



Risk-based Capital (RBC) Framework for the Macao Insurance Industry - Pillar 2

1st Industry Meeting
13 December 2024



Agenda



#	Topic	Time
0.	Introduction	3:00 pm – 3:10 pm
1.	Introduction to RBC Pillar 2	3:10 pm – 3:20 pm
2.	Overview of Macao Current Guidelines related to Pillar 2	3:20 pm – 3:30 pm
3.	Overview of the proposed Pillar 2 framework for Macao insurance industry 3.1 ERM Requirements 3.2 Governance Structure 3.3 Risk Appetite Statement 3.4 ORSA Requirements	3:30 pm – 4:00 pm
4.	Risk Assessments and Control Process proposed in Macao's Pillar 2 framework 4.1 ERM Models 4.2 Target Capital 4.4 Stressed Scenario Testing 4.4 Risk Management Policies	4:00 pm – 4:30 pm
5.	Supervisory Review and Expectations	4:30 pm – 4:40 pm
6.	Key Observations from Hong Kong Insurance Authority on first ORSA Reports	4:40 pm – 4:50 pm
7.	Q&A	4:50 pm – 5:00 pm



Section 1: Introduction to Pillar 2



1.1 What is Pillar 2?



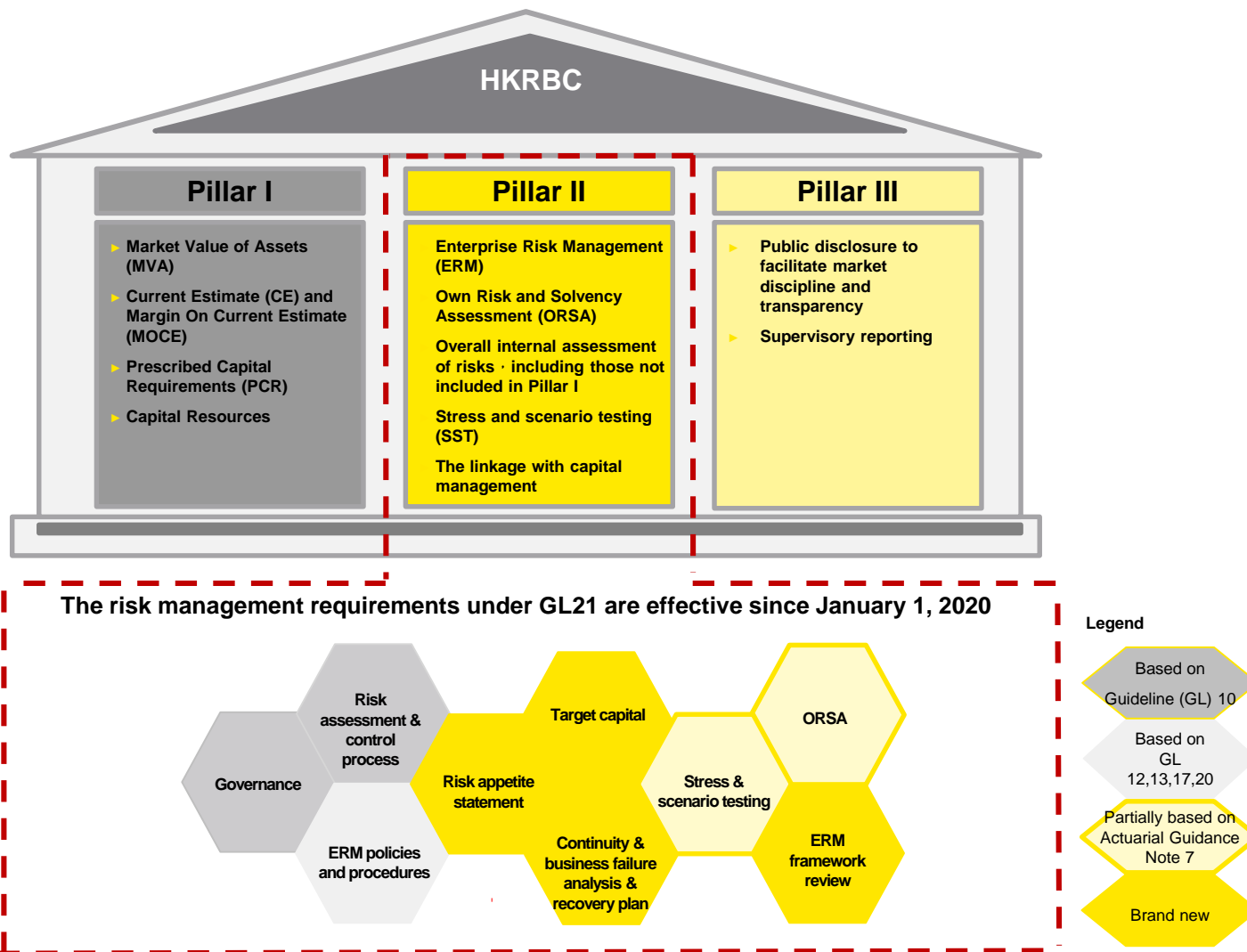
- Pillar 2 of an RBC regime focuses on qualitative requirements around enterprise risk management, linking the Pillar 1 quantitative aspects with business operations and decisions to paint a picture on the overall risk management practice of the insurance company.
- An Enterprise Risk Management (ERM) Framework typically consists of the following key components:



1.2 Pillar II requirements using HKRBC as a reference [1/2]



- Insurers must establish an effective Enterprise Risk Management (ERM) framework & Own Risk and Solvency Assessment (ORSA) process



1.3 Pillar II requirements using HKRBC as a reference [2/2]



- Risk Management Framework

The risk management requirements under GL 21 are effective since January 1, 2020



1. Governance

The three lines of defence promote accountability for risk management at all levels. It is covered in the governance module.

4. Risk appetite statement

The Board should establish clear business strategies, know the risks they are prepared to take and ensure they are consistent with appetite.

7. Stress & scenario testing (“SST”)

Conduct both macroeconomic and non-economic stresses to assess company’s risk profile and thus the relative movements in capital resources and capital requirements under those adverse movements.

2. Risk assessment & control process

Clear metrics to identify, assess, monitor and review risks on a regular basis, in order to assess the potential risks versus benefit

5. Target Capital

Additional capital to capture unquantifiable risks in Pillar 1 and risks not adequately covered in the structure of the regulatory capital requirements calculation.

8. ORSA

The ORSA should cover the risk profile, adequacy of the company’s risk management and also its solvency and liquidity positions in current and future state.

3. ERM policies and procedures

Policies and procedures detailing the governance of risk management including roles and responsibilities of individuals and business functions.

6. Continuity & business failure analysis & recovery plan

Conduct regular forward looking continuity analysis to analyse the ability of an insurer on an on-going basis. Develop recovery plan in going and gone concern to restore financial strength.

9. ERM framework review

Regularly reviewed to ensure the ERM framework remains fit for purpose and the review results should be incorporated in the ORSA Report. The ORSA report should be endorsed by the Board or Risk Committee level.



Section 2: Overview of Macao Current Guidelines related to Pillar 2



2.1 Current Macao's Guideline on Corporate Governance



- ▶ The AMCM has issued the Guideline on Corporate Governance of Authorised Insurers (Notice no. 016/2013-AMCM).
- ▶ The guideline covers the following key topics:

1. Roles and responsibilities of the Board

2. Structure and Governance of the Board

3. Duties of individual board members

5. Remuneration policy and practices

4. Risk management and internal control systems and functions

6. Reliable and transparent financial reporting

7. Transparency and communications

8. Duties of senior management

9. Supervisory review



Section 3:

Overview of the proposed Pillar 2 framework for Macao insurance industry



3.1 ERM Requirements



- The proposed Pillar 2 requirement for Macao insurance industry aims to nurture a sound risk culture which should be reflected in the business behaviour
- The Board and senior management should take ownership for shaping a sound risk culture to drive the business practices and decisions
- The proposed Pillar 2 requirements for Macao mainly set the standard for corporate governance framework, ERM framework and ORSA. The requirements are principle-based and include:

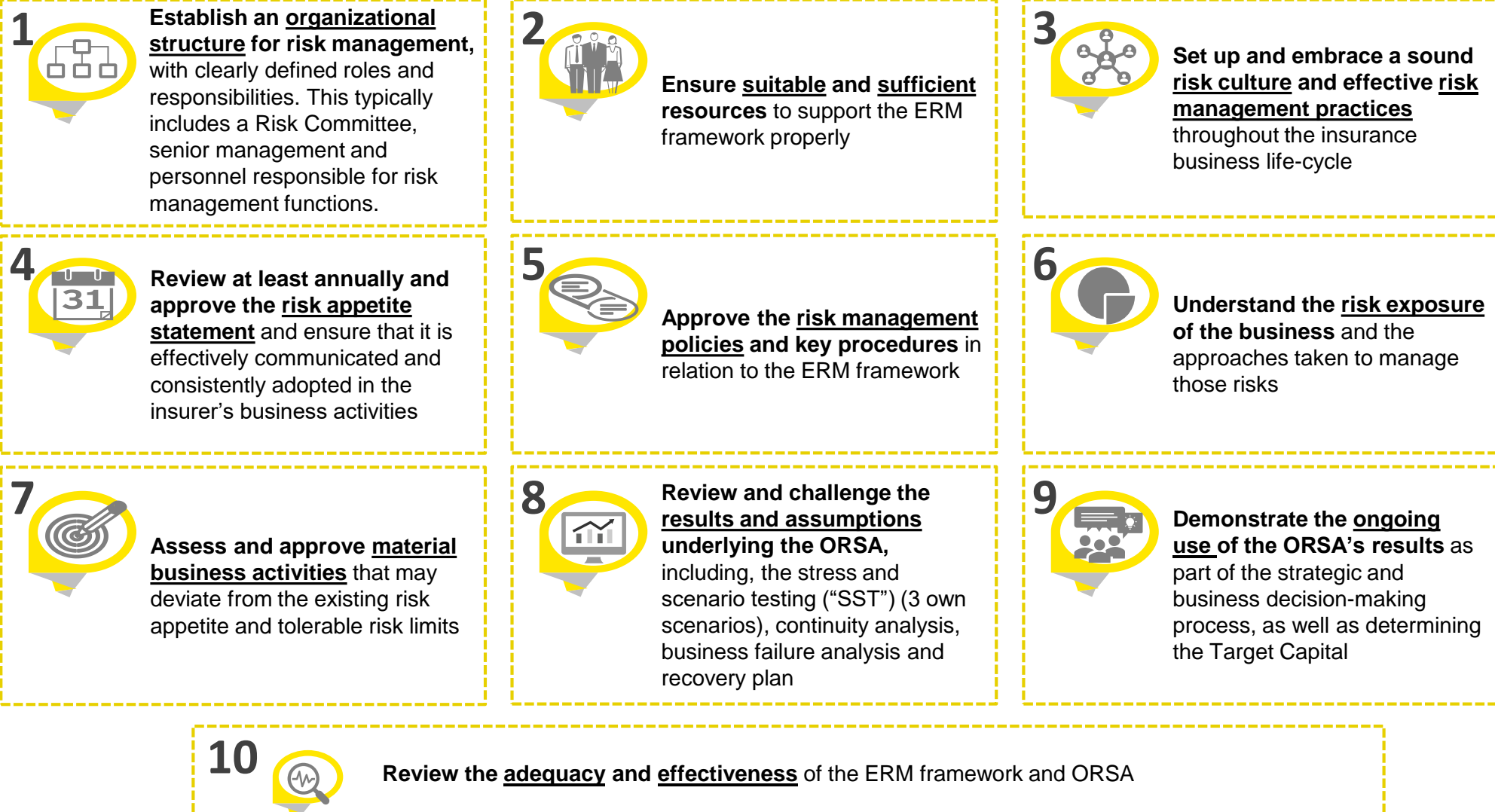


- The ORSA should be performed at least annually, and whenever there are material changes to the risk profile of the firm.
- The Board and senior management are accountable for the content of the ORSA.

3.2 Governance



- The Board has the overall responsibility for establishing and overseeing an effective ERM framework



3.3 Risk Appetite Statement



Objectives:

- Establish strategies and decisions based on a defined risk appetite that aligns with the nature, scale and complexity of the business operations.

Board Responsibilities:

- Approve the risk appetite statement and ensure it is communicated and embedded in strategy/operations.
- Include qualitative and quantitative measures of relevant risks and their interdependencies.
- Reflect the business plan and consider future scenarios.
- Review the statement at least annually or with significant risk changes.

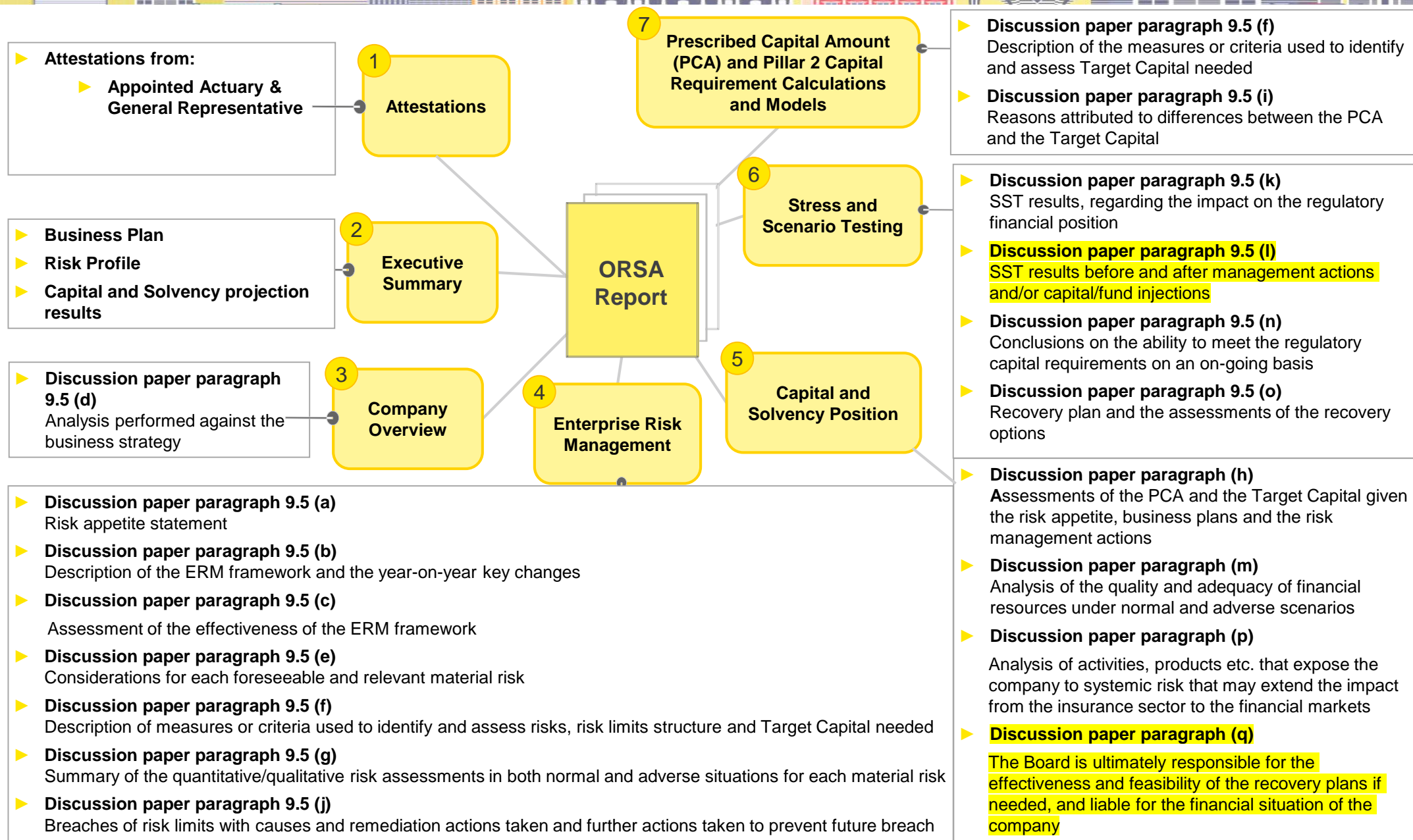
Reporting:

- Report breaches of the risk appetite statement promptly.
- Escalate significant issues to the Board, which approves deviations only with justification.

Risk Types	KRI	Red	Amber	Green
Market	Dollar duration	xxx	xxx	xxx
Liquidity	Liquidity ratio	<100%	>=100, <150%	>=150%
Credit	Default probability of overall bond portfolio	xxx	xxx	xxx
Operational	no. of incidents	over 100	10	less than 10

EXAMPLE

3.4 ORSA Requirements





Section 4:

Risk Assessments and Control Process proposed in Macao's Pillar 2 framework



4.1 ERM Models [1/2]



There are 12 minimum regulatory requirements regarding construction, validation and governance of ERM models.

- **3 statistical tests:** statistical quality test, calibration test and use test
- **Governance:** Ensure oversight by the Board and senior management.
- **Risk Integration:** Align the Target Capital assessment with overall risk strategy and operational processes.
- **Data Integrity:** Use accurate and complete data for the model.
- **Documentation:** Maintain detailed records of model design, assumptions, and test results.
- **Regulatory Compliance:** Regularly communicate with AMCM about any significant model changes and provide necessary information upon request.

Details of Minimum regulatory requirements of ERM models: 

1. **Model Appropriateness:** Demonstrate the model is appropriate through statistical quality test, calibration test and use test.
2. **Statistical Quality Test:** Conduct a statistical quality test to evaluate the model's quantitative methodology, including justification of model inputs, parameters, and assumptions
3. **Target Capital Requirement:** Ensure that the Target Capital determined by the model accurately reflects the overall risk position, adhering to the solvency regime, with accurate and complete underlying data.
4. **Calibration Test:** Perform a calibration test to confirm that the model's Target Capital meets or exceeds the Prescribed Capital Amount (PCA) and evaluates a 1-in-10-year event using a one-year VaR approach.

4.1 ERM Models [2/2]



Details of Minimum regulatory requirements of ERM models: (continue)

5. **Use Test:** The risk and capital management models, methodologies used and results should be consistently embedded in key business decision-making and risk management and operational processes of the business.
6. **Integration:** Fully embed the ERM models, its methodologies and results, into the organization's risk strategy and operational processes.
7. **Management Oversight:** The Board and senior management must oversee the ERM models, ensuring a thorough understanding of their construction, outputs, and limitations.
8. **Governance and Internal Controls:** Establish adequate governance and internal controls related to the ERM models.
9. **Documentation:** Maintain comprehensive documentation of the model's design, rationale, assumptions, and the 3 tests results.
10. **Performance Monitoring:** Regularly review and validate the model's performance to ensure it meets regulatory standards, based on the established tests mentioned above.
11. **Documentation of Changes:** Properly document all modifications to the ERM model.
12. **Information Provision:** Provide AMCM with details on how ERM models fit within governance, risk management strategies, and capital assessments upon request.

4.2 Target Capital



- Companies are required to maintain enough capital, known as the Target Capital, to meet its capital needs, factoring in the full range of risks to which it is exposed

- Calibration of Target Capital

In determining its Target Capital, companies should use:

- a one-year Value-at-Risk approach based on a 1-in-10 event above the Prescribed Capital Amount (“PCA”)

OR

- a more conservative approach
for determining its target capital requirements

4.3 Stressed Scenario Testing



- Companies are required to conduct stressed scenario testing (“SST”) based on material risks to assess its risk profile. The projection period is of three years and market conditions after the instantaneous market shocks are assumed to remain flat over a projection period to assess the impact and identify remedial actions if the market does not recover.
- Companies are required to include both prescribed scenarios and **at least three own scenarios** to cover all the potential material risks noted in the ORSA report. All the prescribed SST scenarios are adopted from HKRBC except for the liquidity scenario for life (re)insurers and pension fund management companies.

Life insurance or Pension Fund Management business	
• Prolonged low interest rates scenario	• Rising interest rates scenario
• Pandemic scenario	• Liquidity stress scenario
• Financial crisis scenario (impact as at valuation date only)	

General insurance business	
• Market risk scenario	• Self-defined insurance loss scenario
• Largest loss scenario with largest market risk scenario	

4.3 Stressed Scenario Testing - Life and Pension Business

(1) Prolonged low interest rates scenario



- This scenario intends to assess an adverse event under prolonged low interest rates environment:

1 Further drop in interest rates

- 70% applied to risk-free yield curve projected up to the last liquid point (“LLP”) of base scenario
- 90% applied to ultimate forward rate (“UFR”) of base scenario
- Smith-Wilson method is used to interpolate and extrapolate the risk-free yield curve

2 Downward adjustment of growth asset with market shock

- Immediate fall by 30% of equity and real estate market values, and remains flat afterwards

3 Credit spread widening

- Immediate increase of credit spreads by 75 bps to 300 bps depending on credit rating, and remains flat afterwards. For unrated fixed income assets, insurers should assume the shock applied as the average of rating band 4 and 5.

4.3 Stressed Scenario Testing - Life and Pension Business

(2) Rising interest rates scenario



- This scenario intends to assess an adverse event under rising interest rates environment:

1 Increase in interest rates

- 130% applied to risk-free yield curve projected up to the last liquid point (“LLP”) of base scenario
- 110% applied to ultimate forward rate (“UFR”) of base scenario
- Smith-Wilson method is used to interpolate and extrapolate the risk-free yield curve

2 Downward adjustment of growth asset with market shock

- Immediate fall by 30% of equity and real estate market values, and remains flat afterwards

3 Credit spread widening

- Immediate increase of credit spreads by 75 bps to 300 bps depending on credit rating, and remains flat afterwards. For unrated fixed income assets, insurers should assume the shock applied as the average of rating band 4 and 5.

4.3 Stressed Scenario Testing - Life and Pension Business

(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:

1 Market condition same as “Prolonged low interest rates scenario”

2 Death claims increase

- 1.5 per mille absolute increase in mortality rates applied to the first 12 months from the valuation date
- The stress is applied at the entity level
- offsetting is allowed among policies at the entity level

3 Higher future morbidity rates

- 20% multiplicative morbidity stresses applied to the first 12 months from the valuation date
- The shock levels should be applied at homogeneous risk group (“HRG”) level with only adverse impacts at HRG level being recognized
 - 20% increase in the disability and morbidity inception rates
 - 20% decrease in the recovery rates

4 New business sales slow down

- 70% applied to new business sales volume being under base scenario over projection period

4.3 Stressed Scenario Testing - Life and Pension Business

(4) Financial crisis scenario



- 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.

1 Drop in interest rates

- 50% applied to risk-free yield curve projected up to the last liquid point (“LLP”) of base scenario or base scenario rates minus 1% if lower
- 90% applied to ultimate forward rate (“UFR”) of base scenario
- Smith-Wilson method is used to interpolate and extrapolate the risk-free yield curve

2 Downward adjustment of growth asset with market shock

- Immediate fall by 50% of equity and real estate market values, and remains flat afterwards

3 Credit spread widening

- Immediate increase of credit spreads by 150 bps to 600 bps depending on credit rating, and remains flat afterwards. For unrated fixed income assets, insurers should assume the shock applied as the average of rating band 4 and 5.

- For this scenario, impact is required as at valuation date only
- Insurers should identify management actions and necessary remedial actions assuming no rapid recovery of the stressed conditions

4.3 Stressed Scenario Testing - Life and Pension Business

(5) Liquidity stress scenario [1/5]



- This scenario reflects macroeconomic stress with a loss of confidence in the insurer's head office through reflecting an increase in bond defaults and a 3-notch downgrade in the credit rating of the insurer. The net cash flows are further impacted by increased in management expenses, reduced reinsurance recoverables, mass surrenders and decline in new business sales.

Base Scenario Cash Flow (Month)	Dec 2024 (Month 0)	Jan 2025 (Month 1)	Feb 2025 (Month 2)	Mar 2025 (Month 3)	Apr 2025 (Month 4)	May 2025 (Month 5)	Jun 2025 (Month 6)	Jul 2025 (Month 7)	Aug 2025 (Month 8)	Sep 2025 (Month 9)	Oct 2025 (Month 10)	Nov 2025 (Month 11)	Dec 2025 (Month 12)
Cash & Deposits	500												
Liability Cashflows													
Existing business:													
Premium Income (net of commissions)		100	100	100	100	100	100	80	80	80	80	80	80
Surrenders		-20	-20	-20	-20	-20	-1,200	-20	-20	-20	-20	-20	-20
Monthly Base Net Cash Flow		80	80	80	80	80	60	60	60	60	60	60	60
Cumulative Base Net Cash Flow (incl Cash and Deposits)		580	660	740	820	900	960	1,020	1,080	1,140	1,200	1,260	1,320
Value of Government Debt Securities (after haircut)		95	96	96	97	97	98	99	100	100	101	100	100
Value of GSE mortgage-backed securities senior to preferred shares rated above A- (after haircut)		85	87	89	91	93	95	97	99	100	101	100	100
Value of Investment Grade Corporate Bonds (after haircut)													
Value of Equities listed in developed markets (after haircut)													
Value of Certificates of Deposit (after haircut)													
Value of CIS where no look-through is applied (after haircut)													
Cumulative Base Net Cash Flow including Allowable Assets		760	843	925	1,006	1,086	1,161	1,232	1,300	1,364	1,424	1,480	1,532

LIQUIDITY SCENARIO

Stressed Cash Flows (Please input the change in the stressed cash-flow components due to each stress factor. Please refer to "Example" tab for more information)

Liquidity Scenario Cash Flow Month	Jan 2025 (Month 1)	Feb 2025 (Month 2)	Mar 2025 (Month 3)	Apr 2025 (Month 4)	May 2025 (Month 5)	Jun 2025 (Month 6)	Jul 2025 (Month 7)	Aug 2025 (Month 8)	Sep 2025 (Month 9)	Oct 2025 (Month 10)	Nov 2025 (Month 11)	Dec 2025 (Month 12)
CHANGE IN CASH FLOWS DUE TO STRESS FACTOR												
Change in Equity Prices												
Change in Liability Cashflows - Existing Business:												
37 Premium income												
38 Surrenders												
39 Maturity												
40 Claims												
41 Others (e.g. expenses)												
Change in Liability Cashflows - New Business:												
42 Premium income												
43 Surrenders												
44 Claims												
45 Others (e.g. expenses)												
Change in Asset Cashflows:												
46 Coupons and Maturity Proceeds from Debt Securities												
47 Dividends from Equity Securities												
48 Planned disposal of assets												
49 Other asset cashflows												
50 Change in Other Cashflows												
51 Change in Reinvestments												
172 Monthly Stressed Net Cash Flow (excl Cash and Deposits)	0	0	0	0	0	0	0	0	0	0	0	0
173 Cumulative Stressed Net Cash Flow (incl Cash and Deposits)	0	0	0	0	0	0	0	0	0	0	0	0

4.3 Stressed Scenario Testing - Life and Pension Business

(5) Liquidity stress scenario [2/5]



Base Case:

1 Project the Monthly Base Net Cash Flow for 12 months

- Monthly Base Net Cash Flow = Cash flows from
 - Assets reflecting haircuts
 - New business liability
 - Existing business liability
 - Other cash flows:
 - ☐ dividends to shareholders
 - ☐ other arrangements or obligations that require regular financing
 - Reinvestment of cash flows
- Projections for the investment-linked fund should only include cash flows relating to the non-unit reserves only
- For callable bonds, the cash flows to be included in the projections should be limited to those up to the next call date given that the cash flows beyond the next call date are uncertain

2 Calculation of the Cumulative Base Net Cash Flow

- Calculated by accumulating the Monthly Base Net Cash Flow, obtained under Step 1, and including cash and deposits
- The projections should comprise changes in the monthly projections of the cash flow position of the direct life insurer or pension fund management company for the valuation year (i.e. for 12 months).

4.3 Stressed Scenario Testing - Life and Pension Business

(5) Liquidity stress scenario [3/5]



- The liquid assets and applicable haircuts under liquidity stress scenario for various assets are as follows:

S/N	Liquid Asset	Haircut (from month 1 to 3)	Haircut (from month 4 to 12)
a	Cash, including cash and currency on hand, demand deposits with banks or other financial institutions or other kinds of accounts that have the general characteristics of demand deposits	0%	0%
b	Government Debt Securities rated AA- or above	5%	0%
c	Government Debt Securities rated A- or above	25%	15%
d	Government Debt Securities rated BBB- or above	40%	30%
e	Government Sponsored Entity (GSE) mortgage-backed securities senior to preferred shares rated above A-	25%	15%
f	Non-financials: Investment-grade corporate debt securities (excluding structured products or subordinated debt)	50%	30%
g	Non-financials: Equities listed in developed markets	60%	50%
h	Financials: Investment-grade corporate debt securities (excluding structured products or subordinated debt)	60%	50%
i	Financials: Equities listed in developed markets	70%	60%
j	Certificates of Deposit (excluding deposits reported under (a))	60%	50%
k	Collective investment schemes ("CIS"), including liquid mutual, money market funds and exchange-traded funds	<p>Where the look-through approach under Macao RBC is adopted for the CIS, the haircuts should be applied to the underlying assets.</p> <p>If no look-through is applied, the insurer should apply 90% haircut to the CIS.</p>	<p>Where the look-through approach under Macao RBC is adopted for the CIS, the haircuts should be applied to the underlying assets.</p> <p>If no look-through is applied, the insurer should apply 75% haircut to the CIS.</p>

4.3 Stressed Scenario Testing - Life and Pension Business

(5) Liquidity stress scenario [4/5]



Liquidity Stress:

3

Calculation of the Monthly Stressed Net Cash Flow

➤ The shocks will be applied only from the start of the calendar year.. All shocks should be applied simultaneously.

▪ Investment shocks :

❑ Investment shocks include :

- ❖ Equity prices: -40% to -20% (HK / US: -25% / China: -40%)
- ❖ Property prices (year-on-year growth): -12% ~ -5% (HK: -7% / China: -12%)
- ❖ Sovereign Yield Curve (bps change) (HKD / USD: 75~175 China: 130~250)
- ❖ Credit Spreads (bps change) (HK: 250 / US: 340 / China: 300)
- ❖ Default rates for bond issues (Investment grade: 1.5% / non-investment grade: 15%)
- ❖ Exchange Rates: -13.7% ~0.5% (HKD / USD: 0.5% ; CNY / USD: -4.5%)
 - positive denotes appreciation of stated currency against USD
- ❖ Downgrade in insurer's credit rating by 3-notch

❑ Investment shocks should be applied at the start of valuation year

▪ Non-investment shocks:

❑ Non-investment shocks include :

- ❖ 30% absolute lapse rate for whole-life, endowment, and unit-linked policies at the Beginning of projection period.
- ❖ -75% in new business premiums
- ❖ +20% in management expenses
- ❖ 50% in reinsurance recoveries (for reinsurance with Head Office or related parties)

❑ Non-investment shocks should be applied throughout the duration of the projection

➤ The impact from all stress factors should be incorporated at the same time

➤ The impact on projected cash flows from the prescribed shock on the downgrade in the credit rating of the insurer should be considered

4.3 Stressed Scenario Testing - Life and Pension Business

(5) Liquidity stress scenario [5/5]



Liquidity Stress:

4 Calculation of the Cumulative Stressed Net Cash Flow

- Calculated by accumulating the Monthly Stressed Net Cash Flow, obtained under step 3, and including cash and deposits

- A negative Cumulative Base Net Cash Flow or Cumulative Stressed Net Cash Flow will indicate potential liquidity issues, and may require unplanned disposal of assets
- Certain assets can be used to meet the cash flow deficiency, provided the insurer can still meet the minimum fund solvency requirements

4.3 Stressed Scenario Testing – Life and Pension Business

(6) Own scenarios



- Companies are required to include at least three own scenarios to cover potential material risks noted in the ORSA report
- Examples of own scenarios from HKRBC:
 - 1 Mass lapse under interest rate up scenario (impact as at valuation date only)
 - 2 Change in new business sales mix
 - 3 Increased new business under prescribed scenario “rising interest rates scenario”
 - 4 Increased inflation with higher interest rates and drop in equity and real estate prices

4.3 Stressed Scenario Testing – GI

(1) Market risk scenario



1 Introduction to market risk scenario

- For insurers carrying out general insurance business, this scenario intends to assess the impact of the instantaneous and permanent net assets value deduction by an amount equivalent to the sum of the insurer's two largest undiversified risk charges in regulatory capital.
- The market risk charge in regulatory capital includes:
 - Interest rate risk;
 - Credit spread risk;
 - Property risk;
 - Equity risk;
 - Currency risk.

2 Exemption

- A general business insurer is required to carry out testing using Prescribed Scenario 1 only if the sum of its two largest undiversified market risk charges is greater than 10% of its eligible capital resources. Otherwise the Prescribed Scenario 1 will be optional for stressed scenario testing.

4.3 Stressed Scenario Testing – GI

(2) Self-defined insurance loss scenario



1 Introduction to self-defined insurance loss scenario

- For insurers carrying out general insurance business, this scenario intends to assess the impact of a 1-in-200 (i.e., 99.5% VaR) or more remote insurance loss event.
- To determine the scenario, an insurer carrying out general insurance business should analyse its key risk exposures and consider a wide range of events with the chosen scenario(s) being that (or those) considered to have the largest financial impact on its solvency ratio, particularly where the risks are not (adequately) captured in its regulatory capital requirements.
- An insurer carrying out general insurance business can determine the timing of the insurance loss, based on when it would cause the most adverse impact to its solvency ratio.
- Possible insurance loss risk event includes but not limited to:
 - Event hitting multiple LOBs (e.g., **risk event arising from property and inland transit line**)
 - Event hitting multiple risks from various regions (e.g., **supply chain disruption, contingent business interruption**)
 - Multiple natural catastrophe events involving different perils or geographical locations
 - Flood, drought, and other natural perils
 - Man-made events (e.g., **explosion or conflagration**)
 - Nuclear biological chemical or radiological risks or terrorism risk
 - Business interruption due to non-property damage (e.g., **pandemic or other reasons leading to inaccessible building**)
 - Marine (e.g., **hull accumulation, cargo accumulation, offshore platform explosion and pollution**)
 - Motor collision (**affecting the motor or general liability lines of business**)
 - Legal changes to pecuniary loss in personal injury cases (e.g., **change to periodical payment order or change to discount rate for lump sum compensation**)
 - Accident and health risks (e.g., **explosion or conflagration, pandemic, group travel or personal accident accumulation**)
 - Major buyer default on credit line of business

2 Exemption

- There is no exemption rule on Prescribed Scenario 2. It is mandatory for all insurers carrying general insurance business to conduct stressed scenario testing with self-defined insurance loss scenario.

4.3 Stressed Scenario Testing – GI

(3) Largest loss scenario with largest market risk scenario



1 Introduction to largest loss scenario with largest market risk scenario

- Prescribed scenario 3 is a combination of the general business insurer's largest loss scenario which will be taken from Prescribed Scenario 2 and the largest market risk charge under its regulatory capital requirements.
- The largest insurance loss scenario and the net assets deduction by the amount equivalent to the largest market risk charge are assumed to happen simultaneously. Similar to that in Prescribed Scenario 2, an insurer is able to determine the timing of loss, based on when it would cause the most adverse impact to its solvency ratio.

2 Exemption

- A general business insurer is required to carry out testing using Prescribed Scenario 1 only if the sum of its two largest undiversified market risk charges is greater than 10% of its eligible capital resources. Otherwise the Prescribed Scenario 1 will be optional for stressed scenario testing.

4.3 Stressed Scenario Testing - GI

– Stressed scenario reporting requirements



1 Reporting requirements for insurers carrying GI business

Reporting Requirement	Applicable Scenarios
<ul style="list-style-type: none"> Methodology and assumptions in determining the impact of each scenario to the financial and solvency projections should be included in ORSA report, which covers: key assumptions and limitations, how knock-on effects are considered, etc 	<ul style="list-style-type: none"> Prescribed Scenario 1, Prescribed Scenario 2, Prescribed Scenario 3
<ul style="list-style-type: none"> Results under prescribed stressed scenarios should be presented in the ORSA report, which shall include: the impact of prescribed stressed scenario on insurer's PCA, eligible capital resources, solvency ratio, and target solvency ratio with and without planned management actions over the business planning period. 	
<ul style="list-style-type: none"> Impact of prescribed stressed scenarios should be included in ORSA report: impact of each scenario including commentary on the results and, where appropriate, a breakdown of movements in capital and PCR. 	
<ul style="list-style-type: none"> Management actions should be presented in ORSA report, 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 appropriate level should also be included. 	
<ul style="list-style-type: none"> Discussion on key risk exposures should be presented in ORSA report, which shall include but not limited to: explanation of key risk exposure and range of scenarios it assessed to determine Prescribed Scenario 2, justification for selecting Prescribed Scenario 2 with the materiality of each risk event considered, the likelihood of the chosen scenario happening. 	<ul style="list-style-type: none"> Prescribed Scenario 2
<ul style="list-style-type: none"> Methodology and assumptions in determining the chosen scenario's loss amount should be included in ORSA report, which covers: the description of the approach and key assumptions adopted, and any models or specific software used. 	

4.4 Risk Management Policies



*There are existing guidelines from AMCM



Section 5: Supervisory Review and Expectations



5.1 Supervisory Actions



- To safeguard the interests of policyholders, AMCM may require the following:



Strengthen ERM Framework

- Enhance solvency, liquidity assessments, and capital management



Demonstrate Model Capabilities

- Show the effectiveness of risk models used



Ongoing Risk Assessments

- Ensure business decisions considers regulatory capital requirements, target capital, financial resources and ORSA



Effective Risk Management Actions

- Ensure risk management measures in ORSA are properly executed



Independent Review

- Arrange for external evaluation of the ERM framework



Supervisory Discussions

- Engage when risk management and solvency are inadequate



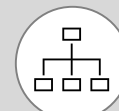
Limit Executive Remuneration

- Restrict remuneration levels of directors and senior management



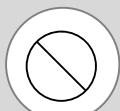
Restrict Dividends

- Impose limits on shareholder dividends



Adjust Business Structure

- Modify operations, restrict new branches, and advertising



Limit Business Scope

- Constrain the scope of business activities, transfer insurance activities or performing ceding of business



Adjust Asset Structure

- Control investments and asset proportions



Recover Remuneration

- Recoup pay from responsible directors and management



Management Adjustment

- Adjust leadership as per regulatory requirements



Apply Capital Add-Ons

- Implement additional capital if risk frameworks are inadequate



Other Necessary Measures

- Enforce any other required actions

5.2 Capital Add-ons [1/5]



Situations when Capital Add-ons maybe triggered:

- Where there is a significant deviation in the risk profile of an authorized (re)insurer or pension fund management company from the assumptions underlying the Prescribed Capital Amount;
- Where there is a significant system of governance deviation; or
- Where any direct or indirect qualified shareholder no longer possesses the necessary financial soundness or integrity.

AMCM will evaluate an insurer's risk profile deviation from the Prescribed Capital Amount by considering the following relevant factors :

Nature, type, and size of the deviation

Likelihood and severity of any adverse impact on policyholders

Level of sensitivity of the assumptions to which the deviation relates

Anticipated duration and volatility of the deviation over the duration of the deviation

5.2 Capital Add-ons [2/5]



Criteria for assessing whether a risk profile deviation is significant:

Deviation against PCA	Outcome as regards the assessment of the size of the risk profile deviation
The AMCM detects a risk profile deviation that is <10% of the PCA	The AMCM may determine that the risk profile of the insurer deviates significantly from the assumptions underlying the Prescribed Capital Amount, based on the factors set out in previous slide.
The AMCM detects a risk profile deviation that is >=10% (and <15%) of the PCA	The AMCM expects to conclude that the risk profile of the insurer deviates significantly from the assumptions underlying the Prescribed Capital Amount, unless there is strong evidence to the contrary, based on the factors set out in previous slide.
The AMCM detects a risk profile deviation that is >=15% of the PCA	The AMCM expects to conclude that the risk profile of the insurer deviates significantly from the assumptions underlying the Prescribed Capital Amount.

5.2 Capital Add-ons [3/5]



Calculation of the Capital Add-ons in Relation to Different Deviations:

Type of Deviation	Capital Add-on Calculation	Considerations
Deviations as regards the Prescribed Capital Amount (PCA)	<p>Capital Add-on = Difference between:</p> <ul style="list-style-type: none"> Adjusted PCA reflecting actual risk profile (excluding previous/simultaneous add-ons) Current PCA (excluding previous/simultaneous add-ons) 	<ul style="list-style-type: none"> Assess methodologies leading to deviations, including unquantified risks, calculation structure, parameters and assumptions Modify assumptions/parameters for accurate reflection of actual risk profile Explore new methodologies if modifications are insufficient. Use relevant actuarial/statistical techniques and accurate data. Compare with similar insurers if alternatives are inadequate
Deviations from system of governance requirements	N/A (assesses impact rather than a direct calculation)	<ul style="list-style-type: none"> Effect of deviation on sound management and governance implementation. Likelihood and severity of adverse impacts on policyholders. Effective governance structure proportional to business risks. Probable financial loss anticipated duration of the deviation. Previous capital add-ons for comparable governance deviations.
Deviations in Relation to the Necessary Financial Soundness or Integrity of Any Direct or Indirect Qualified Shareholder	<p>Capital add-ons \geq Difference between:</p> <ul style="list-style-type: none"> Capital required for all prescribed SST scenarios (without future capital injections) Prescribed Capital Amount (PCA) when deviation in relation to financial soundness or integrity of any direct/ indirect shareholder 	<p>Events triggering add-ons:</p> <ul style="list-style-type: none"> Any qualified shareholder fails to demonstrate willingness or ability to comply with AMCM conditions. Any qualified shareholder fails to show financial soundness through funding sources and future capital access. Financial condition of any qualified shareholder does not meet legal or regulatory requirements. Any qualified shareholder is insolvent or in default.

5.2 Capital Add-ons [4/5]



Process for Setting Capital Add-ons:

Notification: AMCM informs of its intention to set a capital add-on and provides reasons



Response Deadline: AMCM sets a deadline for the entity to respond to the notification.



Calculation Request: AMCM may request the entity to calculate the capital add-on in accordance with specifications set by AMCM



Information Request: AMCM may ask for additional information if the initial response is insufficient.



Impact Assessment: AMCM considers the potential adverse impact on policyholders when determining deadline



Deadline Notification: Entities should notify AMCM immediately if they cannot meet the deadline.



Decision Details: AMCM informs the insurer in writing about the decision, including:

- Reasons for the capital add-on
- Amount of the capital add-on
- Effective date
- Remediation deadlines (if applicable)
- Progress report requirements (if applicable)

5.2 Capital Add-ons [5/5]



Ongoing monitoring of a Capital Add-on:

Progress Update

AMCM may request updates on the progress towards remedying deficiencies related to the capital add-on

Regular Review

AMCM will regularly review the capital add-on, determining the frequency on a case-by-case basis, and will also conduct a review if there are material changes in the circumstances that led to the capital add-on

Consideration Factors

In deciding whether to maintain, change, or remove the capital add-on, AMCM will consider:

- Information submitted during the setting and calculation process
- Other information obtained through supervision
- Relevant data indicating material changes in circumstances

Notification of Decision

AMCM will notify the entity in writing of any changes to or removal of the capital add-on, including the effective date of the decision



Section 6:

Key Observations from Hong Kong Insurance Authority on first ORSA Reports



6. Summary of IA's key observations from HKRBC's first ORSA reports

- The IA has published their comments on 9 areas around the first ORSA reports



1



Board involvement – attestation on areas such as target capital was given by external consultants rather than the Board. Also the ERM and ORSA framework are not yet embedded in the business cycles.

2



Communication with stakeholders – some executive summary were poorly written with only a statement mentioning its compliance without the story behind,

3



Breadth and depth in Risk Identification and Risk Assessment – some insurers only conducted quantitative testing under Pillar 1 and did not consider emerging risks e.g. climate risk.

4



Risk Appetite Statement (“RAS”) and Risk Limits – no clear definition or too generic without sufficient quantitative and qualitative interpretation.

5



Target Capital – interpretation of target capital is unclear and setting of target capital can be arbitrary where there is no clear linkage or inconsistent with its risk appetite.

6



Stress Scenario Testing – not all prescribed stressed scenarios were conducted. For own scenarios, typically insurers only have 1 own scenario. Little justification was observed to comment on the appropriateness of the methodology/assumptions. Some risks were missed from the own scenario when they were identified in the risk identification.

7



Recovery Plan – lack of details around potential recovery options and feasibility.,

8



Independent Review – not all insurers stated the conclusion from the independent review. Scope and frequency of the review were not mentioned.

9



Scope of entities – some entities were excluded without justification whether those excluded entities have material risks.



Section 7: Q&A



Submission of Written Feedbacks



Please submit your written feedbacks and suggestions with respect to the consultation questions along with an official letter to the AMCM on or before **10 February 2025**.

Mail: Insurance Supervision Department
Monetary Authority of Macao
Calçada do Gaio, n.os 24 e 26, Macau

Email: dsg@amcm.gov.mo (Both scanned copy and Word file)

Appendix - Parameters for the liquidity stress scenario

[1/4]



❖ Investment Shocks (Shocks should be applied simultaneously)

i. Equity Prices (% change)	
Singapore	-25.0
Malaysia	-20.0
Thailand	-20.0
Indonesia	-20.0
Philippines	-20.0
India	-20.0
South Korea	-35.0
Taiwan	-30.0
China	-40.0
Hong Kong	-25.0
Australia	-20.0
Japan	-20.0
US	-25.0
Eurozone	-25.0
UK	-25.0
Other Developed Markets	-25.0
Eurozone Periphery	-30.0
Other Emerging Markets	-20.0

ii. Property Prices (% year-on-year growth)	
Singapore - HDB	-6.0
Singapore – Private Residential	-5.0
Singapore – Commercial	-11.0
Singapore – Industrial	-7.0
Hong Kong – Private Residential	-7.0
Hong Kong – Commercial	-7.0
Malaysia	-8.0
Thailand	-8.0
Indonesia	-10.0
China	-12.0

Appendix - Parameters for the liquidity stress scenario [2/4]



❖ Investment Shocks (Shocks should be applied simultaneously)

iii. Sovereign Yield Curve (bps change)						
Tenor	SGD	USD	EUR	HKD	ASIA	JPY
0-30d	195	175	225	175	250	0
31-90d	195	175	225	175	250	0
91-180d	175	155	225	155	220	0
181-360d	175	145	235	145	220	0
>1y to 2y	155	135	245	135	190	20
>2y to 3y	155	125	255	125	190	40
>3y to 5y	135	115	265	115	160	60
>5y to 7y	135	105	275	105	160	80
>7y to 10y	115	95	285	95	130	100
>10y to 15y	115	85	295	85	130	120
>15y	115	75	305	75	130	120

v. Default rates for bond issues	
Investment grade	1.5%
Non-investment grade	15%

iv. Credit Spreads (bps change)	
Singapore	250.0
Malaysia	300.0
Thailand	300.0
Indonesia	300.0
Philippines	300.0
India	300.0
South Korea	250.0
Taiwan	250.0
China	300.0
Hong Kong	250.0
Australia	230.0
Japan	250.0
US	340.0
Eurozone	340.0
UK	250.0
Other Developed Markets / Investment-Grade	250.0
Other Emerging Markets / High- Yield (Asia)	300.0
Other Emerging Markets / High- Yield (Non-Asia)	300.0

Appendix - Parameters for the liquidity stress scenario

[3/4]



❖ Investment Shocks (Shocks should be applied simultaneously)

vi. Exchange Rates (%change; positive denotes appreciation of stated currency against USD)	
SGD / USD	-4.1
MYR / USD	-6.2
THB / USD	-5.1
IDR / USD	-10.3
PHP / USD	-8.6
INR / USD	-13.7
KRW / USD	-4.1
TWD / USD	-8.8
CNY / USD	-4.5
HKD / USD	0.5
AUD / USD	-7.9
JPY / USD	-4.8
EUR / USD	-6.3
GBP / USD	-4.9
CNH / USD	-4.5
XXX / USD	-6.0

vii. Downgrade in the insurer's credit rating (or the credit rating of the insurer's parent where the insurer does not have a credit rating, but its parent has a credit rating)*

3-notch downgrade (e.g., from AAA to A-)

Appendix - Parameters for the liquidity stress scenario [4/4]



- ❖ Non-investment Shocks (Shocks should be applied simultaneously)
 - i. 30% absolute lapse rate for whole-life, endowment, and unit-linked policies at beginning of projection period
 - ii. -75% in new business premiums
 - iii. +20% in management expenses
 - iv. -50% in reinsurance recoveries (for reinsurance with Head Office or related parties)



Thank You!

