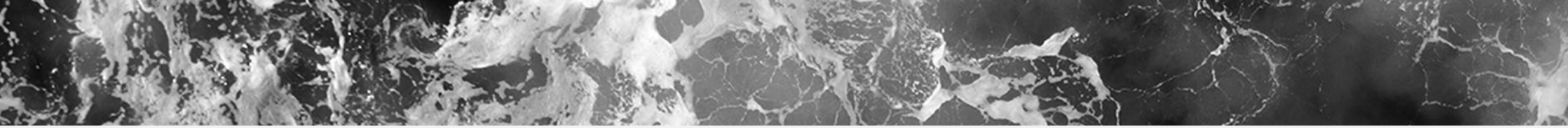
RISK-BASED SUPERVISION: STRESS TESTING AND SCENARIO ANALYSIS IN AFRICAN FINANCIAL MARKETS

Presented by Asveen Ramchurn

AGENDA

- Introduction
- The Mauritian Case
- The Seychelles Case
- The South African Case
- Conclusion

INTRODUCTION



RISK-BASED SOLVENCY (RBS)

IAIS Guidance Notes:

RBS is a comprehensive, formally structured regime that seeks to ensure that insurers:

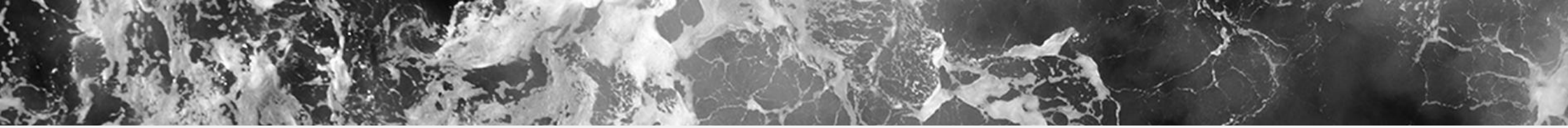
- Maintain a capital adequacy level commensurate with their risk profiles in order to guarantee that they have enough financial resources to withstand financial difficulties,
- Are supported by a sound corporate governance framework, in particular an enterprise risk management (ERM) system.

RBS is a complex, interrelated set of quantitative, qualitative and disclosure requirements.

Benefits of RBS

Key benefits of RBS regime are:

- Enhances the protection of policyholders,
- Supports market development and financial inclusion,
- Contributes to financial stability and supporting the transition to risk-based supervision



IAIS CORE PRINCIPLES (1)

ICP 8: Risk management and internal controls

The supervisor requires an insurer to have, as part of its overall corporate governance framework, effective systems of risk management and internal controls, including effective functions for risk management, compliance, actuarial matters and internal audit.

ICP 9: Supervisory review and reporting

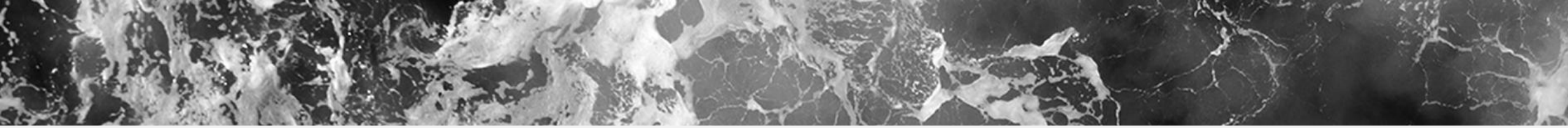
The supervisor uses off-site monitoring and on-site inspections to:

- examine the business of each insurer;
- evaluate its financial condition, conduct of business, corporate governance framework and overall risk profile; and
- assess its compliance with relevant legislation and supervisory requirements.

The supervisor obtains the necessary information to conduct effective supervision of insurers and evaluate the insurance market.

ICP 14: Valuation

The supervisor establishes requirements for the valuation of assets and liabilities for solvency purposes..



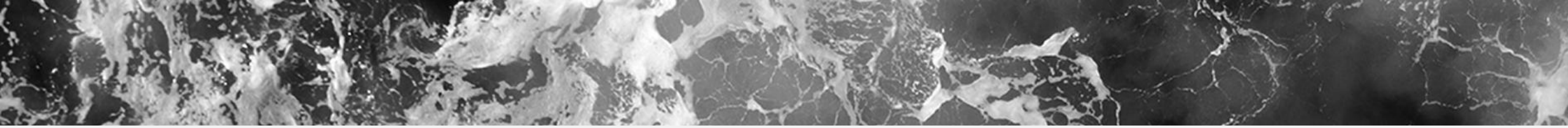
IAIS CORE PRINCIPLES (2)

ICP 16: Enterprise risk management for solvency purposes

The supervisor requires the insurer to establish within its risk management system an enterprise risk management (ERM) framework for solvency purposes to identify, measure, report and manage the insurer's risks in an ongoing and integrated manner.

ICP 17: Capital Adequacy

The supervisor establishes capital adequacy requirements for solvency purposes so that insurers can absorb significant unexpected losses and to provide for different degrees of supervisory measures.



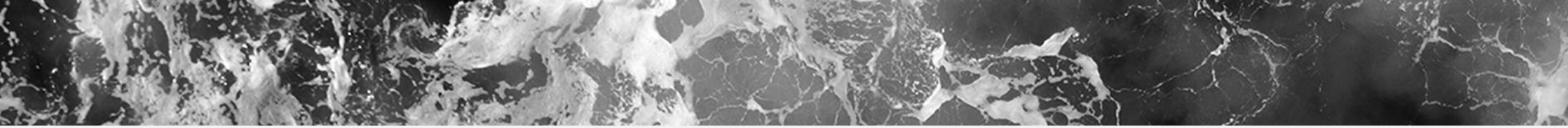
RISK-BASED SUPERVISION

Key Benefits:

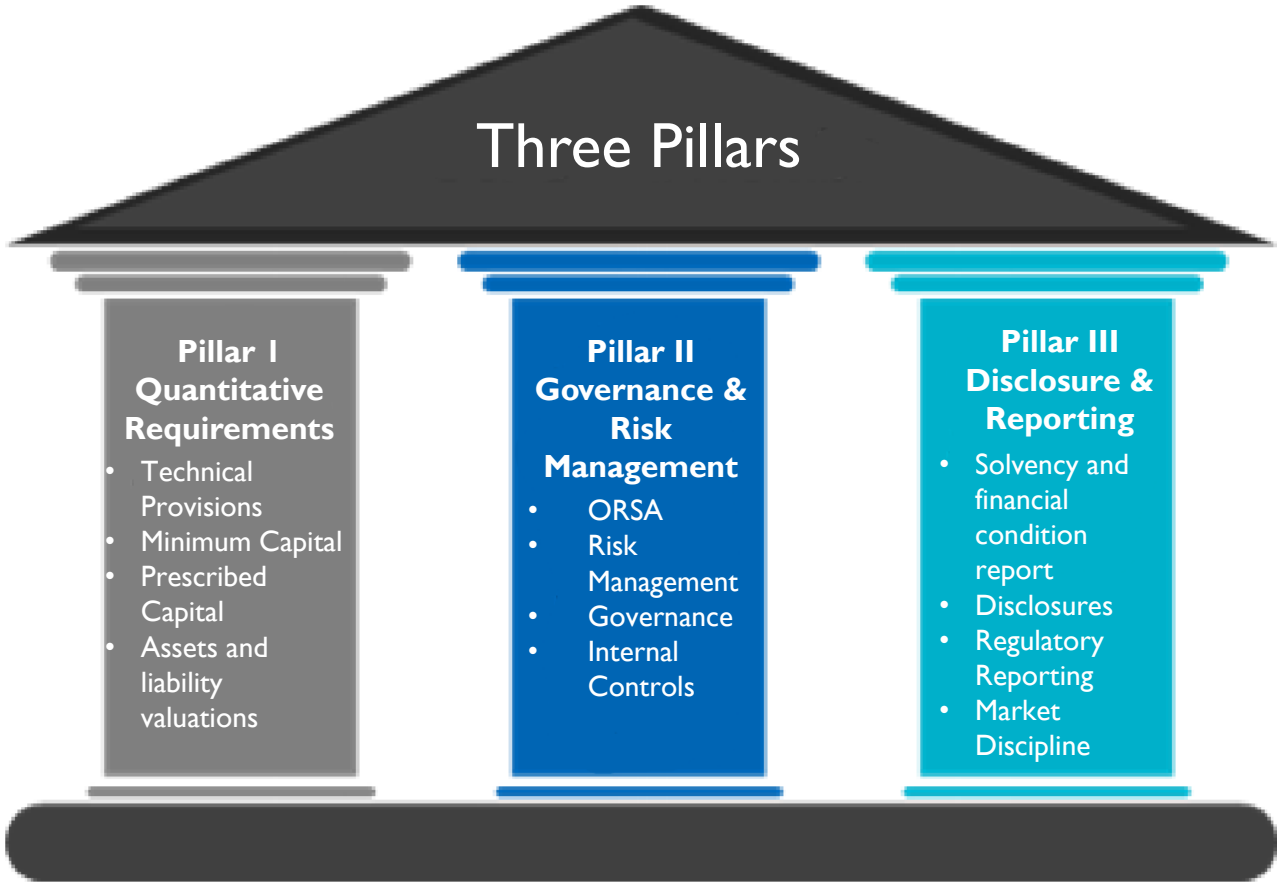
- Forward-looking proactive approach to supervision that avoids the constraints of compliance-based rules.
- Integrates a risk-based approach ensuring supervisory resources are efficiently allocated to higher risk companies -introduces an element of proportionality
- Avoid the "one size fits all" approach to capital requirements and ensures more appropriate level of capital being required in proportion to risks being taken.

RBS Implementation Considerations:

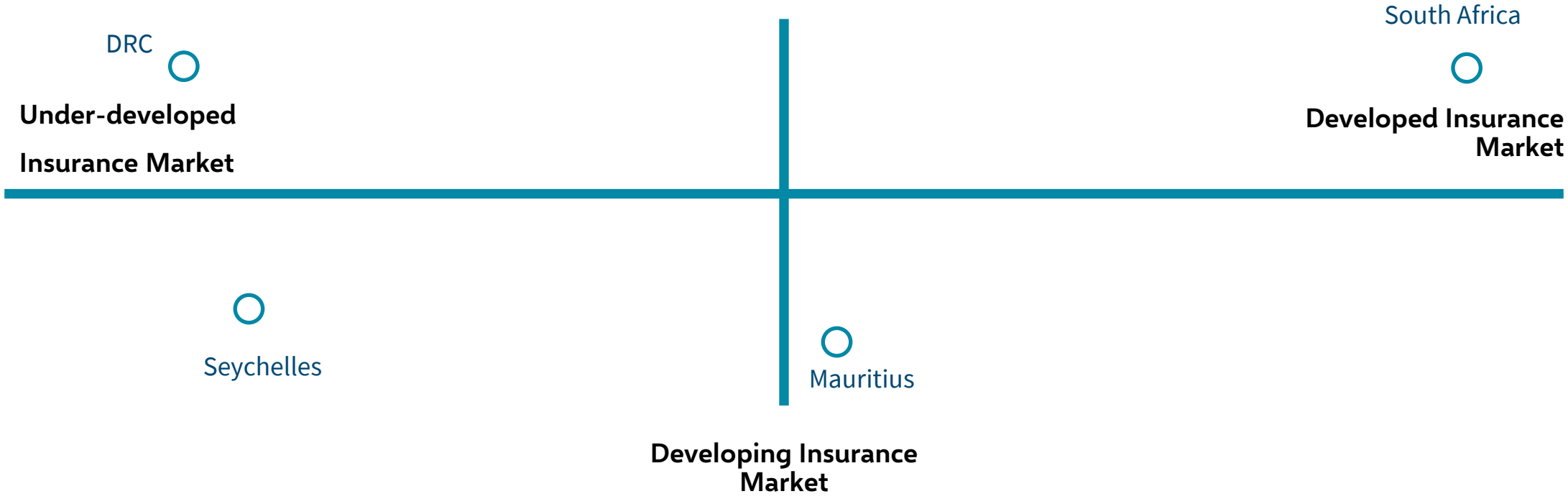
- The environmental factors of the jurisdiction, including:
  - Economic conditions and activities,
  - Level of development of financial markets,
  - Demographics of the jurisdiction and
  - Cultural issues around the use of insurance.
- Be tailored to its specific market circumstances.



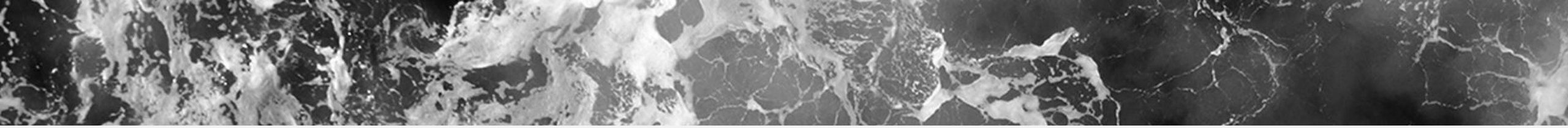
SOLVENCY II – AN OVERVIEW



Mapping of different African Countries on the RBS Implementation Journey



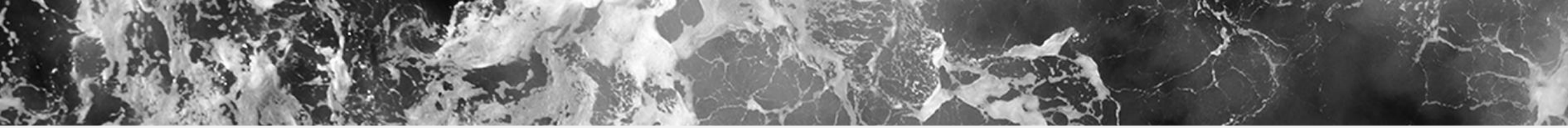
RBS – THE MAURITIAN CASE



RISK-BASED CAPITAL MAURITIUS

Statutory Solvency Method – Valuation of Liabilities (1):

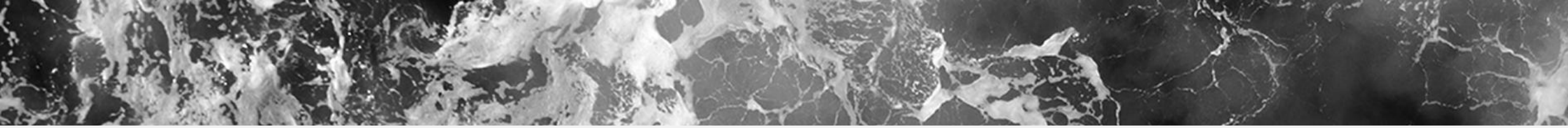
- Factors to consider when determining liabilities:
  - premiums to be received in the future;
  - options regarding future investment returns, bonus declarations, expenses, mortality experience, morbidity experience, lapses, surrenders, and other relevant factors, which assumptions –
    - shall be best-estimate assumptions;
    - shall take into account the reasonable expectations of policyholders and any established practices of an insurer for payment of benefits.
  - a minimum level of financial resilience;
  - the full value of non-vested bonuses, already accumulated or to be paid out on death shall always be valued. In addition, future additions to such bonuses shall be assumed;
  - an adjustment to reflect the time value of money and the financial risks; and
  - risk adjustment for non-financial risk.



RISK-BASED CAPITAL MAURITIUS

Statutory Solvency Method – Valuation of Liabilities (2):

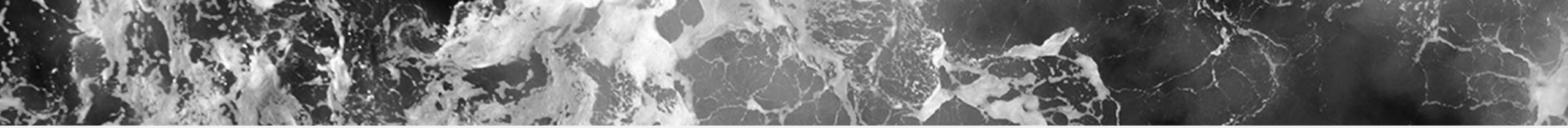
- Factors to consider when determining liabilities:
  - Consistency across valuation periods in:
    - the method of calculation of the amount of liabilities; and
    - the assumptions for the valuation parameters.
  - Liabilities to allow for the contractual service margin in an appropriate way over the duration of each policy;
  - The premiums to be valued shall be as per the term of each policy.
  - The valuation method to include the cost of any options that may be available.
  - Liabilities to include provision for expected allocations of profit to shareholders, and the bonus rates declared for policyholders.
  - Liabilities to use best-estimate assumptions modified by the risk adjustment (may change during each valuation period).
  - Investment Linked policies: >= Sum(underwriting liability, policy accumulation fund, bonus stabilization reserves)



RISK-BASED CAPITAL MAURITIUS

Statutory Solvency Method – Valuation of Assets:

- Assets to be valued at fair value for SVM basis;
  - In the case of an asset which is listed on the Official List of a licensed stock exchange and for which a price was quoted on that stock exchange on the date as at which the value is calculated, the price last so quoted;
  - In any other case, the price which could have been obtained upon a sale of the asset between a willing buyer and a willing seller dealing at arm's length, as estimated by the insurer;
  - The estimate of the FSC, where the Commission suspects market abuses, or where the FSC is not satisfied with the estimate determined above



RISK-BASED CAPITAL MAURITIUS

Statutory Solvency Method – Investment Concentration Limits:

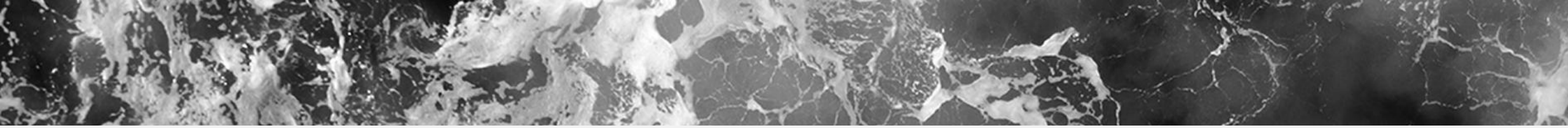
Listed Equities: 10% of Assets

Unlisted Equities: 5% of Assets

Properties: 10% of Assets in any property

Related Companies: 10% of Assets in aggregate

Collective Investment Schemes: No limit



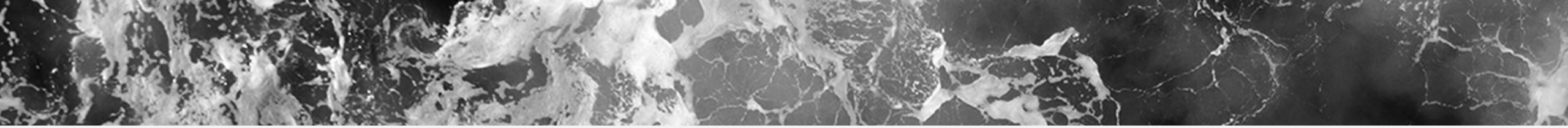
RISK-BASED CAPITAL MAURITIUS

Statutory Solvency Method – Minimum Capital Requirements:

- Solvency Margin: 100% of the Minimum Capital Requirement (MCR)

- Capital requirement ratio set at a minimum target level of 100%
  - MCR = Higher of
    1. Stress Test Requirement
    2. An absolute amount of Mauritian rupees 25 million
    3. an amount representing 13 weeks' operating expenses,

    (with operating expenses as defined and reported in the annual statutory return submitted to the Commission)
  - MCR for Foreign Branches
    - To add MCR(Foreign Branch) to MCR of Company
    - MCR(Foreign Branch) subject to a minimum of MCR determined under Mauritian Rules



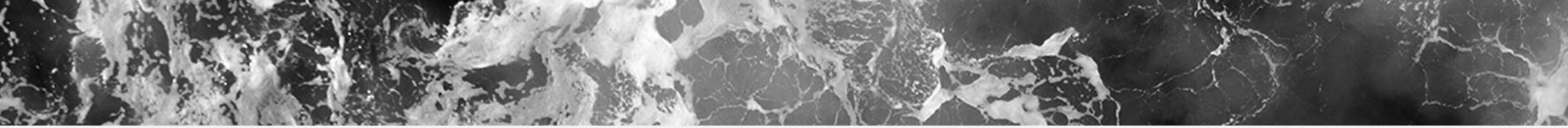
RISK-BASED CAPITAL MAURITIUS

Statutory Solvency Method – Stress Test Requirements:

- Stress Test Requirement
- = Higher of
  - Termination Capital Adequacy Requirements (TCAR)
  - Ordinary Capital Adequacy Requirements (OCAR)

- TCAR = Sum of
  - Lapse capital adequacy requirement
  - Surrender capital adequacy requirement
  - Lapse CAR (for policies with no surrender values):
    - Equals the amount required to ensure that no policy has a negative liability

  - Surrender capital adequacy requirement:
    - Equals the amount required to ensure that no policy's liability is less than its current surrender value or guaranteed surrender value whichever is higher
    - For policies that cannot be surrendered or transferred from long term insurer the amount is zero



RISK-BASED CAPITAL MAURITIUS

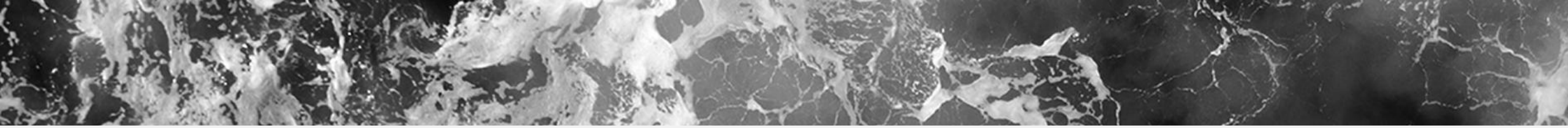
Statutory Solvency Method – Ordinary Capital Adequacy Requirements (OCAR):

- OCAR = IOCAR * Grossing up Factor

  (Grossing up factor provides for the effect of the assumed fall in fair value of the assets backing it)

- Intermediate Ordinary Capital Adequacy Requirement (IOCAR):

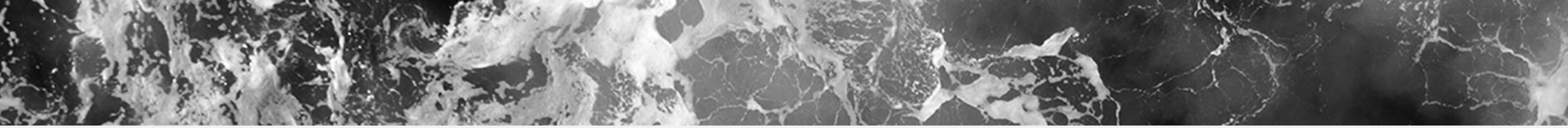
- $IOCAR = \sqrt{(a^2 + b^2 + ci^2 + cii^2 + ciii^2 + d^2 + e^2 + f^2 + g^2 + h^2 + i^2)} + j + k$



RISK-BASED CAPITAL MAURITIUS

Statutory Solvency Method – OCAR Components (1):

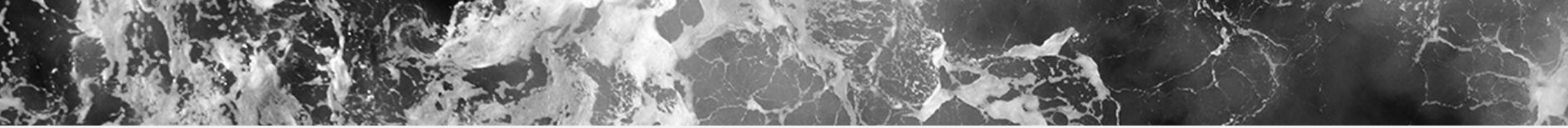
	Description	Formula	Components
a	Lapse risk (for policies with no surrender values)	40% of the amount required to ensure that no policy has a negative liability before taking into account the effect of any negative bonus stabilisation reserve	
b	Surrender risk	20% of the amount required to ensure that no policy's liability, before taking into account the effect of any negative bonus stabilisation reserve, is less than its current surrender value or its guaranteed surrender value whichever is higher	
ci	Mortality fluctuation risk	$45p/\sqrt{n}$	n = number of lives assured in the category (net of lives fully reinsured) p = annual risk premium on the valuation basis or expected strain (net of reinsurance)
cii	Morbidity fluctuation risk	$65p/\sqrt{n}$	
ciii	Medical fluctuation risk	$135p/\sqrt{n}$	



RISK-BASED CAPITAL MAURITIUS

Statutory Solvency Method – OCAR Components (2):

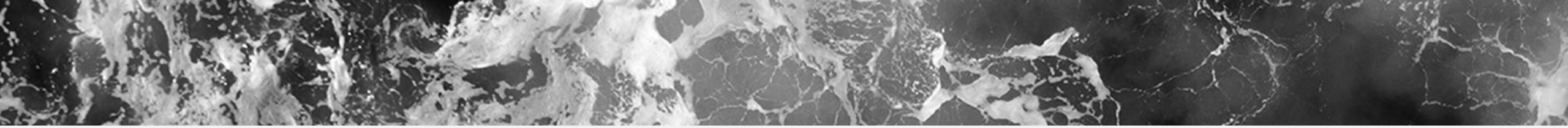
	Description	Formula	Components
d	Annuitant mortality fluctuation risk	$r/\sqrt{n}$	r = statutory solvency reserves for the relevant (i.e. where mortality plays a role) annuity portfolios on the valuation date n = number of annuitants in the relevant category.
e	Mortality, morbidity and medical assumption risk	• Aids assumption CAR = 1/3* best-estimate Aids liability • Mortality assumption CAR = 5% heavier mortality experience than the actuary's valuation basis on SVM • Morbidity assumption CAR = 10% heavier morbidity experience than the actuary's valuation basis on SVM • Medical assumption CAR = 15% heavier medical experience than the actuary's valuation basis on SVM	
f	Expense fluctuation risk	10% of all renewal expenses in the previous year (excluding commission and commission related and other acquisition costs)	



RISK-BASED CAPITAL MAURITIUS

Statutory Solvency Method – OCAR Components (3):

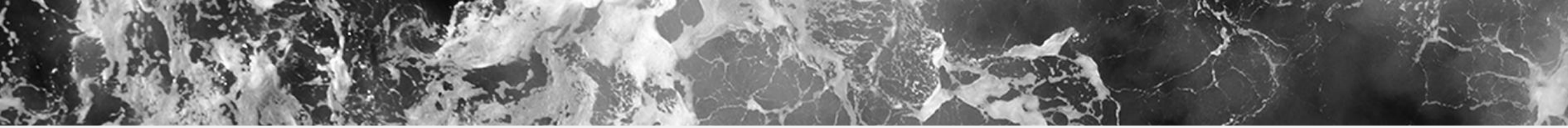
	Description	Formula	Components
g	Expense assumption risk	For business with liabilities not valued on a discounted cash flow basis, equals the increase in liabilities, should allowance be made for a 2% worse inflation rate for renewal expenses (i.e. maintenance, investment and claims expenses) lasting for the duration of the expected reaction time, or for the outstanding term of each policy if expense loadings cannot be reviewed. (The effect of discontinuances must be taken into account)	
h	Investment risk	= higher of hi and hii	
hi	Resilience capital adequacy requirement	(Ao – Lo) – (A1 – L1) = L1 – A1 Lo = Statutory solvency method liabilities (including any bonus stabilisation reserve) at the valuation date. Ao = Lo (i.e. the assets necessary to back the liabilities at the valuation date). L1 = Statutory solvency method liabilities after the assumed fall in fair value (before deduction of the absolute value of any negative bonus stabilisation reserve), reduced by the effect of any proposed management actions e.g. lower bonus rates. A1 = Value of the assets (Ao) after the assumed fall in fair value.	



RISK-BASED CAPITAL MAURITIUS

Statutory Solvency Method – OCAR Components (4):

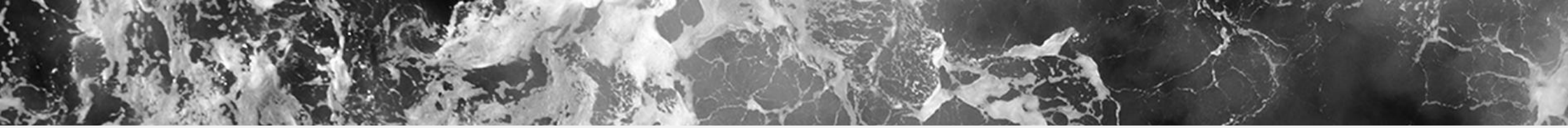
	Description	Formula
h(ii)	Worse investment return capital adequacy requirement	assumes that future investment returns would be 0.80 of the valuation assumption (test for a 20% relative reduction) subject to minimum of 1% per annum lower than assumed in valuation. This implies that the valuation interest rate used in valuing both assets and liabilities and the assumed growth rates for future dividends and rentals, where applicable, must all be reduced to 0.80 of the valuation rate per annum, subject to a minimum reduction of 1% per annum.
i	Foreign exchange risk	The foreign exchange risk capital adequacy requirement is equal to the change in effect on total assets less liabilities of a minimum 20% fall in foreign exchange rates for all assets held in foreign currencies.
j	Understatement of liabilities	Any understatement of the liabilities resulting from using insufficient margins in the valuation assumptions for each category of business. Under this section, liabilities should consist of only Best Estimate Liabilities
k	Operational Risk Capital Requirement	k = min(25% · STR, Op) + OpInvestment STR = The Stress Test Requirement excluding capital requirements for Operational risks Op = Operational risk capital requirement for all insurance obligations other than investment insurance obligations $OpInvestmen$t = Operational risk capital requirement for investment-linked insurance obligations (including Structured Investment-Linked Insurance Business)



RISK MANAGEMENT MAURITIUS (1)

Risk Management Rules:

- An insurer is required to have a Risk Management Framework in place and it shall include:
  - a RAS;
  - a RMS;
  - the business plan;
  - an ORSA;
  - the liquidity policy;
  - a designated risk management function; and
  - a description of the responsibilities, roles and reporting lines within the insurer for the management of material risks.



RISK MANAGEMENT MAURITIUS (2)

Risk Management Rules:

- An insurer is required to maintain a three-year rolling business plan, incorporating financial forecasts for at least 3 years including the projected solvency position, which sets out the insurer's strategic objectives and how these are to be achieved.

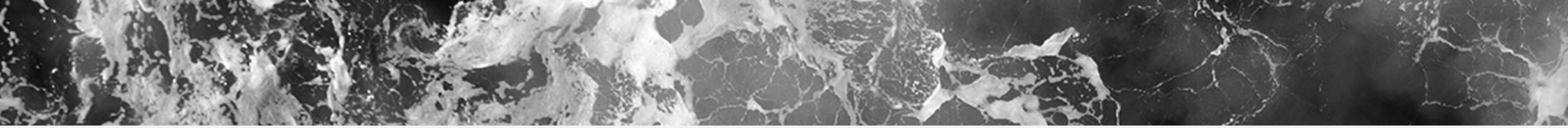
- The business plan shall -

  (a) be reviewed and updated at least annually;

  (b) identify the material risks associated with the strategic objectives and state how those risks are to be managed;

  (c) be subjected to stress testing made in accordance with the insurer's RMF, RAS and RMS; and

  (d) include the whole of the insurer's operations and any group strategy which may impact the insurer.

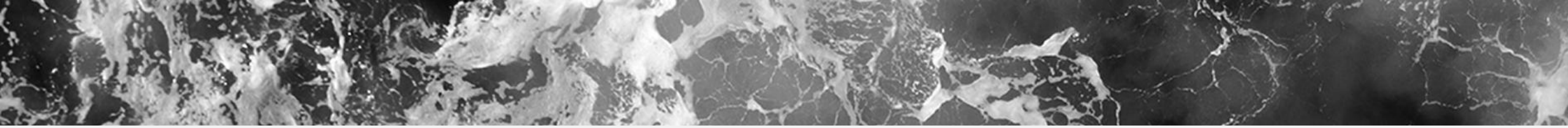


REGULATORY SUBMISSIONS MAURITIUS

Minimum Reporting Requirements:

- An insurer is required to submit the following to the Regulator:
  - Annual returns including financials, solvency calculations, details of officers and solvency certificate;
  - Annual audit report;
  - Actuarial investigation report (independent);
  - ORSA report;
  - Review of RMF by the Appointed Actuary; and
  - Compliance with risk management rules as certificated by auditors.

RBS – THE SEYCHELLES CASE

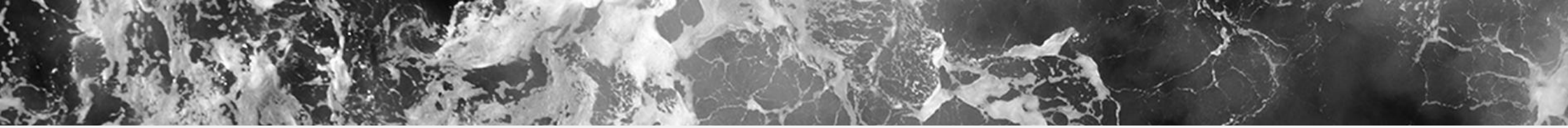


MINIMUM CAPITAL SEYCHELLES

Statutory Solvency Method – Valuation of Liabilities:

- The total amount of the liabilities of a licensed insurer carrying on long term insurance business includes-
  - all liabilities shown in the balance sheet and
  - the valuation of liabilities, and shall be calculated by the method and on the basis to be determined by a qualified actuary.

- A qualified actuary shall take into account the purpose for which such valuation is to be made, the rate of interest, mortality and sickness to be used in valuation.



MINIMUM CAPITAL REQUIREMENT SEYCHELLES

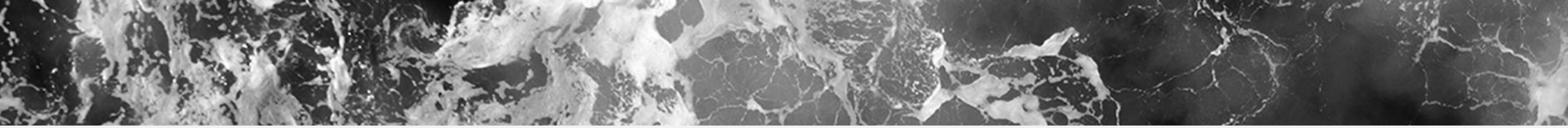
Statutory Solvency Method – Minimum Capital Requirements:

- Solvency Margin: 100% of the Minimum Capital Requirement (MCR)

- The solvency margin of an insurance fund established in respect of long term insurance business to be maintained by a licensed insurer at all times during any accounting period shall be-:
  - 3 per cent of the insurer's liabilities in respect of non-participating policies, and
  - 2 per cent of such liabilities in respect of participating policies, as at the end of the preceding accounting period;
  - 1 per cent of the sum insured at risk for policies the original term of which is two years or less, and 0.2 per cent of the sum insured at risk for policies the original term of which is more than two years, as at the end of the preceding accounting period;
  - 20 per cent of net premium income from accident and health policies of the fund in the preceding accounting period or 2,000,000 rupees,

- The sum insured at risk may be reduced for any reinsurance ceded up to a maximum of 25 percent.

RBS – THE SOUTH AFRICAN CASE



RISK-BASED CAPITAL SOUTH AFRICA

- South Africa has implemented the Solvency Assessment Management requirements-
  - Allows insurers to develop their internal models for capital determination;
  - Models take account of the actual risks faced by the insurers;
  - Equivalent to Solvency II with the following key features:
    - Comprises of two levels of capital requirements:
      - Minimum Capital Requirement – threshold at which companies will no longer be permitted to trade,
      - Solvency Capital Requirement – the target level of capital below which companies may need to discuss remedies with regulators.
    - Under SAM, the SCR is calculated by:
      - Measuring capital requirements for individual risk modules (e.g., market, underwriting, operational risk)
      - Aggregating these using a prescribed correlation matrix.
    - The standard formula:
      - Recognizes diversification benefits between risks
      - Uses a correlation matrix specified by the Prudential Authority to combine them. The SCR is calculated by assessing the capital required for each risk against a 0.5% ruin probability in one year.

KEY CHALLENGES OF RBS

Availability of Qualified Resources

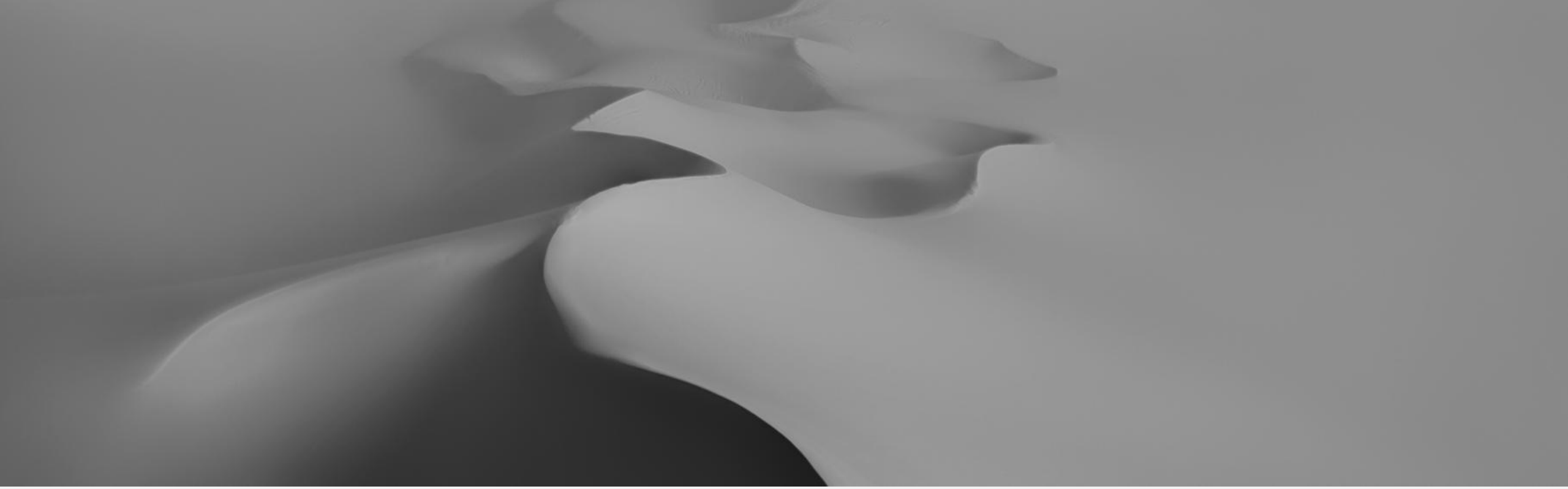
Availability of qualified and experienced resources such as actuaries to implement an advanced RBS system.

Availability of Data

Availability of adequate credible data to appropriately calibrate the capital models.

Cost of Compliance

Advanced RBC models may imply significant costs of implementation and operations.



THANK YOU

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