *The proposal acknowledges that Sri Lanka's premium liability risk charges are lower than Malaysia's, but it does not include a direct numerical comparison.*

   i. *Underlying risk exposures can be different among different jurisdictions (such as flood, catastrophe etc.) and hence the capital intensity levels may not be directly comparable. Therefore, we believe adequate risk calibration was done when RBC was introduced in 2015. Hence risk calibration at higher confidence limit (such as 99.5% for capital charges) given the exposure and volatility can be different unless otherwise current level adequacy is proven insufficient over the last 10 years. This can be only achieved via a risk calibration exercise.*

   ii. *However, other risk charges such as equity risk and property risks seem to be higher in Sri Lanka than in Malaysia. This means Sri Lanka's overall risk calibration may not be necessarily weaker than Malaysia's, even if premium liability risk charges are lower.*

   iii. *Malaysia's slower claims settlement process results in higher premium liability risk charges to reflect the longer duration of risk exposure.*

   iv. *Given that Sri Lanka has a faster claims settlement process (especially compared to Malaysia, Singapore), then naturally, its premium liability risk charges should be lower.*

g. *The proposal should explicitly consider the impact of claims settlement speed on liability risk charges and provide data-driven justification for any changes*

### *Amendment to proposed solution by RBC task-force*

The current approach is to calculate premium liability as higher of unearned premium reserve vs sum of unexpired risk reserve and risk margin on unexpired risk reserve sub-class level. No credit of this is allowed in the calculation of liability risk capital charges.

Task-force is not aligned to proposed solution for this area of improvement, and requests:

- Credit to be provided in premium liability by setting higher of UPR vs URR at company level (against current approach of sub-fund level) as premium liability.

- Full credit of difference in UPR and URR shall be provided when setting up premium liability risk charge, with suitable strengthening of URR calculation methodology and approach so that adequate URR is setup by companies.

# Section 14: Introduction of catastrophe risk charge for general insurance business

## *Current treatment*

There is no capital requirement for catastrophe risk within RCR for general insurance business.

The purpose of making changes in RBC Rules is to holistically account for all risks applicable to insurance companies, encourage proactive risk management by shareholders (driven via lower risk capital for better risk management), align the regulations with ICS principles and technical specifications, and ensuring consistency with accounting basis/distribution basis while protecting policyholder interests.

## *Possible alternative*

As per principle 17.7 of ICP[1], risk-based capital approach should address and allow for all relevant and material risks in valuations and / or regulatory capital requirement. However, the current risk-based capital rules don't allow for catastrophe risk. In order to accommodate all relevant risks, it has been proposed to introduce catastrophe risk for general insurance business. Catastrophe risk intends to capture risk of loss due to low frequency and high impact events i.e. natural and man-made catastrophe such as pandemic, tsunami, terrorism etc. that often results in multiple claims originating from a single source. This change potentially allows for more holistic calculation of capital pertaining to risks faced by general insurance companies.

***Determining Catastrophe risk charge:***

**Option 1:** Calibrating the catastrophe stress factor for general insurance business based on the catastrophe risk modelling. This will be based on using relevant data available from internal analysis undertaken by companies while purchasing catastrophe reinsurance, as well as sharing details of their reinsurance treaties including layers purchased, associated premium rates, number of free / paid reinstatements etc. Option 2: Gather industry data on catastrophe events which have historically occurred in Sri Lanka – such as floods. Data will include total exposure in each calendar year, total claims incurred under the catastrophe event, description of the event which occurred (e.g.: floods, terrorism etc.). This data can be used for a high-level assessment of catastrophe risk charge.

**Option 3:** In the event that no data is available at all, determine catastrophe stress quantum based on benchmarking with calibrations and resulting stress factors defined within ICS and other countries where RBC (or equivalent risk-based capital regime).

***Calculation approach in ICS:***

As per IAIS, catastrophe risk is calculated at a peril/risk level – including natural and man-made perils; ICS principles allow insurers to calculate impact on relevant lines of businesses impacted under each peril. Insurers need to assess materiality of impact of catastrophe events based on their contractual exposure to the perils listed below; if deemed immaterial then no detailed calculations are required for such perils. In such assessment, impact of primary and associated secondary perils shall be considered. Catastrophe risk capital is to be calculated on gross and net of risk mitigation tools e.g.: catastrophe

[1] https://www.iais.org/uploads/2025/01/IAIS-ICPs-and-ComFrame-adopted-in-December-2024.pdf

reinsurance treaties in place. The extent to which reinsurance credit is availed shall be subject to credit risk charge based on reinsurer ratings (and risk charges applicable to maturities of 1-2 years).

List of perils to be evaluated are:

| Natural perils | Man-made perils |
|---|---|
| Tropical cyclone, hurricane, typhoon | Terrorism |
| Extra-tropical windstorm/winter storm | Pandemic |
| Earthquake | Credit and Surety |
| Other perils like flood, tornado, hail, convective storms and other risks (if applicable) | |

***Natural perils:*** Insurers can use catastrophe models to calculate loss amounts resulting from natural catastrophe event – such models can be vendor or proprietary models. Natural catastrophe risk charge is the difference between the 99.5$^{th}$ percentile and the mean of the total annual aggregate losses, net of catastrophe reinsurance benefit. The annual aggregate losses are calculated as the aggregation of losses across all regions and perils. Loss should be calculated based on:

a. Impact of natural catastrophe across all affected lines of business
b. Allowance for non-modelled exposures including expected new business over the target time horizon of one year
c. Allowance for non-modelled perils and regions reported as part of the other natural catastrophe losses

***Man-made perils – Terrorism:*** Risk charge is calculated as total loss of property; including building, motor or any other property or insurance contracts arising from loss of property. This is assessed via scenario testing of five-tonne bomb blast for the largest geographical risk concentration partly or fully located within a radius of 500 metres. 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.

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.

***Man-made perils – Pandemic:*** This is applicable on mortality risk only, wherein a shock of 1 death per 1000 lives is assumed.

***Man-made perils – Mortgage insurance:*** Risk capital is determined as aggregate loss amount resulting from an increase in frequency and severity due to 25% decline in home prices, assumed to persist for 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.

***Man-made perils – Trade credit:*** The trade credit coverage indemnifies the policyholder for bad debt losses incurred due to a customer's inability to pay. Risk capital amount for this risk is based on total loss due to policyholder's inability to pay, indicated by both an increase in both the probability of default

and the loss given default. This is calculated based on aggregate net earned premium for trade credit, split by external credit rating category: investment grade vs. non-investment grade. Credit stress factor of 80% is applied on investment grade and 200% is applied on non-investment grade. If an insurer is not able to is not able to apply the above factors due to internal data limitations, it should apply a stress loss ratio equal to the worst experience that occurred between 2008 and 2010 to the net earned premium for trade credit.

***Man-made perils – Surety:*** A surety bond indemnifies the policyholder from the principal's inability to perform its contractual obligation. The risk capital is defined as total net potential loss amount based on the penal sum of the surety bond. Net potential loss amount for a principal is calculated using the gross exposure of the principal. Loss severity model 95% probable maximum loss (PML) factor is applied to the gross exposure. The loss amount is then adjusted for any co-surety arrangements, acceptable cash collateral and any reinsurance arrangements. Such calculations are performed on largest net potential losses for its ten largest exposures to surety counterparties, with the capital amount based on amount of two largest net losses.

All catastrophe scenarios are aggregated as follows:

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

Since IAIS allows insurers to use internal models for calculation of catastrophe risk capital, several safeguards on appropriateness of these stochastic models have been prescribed as well. Details of such safeguards are present in 7.2.4.7 of technical specifications.

***Calculation approach in other regions:***

In Malaysia, for flood peril for business within Malaysia, either of below methods can be used to determine catastrophe risk charge:

a. Insurer can use its catastrophe model, by taking the difference between the 99.5$^{th}$ percentile and the mean of the total annual net losses derived from the catastrophe model.

b. Apply factor of 0.05% with the sum insured/covered for classes of business that are exposed to flood peril.

For other perils, catastrophe risk charge is calculated by applying below factors to maximum amount of gross loss covered by a licensed person over a one-year period (net of reinsurances).

| Peril | Factor |
|---|---|
| Earthquake | 5% |
| Windstorm | 2% |
| Other perils (including flood peril in relation to business outside Malaysia) | 1% |

The catastrophe model shall meet several safeguards such as intensive model validations, statistical quality tests, proper documentation, use testing, internal controls and governance etc. If the regulator is not happy with the controls shared on the catastrophe model used for flood peril for a 3-year monitoring period, capital shall be determined using the prescribed factor.

In HongKong, catastrophe risk capital is determined separately for natural catastrophe, man-made non-symmetric catastrophe, and man-made symmetric catastrophe; and aggregated using below correlation matrix

| | Natural catastrophe | Man-made non-systemic catastrophe | Man-made systemic catastrophe |
|---|---|---|---|
| **Natural catastrophe** | 100% | 0% | 0% |
| **Man-made non-systemic catastrophe** | 0% | 100% | 0% |
| **Man-made systemic catastrophe** | 0% | 0% | 100% |

Natural catastrophe: Insurer can use its own assessment/own catastrophe model post approval from MAS. In the event that insurer doesn't have its own model or such model is rejected by MAS, insurers should calculate net loss from windstorm and net loss from earthquake to determine capital requirement under natural catastrophe event; aggregating this as square root of sum of square of net loss from windstorm and from earthquake. The exposure under each of these losses shall be determined based on gross aggregated limit of coverage under each contract of insurance under which the insurer is providing coverage for losses incurred for property related damage in the region at any time within the 12 months immediately after the valuation date. In the case of a contract of insurance which is a proportional treaty without an event limit, a gross 1-in-200 year annual aggregate loss for the 12 months immediately after the valuation date. Credit of reinsurance can be taken in above calculation, however associated counterparty risk shall be evaluated as well. Risk factors to be multiplied to above calculated risk-exposures are summarised below for windstorm and for earthquake, for each region:

| Type / Region | Direct and facultative business | | Proportional treaty business with event limit | | Proportional treaty business w/o event limit | | Non-proportional treaty business | |
|---|---|---|---|---|---|---|---|---|
| | **Windstorm** | **Earthquake** | **Windstorm** | **Earthquake** | **Windstorm** | **Earthquake** | **Windstorm** | **Earthquake** |
| **Hong Kong** | 0.2% | NA | 35% | NA | 100% | NA | 50% | NA |
| **Macau** | 0.6% | NA | 35% | NA | 100% | NA | 80% | NA |
| **Mainland China** | 0.3% | 0.4% | 35% | 65% | 100% | 100% | 80% | 80% |
| **Taiwan** | 1.0% | 3.5% | 80% | 80% | 100% | 100% | 80% | 80% |
| **Japan** | 1.0% | 9.0% | 45% | 40% | 100% | 100% | 80% | 80% |
| **South Korea** | 0.3% | NA | 30% | NA | 100% | NA | 80% | NA |
| **Indonesia** | NA | 2.0% | NA | 80% | NA | 100% | NA | 80% |
| **Other regions** | 2% | 5.0% | 80% | 80% | 100% | 100% | 80% | 80% |

*The capital calculated for each region is aggregated separately for earthquake and windstorm risks based on correlation matrix to diversify across regions*

Man-made non-symmetric risk: Such assessment is only undertaken by an insurer who isn't a professional reinsurer, by aggregating below risks (as square root of sum of squares of each risks' capital requirement)

a. explosion and conflagration of property and engineering – gross loss amount for a unit of exposure, being a block of buildings, for which the insurer is providing coverage for loss arising from explosion and conflagration of property and engineering under one or more contracts of insurance, which results in largest risk capital amount. Gross loss is determined as maximum

foreseeable loss the applicable insurer would incur under contracts of insurance providing coverage for a loss at the block of buildings that is the unit of exposure at the point in time during the 12 months immediately after the valuation date, multiplied by damage ratio of 100%

b. loss of marine vessel – gross loss amount for largest risk capital amount for a unit of exposure, being a marine vessel, for which the insurer is providing coverage for loss of marine vessel under one or more contracts of insurance. Gross loss is determined as the total of the agreed values relating to the hull and machinery coverage for the vessel that is the unit of exposure and the liability limit relating to the protection and indemnity coverage for that vessel during the 12 months immediately after the valuation date, multiplied by damage ratio of 100%.

c. loss of aircraft – gross loss amount for largest risk capital amount for a unit of exposure, being an aircraft, for which the insurer is providing coverage for loss of aircraft under one or more contracts of insurance. Gross loss is determined as the total sum insured for the hull and liability coverage for the aircraft that is the unit of exposure during the 12 months immediately after the valuation date, multiplied by damage ratio of 100%

d. default of large principal – gross loss amount for largest 2 risk capital amount for each unit of exposure, being a principal or group of principals within the same group of companies, for which the insurer is providing coverage for default of the principal or principals in the group. Gross loss is determined as gross of the penal sums under the contracts of insurance for which the applicable insurer is providing coverage in respect of each principal or group of principals within the same group of companies, as the case may be, that is the unit of exposure, during the 12 months immediately after the valuation date, net of collaterals; multiplied by probable loss factor of 30%.

In calculation of above risk capitals, reinsurance credit can be taken, however the same shall be subject to counterparty default risk capital as well.

Man-made non-symmetric risk: Capital is based on gross loss under its contracts of insurance providing coverage for trade credit. Gross loss is defined as sum of 100% of the expected gross earned premium during the 12 months immediately after the valuation date, floored at zero, for each of direct and proportional trade credit business and 250% of the expected gross earned premium during the 12 months immediately after the valuation date in respect of non-proportional trade credit business, floored at zero.

In calculation of above risk capitals, reinsurance credit can be taken, however the same shall be subject to counterparty default risk capital as well

Under Solvency II, risks are classified into natural perils and man-made perils. Man-made perils are analysed similar to approach mentioned for Hong-Kong and Singapore. Natural perils analysed are listed below:

a. windstorm risk
b. earthquake risk
c. flood risk
d. hail risk

For each of above risks, factors are specified for different regions within European Union, aggregated by prescribed correlation matrix. Scenarios have been defined to determine losses under each risk on which these factors are applied.

***Additional considerations: Approach to include catastrophe risk within RCR***

| ICS | Malaysia | Singapore | Hong Kong |
|---|---|---|---|
| Entity-level diversified risk capital | Entity-level diversified risk capital | Diversification between premium and reserve risk vs catastrophe risk | Diversification between premium and reserve risk vs catastrophe risk |

If catastrophe risk factor is estimated bearing reference to global frameworks like ICS, the integration of corresponding risk capital should be consistent as well. Hence, catastrophe risk can be integrated within entity-level diversified risk capital (similar treatment as market risk, operational risk). Integrating catastrophe risk within total diversified risk capital also allows for diversification of associated risk capital as well.

### *Proposed solution discussed with RBC task force*

In order to calibrate catastrophe risk for general insurance industry in Sri Lanka, insurers shall be requested to provide information pertaining to:

a. Internal loss assessments and analysis undertaken while purchasing catastrophe reinsurance arrangements.

b. Any internal catastrophe risk assessments undertaken for own risk assessments

c. Details on their reinsurance arrangements for last 3-years i.e. protection layers purchased, premium rates, no of free / paid reinstatements etc.

d. data on catastrophe events which have historically occurred in Sri Lanka – such as floods. Data will include total exposure in each calendar year, total claims incurred under the catastrophe event, description of the event which occurred (e.g.: floods, terrorism etc.).

e. Exposure (sum insured) for insurers by geographical regions.

In the absence of above information, risk charges as charged in other jurisdictions can be used as reference point, however adjusting for perils specific in Sri Lanka or looking at geographical exposure of general insurers.

### *Consultation questions addressed by RBC Task Force via internal consultation and industry feedback*

In response to the questions posed to the task force;

**Question 1**: Does committee agree with inclusion of catastrophe risk in the calculation of RCR for general insurance companies?

***Response:*** *Yes, based on the principle that all the relevant and material risks should be factored in the capital framework. However, since this is a new addition to the calculation framework, the taskforce is in that this should be implemented with due care and not necessarily in the form suggested in the proposal.*

*The industry has noted the following:*

*a. Relevance of the particular type of event to the Sri Lankan market:*

*ICS identifies specifics type of risks in its framework under catastrophe risks charge and some of them might not be relevant in Sri Lankan context in terms of both existence and materiality*

***Natural Catastrophe:*** *The most relevant catastrophe event for Sri Lanka would be river flooding. Given Sri Lanka's geographic characteristics—such as tectonic stability, its insular nature, and a generally moderate climate—its exposure to a wide range of natural catastrophes is relatively low. Historical records also indicate that significant disaster events, apart from river flooding, have been infrequent and limited in impact. Even flood events tend to be localized rather than affecting the entire country.*

*In light of this, the task force considers it appropriate that not all catastrophe risks be individually accounted for within the calculation framework. Instead, these risks may be more effectively represented through broader, high-level risk categories.*

***Man-Made Catastrophe:***

***Pandemic Risk:*** *In general, pandemic risk is not directly relevant to non-life insurance business, given the nature of the products offered. The Insurance Capital Standard (ICS) emphasizes stress on mortality risk, which typically falls under life insurance rather than non-life coverage. While accidental death may be covered under certain non-life policies, such instances have minimal correlation with pandemic-related events and are therefore not considered materially significant in this context.*

***Terrorism Risk:*** *Terrorism risk is, to a large extent, reinsured through the national reinsurer, the National Insurance Trust Fund (NITF). However, to ensure consistency and recognizing the possibility that insurers may underwrite terrorism risks exceeding the coverage limits provided by the NITF pool, it is appropriate to identify terrorism as a distinct risk category.*

*b. Duplication of Capital Charges:*

*Catastrophic risk charges are typically determined based on a company's exposure to specific events. As such, there is potential for overlap with premium liability risk charges if not explicitly accounted for. Therefore, the task force is of the view that premium liability risk charges should be appropriately calibrated to eliminate any duplication of capital charges.*

*c. Availability of Data and System Limitations:*

*A key concern currently faced by the industry is the lack of adequate data and system capabilities required for effective implementation. This issue is twofold:*

*i. Historical Data for Risk Charge Calibration:*

*The industry presently may lack sufficient historical data—both in terms of quality and volume—necessary for the robust calibration of risk charges.*

*ii. System Capabilities to Recognize Exposure by Peril:*

*It is important to acknowledge that some companies may not yet have the system infrastructure required to segregate exposures at the level of granularity demanded by the proposed framework. Should implementation proceed, it is essential that adequate time*

*be granted for insurers to address these limitations and enhance their data and system capabilities accordingly.*

d. *Capping, Recoverable and counterparty risk*

*As catastrophe risks are typically mitigated through reinsurance arrangements, their impact on the capital framework should be assessed on a net-of-reinsurance basis. This implies that reinsurance recoverable and applicable capping at retention levels, particularly under excess of loss treaties, must be appropriately reflected. In addition, the associated counterparty default risk should also be duly considered in the overall assessment.*

**Question 2:** Does committee agree with proposed solution, with respect to using industry data for high-level catastrophe risk estimates?

***Response:*** *The industry has noted the following: The task force supports a slightly modified version of Option 3, as both Option 1 and Option 2 are deemed unsuitable in the current context.*

*Option 1: While most companies may possess information related to the calculation of their reinsurance treaties, these results may lack the consistency required for a reliable, industry-wide analysis. As such, this approach may not be appropriate.*

*Option 2: Although this represents the ideal approach, as outlined in Section I, the absence of sufficient historical data limits the ability to accurately assess the true impact of these perils, thereby undermining the feasibility of this option at present.*

**Question 3:** If response to question 2 is no, please provide alternatives for measuring catastrophe stress for GI business, with rationale.

***Response:*** *The industry has noted the following: Please refer to Question 2.*

**Question 4:** Should any product category be excluded while applying catastrophe stress? If yes. please share product categories and rationale.

***Response:*** *The industry has noted the following: Yes. Some of the products needs to be excluded and this will be further discussed during the implementation stage.*

**Question 5:** Please provide your thoughts on the reasonableness of applying the catastrophe stress in the current actuarial models.

***Response:*** *The industry notes that the feasibility of incorporating catastrophe stress into current actuarial models largely depends on the final structure of the proposed framework. While more complex, model-based approaches may require significant time and effort for integration, a factor-based approach could be incorporated with relative ease and without major disruption to existing systems.*

### *Amendment to proposed solution by RBC task-force*

The IRCSL has proposed to introduce a Catastrophe Risk Charge for General Insurance business. The existing Risk Based Capital (RBC) framework does not have a Catastrophe Risk Charge; therefore, the proposal represents the introduction of a new capital charge. The purpose of introducing the new risk charge is to holistically account for all risks applicable to the insurance business written and to encourage companies to proactively manage the risk as well as to align with the International Capital Standards (ICS) principles and technical specifications.

Task-force is partly in agreement with proposed solution for this area of improvement, wherein:

1. For natural catastrophe, factor based approach is implemented, while giving suitable time to insurers to build sophisticated models to calculate catastrophe risk capital considering their reinsurance programs in place and giving credit to any exclusions imposed at the time of underwriting related to CAT risks.

2. Task-force endorses proposed solution discussed for man-made catastrophe, subject to points highlighted .

# Section 15: Re-assessment of risk margins and risk charges for general insurance business

## *Current treatment*

As per paragraph 45 (3) of RBC Rules, 2015, risk margins provided below are applicable to general insurance business to determine policy liability; applied at sub-class level. For premium liability, these are applied on URR and for claims liability, these are applied on total claims liability (calculated as per rule 40 and 41 of RBC Rules, 2015). These represent 75% confidence interval.

As per rule 58, risk charges below are applicable to premium and claims liability to determine premium risk charge and claims risk charge – both constituting liability risk. Premium liability risk charges are applicable to URR+RM, & claims liability risk charges are applicable to claims liability (including RM).

| Sub-classes in general insurance business | URR RM as % of BE | CL RM as % of BE | Premium liability risk factor | Claims liability risk factor |
|---|---|---|---|---|
| ***High volatility*** | | | | |
| Liability insurance | 19% | 16% | 36% | 30% |
| Aviation and marine hull | 19% | 16% | 36% | 30% |
| Other liability (except motor) | 19% | 16% | 36% | 30% |
| ***Medium volatility*** | | | | |
| Cargo | 14% | 12% | 30% | 25% |
| Engineering | 14% | 12% | 30% | 25% |
| Motor Liability | 14% | 12% | 30% | 25% |
| Workers' compensation | 14% | 12% | 30% | 25% |
| ***Low volatility*** | | | | |
| Fire | 10% | 8% | 24% | 20% |
| Motor damage or loss | 10% | 8% | 24% | 20% |
| Personal accident | 10% | 8% | 24% | 20% |
| Health | 10% | 8% | 24% | 20% |
| Other (non-annuity) | 10% | 8% | 24% | 20% |

Above risk charges were last calibrated during introduction of RBC Rules in 2015. Noting market developments, these can be re-evaluated.

## *Possible alternatives*

**Option 1:** Re-assess the risk charges and risk-margins applicable to premium and claims risks, by collecting relevant data from the general insurance industry and re-calibrate stresses.

**Option 2:** In absence of availability of sufficiently granular data from the industry, compare risk margins and risk charges against ICS prescribed margins and margins prescribed in other regions.

**Option 3:** No change in risk margins and risk charges

***Risk margins and risk charges specified by ICS:***

ICS Technical specifications suggest margin over current estimate (MOCE) is calculated as a given percentile of the normal distribution characterised by:

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

The 65th percentile is used for the non-life component of MOCE.

Risk charges applicable to premium and claims liability are classified by nature of business and region. Sri Lanka shall be present under ICS categorisation “Other emerging markets”. These represent 99.5% percentile.

| Business segment | ICS category | Premium risk factor | Claims risk factor |
|---|---|---|---|
| Motor | Motor-like | 35% | 25% |
| Property damage | Property-like | 35% | 30% |
| Accident, protection & health | 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% |

ICS also calculates diversification benefit at below levels:

2. 25% correlation factor is applied between the Premium and Claims Reserve risk charges for all segments.

   Mortgage and credit business is excluded to aggregate with property risk and credit risk respectively.

3. Below correlation matrix is applied across products within defined ICS categories

| ICS categories | Correlation factor between segments within the category |
|---|---|
| Liability-like | 50% |
| Motor-like | 75% |
| Property-like | 50% |
| Others | 25% |

4. Third aggregation is applied using 50% correlation factor between each of the 4 ICS categories.

5. If insurer operates in multiple regions, region specific correlation is also applied. This is not explained as its understood that its not applicable from Sri Lankan context.

Definition of ICS risk categories

| Category | Definition |
|---|---|
| Motor | This includes:<br>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. |
| Property Damage | This includes, but is not limited to:<br>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.<br>2. Fire and industrial: Loss or damage and loss of earnings due to damage to commercial buildings and other physical<br>infrastructure due to fire, windstorm and other perils.<br>3. Consequential losses: Products covering consequential losses (such as 'loss of profits' or 'business interruption') is also included<br>in this segment;<br>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. |
| Accident, protection and Health | This includes, but is not limited to:<br>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;<br>2 Other consumer accident: Property damage other than householders or motor vehicle. For example, travel insurance.<br>3. Other commercial accident: Commercial property insurance other<br>than Fire and Industrial risk and MAT, and other than commercial<br>long-term liability;<br>4 Consumer credit: Guarantee of repayments on consumer credit contracts due to involuntary loss of employment;<br>5. Consumer liability: Private individual's liability for personal injury<br>through personal actions or property |
| 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<br>has expired. |
| 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. |

| Category | Definition |
|---|---|
| Marine, Air, Transport | This includes:<br>1. All damage or loss of river, canal, lake and sea vessels, aircraft, goods in transit, liabilities from use of aircraft, ships and boats.;<br>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. |
| 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. |
| Public liability | Public liability insurance for bodily injury or damage to property. |
| Product liability | Product liability insurance for bodily injury or damage to property for claims attributed to the use of products. |
| 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 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.<br>All other liability classes not covered elsewhere. |
| 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). |
| 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. |
| 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. |
| 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 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. |

***Treatment in other countries:***

In Singapore[1], provision for adverse deviation (PAD), which is added to best-estimate liability (premium liability/claim liability), PAD is calculated from the expected experience, calculated based on 75% level of sufficiency.

Appendix 4A of MAS133 summarises the premium and claim liability risk charges used to determine general insurance C1 capital requirement (equivalent to insurance risk capital).

| Volatility category | Premium liability risk charge | Claim liability risk charge |
|---|---|---|
| Low | 124% | 120% |
| Medium | 130% | 125% |
| High | 136% | 130% |

**Note that resulting capital is reduced by premium/claim liability to determine the resulting risk charge, hence factor are greater than 100%*

Business categorization specified by Singapore is summarized below:

| Volatility category | LoB – Singapore insurance fund | LoB – Offshore insurance fund |
|---|---|---|
| Low | a) Personal Accident<br>b) Health<br>c) Property | |
| Medium | a) Cargo<br>b) Motor<br>c) Employers' Liability<br>d) Surety<br>e) Engineering<br>f) Credit/Credit-Related (excluding Mortgage)<br>g) Others — Non-liability class | a) Cargo<br>b) Property<br>c) Credit/Credit-Related (excluding Mortgage)<br>d) Engineering |
| High | a) Marine Hull<br>b) Aviation Hull<br>c) Professional Indemnity<br>d) Public Liability/Product Liability<br>e) Others – Liability class | a) Marine Hull<br>b) Aviation Hull<br>c) Motor<br>d) Liability and others (excluding political risk). |

No diversification benefit is applicable within general insurance business to determine C1 liability capital requirement.

In Malaysia[2], Actuary is allowed to use judgement to determine provision of risk margin for adverse deviation (PRAD), which is added to best-estimate liability (premium liability/claim liability). PRAD is determined to obtain 75% level of adequacy at a Company level. Actuary is also allowed to allow for diversification of risks from different lines of business, however such diversification should not exceed 50% of total PRAD.

New exposure draft of Malaysia (yet to be implemented) for RBC2 also allows for PRAD calculation as mentioned above.

[1] https://www.mas.gov.sg/-/media/mas/regulations-and-financial-stability/regulations-guidance-and-licensing/insurance/regulations-guidance-and-licensing/notices/notices-to-all-insurers/mas-129_clean_15032021.pdf
[2] https://www.bnm.gov.my/documents/20124/948107/RBC+policy+document.pdf/9a7c4529-481e-aa3e-edae-41291e341b5f?t=1594083008094

In order to estimate premium and claim liability risk charges, following factors are applicable to claims liability and URR(including PRAD), at a line of business level, as per existing Rules. For comparison, risk charges as prescribed in new exposure draft on RBC2 is also provided, where in the premium risk charge is applied on higher of net earned premium over last 12 months or expected net earned premiums over last 12 months.

| Line of business | Current RBC framework | | Proposed RBC2 | |
|---|---|---|---|---|
| | Claims risk charge | Premium risk charge | Claims risk charge | Premium risk charge |
| Aviation | 30% | 45% | 30% | 35% |
| Bonds | 20% | 30% | | |
| Cargo | 25% | 37.5% | 30% | 35% |
| Contractor's All Risks & Engineering | 25% | 37.5% | 30% | 37.5% |
| Fire | 20% | 30% | 27.5% | 32.5% |
| Liabilities | 30% | 45% | 30% | 37.5% |
| Marine Hull | 30% | 45% | 30% | 35% |
| Medical and Health | 25% | 37.5% | 22.5% | 27.5% |
| Motor "Act" | 25% | 37.5% | 30% | 37.5% |
| Motor "Others" | 20% | 30% | 25% | 30% |
| Offshore Oil and Gas related* | 20% | 30% | 30% | 35% |
| Personal accident | 20% | 30% | 27.5% | 32.5% |
| Workmen's Compensation & Employer's Liability | 25% | 37.5% | 30% | 37.5% |
| Others | 20% | 30% | 30% | 37.5% |

*Renamed to On-shore and off-shore oil related in exposure draft on RBC2

In the exposure draft on RBC2, correlation matrix has been introduced and is applied on as follows:

| Sub-risk i \ Sub-risk j | Claims | Premium/contribution |
|---|---|---|
| **Claims** | 1 | 0.25 |
| **Premium/contribution** | 0.25 | 1 |

In Hong Kong[1], margins over current estimates (MOCE) are determined over best-estimate liabilities, to obtain 75% level of adequacy at a Company level. Actuary is also allowed to allow for diversification of risks from different lines of business.

[1] https://www.elegislation.gov.hk/hk/cap41R?SEARCH_WITHIN_CAP_TXT=premium%20liabilit&xpid=ID_1717557936459_728

General insurance risk charge within required capital is assessed by applying the below factors to claims liabilities and premiums (premium risk charge is applied on higher of net earned premium over last 12 months or expected net earned premium for next 12 months).

| Line of business | Premium liability risk charge | Claim liability risk charge |
|---|---|---|
| ***Direct insurance*** | | |
| Accident and health | 10% | 25% |
| Motor | 20% | 30% |
| Aviation | 30% | 40% |
| Ships | 30% | 40% |
| Goods in transit | 30% | 40% |
| Property Damage | 20% | 35% |
| Employees' compensation – construction | 40% | 30% |
| Employees' compensation – non-construction | 30% | 25% |
| General liability – public liability | 20% | 30% |
| General liability – other liability | 35% | 40% |
| Pecuniary loss—credit and other | 25% | 55% |
| ***Proportional reinsurance*** | | |
| Accident and health | 10% | 25% |
| Motor | 20% | 30% |
| Aviation | 30% | 40% |
| Ships | 30% | 40% |
| Goods in transit | 30% | 40% |
| Property Damage | 30% | 30% |
| Employees' compensation | 30% | 30% |
| General liability | 30% | 40% |
| Pecuniary loss—credit and other | 25% | 55% |
| ***Non-Proportional reinsurance*** | | |
| Accident and health | 30% | 50% |
| Motor | 30% | 50% |
| Aviation | 30% | 50% |
| Ships | 30% | 50% |
| Goods in transit | 30% | 50% |
| Property Damage | 30% | 50% |
| Employees' compensation | 30% | 50% |
| General liability | 30% | 50% |
| Pecuniary loss—credit and other | 30% | 50% |

Companies are also allowed to apply below correlation matrix to determine general insurance capital – insurers can take correlation benefits across line of businesses, within premium and claims risk charge, across geographical regions.

*Correlation matrix to allow for diversification within premium and claims risks – to be applied for each line of business.*

| Sub-risk i \ Sub-risk j | Claims | Premium/contribution |
|---|---|---|
| **Claims** | 1 | 0.5 |
| **Premium/contribution** | 0.5 | 1 |

*Resulting risk capital shall be provided diversification benefit across geographical regions in a manner as specified in section 63 (3) of Hong Kong RBC rules.*

*Correlation matrix is also applied to allow for diversification within lines of business – to be applied on total risk capital for each line of business post diversification within premium/claims risks and post geographical diversification:*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1** | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 25 | 25 | 0 | 0 | 0 | 0 | 0 | 50 | 0 | 0 | 0 | 25 | 0 | 0 |
| **2** | 0 | 100 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 0 | 50 | 25 | 25 | 25 | 25 | 25 |
| **3** | 0 | 25 | 100 | 25 | 25 | 25 | 25 | 0 | 0 | 0 | 25 | 25 | 25 | 25 | 25 | 0 | 25 | 50 | 25 | 0 | 25 | 25 |
| **4** | 0 | 25 | 25 | 100 | 50 | 25 | 25 | 0 | 0 | 0 | 25 | 25 | 25 | 25 | 25 | 0 | 25 | 50 | 25 | 0 | 25 | 25 |
| **5** | 0 | 25 | 25 | 50 | 100 | 25 | 25 | 0 | 0 | 0 | 25 | 25 | 25 | 25 | 25 | 0 | 25 | 50 | 25 | 0 | 25 | 25 |
| **6** | 0 | 25 | 25 | 25 | 25 | 100 | 100 | 0 | 0 | 0 | 25 | 25 | 25 | 25 | 25 | 0 | 25 | 25 | 50 | 0 | 25 | 25 |
| **7** | 0 | 25 | 25 | 25 | 25 | 100 | 100 | 0 | 0 | 0 | 25 | 25 | 25 | 25 | 25 | 0 | 25 | 25 | 50 | 0 | 25 | 25 |
| **8** | 25 | 25 | 0 | 0 | 0 | 0 | 0 | 100 | 50 | 75 | 50 | 50 | 50 | 25 | 25 | 25 | 25 | 0 | 0 | 50 | 50 | 25 |
| **9** | 25 | 25 | 0 | 0 | 0 | 0 | 0 | 50 | 100 | 75 | 50 | 50 | 50 | 25 | 25 | 25 | 25 | 0 | 0 | 50 | 50 | 25 |
| **10** | 25 | 25 | 0 | 0 | 0 | 0 | 0 | 75 | 75 | 100 | 50 | 50 | 50 | 25 | 25 | 25 | 25 | 0 | 0 | 50 | 50 | 25 |
| **11** | 0 | 25 | 25 | 25 | 25 | 25 | 25 | 50 | 50 | 50 | 100 | 50 | 75 | 50 | 50 | 0 | 25 | 25 | 25 | 50 | 50 | 50 |
| **12** | 0 | 25 | 25 | 25 | 25 | 25 | 25 | 50 | 50 | 50 | 50 | 100 | 75 | 50 | 50 | 0 | 25 | 25 | 25 | 50 | 50 | 50 |
| **13** | 0 | 25 | 25 | 25 | 25 | 25 | 25 | 50 | 50 | 50 | 75 | 75 | 100 | 50 | 50 | 0 | 25 | 25 | 25 | 50 | 50 | 50 |
| **14** | 0 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 50 | 50 | 50 | 100 | 75 | 0 | 25 | 25 | 25 | 25 | 50 | 50 |
| **15** | 0 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 50 | 50 | 50 | 75 | 100 | 0 | 25 | 25 | 25 | 25 | 50 | 50 |
| **16** | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 25 | 25 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 25 | 0 | 0 |
| **17** | 0 | 50 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 0 | 100 | 25 | 25 | 25 | 25 | 25 |
| **18** | 0 | 25 | 50 | 50 | 50 | 25 | 25 | 0 | 0 | 0 | 25 | 25 | 25 | 25 | 25 | 0 | 25 | 100 | 25 | 0 | 25 | 25 |
| **19** | 0 | 25 | 25 | 25 | 25 | 50 | 50 | 0 | 0 | 0 | 25 | 25 | 25 | 25 | 25 | 0 | 25 | 25 | 100 | 0 | 25 | 25 |
| **20** | 25 | 25 | 0 | 0 | 0 | 0 | 0 | 50 | 50 | 50 | 50 | 50 | 50 | 25 | 25 | 25 | 25 | 0 | 0 | 100 | 50 | 25 |
| **21** | 0 | 25 | 25 | 25 | 25 | 25 | 25 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 0 | 25 | 25 | 25 | 50 | 100 | 50 |
| **22** | 0 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 50 | 50 | 50 | 50 | 50 | 0 | 25 | 25 | 25 | 25 | 50 | 100 |

| Item | Business | Line of business |
|---|---|---|
| 1. | Direct and reinsurance | Accident and health |
| 2. | Direct and proportional reinsurance | Motor |
| 3. | Direct and proportional reinsurance | Aviation |
| 4. | Direct and proportional reinsurance | Ships |
| 5. | Direct and proportional reinsurance | Goods in transit |
| 6. | Direct | Property damage |
| 7. | Proportional reinsurance | Property damage |
| 8. | Direct | Employees' compensation—construction |
| 9. | Direct | Employees' compensation—non-construction |
| 10. | Proportional reinsurance | Employees' compensation |
| 11. | Direct | General liability—public liability |
| 12. | Direct | General liability—other liability |
| 13. | Proportional reinsurance | General liability |
| 14. | Direct | Pecuniary loss—credit and others |
| 15. | Proportional reinsurance | Pecuniary loss—credit and others |
| 16. | Non-proportional reinsurance | Accident and health |
| 17. | Non-proportional reinsurance | Motor |
| 18. | Non-proportional reinsurance | Marine, aviation, and transport |
| 19. | Non-proportional reinsurance | Property damage |
| 20. | Non-proportional reinsurance | Employees' compensation |
| 21. | Non-proportional reinsurance | General liability |
| 22. | Non-proportional reinsurance | Pecuniary loss—credit and others |

In Solvency II, risk margin is calculated using a COC approach wherein the Solvency capital requirement (SCR), with COC rate of 6%. SCR for non-life underwriting risk is calculated as:

3 * standard deviation for non-life premium and reserve risk * volume measure for non-life premium and reserve risk.

Correlations are allowed within geographical regions, across lines of business, across premium and claims liability. These can be referred to in Solvency II regulations. For each line of business, the standard deviation applicable is:

| Line of business | Standard deviation – premium risk | Standard deviation – reserve risk |
|---|---|---|
| Motor vehicle liability (direct and proportional reinsurance) | 10% | 9% |

| Line of business | Standard deviation – premium risk | Standard deviation – reserve risk |
|---|---|---|
| Other motor insurance (direct and proportional reinsurance) | 8% | 8% |
| Marine, aviation and transport insurance (direct and proportional reinsurance) | 15% | 11% |
| Fire and other damage to property insurance (direct and proportional reinsurance) | 8% | 10% |
| General liability insurance (direct and proportional reinsurance) | 14% | 11% |
| Credit and suretyship insurance (direct and proportional reinsurance) | 12% | 19% |
| Legal expenses insurance (direct and proportional reinsurance) | 7% | 12% |
| Assistance and its proportional reinsurance | 9% | 20% |
| Miscellaneous financial loss insurance (direct and proportional reinsurance) | 13% | 20% |
| Non-proportional casualty reinsurance | 17% | 20% |
| Non-proportional marine, aviation and transport reinsurance | 17% | 20% |
| Non-proportional property reinsurance | 17% | 20% |

***Additional considerations from context of Sri Lankan market:***

Sri Lankan general insurance market does not maintain data in the same level of granularity as the risk-classes within RBC template suggest, hence a proper calibration of risk margins and risk charges may not be possible. This can be assessed post availability of data.

### *Proposed approach discussed with RBC task force*

Carry out calibrations specific to Sri Lankan market for risk margins and risk charges, subject to data availability. Data required has been setup in embedded excel "DataRequirement_RiskCalibration_GI.xlsx"

DataRequirement_RiskCalibration_GI.xlsx

In absence of data availability, either retain current risk margins/risk charges or evaluate ICS prescribed risk factors/risk margins with correlation benefit as part of QIS.

## *Consultation questions addressed by RBC Task Force via internal consultation and industry feedback*

In response to the questions posed to the task force;

**Question 1**: Does the committee agree to the proposed approach?

***Response:*** *The industry has noted the following: Initially agreed to carry out calibrations subject to data availability. However, the industry view is that credible data can be provided only for last 3-5 years and it may not be sufficient to derive reasonable results.*

**Question 2**: If response to Q1 is no, please provide alternate approach and rationale (considering maintenance of sufficient liability and capital strength under alternate proposed approach).

***Response:*** *The industry has noted the following:*

a. *A comparison of current risk margins against the ICSL prescribed risk margins on premium and claims liabilities are as follows.*

| | | RBC | | ICS | |
|---|---|---|---|---|---|
| : risk classes | ICS category | PL | CL | PL | CL |
| ility insurance | Public liability, Product liability | 36% | 30% | 45% | Public liability 36%<br>Product liability 47% |
| tion and marine hull | Marine, Air, Transport (MAT) | 36% | 30% | 35% | 35% |
| er liability (except motor) | Other liability and other long tail, Non proportional liability, Professional indemnity, Non-proportional professional indemnity | 36% | 30% | Other liability & other long tail 45%<br>Non-proportional liability 50%<br>Professional indemnity 45%<br>Non-proportional professional indemnity 50% | Other liability & other long tail 36%<br>Non-proportional liability 48%<br>Professional indemnity 35%<br>Non-proportional professional indemnity 45% |
| go | Marine, Air, Transport (MAT) | 30% | 25% | 35% | 35% |
| ineering | Property damage | 30% | 25% | 35% | 30% |
| or Liability | Motor | 30% | 25% | 35% | 25% |
| kers' compensation | Workers' compensation | 30% | 25% | 45% | 36% |
| | Property damage | 24% | 20% | 35% | 30% |
| or damage or loss | Motor | 24% | 20% | 35% | 25% |
| sonal accident | Accident, protection & health | 24% | 20% | 35% | 30% |
| lth | Accident, protection & health, Short tail medical expenses | 24% | 20% | 35% | Accident, protection & health 30%<br>Short tail medical expenses 25% |
| er (non-liability) | Other short tail, Other medium term, Property Damage | 24% | 20% | 35% | 30% |

*It is evident that the ICS risk margins are relatively higher than the current margins and continuing with ICS margins will have a significant impact on the industry level.*

b. *Therefore, the proposed alternate approach is to retain current risk margins and risk charges.*

**Question 3**: Does committee have an understanding as to if the data required for risk calibrations are available with insurance companies? If no, what granularity/quality of data is available with insurance companies?

***Response:*** *The industry has noted the following: The data template was shared with the industry and the view is that credible data can be provided for last 3-5 years.*

**Question 4:** Should any other areas be considered with respect to the above identified gap in RBC Rules?

***Response:*** *The industry has noted the following: None.*

## *Amendment to proposed solution by RBC task-force*

Task-force doesn't endorse proposed solution for this area of improvement, noting:

- Industry discussions by the task force suggested lack of credible data to calibrate premium and liability risk margin or risk charges. Concerns were particularly raised on lack of longer period for which data is available, heterogeneity in groupings available across insurers. Hence, it is not advised to calibrate risk factors specific to Sri Lanka.

- ICS prescribed factors are higher than current factors which can significantly impact industry, hence task force suggests retention of current risk margins and risk factors.

# Section 16: Treatment of NITF reinsurance receivables

## *Current treatment*

As per paragraph 12 of RBC Rules, 2015, positive net amounts receivable from a reinsurer, overdue for more than six months (after setting off against any amounts due to the reinsurer) shall be deducted from tier I and tier II capital in determination of total available capital.

This paragraph doesn't differentiate between national reinsurer (on account for a national reinsurer being a government entity) and other reinsurers engaged by general insurance companies.

## *Possible alternatives*

**Option 1:** Noting NITF is a national reinsurer (and hence with limited to no risk of default), no deduction is made in tier I and tier II capital in determining TAC for net balance receivable/due from NITF overdue for more than six months.

**Option 2:** Allow for reinsurance risk charge factor of an agreeable percentage on net balance receivable/due from NITF overdue for more than six months, instead of complete deduction from TAC.

**Option 3:** No change in current practice

***Principle laid out by ICS:***

As per section 6.4.1 of ICS technical specifications [1], the following items can be excluded from tier I capital:

*Reinsurance assets arising from arrangements deemed to constitute non-qualifying reinsurance. Non-qualifying reinsurance refers to agreements:*

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

ii. *That do not provide a sufficient transfer of risk.*

ICS on the contrary, accounts for risks on default on reinsurances balances in risk capital regardless of the period since which they are due.

We do not intend to change practice for net reinsurance balances due from all reinsurers for period of over six months, noting no such change requested in current practice by the industry and the current economic instability in Sri Lanka. Hence, ICS provides limited guidance in this aspect.

***Treatment in other countries:***

In India[2], similar treatment as Sri Lanka is applied wherein the following items are ascribed nil value in estimating available solvency capital (comparable to TAC in Sri Lanka):

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[1] https://www.iais.org/uploads/2024/06/2024-ICS-data-collection-Technical-Specifications.pdf
[2] https://irdai.gov.in/web/guest/document-detail?documentId=4589093

i. *Balances of Indian Reinsurers and Foreign Reinsurers having Branches in India outstanding for more than 365 days;*

ii. *Reinsurer's balances other than mentioned in point (i) above outstanding for more than 180 days;*

The regulations in India only allow for differentiation between national reinsurer (GIC Re) and other reinsurers engaged by insurance companies to the extent of difference of period post which balance shall be inadmissible.

In Malaysia[1] and Singapore[2], no such deduction on reinsurance balances is made in assessment of total capital. However, in Singapore, counterparty risk charge of 100% is considered for reinsurance recoveries due for over 2 years – this is applied across all reinsurers.

As per Solvency II Standard formula[3], no such deduction on reinsurance balances is made in assessment of total capital. Instead, it allows for this risk via credit risk charges applicable to reinsurance balances beyond 3-months from the invoice date - 15% for type 1 exposures (Central government / banks) and 90% for type 2 exposures (other counterparties). Additionally, it also allowed for the consideration of collaterals while assessing the loss given default.

***Rationale for current approach:***

Long due reinsurance balances are typically removed from available capital since such reinsurance claims have a higher likelihood of dispute with the reinsurer/higher risk of becoming a bad debt. Hence, regardless of the financial strength of the reinsurer, such balances are less likely to be settled with reinsurer and hence negatively impact solvency. In order to allow for such risks of dispute and non-payment under capital assessments, the reinsurance balances due over a certain period of time are removed from available capital.

***Additional considerations:***

Current practice allows for net reinsurance recoverables i.e. difference of reinsurance recoveries and premium payable. This results in an additional potential risk; since reinsurance recoveries are due for claims already incurred, and reinsurance premiums are payable for future claims – if there is a risk for default on overdue recoveries then by netting off against payables, one may even jeopardize recoveries from future business, resulting in further potential default risk. Hence, additional consideration can be given to as to if this deduction should only account for reinsurance recoveries – this is not specific to NITF but for all reinsurers.

## *Proposed solution discussed with RBC task force*

No change in current treatment.

## *Consultation questions addressed by RBC Task Force via internal consultation and industry feedback*

In response to the questions posed to the task force;

[1] https://www.bnm.gov.my/documents/20124/948107/RBC+policy+document.pdf/9a7c4529-481e-aa3e-edae-41291e341b5f?t=1594083008094
[2] https://www.mas.gov.sg/-/media/mas/regulations-and-financial-stability/regulations-guidance-and-licensing/insurance/regulations-guidance-and-licensing/notices/notices-to-all-insurers/mas-129_clean_15032021.pdf
[3] https://www.3blocks.co/wp-content/uploads/2020/10/SII_Delegated_Acts1.pdf

**Question 1**: Is rationale for current treatment of reinsurance balance due for over 6 months reasonable?

***Response:*** *The industry has noted the following: No, the taskforce does not think the current treatment is rational.*

**Question 2**: If response to Q1 is no, please provide views if rationale underlying current treatment is not reasonable and why

***Response:*** *The industry has noted the following:*

*i. The current RBC rule treats NITF like any private foreign reinsurer, despite the fact that:*

- *NITF is a government-backed entity with a minimal risk of insolvency*
- *The likelihood of NITF defaulting on payments is much lower than foreign or private reinsurers*
- *Cessions to NITF are mandatory*

*ii. Further, by virtue of nature of certain claims, it takes longer period to settle claims by NITF. It's not due to dispute but process delays lead to long period of settlement.*

*iii. Therefore, it's not reasonable to deduct about 6 months NITF receivables and all other reinsurance receivables*

**Question 3**: If response to Q1 is no, what alternate approach should be followed ? Please provide logical explanation of proposed approach.

***Response:*** *The industry has noted the following alternatives:*

*i. Based on argument of NITF being Government backed entity, there is no necessity of deduction*

*ii. Instead of 6 months, could consider a longer period such as 2 years and instead of deducting the overdue reinsurance recoverable it is recommended that a risk charge be applied.*

iii. *In addition to increasing the period to be considered admissible (from the current six months) it is proposed that either a deduction or a risk charge be applied on NITF's solvency calculation for reinsurance payables over a certain period too*

**Question 4:** Should any other country be evaluated in addition to the countries evaluated above? If yes, please share the name of country and approach to determine premium liability premium liability risk charge.

***Response:*** *The industry has noted the following: The countries considered seem appropriate*

**Question 5:** Please provide your view on the additional consideration with respect to using only reinsurance recoverable as deduction to total capital.

***Response:*** *The industry has noted the following: Using the discussion on Q3., applying alternative 1, this Question may not be applicable. However, if other approaches are applied, considering only reinsurance receivables may be possible*

## *Additional considerations requested by the Task-Force*

**1. Extend the admissibility period for all reinsurance receivables.**

i. Instead of the current 6 months, allow 1-2 years before deducting overdue reinsurance recoverable. (Aligns with India's 1 year and Malaysia/Singapore's 2 years).

ii. Generally, policies issued under Property, Marine and Casualty (PCM) classes of business have reinsurance coverage. (Motor and Health could have some reinsurance arrangements too.) Some are placed within Surplus or Quota share treaties, while more complex risks are handled through Facultative or Fronting arrangements. When claims arise from such policies, the settlement process typically takes more than six months due to:

- Local and foreign loss adjuster involvement/ forensic experts reports/ Government Analyst's reports/ court proceedings (especially for liability / marine claims)
- Multiple rounds of claims related document submission and review
- Reinsurers' internal validation process (sometimes midway of a claim process Reinsurers appoint an expert in the relevant field due to complexity of the claim)
- Queries from reinsurers, who follow global frameworks
- Some claims take multiple years to finalize. These delays are not due to any dispute but are simply the standard process

iii. Even claims under a Surplus or Quota Share treaty (not necessarily large claims) could take over six months to settle. Normal practice for treaties is that they can be set-off against payables every quarter. Additionally, more complex claims, including major losses across various lines of business (E.g. Fire claims, Flood claims, etc.), General Average claims, some Marine claims and Liability claims may take multiple years to finalize

iv. This explains why markets such as Singapore and Malaysia allow a settlement period of over two years and India allows one year in solvency, as they engage with the same reinsurers that operate in Sri Lanka.

v. Given these industry-standard settlement timelines, we could request an extension to 1–2 years instead of the current six months to better align with global best practices and reflecting actual settlement timelines. There had been some opinions that even 2-4 years period was a fair ask. It was noted that there is more than one reinsurer involved in some claims (single Reinsurance Broker may have 8-9 Reinsurers involved under a facultative policy.) Therefore, it is not possible to make a recovery within six months.

vi. Operational delays with NITF's claims settlement have been experienced by all companies across all LOBs.

vii. Task-force advised not to segregate the duration till which reinsurance receivables shall be considered admissible based on the type of reinsurance in the Solvency Rules. It is proposed introducing a risk charge for "Reinsurance Payable on Claims for over 6 months".

viii. This measure would support insurance companies in better managing their reinsurance receivables from a reinsurer such as from NITF and mitigate the impact of delayed

recoveries on solvency as they too are getting impacted for not paying on time if they are regulated by the IRCSL.

ix. Below table outlines the average period taken for reinsurance balance settlement across different types of products and how reinsurance receivables are settles with the reinsurers.

| RI payments | Method followed | Time taken to get money from Reinsurer |
|---|---|---|
| Surplus/QS Treaty | Through technical statements by setting off with the premiums | Within 6 months |
| Facultative | As an when a claim is settled to the customer, the relevant recovery documents are sent to the reinsurer | Considering all types of claims and scenarios 1-2 years |
| SRCC/TC MOTOR | As an when a claim settlement is done recovery documents sent to the reinsurer | Within 6 months(However, in some cases this might also take 1-2 years) |
| SRCC/TC Non- Motor | As an when a claim settlement is done recovery documents sent to the reinsurer | Within 6 months(However, in some cases this might also take 1-2 years) |
| XOL | As an when a claim settlement is done recovery documents sent to the reinsurer | Considering all types of claims and scenarios 1-2 years |

2. **Improve reporting transparency:** Allow offsetting reinsurance receivables against payables in solvency calculations

3. **A risk charge or a deduction from TAC to be applied on NITF's solvency calculation for reinsurance payables over a certain period.**

4. **Consider a tiered risk charge for reinsurance balances**

i. Instead of a complete deduction after an agreed time frame, implement a tiered capital charge based on:

- Government-backed reinsurers (NITF) → 5-10% charge
- Highly rated reinsurers → 15% charge
- Lower-rated reinsurers → 90% charge

ii. This approach aligns with Solvency II's counterparty credit risk framework.

### *Amendment to proposed solution by RBC task-force*

The task-force re-iterated that operational delays from NITF shouldn't increase capital requirements from the industry and hence requested reconsideration of admissibility of NITF reinsurance balance.

Therefore, task-force doesn't endorse proposed solution of making no change in RBC Rules, and instead suggests a lower charge (instead of full deduction) for NITF receivables over 6 months or increasing the time frame for NITF receivables noting the historic experience with NITF and associated operational delays.

Generally, task-force evaluated reinsurance receivables across all reinsurers from a broader perspective, and requested to increase the timeframe post which reinsurance balances are considered inadmissible, noting operational delays and complexities; from 6 months to 1-2 years.

# Section 17: Treatment of co-insurance receivables

## *Current treatment*

As per paragraph 12 of RBC Rules, 2015, claims receivable under contract of co-insurance are deducted from tier I and tier II capital in determination of total available capital.

The industry has shared feedback that regardless of the period for which co-insurance claims are due, they are treated as inadmissible – unlike re-insurance wherein the above paragraph of RBC Rules instructs insurers to deduct positive net amounts receivable from a reinsurer, overdue for more than six months (after setting off against any amounts due to the reinsurer) from the total available capital.

## *Possible alternatives*

**Option 1:** Ageing limit specified for co-insurance claims receivable, claims receivable due over such limit are treated as in-admissible assets. Further, claims receivable within such prescribed limit shall be subject to counterparty risk charge. Such counterparty risk charge can be assessed based on factors charges to reinsurers, specifically factors charged on unrated reinsurers noting insurance companies are not rated in Sri Lanka and insurance companies (as co-insurers) shall bear higher risk compared to reinsurers, who are globally established, backed by much higher capital etc.

**Option 2:** No change in current practice

***Co-insurance operations in other regions***

Coinsurance between two insurance companies is a **risk-sharing arrangement** where multiple insurers jointly cover a single policy. Each insurer assumes a fixed percentage of the risk and is responsible for paying claims based on their agreed share.

Co-insurance is different to reinsurance where reinsurance involves one insurer transferring its risk to another; and coinsurance involves insurers directly sharing the policy liability jointly.

Noting the above difference, co-insurance claims receivables typically will either not arise, or be settled over a much shorter duration, when compared to re-insurance.

***Treatment in ICS:***

In ICS[1], 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.

Credit risk charges are subject to outstanding maturity profile and nature of entity with which such balances are maintained (e.g.: public sector entities, corporates and reinsurance, infrastructure, securitisations, re-securitisations, miscellaneous).

[1] https://www.iais.org/uploads/2024/12/ICS-Level-1-and-Level-2-texts.pdf

***Treatment in other countries:***

In India[1], Co-insurer's balances outstanding for more than ninety days are ascribed nil value in estimating available solvency capital (comparable to TAC in Sri Lanka):

The outstanding period in respect of co-insurer's balances shall be reckoned from the earlier of

a. date of raising invoice with the reinsurer/co-insurer by the ceding insurer/lead insurer

b. 46th day after receipt of intimation of claim from the claimant to the follower.

The regulations also prescribe that the unreconciled and uncertified coinsurance receivable balance shall not be considered as admissible assets for the purpose of computation of solvency margin.

In Malaysia[2], Singapore[3], Solvency II Standard formula[4], no such deduction on co-insurer balances is made in assessment of total capital. Typically, in these markets , co-insurance works as follows - insurer A and B jointly enter into a contract with policyholder with pre-defined sharing proportions for premiums and claims; in the event that claims arise, both insurers pay their respective balances and hence no co-insurance receivables exist. In the event that one of these insurers is a leader and other is follower, if leader insurer pays the claim, then follower insurer shall also make the payout. Since both insurers have separate liabilities and don't have any pay-outs due to each other, no co-insurance receivables exist. If minor settlement issues may be there which are typically treated as premium debtors / creditors depending on the nature of balance, and are subject to risk charge just like other creditor balances.

***Additional considerations from Sri-Lankan context:***

In Sri Lanka, coinsurance operates on a similar model as reinsurance wherein an insurer first sells a policy and then finds another insurer to co-insure the risks. Hence, typically the lead insurer (who originally sold the policy) will be making all payouts to the policyholder and the co-insurer will pay his share to the insurer rather than directly the policyholder. However, since co-insurance involves co-sharing of risks (vis-à-vis risk transfer, as is the case for reinsurance) – co-insurance balances should be settled more quickly than re-insurance. Information shall be requested from industry on how co-insurance balances are settled and what do co-insurance contracts include with respect to claims settlement procedure.

## *Proposed solution discussed with RBC task force*

Instead of considering all co-insurance balances as inadmissible, co-insurance balances receivable for over "X" days shall be considered inadmissible from TAC. Such limit shall be defined from date of raising invoice to co-insurer or receipt of claim, whichever is earlier. The duration post which these balances shall be considered inadmissible shall be based on what coinsurance contracts reflect with respect to co-insurance balance settlement.

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[1] https://irdai.gov.in/web/guest/document-detail?documentId=4589093
https://irdai.gov.in/document-detail?documentId=4907769
[2] https://www.bnm.gov.my/documents/20124/948107/RBC+policy+document.pdf/9a7c4529-481e-aa3e-edae-41291e341b5f?t=1594083008094
[3] https://www.mas.gov.sg/-/media/mas/regulations-and-financial-stability/regulations-guidance-and-licensing/insurance/regulations-guidance-and-licensing/notices/notices-to-all-insurers/mas-129_clean_15032021.pdf
[4] https://www.3blocks.co/wp-content/uploads/2020/10/SII_Delegated_Acts1.pdf

For co-insurance balances due for less than such defined days, credit risk charges shall be applicable; these shall be defined with reference to charges applicable under reinsurance risk charges for unrated re-insurers.

Further, gross premium and claim liabilities shall be calculated gross of co-insurance and reinsurance arrangement while net premium and claim liabilities shall be calculated net of co-insurance and reinsurance arrangement. The difference between gross and net policy liabilities shall be subject to risk charge similar to the treatment of reinsurance risk charge.

### *Consultation questions addressed by RBC Task Force via internal consultation and industry feedback*

In response to the questions posed to the task force;

**Question 1:** Does the committee agree with proposed treatment of co-insurance balances?

***Response:*** *Yes*

**Question 2:** If response to Q1 is no, please provide views on alternative proposed treatment with rationale?

***Response:*** *N/A*

**Question 3:** Please provide views if any other area with regard to co-insurance shall be evaluated.

***Response:*** *Currently, some companies consider co-insurance similar to other reinsurance types, a view that is also reflected under IFRS 17. Accordingly, it is included in the gross-to-net adjustments in both Premium Liabilities and Claim Liabilities for solvency calculations. As a result, co-insurance currently attracts a reinsurance counterparty risk charge.*

*However, some companies do not consider co-insurance share in the Premium Liability since it is not part of the GWP that they report and include only in the Claim Liability and charge counter party risk accordingly.*

*In addition to above under the current Solvency Rules, co-insurance share of the Claim Liability is also deducted from the Total Available Capital, even when it attracts the counterparty risk charge or if it remains receivable within six months. We propose aligning the treatment of co-insurance with that of other RI types, i.e., it should attract a reinsurance counterparty risk charge and only be deducted from TAC when the receivable period exceeds the stipulated duration for reinsurance.*

### *Amendment to proposed solution by RBC task-force*

The current approach considers claims receivable under contract of co-insurance as deduction from tier I and tier II capital in determination of total available capital.

Task force endorses that co-insurance receivables are treated same as other reinsurance receivables (keeping consistent period of admissibility) as for reinsurance. Further, gross liabilities shall be gross premium and claims liability gross of co-insurance arrangement i.e. aligned to the manner in which gross of reinsurance liabilities are determined. Similarly, net premium and claim liability shall be calculated as net of premiums payable under co-insurance (for calculation of premium liability) and net of expected claims receivable (for calculation of claims liability). Risk charges for co-insurance will be calculated in the same manner as reinsurance risk capital charge for co-insurance received and liability transferred to the co-insurer.

# Section 18: Treatment of premiums receivable over 60 days

### *Current treatment*

There is a general market practice of 90-day credit period to brokers and leasing companies, however premium receivable for over 60 days is identified as an inadmissible asset and removed from TAC. A proposal of aligning the period of 60 days-90 days is proposed.

However, as per Rule 89 of the Act - brokers are to remit premium collected on behalf of an insurer, within two weeks of collection. Further, as per circular 1 of 2023 -maximum credit period of 60 days to customer on premium receivables.

In conjunction, the regulations in place suggest that an insurer is allowed to receive premiums from brokers within 60 days + 2 weeks ~ 75 days; however such premiums can become inadmissible as per current RBC Rules.

### *Proposed approach discussed with RBC task force*

This topic was discussed in second milestone meeting of the task-force. It is proposed that for general insurance business, premiums receivable over 60 days (collected via all other means except via brokers) and premium receivable over 75 days i.e. 60 days plus 2 weeks of credit as per Rule 89 of the Act will be treated as inadmissible assets. Noting short term nature of general insurance business, IRCSL intends to drive the general insurance business towards “cash before cover” model – in a phased manner over a period of 3 to 5 years. This can be implemented as:

- First year post implementation of changes in RBC Rules: Premiums receivable over 60 days (collected via all other means except via brokers) and premium receivable over 75 days i.e. 60 days plus 2 weeks of credit as per Rule 89 of the Act will be treated as inadmissible assets.

- Second year post implementation of changes in RBC Rules: Premiums receivable over 30 days (collected via all other means except via brokers) and premium receivable over 45 days i.e. 30 days plus 2 weeks of credit as per Rule 89 of the Act will be treated as inadmissible assets.

- Third year post implementation of changes in RBC Rules: Any amount of premiums (collected via all other means except via brokers) and premium receivable over 15 days i.e. 2 weeks of credit as per Rule 89 of the Act will be treated as inadmissible assets.

### *Amendment to proposed solution by RBC task-force*

Task-force endorses proposed solution discussed for this area of improvement (as per discussions in CEO forums).

# Section 19: Updates to rating agencies

### *Current treatment*

Paragraph 15 (2) of RBC Rules, 2015 outlines the admissibility criteria for following assets in which an insurer has invested. This excludes investments in related parties, or in unlisted equity and corporate debt held in shareholders' funds.

- debt securities;
- corporate debt issued by a bank;
- corporate debt issued by a company;
- asset backed securities; or
- interest bearing deposits with a bank or finance company.

Above assets are admissible only if the asset or entity holds a credit rating (referred to as an investment grade rating) assigned in the eighteen month period preceding the valuation date, with the following minimum rating requirements:

- for assets issued in Sri Lanka or by a company established in Sri Lanka,

| Rating agency | Minimum rating of entity or security | Minimum rating of short term security (less than 1 year) |
|---|---|---|
| Fitch Ratings (Lanka) Ltd. | BBB-(lka) | F3 (lka) |
| Other credit rating agency registered under the Securities and Exchange Commission of Sri Lanka Act, No. 36 of 1987 | Equivalent rating to the above | |

- for assets issued outside Sri Lanka or by a company established outside Sri Lanka,

| Rating agency | Minimum rating of entity or security | Minimum rating of short term security (less than 1 year) |
|---|---|---|
| Moody's Investor Services | Baa 3 | P3 |
| Standard and Poor's Corp | BBB - | A3 |
| Fitch Ratings | BBB - | F3 |
| A. M. Best Company | bbb - | AMB -3 |
| Other credit rating agency approved by IRCSL | Equivalent rating to the above | |

***Consultation feedback:*** In response to the consultation forms submitted to IRCSL regarding improvements to the RBC Rules, it was recommended that the schedule of eligible credit rating agencies should be updated to include new agencies approved by IRCSL. Additionally, it was proposed that sufficient time should be allowed for insurers to obtain ratings from a new agency if an existing agency removes coverage or withdraws its rating.

### *Considerations from context of Sri Lankan market*

1. **Update to schedules of RBC Rules to allow for new rating agencies by IRCSL:**

   Currently, there are only two credit rating agencies providing ratings for assets issued in Sri Lanka/ by a company established in Sri Lanka - **Fitch Ratings (Lanka) Ltd** and **Lanka Rating Agency Ltd**.

   Paragraph 15 (2) (B) (ii) of the RBC Rules permits credit ratings to be issued by any credit rating agency registered under the Securities and Exchange Commission of Sri Lanka Act, No. 36 of 1987. Consequently, if a new credit rating agency is registered with the Securities and Exchange Commission, it is automatically recognised under the current RBC Rules.

   This approach aligns with the ICS framework[1]; as per Paragraph 29 of Section 3.4 of the ICS technical specifications, insurers are permitted to use ratings from agencies recognized as External Credit Assessment Institutions by the banking regulator in their jurisdiction. Furthermore, Paragraph 586 of the ICS technical specifications mandates rating agencies must be regulated or recognized by a competent government authority in jurisdictions where such ratings are used by insurers.

   In Sri Lanka, if a credit rating agency exits the market, insurers have the flexibility to use ratings provided by other approved agencies until a new agency is registered. Therefore, no regulatory gap has been identified in this regard.

2. **No local rating for multinational banks with branches in Sri Lanka**

   Discussions with relevant task-force members and insurance company representatives (who have highlighted this issue via consultation forms) suggest a concern regarding the absence of local ratings for multinational banks with branches in Sri Lanka. It is also understood (from these discussions) that if a local rating were provided for these banks, it would likely be more lenient compared to those issued by global rating agencies.

   Lack of credit ratings from approved local rating agencies for such institutions falls outside the scope of any changes to the RBC Rules; noting RBC Rules provide flexibility of using rating agencies from any rating agencies registered under the Securities and Exchange Commission of Sri Lanka Act, No. 36 of 1987.

### *Proposed solution discussed with RBC task force*

The issue primarily stems from the limited number of local credit rating agencies registered under the Securities and Exchange Commission of Sri Lanka Act, No. 36 of 1987. As this matter is beyond the purview of the RBC Rules, no changes are proposed to the existing framework at this time.

### *Additional outcome from discussions:*

1. Treatment when rating changes mid-term: It was suggested if response time can be stipulated for rating downgrade (e.g., within 30 days of downgrade); or “Rating Change Protocol” can be setup by IRCSL. It was discussed and agreed that the solvency calculations shall reflect the true rating for the investment held by the company and hence in case of a downgrade, the downgraded rating as at the date of calculation shall be used. The companies can additionally include the reason for increase in the risk charges and any necessary actions to improve the

[1] https://www.iais.org/uploads/2022/06/220531-Public-2022-ICS-Data-Collection-Technical-Specifications.pdf

situation going forward along with the submissions, as clarification to IRCSL (likely required in case of a major degrading of a material investment).

2. Use of “Watchlists” or “Credit outlooks”: It was suggested to incorporate a provision on how to treat negative watchlists or credit outlooks could strengthen RBC prudence, e.g.: assets under “Negative watch” may trigger higher scrutiny or require temporary capital buffers. It was discussed and agreed this can be implemented by companies as internal risk management tool.

3. Impact arising from Rating agencies leaving the market: It was discussed and agreed that this is not a regular event and has only happened once at the time of economic crisis. In such a case, companies can use the rating provided by the alternative rating agency approved by SEC for risk calculation.

### *Amendment to proposed solution by RBC task-force*

Task-force endorses proposed solution discussed for this area of improvement and considers this matter out of purview of RBC Rules and IRCSL duties.

# Section 20: Asset risk charges - Credit risk capital charge and Market risk capital charge

IRCSL, by way of consultation forms on targeted improvements in the existing RBC Rules, received feedback to revise select asset risk charge factors to reflect their market trends and inherent riskiness. The purpose of this paper is to provide the background on these identified gaps in the current regime and perform a holistic assessment of credit and market risk capital charges from the current market context. The below paper doesn't include the application and calibration of risk charges for interest rate risk charge as that has been addressed separately in the paper "16. Interest rate risk capital.pdf".

The paper summarises the current approach, expected possible alternatives along with an indication on the expected direct for credit risk charge and each risk charge within market risk capital charges (as mentioned below):

- Equity Risk Capital Charge
- Property Risk Capital Charge
- Gold Risk Capital Charge
- Unit trust / Mutual Funds Risk Capital Charge

## *Current treatment*

**Credit Risk Capital Charge**

As per paragraph 47 of RBC Rules, 2015, every insurer shall determine a credit risk capital charge by adding together each credit risk exposure multiplied by the credit risk factor. Credit risk factors vary based on the underlying financial instrument as well as credit rating of the issuing agency. These factors are applied on market consistent value of the related fixed income assets in the categories of admissible assets except investments in related party. Further, as per paragraph 48, a lower credit risk capital factor may be applied to debt which is guaranteed by a recognised guarantor. In such case, the risk factor applicable to the guarantor or 1.6% to the portion of the debt that is guaranteed will be applicable.

**Equity Risk Capital Charge**

As per paragraph 54 of the current RBC Rules, equity risk capital charge shall be calculated by each equity share exposure (admissible value) with the corresponding equity risk factor. Investments in related party shall be treated as equity investments for the purpose of calculating the equity risk charge. Equity risk charges applicable are:

| Equity exposure | Risk factor |
|---|---|
| Shares listed on a licensed stock exchange | 35.0% |
| Investments in related parties listed on a licensed stock exchange | 35.0% |
| Unlisted private equity | 45.0% |

**Property Risk Capital Charge**

As per paragraph 55 of the current RBC Rules, every insurer shall calculate property risk capital charge to admissible assets whose value is sensitive to the volatility of market prices of following assets unless the asset is subject to a risk charge under another rule, except operational risk capital charge

- land, buildings, and other immovable property rights; and
- direct or indirect participations in real estate companies that generate periodic income from property holdings,

Risk charge applicable to above assets shall be 25% of the value of properties.

**Gold Risk Capital Charge**

As per paragraph 56 of the current RBC Rules, every insurer shall apply a gold risk factor of 15% to the total value of their admissible gold assets to determine the gold risk charge.

**Unit Trust and Mutual Fund Risk Charge**

As per paragraph 57 of the current RBC Rules, every insurer shall apply the risk factors to the underlying assets of the fund, or part fund for admissible mutual funds and unit trusts where the value of such underlying assets of the fund shall be determined as at the valuation date based on the market values provided by the fund manager. Every insurer shall then aggregate the resulting amounts for each unit trust and mutual fund to form the unit trust and mutual fund risk charge.

| Asset category | Risk factor |
|---|---|
| Government securities and Debt Securities/Deposits guaranteed by Government | 0.0% |
| Money market instruments, including cash | 1.6% |
| Ordinary shares | 35.0% |
| Debt Securities & corporate debt | 4.0% |
| Property (as defined in rule 55) | 25.0% |
| Other | 15.0% |

## *Possible alternatives*

**Option 1:** Holistically review all asset risk charges based on the available data and benchmarking across other regimes.

**Option 2:** Keep the asset risk charges unchanged

## *Considerations from context of Sri Lankan market and indicative direction for respective asset stress factors:*

**1. Credit Risk Capital Charge**

- **Gap identified:** *Due to the differential in capital charges between private equity investments (45%) and unrated commercial paper (16%), the current levels encourage investment in unrated commercial paper. Such charges could be more appropriately calibrated to reflect higher risk profiles of such investments which are often done to support investments where an*

*applicable rating may be difficult to obtain due to a combination of business and time constraints. The current charge of 16% may not appropriately reflect the potential risk of such an investment.*

- **Rationale for current risk charges under RBC Rules:** the credit risk capital charge under the current RBC Rules 2015 was established by benchmarking it against the credit risk capital requirements under Basel II[1]. Specifically, the risk weight for each asset class, determined by its credit rating, was multiplied by the total credit risk capital requirement of 8% under Basel II. The risk weight represents the expected risk level, determining the corresponding weight assigned to an exposure to a particular financial instrument.

  For example, for corporate bonds rated AAA to AA, the risk weight is 20%. To calculate the credit risk capital, the total exposure to such bonds would be multiplied by the 20% risk weight. This amount is then further multiplied by the 8% total credit risk capital requirement, resulting in a corresponding risk factor of 1.6% (20% of 8%). For unrated bonds, the current RBC Rules apply a higher risk weight of 200%, rather than the prescribed 100%, to better reflect the associated risk. As a result, the risk factor for unrated bonds is set at 16%.

- **Proposed alternatives:** Regarding the re-assessment of risk factors for unrated commercial papers, which currently attract a risk charge of 16%, compared to unlisted corporate equity, which attracts a risk charge of 45%, it is important to note that commercial papers are short-term instruments and have higher priority than equity in the event of liquidation. As a result, the underlying risk associated with commercial papers is comparatively lower, leading to a lower risk charge. Additionally, when current RBC Rules were being set up, to better align with the underlying risk, the risk weight for unrated bonds was increased to 200%, rather than the 100% prescribed by Basel II.

- **Overall risk re-calibration of credit risk charges:** Noting that Basel II was used as reference point to determine credit risk charges in RBC Rules, Basel III[2], which replaced Basel II, has also been analysed. Under Basel III, while the proposed risk weight for underlying assets and the total capital requirement remains the same, there is now an additional 2.5% capital requirement for the capital conservation buffer on top of the 8%. This results in a total capital requirement of 10.5%, rather than 8%. Hence, this would suggest an increase in all risk factors for credit risk capital charges.

  In the absence of relevant and reliable data to calibrate risk factors for the Sri Lankan market, risk factors can be left unchanged at the existing levels.

**2. Equity Risk Capital Charge**

- **Gap identified:** *Whilst higher volatility is observed in equity markets the capital charges could be more appropriately calibrated to reflect differences in risk profiles within the current market structure and type of investment. With respect to this the current capital charge of 35% for listed stocks irrespective of related party or not does not adequately differentiate the risks.*

  *For example, to encourage investment, the capital charges for investments in the top 20 largest companies (i.e. S&P Sri Lanka 20) could be lowered from the current level of 35%. Correspondingly the capital risk charge for investments in listed Related Parties could be*

[1] https://www.bis.org/publ/bcbs107.pdf
[2] https://www.bis.org/bcbs/publ/d424.pdf

*higher from the current level of 35%. This would differentiate the capital charge between listed investments in related parties and non-related parties.*

- **Rationale for current risk charges under RBC Rules:** Equity risk charge in RBC Rules 2015 was calibrated based on the monthly data of CSE All Share Index for the period September 2005 to October 2010. Monthly average equity returns, and standard deviation was derived from data collected above by taking the lognormal index returns. The yearly average return was determined by multiplying the monthly average return by 12 and the yearly standard deviation was determined by multiplying the monthly standard deviation by square root of 12. A risk factor for equities based on a 99.5% confidence interval was determined by using the formula:

  *1- EXP (yearly average return – 2.58 *yearly standard deviation)*

  Under Solvency II, equities from non-OECD and EEA countries are stressed at a rate of 49% (before adjusted for a symmetric adjustment). Similarly, the ICS framework suggests a 48% equity risk charge for listed equities in emerging markets.

- **Proposed alternative:** We have analyzed the CSE All Share Index and the S&P Sri Lanka 20 Index from their respective inception dates, June 15, 1993, and December 20, 2004. A daily 1-year rolling average at the 0.5% percentile was calculated, representing the corresponding 99.5% percentile of equity decline. Both datasets suggested similar stress factors rather than differentiating the risk factor for the top 20 listed equities versus the rest. The data indicates that the risk charge for both indices falls within the range of 40% to 45%.

  However, there are several judgments involved with the current calibration of risk factors based on the market data, such as the credibility of the data, the evaluation period, and the inclusion of periods of economic crisis. Considering these factors, equity risk factors can be left unchanged at the current levels.

  Regarding the risk factors for investments in related parties or unlisted equities, no credible data is available to calibrate a separate risk factor.

**3. Property Risk Capital Charge**

- **Gap identified:** *Current risk charges were observed to be quite high.*

- **Rationale for current risk charges under RBC Rules:** Property risk charge in RBC Rules 2015 was benchmarked based on the prescribed shock factor under QIS 5 of Solvency II.

- **Proposed alternative:** Due to the lack of market data available to calibrate the stress factors for property risk, property risk factor can be benchmarked to ICS[1] and other regimes such as Solvency II[2]. The stress factor under both regimes is set at 25%.

[1] https://www.iais.org/uploads/2024/12/ICS-Level-1-and-Level-2-texts.pdf
[2] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015R0035

### 4. Unit Trust and Mutual Fund Risk Charge

- **Gap identified:** Current risk charges were observed to be quite high.
- **Rationale for current risk charges under RBC Rules:** For collective investment schemes including Unit Trust, the relevant risk charges are applicable based on the investment mandate or the asset composition. For equity schemes, relevant Equity Risk Charge was applicable. For Debt schemes, the corresponding risk charge factor shall be based on credit risk charges applied to the asset underlying the investment vehicle.
- **Proposed alternative:** Any change in risk factors for unit trusts and mutual fund risk charges would be a function of changes in risk factors for any of the underlying instrument (if so proposed as part of the consultation paper or task-force discussion).

### 5. Gold Risk Capital Charge

- **Gap identified:** No gaps were identified in respect of Gold Risk Capital Charge.
- **Rationale for current risk charges under RBC Rules:** Gold risk capital charge was set to 15% in line with the Basel II[1] recommended haircut for Gold in valuation of collateral backed asset.
- **Proposed alternative:** Under Basel III[2], the associated haircut has been raised to 20%. As a result, if the risk factor is recalibrated, the risk charge will be adjusted to 20% to align with Basel requirements.

  Due to the lack of reliable data to calibrate the risk factor specifically for Sri Lanka, risk factors can be maintained at the current level of 15%.

## *Proposed solution discussed with RBC task force*

Gaps identified by the industry are more specific to current asset classes or asset risk charges however, if asset risk charges are deemed as outdated, a holistic re-assessment should be adopted of all asset risk charges based on the current market conditions in line with the methodology adopted for derivation of these risk charges.

However, similar to the discussion in respect of interest rate risk charges, calibrating these risk factors require relevant and reliable data and would also involve significant judgments in respect of the choice of data source, evaluation period, whether the market data in respect of economic crisis to be excluded etc. Accordingly, it is proposed to keep the asset risk factors unchanged at the current level.

## *Consultation questions addressed by RBC Task Force via internal consultation and industry feedback*

In response to the questions posed to the task force;

[1] https://www.bis.org/publ/bcbs107.pdf
[2] https://www.bis.org/bcbs/publ/d424.pdf

**Question 1**: In view of the task force, is credible and reliable data available to calibrate market risk capital charges?

***Response:*** *The task force agrees the explanations provided by the consultants in the "RBC task force discussion paper" (attached) about the availability of data and tentative calibration results.*

**Question 2**: What is task force's view in respect of proposed approach for the market risk capital charges i.e. should these factors remain unchanged, or should these be revised based on the available data / benchmarking based on other regimes? Please share your thoughts.

***Response:*** *Keep the current risk capital charges unchanged as of now, except for the CRCC on the investments in green bonds, on the basis explained above.*

**Question 3**: Please let us know in case there are any other consideration in respect of these charges.

***Response:*** *Same as above.*

### *Amendment to proposed solution by RBC task-force*

The current RBC regime contains the risk capital charges for the current asset classes. ***The task force is aligned to retain the current risk charges for all assets classes*** including the following, subject to the exploration of the possibility of providing ***preferential capital requirement for investments in Green bonds***;

1. Credit risk capital charge for private equity and untreated commercial papers
2. Equity risk capital charge
3. Property risk capital charge
4. Unit Trusts and mutual funds
5. Gold

In relation to Green Bonds, the committee suggested to have a preferential risk capital charge on the basis;

1. The green bonds generally has a sound governance structure around its use including a monitoring mechanism.
2. Further its necessary insurance Companies to drive towards Sustainable Development Goals, intended by the IRCSL.
3. To motivate the insurance companies to move towards the ESG initiatives

# Section 21: Treatment of new asset classes

In response to the consultation forms submitted to IRCSL regarding improvements to the RBC Rules, it was recommended by IASL and insurance companies to clarify treatment of new asset classes (as mentioned below) in calculation of TAC and RCR:

- Green bonds
- Bonds with Basel III compliant sub-ordinated debentures with buy-in provisions
- Leasehold land and building occupied by the insurer
- Development bonds issued by development banks

This paper provides clarifications on treatment of such asset classes, with no changes proposed in Revised RBC Rules.

**Green bonds**

Green bonds are issued to raise funds for financing or refinancing new and/or existing eligible sustainable projects,in accordance with international standards on Sustainable Bonds accepted by the Colombo Stock Exchange.

Green bonds function similarly to other corporate bonds issued by the companies – differing only in the utilisation of bond proceeds - they shall be treated as corporate bonds in the assessment of both TAC and RCR.

**Bonds with Basel III compliant sub-ordinated debentures with buy-in provisions**

Basel III compliant sub-ordinated debentures are generally issued by banks with a lock in period of 5 years. Further, these debentures have a viability clause where such bonds can be converted to common equity in case of triggering of extreme events significantly impacting bank's CAR position.

These bonds are accordingly rated based on the perceived risks associated with such instruments, reflecting the riskiness in respect of expected losses, financial condition of the issuing bank etc. Hence, subordinated debts can continue to be treated in the consistent manner with current RBC Rules; including application of the corresponding credit risk capital charge based on the bond's rating.

**Leasehold land and building occupied by the insurer**

Leasehold property does not transfer land ownership to the lessee (insurance company) and typically does not grant the lessee the ability to sell the leased land.

According to ICP Principle 15.2.10, insurers must have assets that generate sufficient cash flow to cover policyholder claims. Since leasehold land does not provide realizable value for the lessee, it cannot be used to meet policyholder obligations. Therefore, no changes are proposed to the treatment of leasehold land. Clarification around treatment of leasehold land is provided in IRCSL/DG/SUP/2020/03/105[1].

[1] https://ircsl.gov.lk/bfd_download/clarification-on-application-of-slfrs-16-leases-to-the-solvency-margin-rules-2015/

Insurers may seek case-by-case clarification from IRCSL on treatment of building constructed by lessee on leasehold land, with such assessment typically based on factors such as the nature of the underlying lease, terms and conditions, the fair value of the construction, etc.

**Development bonds**

Speculations exist around the government potentially issuing development bonds either directly or through developmental banks. Noting that no information on such bonds is currently available and there is lack of clarity around the issuer, nature of bonds etc.; any change in RBC Rules for such bonds will be addressed post further clarity is provided on the issuance of such bonds.

**Conclusion:** No modifications to the Revised RBC Rules are necessary at this time. Further clarifications may be sought from IRCSL where required.

### *Amendment to proposed solution by RBC task-force*

Task force largely agrees to keep the existing asset classes subject to an inclusion of

***Investments in Lease hold lands and buildings there on and***

- The buildings on leased hold properties have a market value if they are disposed prior to the expiry of the lease term, hence there is a market value. In addition, there is a flow of economic benefits from the use of such buildings that can be used to settle policyholder claims (cumulatively).
- The direction on SLFRS 16 refers to the property that is subject to lease, and not the investments in buildings on such property. Hence, that direction is not applicable.
- Therefore, industry propose to consider the investment in such buildings on Leased-hold properties as admissible for RBC purposes. (valuation can be the carrying value, subject to the property asset allocation)

***Recognition of investments in Green Bonds with a preferential CRCC.***

- The green bonds generally has a sound governance structure around its use including a monitoring mechanism.
- Further its necessary insurance Companies to drive towards Sustainable Development Goals, intended by the IRCSL.
- Therefore, it is proposed to consider a preferential low risk capital charge for the Green investments to motivate the insurance companies to move towards the ESG initiatives.

# Annexure A – List of task-force members

| Name | Designation and Company | Representative of |
|---|---|---|
| Mr. Lasitha Wimalaratne | CEO, HNBA | IASL |
| Mr. Ravi Liyanage | CEO, JLIC | IASL |
| Mr. Sampath Thusara | CFO, AIA | IASL (Chair FTSC) |
| Ms. Rishikulya Gunasekera | Chief Actuarial Officer, Ceylinco Life | IASL (Chair ASC) |
| Mr. Shankaramoorthy | Deputy General Manager – Financial Services, Ceylinco General | IASL (FTSC) |
| Mr. Nalin Subasinghe | Chief Actuarial Officer, HNBA and HNB GI | IASL (ASC) |
| Mr. Suranga Waduge | Chief Actuarial Officer, Softlogic Life | IASL (ASC) |
| Mr. Malaka Mihindukulasuriya | Appointed Actuary, Allianz Lanka Insurance (Life) | IASL (ASC) |
| Mrs. Lakmali Gunasekera | Assistant General Manager - Actuarial & Analytics, Fairfirst Insurance | IASL (ASC) |
| Mr. Samath Perera | Appointed Actuary, AIA | IASL (ASC) |
| Mr. Shubham Jain | Chief Actuarial Officer, Union Assurance | IASL (ASC) |
| Mr. Keshawa Herath | P&C Actuarial, Allianz Lanka Insurance | IASL (ASC) |
| Ms. Eranga Karunarathna | Actuarial Consultant, NMG | AASL |
| Mr. Kasun Amarasuriya | Sr Manager (Actuary), EY | AASL |
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