Prescribed Scenarios for the stress and scenario testing to be used by authorized insurers carrying on long term insurance business for the purpose of Own Risk Solvency Assessment Report (Effective from 24 December 2021)

I. Introduction

I.1. Section 9 of Guideline on Enterprise Risk Management ("GL21") sets out the minimum requirements for the Own Risk and Solvency Assessment ("ORSA") Report that each authorized insurer which is subject to GL21[1] is required to prepare. In particular, paragraph 9.5(k)(i) of GL21 stipulates that authorized (re)insurers carrying on long term insurance business, including composite (re)insurers, ("long term insurers") should include those scenarios provided in the Actuarial Guidance Note 7 on Dynamic Solvency Testing issued by the Actuarial Society of Hong Kong as scenarios prescribed by the IA ("Prescribed Scenarios") until further revision in their scenario and stress testing ("SST"). Further to the issuance of GL21, the Insurance Authority ("IA") issued in January 2021 the requirements in respect of the Prescribed Scenarios for the first ORSA Report, with financial year ended 31 December 2020, with a view to revisiting the Prescribed Scenarios for subsequent ORSA Reports.

I.2. In 2021, the IA has revisited the Prescribed Scenarios to better fit for supervisory objectives. This document sets out the latest requirements in respect of the Prescribed Scenarios for subsequent ORSA Reports, for the financial year ended 31 December 2021 and until further revision.

I.3. This document should be read in conjunction with GL21. Unless otherwise specified, words and expressions used in this document shall have the same meanings as given to them in GL21.

II. Objectives

II.1. The Prescribed Scenarios are part of IA's supervisory framework to help increase the industry's and IA's preparedness on industry-wide shocks under real life situations. A key objective of the exercise is to identify management actions the insurer would need to take under stress to manage or mitigate risks when such event happens. Results before and after management actions (other than Business-As-Usual (BAU) management actions) under the Prescribed Scenarios would also be utilized in an aggregate way for

[1] Please refer to Section 2 of GL21.

macroprudential supervision purposes. For the avoidance of doubt, the Prescribed Scenarios are not intended to be a pass-or-fail exercise (i.e. post-stress positions that fall below the regulatory capital requirement would not automatically trigger actions as at current date to strengthen the financial positions).

II.2. Pursuant to paragraph 9.5(k) of GL21, insurers are also required to come up with their own scenarios, apart from the Prescribed Scenarios. It is expected that insurers have an independent thought process on the determination of own scenarios based on their own risk assessment. While the own scenarios are not necessary to have financial results more severe than the Prescribed Scenario, IA expects insurers to employ their own scenarios that are severe in respect of their financial or capital positions. Insurers should explain in its ORSA Report the range of scenarios it assessed in order to determine the chosen scenarios, and discuss justifications for the scenarios chosen (including the number and design of scenarios).

III. Prescribed Scenarios

III.1. The narrative of the Prescribed Scenarios, the corresponding shock levels and application are described in this section. Where applicable, the market conditions after the instantaneous market shocks are assumed to remain flat over a projection period of three years[2]. The objective is for assessing the impact and identifying necessary remedial actions if there is no rapid recovery of the stressed conditions. The determination and calibration of instantaneous shock level in the Prescribed Scenarios has taken into consideration historical cumulative changes over a three-year horizon.

III.2. For composite insurers, in addition to the Prescribed Scenarios set out in this section, they are required to carry out and report Prescribed Scenario 2 under GI Prescribed Scenarios[3] but not other scenarios under the GI Prescribed Scenarios. For the avoidance of doubt, all assets and liabilities of an insurer would be subject to the effect of market risk shocks as defined in the Prescribed Scenarios.

III.3. IA may request an insurer to test scenarios in addition to the Prescribed Scenarios. In such cases, the case officer at IA will communicate with the insurer on the additional specific scenario(s) ("Specific Scenario(s)").

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[2] Insurers who consider a projection period of more than three years may decide on their own assumptions from the fourth year onwards. Insurers should document and elaborate on such assumptions in the ORSA Report.
[3] Details of GI Prescribed Scenarios can be referred to https://ia.org.hk/en/legislative_framework/files/GL21_GI_SST_20200113.pdf

Prescribed Scenario 1 – Prolonged low interest rates scenario

This scenario intends to assess an adverse event under the current prolonged low interest rates environment. The adverse event assumes a further drop in interest rates, coupled with a market shock where growth asset values adjusted downward and credit spreads widened.

- Interest rates to be set at 70% of the rates projected up to the last liquid point (“LLP”) of the risk-free yield curve, in the base scenario;
- The ultimate forward rate (“UFR”) is set at 90% of the base scenario;
- Smith-Wilson method is used to interpolate and extrapolate the risk-free yield curve;
- Equity and real estate market values immediately fall by 30%, and remain flat afterwards; and
- Immediate increase of credit spreads according to the below table. Credit spreads will remain flat afterwards.

Rating[4]	Increase in credit spread (bps)
1	75
2	75
3	150
4	150
5	300
6	300
7	300

For unrated fixed income assets, insurers should assume the shock applied as the average of rating band 4 and 5.

Prescribed Scenario 2 – Rising interest rates scenario

This scenario intends to assess an adverse event under a rising interest rates environment. The adverse event assumes an increase in interest rates, coupled with a market shock where growth asset values adjusted downward and credit spreads widened.

- Interest rates to be set at 130% of the rates projected up to the LLP of the risk-free yield curve, in the base scenario;
- The UFR is set at 110% of the base scenario;
- Smith-Wilson method is used to interpolate and extrapolate the risk-free yield curve;
- Equity and real estate market values immediately fall by 30%, and remain flat afterwards; and
- Immediate increase of credit spreads according to the below table. Credit spreads will remain flat afterwards.

[4] Please refer to RBC Technical Specifications for the definition of rating band.

Rating[5]	Increase in credit spread (bps)
1	75
2	75
3	150
4	150
5	300
6	300
7	300

For unrated fixed income assets, insurers should assume the shock applied as the average of rating band 4 and 5.

Prescribed Scenario 3 – Pandemic scenario

This scenario intends to assess a situation of pandemic outbreak coupled with an adverse market event under an interest rate drop environment. Under such situation, number of death claims increase, future morbidity rates are higher and new business sales slows down.

- The market condition is the same as Prescribed Scenario 1;
- 1.5 per mille absolute increase in mortality rates in the first 12 months from the valuation date, but with the same mortality rates as the base scenario in later years. The stress is applied at the entity level and allows offsetting among policies at the entity level;
- 20% multiplicative morbidity stresses applied in the first 12 months from the valuation date, but with the same morbidity rates as the base scenario in later years, according to the following. The shock levels should be applied at homogeneous risk group ("HRG") level with only adverse impacts at HRG level being recognised.
    - 20% increase in the disability and morbidity inception rates; or
    - 20% decrease in the recovery rates[6]

  whichever is more adverse;
- New business sales volume being 70% of those under base scenario over the projection period; and
- For (re)insurers with general insurance business (e.g. for composite (re)insurers or long term insurers with A&H business of Class 1 or 2 nature), Prescribed Scenario 2 under the GI Prescribed Scenarios should be applied as well.

Prescribed Scenario 4 – Financial crisis scenario (impact as at valuation date only)

This scenario intends to assess an extreme but plausible event with severity level similar to that of the Asian Financial Crisis or the Global Financial Crisis. *For this scenario, impact is required as at valuation date only.* However, insurers should identify management actions and necessary remedial actions assuming no rapid recovery of the stressed conditions.

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[5] Please refer to RBC Technical Specifications for the definition of rating band.

[6] Where claim costs are explicitly modelled using inception rates and/or recovery rates, the shock is only applied to inception rates. If only recovery rates are modelled, the shock is applied as a decrease in recovery rates. For other medical benefits, which do not explicitly have inception rates and/or recovery rates, the shock to inception rate should be interpreted as a shock to the medical claim payments amount.

- Interest rates to be set at 50% of the rates projected up to the LLP of the risk-free yield curve, in the base scenario, or at the base scenario rates minus 1% if lower (may result in negative rates);
- The UFR is set at 90% of the base scenario;
- Smith-Wilson method is used to interpolate and extrapolate the risk-free yield curve;
- Equity and real estate market values immediately fall by 50%; and
- Immediate increase of credit spreads according to the below table.

Rating[7]	Increase in credit spread (bps)
1	150
2	150
3	300
4	300
5	600
6	600
7	600

For unrated fixed income assets, insurers should assume the shock applied as the average of rating band 4 and 5.

IV. Scenario Requirements

IV.1. As stated in section 11.3 of GL21, for the base scenario to be included in its ORSA Report, a long term insurer, during the Initial Period, should use the regulatory balance sheet and regulatory capital requirements derived based on RBC Technical Specifications, and include any subsequent updates and clarifications made to the HKRBC framework prior to the valuation date of the ORSA Report. The time-horizon for the base scenario should be consistent with its medium-to-longer term business plan. Nevertheless, for Prescribed Scenarios, only results over a three-year horizon for Prescribed Scenarios 1-3 and results as at the valuation date for Prescribed Scenario 4 would be collected in the standardized data collection template[8].

IV.2. For each scenario, a long term insurer should assess the impact of the scenario on its regulatory balance sheet, eligible capital resources and regulatory capital requirements as at the valuation date of the ORSA Report, and the subsequent projection to the business plan time horizon and include the results in its ORSA Report. The long term insurer should firstly assess the impact assuming no management actions (other than BAU management actions) are taken. This assessment should include consideration of ripple effects under the scenario, including any liquidity implication.

IV.3. Insurers should submit the data as required in the standardized data collection template for Prescribed Scenarios.

[7] Please refer to RBC Technical Specifications for the definition of rating band.

[8] Insurers who consider a projection period of more than three years should report in a manner consistent with the time horizon of its business projections and include the results in its ORSA report.

IV.4. For any scenarios that result in the value of a long term insurer's eligible capital resources falling below its target capital or regulatory capital requirement, the long term insurer should consider the potential management actions (other than BAU management actions) it should take as a result of such scenarios in order to restore the stressed solvency position to the regulatory and, ultimately, target capital level within a reasonable timeframe. The insurer shall also indicate the timing that the management actions are expected to be taken. Both kinds of management actions should be considered, ones that are within the operations and control of the long term insurer as well as ones that require external support (e.g. raising additional capital or support from any group company). Any planned management actions should meet the criteria outlined in GL21 paragraph 6.4.5. Once appropriate management actions have been determined, the long term insurer should assess the impact to the eligible capital resources and regulatory capital requirements assuming that the planned management actions are effectively taken, and include such assessment in its ORSA Report.

V. Scenario Reporting

V.1. The presentation of SST (including base scenario) in a long term insurer's ORSA Report should cover the following matters:

- **Methodology and Assumptions** – A long term insurer should include the key assumptions for each scenario including the key changes of assumptions from those adopted in the base scenario. As stipulated in GL21[9], a long term insurer should also describe the key methodology such as proxy approach taken for projection or material deviation from the requirements of RBC Technical Specifications.

- **Results** – For the results of each scenario, as compared with the base scenario, a long term insurer should cover the impact on its PCR, eligible capital resources, solvency ratio (including target solvency ratio as appropriate) before and after planned management actions (other than BAU management actions) at the valuation date and over the planning period. Insurers shall fill in the SST results template provided by the IA and submit it along with their annual ORSA report submission. For the avoidance of doubt, SST results for Prescribed Scenarios are still required to be reported as part of the ORSA Report. Where necessary, the IA may further request the insurer to provide the underlying projection model or breakdown of results.

- **Impact** – A long term insurer should include in its ORSA Report a description of the impact of each scenario including commentary on the results and, where appropriate, a

[9] Under paragraph 9.4(a), ORSA Report should cover, amongst others, summary of methodology and assumptions to determine the regulatory solvency requirements.

breakdown of the movements in capital (e.g. by asset/liability type) and PCR (e.g. by PCR risk type).

- **Management actions** – A long term insurer should include in its ORSA Report a description of the management actions, including the order, timing and the impact of the management actions. Elaboration of whether each action has been approved at the Board, senior management or other appropriate level should also be included.

VII. Sign-off of SST

VII.1 For long term insurers, the Appointed Actuary ("AA") should provide an opinion on the SST, including appropriateness of the assumptions and methodology used, reasonableness of results and viability of management actions identified. For composite insurers, the opinion can be provided solely by AA or jointly by AA and an appropriate representative with relevant knowledge, skills or pertinent experience to provide opinion on entity level. The sign-off does not affect the Board's ultimate responsibility on the ORSA Report.