

6th Capacity Building Seminar in Health Care Insurance Gurugram August 2, 2018

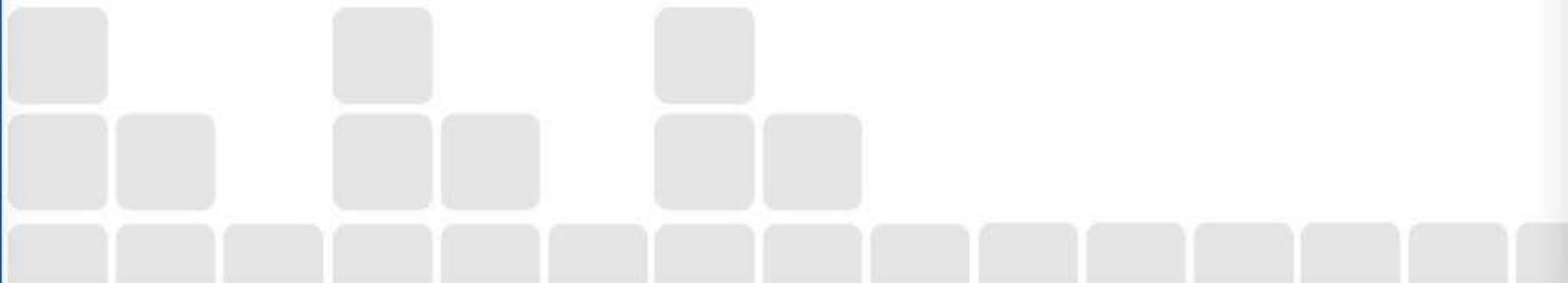
RBC – The building blocks of the framework

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An introduction to Risk Based Capital



What is Risk Based Capital



- Risk-based capital (RBC) represents an amount of capital based on an assessment of risks that a company should hold to protect customers against adverse developments.
- Risk Based capital is calculated on how much risk is taken by the insurance companies as opposed to using a standard formula. The higher risk would require higher capital requirement and vice versa. One of the benefits of using risk based capital is the freedom given to the companies to follow their strategy; the benefit of risk diversification is also passed to the insurance companies.

Approach

- Different methods & formulae are being used by regulators, managements and rating agencies
- May differ by provider type i.e. life / health / property & casualty

Representation

- Usually expressed in the form of a ratio
- Ratio of Company's Total Capital and company's RBC

Interpretation

- Depends upon computation basis
- Depends upon the underlying implicit assumptions

Drivers for Risk Based Capital



- International Association of Insurance Supervisors (IAIS) advocates such changes
- World Bank is also pushing for the same with underlying reason being removal of regulatory arbitrage
- Globally insurers are moving to RBC/S-II
- Increasing the accountability of the insurers
- Consistency in the valuation of assets and liabilities
- Consistent standards for supervision and intervention
- Capital requirements in line with the risks undertaken by the insurer
- Efficient use of capital and better risk management
- IFRS is driving the industry to a market consistent valuation methodology

High Level Components

Capital vs
Liability

- Pref Shares, Equity (embedded put), unsecured debt

Exclusions
Inclusions

- Inadmissible assets / liabilities

Valuation

- Book / Market / Fair etc
- Adjustments - volatility

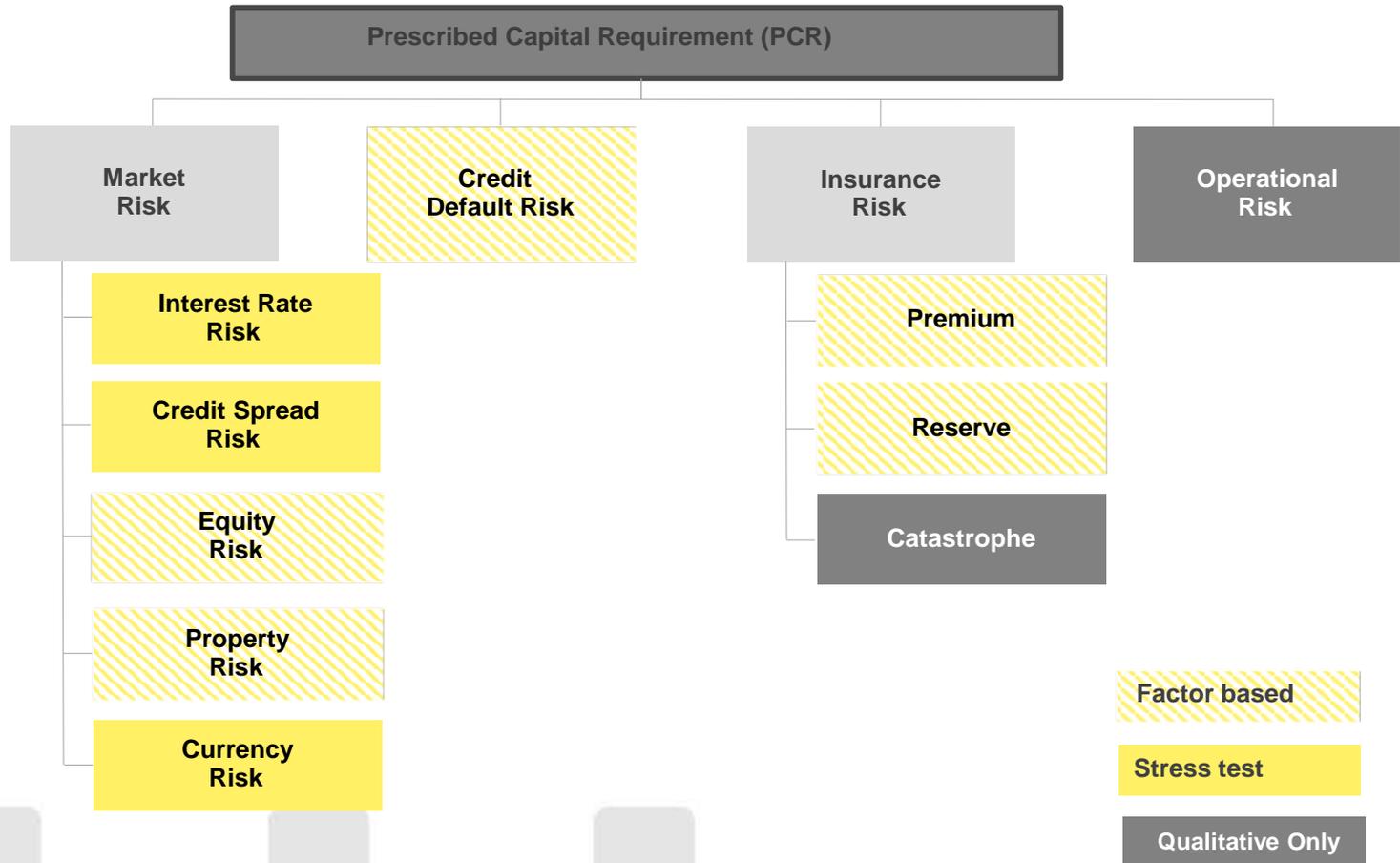
Risk &
Capital

- Establish relationship between capital and risk – factors, stress
- Which risks ? (non quantifiable risk, emerging risk – approaches)
- Diversification? Group Level?

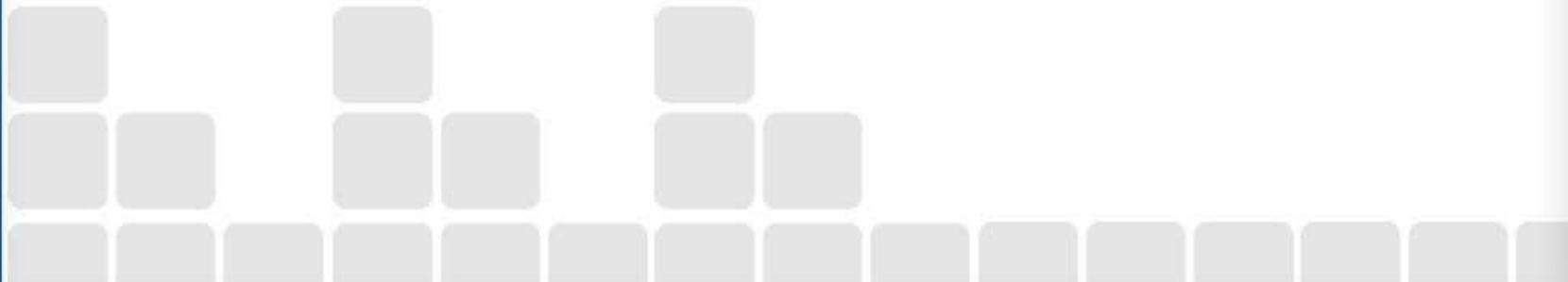
Regulatory
Action

- Clear regulatory action ladder

Example of Capital & Risk



RBC : Indian Market



RBC : Committee Recommendation



- Factor based standard model – Committee does not recommend Internal Model
- QIS and market research in order to determine the detailed approach and parameters
- Broad time frame : 3 years by March 2021 to coincide with IFRS 17 implementation. There will be a parallel run in two regimes current solvency regime to continue till switch over in March 2021.
- IRDAI to manage the RBC project through formation of steering committee
- IAI to be involved through the two sub committees
- IRDAI along with IAI to specify certain assumptions or parameters e.g. risk free interest rates or future rate of inflation
- Atleast 3 QIS to be conducted during the preparatory phase

RBC : Committee Survey Findings



- Large segment of industry believes that current solvency regime is adequate though not responsive to risk
- Current system has advantages – simple, standardized, stood test of time, no scope for subjectivity/manipulation
- Disadvantages – conservative, not all risks, benefit weak reserves, no incentive for risk mgmt, not full reinsurance benefit
- No alternatives are used
- Only one company uses EC for CAT treaty
- No clear indication on when industry to move on RBC
- Risks – Premium, Reserve and CAT risks are rated quite highly and then came market, credit and others were given lower weightings
- Risky LoBs – Motor TP, Crop, Aviation / Marine Hull, Grp Health

RBC : Requirements from IRDA

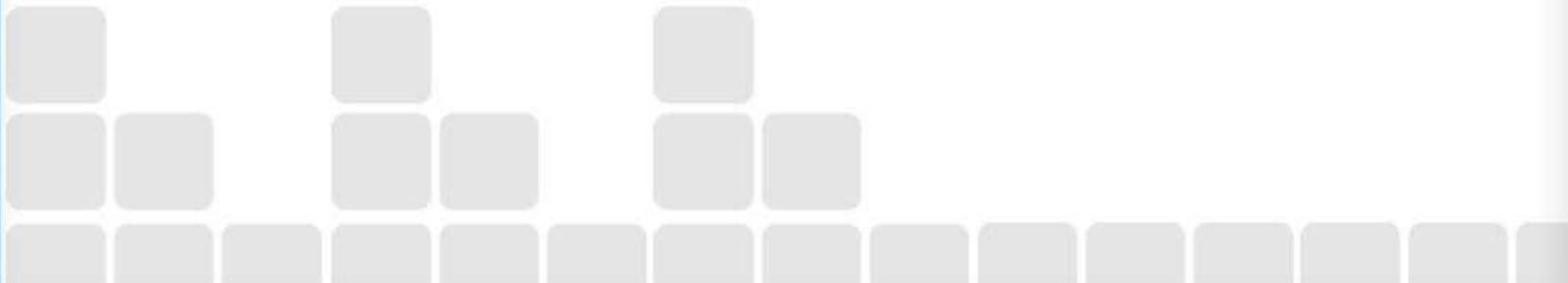


- Periodically review the rate used in the determination of the cost of providing capital
- Provide risk free interest rates and future inflation assumptions for various currencies and terms
- Review to identify and implement proper enterprise wide risk management framework and get this implemented on the sidelines of implementation of RBC.
- Develop a basis of prescribed actions to take if the solvency cover falls below a certain limit. Conduct a study on how gilt yields at different durations have changed over the last 15 to 20 years to assess the magnitude of the extreme changes
 - For Equity risks specify the stress levels
 - For Property risks the values of stress to be specified from time to time (Ref: B.2.4.1)
 - For credit derivatives, should specify the stress to be applied to the value of the asset recognized in the Balance Sheet (Ref: B.2.5.9)
- Examine if RBI has provided any guidance on the value to be attached to collateral in the case of default (Ref: B.3.2.6.d)
- Determine the exposure threshold on a single name exposure according to the weighted average credit quality (Ref:B.2.6.9)

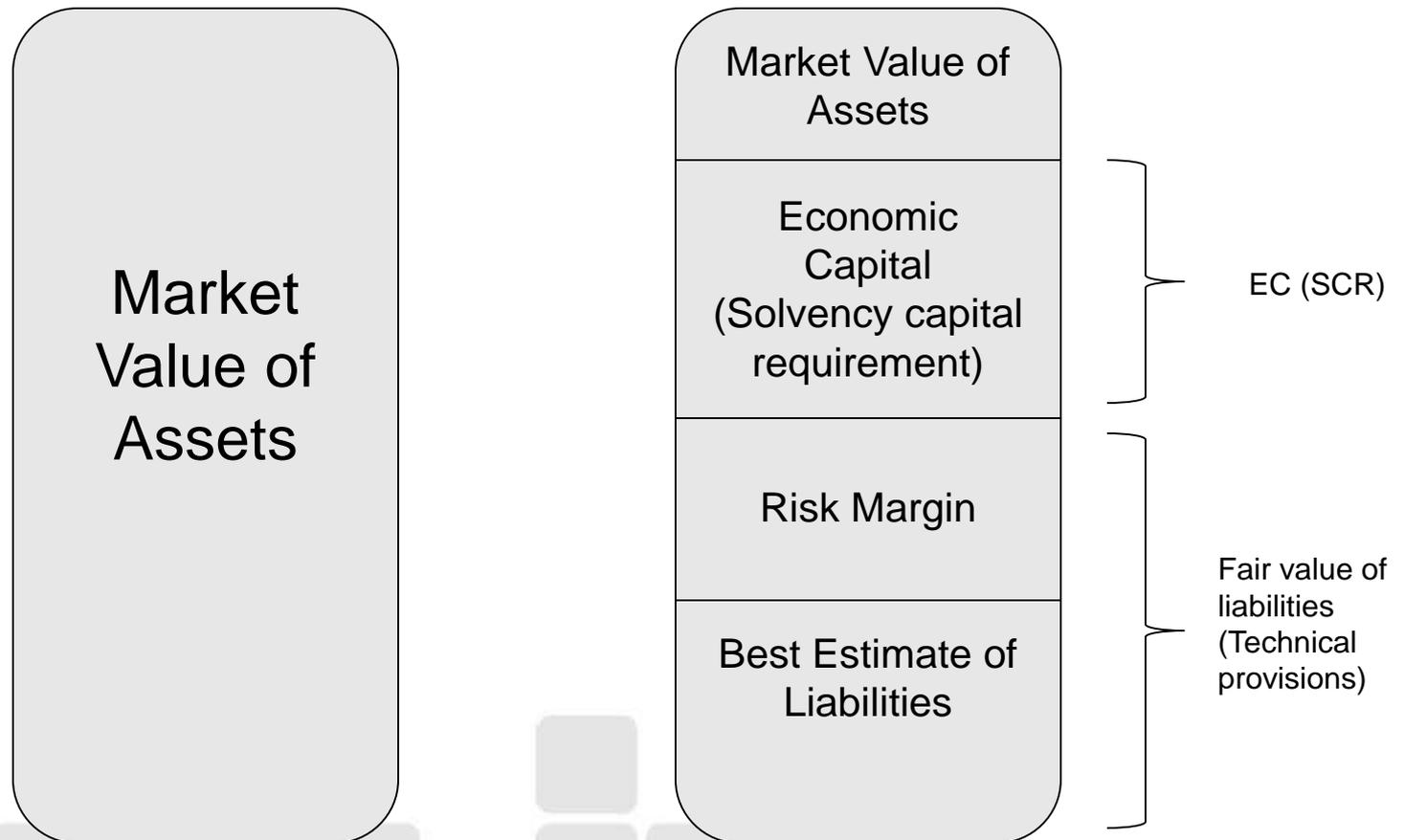
Economic Capital in India



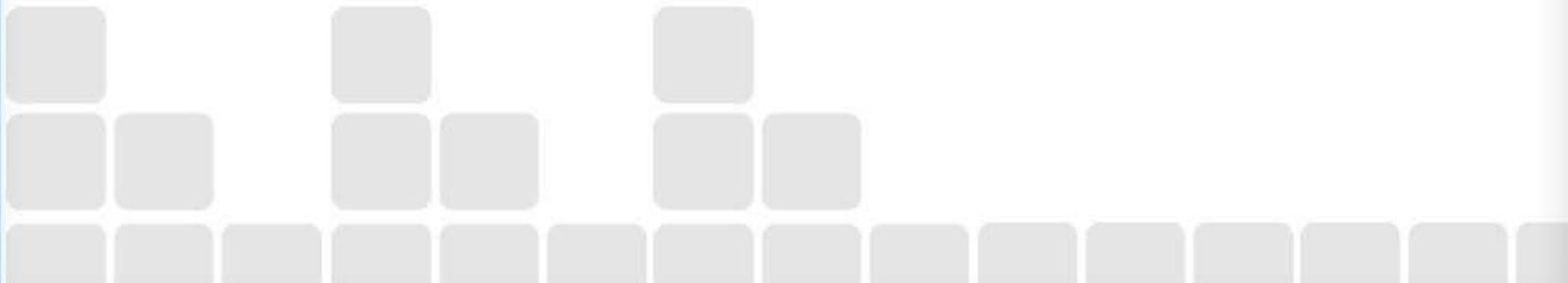
- Economic capital “ EC” framework defined by IRDA is closest to the RBC regime and is based on the standard formula approach
- EC can be defined as sufficient surplus to cover potential losses, at a given risk tolerance level, over a specified time horizon
- Key areas of focus:
 - Risk Monitoring and control
 - Performance measurement and management
 - Risk based decision making
 - Risk based pricing
 - Business planning
 - Mergers and acquisitions



Structure of balance sheet of an insurer with EC framework



RBC : Key challenges

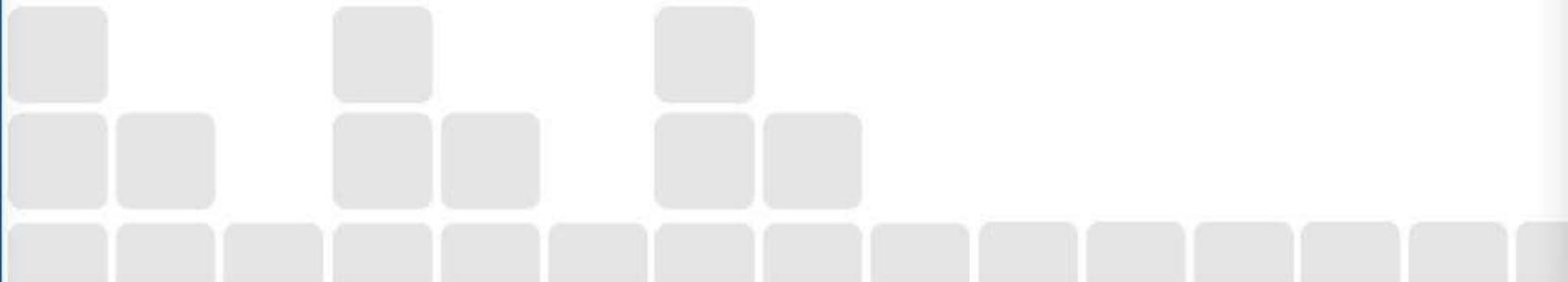


Key Challenges in adoption of the RBC Framework

– RBC will be resource intensive and will require significant efforts



Solvency II Framework



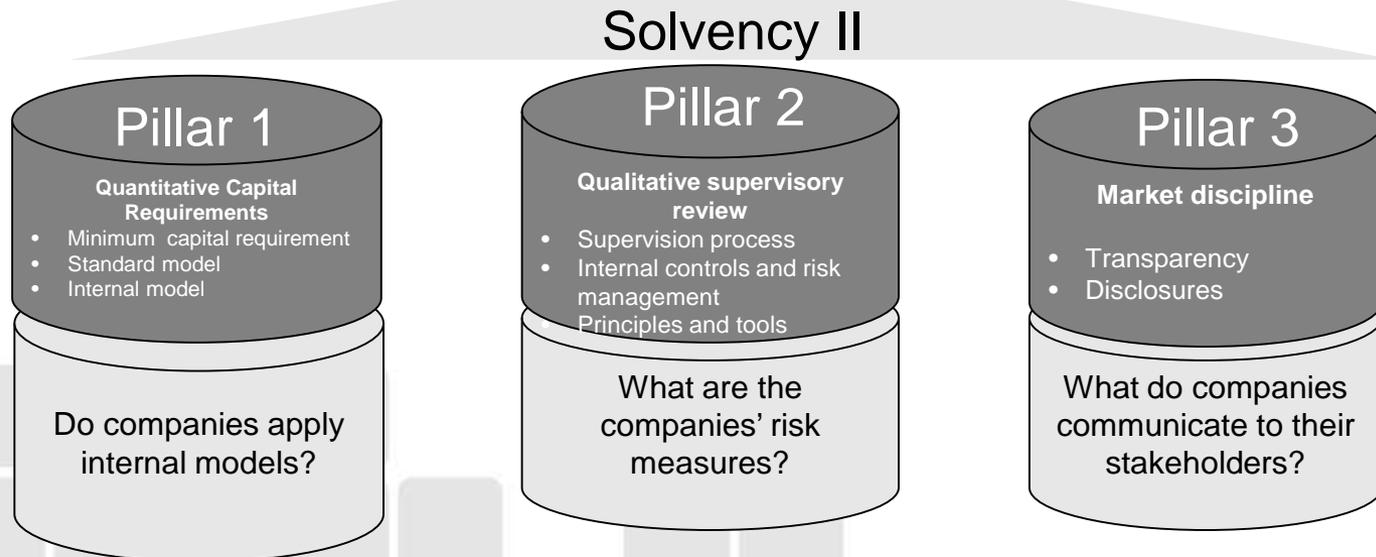
Solvency II

Solvency-II is a European Union (EU) legislative programme implemented in all 28 EU member states. It introduced a new harmonised EU-wide regulatory regime. The key features of Solvency II include economic risk-based solvency requirements where insurers are required to hold capital against a range of risks, not just insurance risks.

For health insurance business, the insurance risk sub-module comprises of three components:

- SLT health: disability/morbidity, mortality, longevity, lapse, expenses, revision risks
- Non-SLT health: premium and reserve risks (fluctuations in the timing, frequency and severity of insured events, claim settlements and expense payments), lapse risk
- CAT: health catastrophe risk (extreme events, including epidemics)

It is a total balance sheet type regime where all risks and their interactions are considered. The insurers were required to identify measure and proactively manage risks. Its key objective was to have a uniform policyholder protection across countries through a robust system.



Solvency II Framework

Technical Provisions

- ▶ Market consistent and risk hedge-able
- ▶ Otherwise best estimate plus risk margin
- ▶ Best estimate cash flows discounted at risk free rates

Risk Margins

- ▶ Cost of capital approach for non hedge-able risks
- ▶ Determine future SCR requirements as liabilities run off
- ▶ Determine holding cost of capital (eg 6% above risk free)
- ▶ Determine Present value of holding cost of capital, and add to technical provisions

Solvency Capital Requirement

- ▶ Targeting a 99.5% VaR over a 1 year time horizon
- ▶ Needs to cover the following: non-life underwriting risk, health underwriting risk, market risk, counterparty default risk, operational risk
- ▶ Determined for each individual risk as the difference between the net asset value in the unstressed balance sheet and the net asset value in the stressed balance sheet.

Minimum Capital Requirement

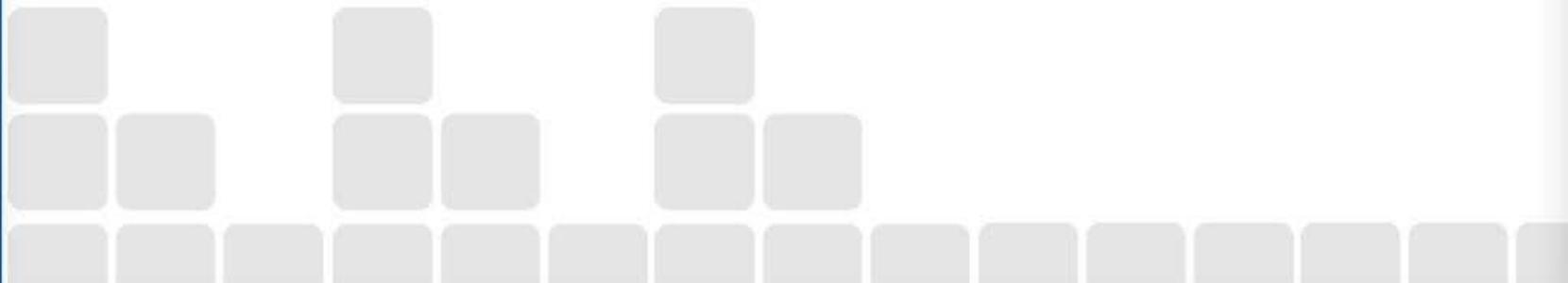
- ▶ Defined as a simple factor-based linear formula which is targeted at a Value at Risk measure over one year with 85% confidence.
- ▶ For SLT health insurance business, the formula is based on technical provisions and capital at risk on death or disability, multiplied by specified factors.
- ▶ The MCR has a floor of 25% and a cap of 45% of the SCR, and this may bite for a significant number of insurance companies.

Capital Requirement Calculation Framework



Solvency I	Solvency II	Risk Based Capital
<ul style="list-style-type: none"> Available Solvency Margin (ASM) shall be calculated as the excess of value of assets over the value of liabilities. RSM 1 means Required Solvency Margin based on net premiums, determined as Twenty Percent (20%) of the amount which is the higher of the Gross Premiums multiplied by a Factor A as specified by the regulator and the Net Premiums. RSM 2 means Required Solvency Margin based on net incurred claims determined as Thirty Percent (30%) of the amount which is the higher of the Gross Incurred Claims multiplied by a Factor B as specified by the regulator and the Net Incurred Claims. The Required Solvency Margin shall be the higher of the amounts of RSM 1 and RSM 2 for each LOB separately. Solvency Ratio means the ratio of the amount of Available Solvency Margin to the amount of Required Solvency Margin. “Control level of Solvency” shall mean the level of solvency margin specified by the Authority. The control level of solvency is hereby specified as a minimum solvency ratio of 150 %. 	<ul style="list-style-type: none"> The Solvency Capital Requirement is evaluated at the 99.5% Value at Risk (VaR) of the Available Capital. The Available Capital (AC) is defined as the difference between the market value of assets and liabilities (therefore it roughly measures the capital the company owns to cover future losses). The basic formula for SCR is: <ul style="list-style-type: none"> $SCR = BSCR - RPS - NL_PS$. BSCR = stands for Basic Solvency Capital Requirement. NL_PS = are the absorbing capacity for Non-Life insurance companies. The most important element in this formula is represented by the Basic Solvency Capital Requirement (BSCR), that is the aggregated amount of the sub-SCR for each class of risk and their respective sub-categories. Steps involved - <ul style="list-style-type: none"> Determination of capital requirements for each risk category, which can be calculated using different approaches – Scenario Testing Approach and Formula Based Approach. Summation, through correlation coefficients, for each risk category, of the capital requirements of their sub-categories. Summation, through correlation coefficients, of the capital requirements of the main categories of risk. 	<ul style="list-style-type: none"> In the non-life RBC formula, certain risk profiles are removed from their original categories and combined differently to form new categories, according to the following scheme: <ul style="list-style-type: none"> R0 = RBC requirement for investment in affiliated insurance companies and for contingent liabilities; R1 = total RBC for the investment risk of bonds and short-term investments, taking account of the adjustment for the risk of concentration; R2 = total RBC for the investment risk of shares and real estate, taking account of the adjustment for the risk of concentration; R3 = 50% of the total RBC for the credit risk; R4 = R3 plus the RBC for the reserving risk; R5 = RBC for the pricing risk. These new aggregations of risks are combined in the formula: $RBC = R0 + \sqrt{R1^2 + R2^2 + R3^2 + R4^2 + R5^2}$ It is thus assumed that the five components under the square root are statistically independent of each other and that their sum is completely correlated with the risk source R0 placed outside the square root.

RBC : Global overview



Global Overview



Insurance capital standards – Global overview

Regulatory and supervisory authorities are engaging at the national and international level on regulatory reforms aimed at maintaining financial stability in the insurance sector.

- ▶ Enhanced capital regimes, designed to reflect the underlying risk profile of the firm — Risk-Based Capital (RBC) regimes — are being developed at a local level, inspired by supranational initiatives such as the International Association of Insurance Supervisors' ICS.
- ▶ Where RBC regimes have already been implemented, local regulators are further refining aspects related to risk governance, risk culture, disclosure practices and supervision.

International Initiatives

The **International Association of Insurance Supervisors (IAIS)** is developing and testing an Insurance Capital Standard (ICS) for Internationally Active Insurance Groups (IAIGs), which will be confidentially reported over a 5-year monitoring period starting in 2020 and then implemented as a Prescribed Capital Requirement following the monitoring period.

Regional and local requirements

● **Canada:** The new risk-based capital requirements for Canadian life insurers (Life Insurance Capital Adequacy Test, LICAT) has recently replaced the first framework introduced in 1992. The LICAT takes inspiration from Solvency II and the IAIS international capital standard. A minimum capital requirement is also set for Canadian federally regulated property and casualty (P&C) insurers.

● **US:** The NAIC's RBC regime for US solo insurers, which includes a statutory risk-based capital requirement, entered into force in the 1890s and is regularly updated to reflect changes in the evolving regulatory environment.

US: The NAIC and state regulators are cooperating with the Federal Reserve Board in the development of a group capital calculation, which will use an RBC aggregation methodology. US regulators view it as a baseline quantitative measure to be used in conjunction with other solvency tools such as an ORSA. A potential development, testing and implementation timeline includes field testing in 2018 and going live with 2019 annual data.

● **Mexico:** The Mexican US-style Solvency II-type insurance regulatory regime, entered into force in 2015 and it is now being refined, in particular, in relation to the standard formula model and the enterprise risk management framework.

● **Brazil:** Brazil has received provisional equivalence under Solvency II covering the solvency calculation for European headquartered groups. The quantitative requirements of the revised solvency regime became applicable in 2016, followed by the enterprise risk management requirements in 2017.

○ **EU:** Certain aspects of the Solvency II framework are undergoing review. These include the Ultimate Forward Rate methodology, Standard Formula calibrations and long-term guarantees measures.

○ **Switzerland:** The Swiss supervisory system has received full equivalence under Solvency II. The Swiss capital model (Swiss Solvency Test, SST) adopts a risk-based and total balance sheet approach, similar to that of Solvency II. The new SST standard model for life insurers is being further refined and field tested.

● **Nigeria:** The Risk-Based Supervision (RBS) model is currently being tested with selected insurers, with the aim to increase insurance penetration.

South Africa: A twin peaks model of regulation and supervision as well as the new risk-based solvency regime, the Solvency Assessment and Management (SAM) framework, are expected to be implemented in 2018, following the enactment of the Financial Sector Regulation Bill and the Insurance Bill.

○ **Mainland China:** The new Chinese insurance capital regime (China Risk Oriented Solvency System, C-ROSS) entered into force in 2016. The second phase of C-ROSS implementation started in 2017 and will be conducted over a three-year period.

○ **Japan:** An economic value-based solvency regime is being developed with a target implementation by 2020. Field tests are expected to be conducted in parallel with ICS developments.

South Korea: The new Korean solvency regime (KICS) is due to be field tested in 2019, ahead of a targeted implementation by 2020.

○ **(current)** ○ **(new HK RBC)**
Hong Kong: The new Hong Kong RBC regime is being field tested, for a targeted implementation in 2022.

● **Australia:** A second-generation solvency regime was introduced in 2013 for both general and life insurers; the Life and General Insurance Capital (LAGIC) reform is built on a three-pillar approach and takes inspiration from Basel III and Solvency II. The first solvency and capital standards were introduced in 1995 for life insurers and in 2002 for general insurers. Capital requirements for conglomerate groups (Level 3 framework) are due to be implemented in 2019.

Current
Capital regimes fully in force (quantitative and qualitative requirements) and well-established for a number of years

Next
Capital regimes with future adoption or under refinement

Balance sheet approach ● IFRS accounting balance sheet ● Local accounting balance sheet ○ Economic balance sheet

Regulatory capital calculation model ■ Factor based □ Stress based, with calibrations specified by the regulator ▣ Stress based, with the option to specify calibrations ◆ Full stochastic and firm-specific approach

Overview of Asia-Pacific



China

- **C-ROSS:** fully launched in January 2016
- **ALM:** New C-ROSS ALM regulations in 2017

Malaysia

- **RBC:** Framework established in 2009 for life/GI insurers, 2014 for Takaful insurers
- **Stress Test:** Updated guideline on stress testing (June 2016) on multi-year scenarios
- **LIFE Framework:** Consultation in Q4 2016; initiative to enhance efficiency of distribution channels and develop cost-effective products

Singapore

- **RBC2:** The MAS is getting closer to finalizing the enhanced RBC framework, although release of final regulations may be delayed
- **QIS2:** 3rd public consultation and full scope QIS2 conducted in late 2016
- **QIS3?:** Recent discussion on a potential 3rd QIS before RBC2 is finalized

Australia

- **LAGIC:** Introduced in January 2013 – three pillar RBC framework analogous to Solvency II
- **New regulations:** Expected soon on commission payable and claims handling
- **Stress tests:** First comprehensive stress test results disclosed in Aug 2016, with next planned for 2018

South Korea

- **RBC:** Enhanced RBC regime based on Solvency II regime, with a targeted implementation of 2020
- **Field test:** Field test on the impact on the required capital is expected to be released in 2017
- **IFRS:** Korean insurers are preparing ahead of the upcoming accounting regime change to IFRS 17 and IFRS 9

Hong Kong

- **IA:** Establishment to replace OCI has launched
- **RBC:** IA has begun work on Phase 2 of its four phase plan for the development. Completion of QIS 1 by HK participants is in progress
- **ERM GN:** expected to accelerate the implementation of Pillar 2
- **CIRC Equivalence:** Mutual equivalence arrangement between the OCI and the CIRC

Hong Kong



- **The new Hong Kong RBC regime is being field tested and is expected to be implemented by 2022.**
- The Office of the Commissioner of Insurance (OCI) has reviewed the solvency and capital regime with a view to developing an appropriate RBC framework, taking into account experiences in other jurisdictions and latest international regulatory requirements.
- **QIS1 (Designing the framework)** : QIS 1 focussed on collecting data and impacts to help designing the framework and methodology for assets and liabilities, PCRs, capital resources and aggregated balance sheet for insurance groups.
- The draft QIS 2 specifications were issued on 6th July 2018. They were supported by 21 calibration papers issued by the IA. While the stress parameters calibrated based on relevant data are generally more conservative than QIS 1, they serve as a starting point to ensure the impact assessment is technically sound and complete.
- **Key changes in QIS 2: The below mentioned changes that materially affect the balance sheets of an health insurer.**
 - Base and stressed yield curve calibration
 - Reduction of volatility adjustment from 50 bps to 32 bps
 - Matching adjustment based on ICS 2018 middle bucket approach
 - Restriction on stressed management actions
 - Generally lower credit spread stress for investment grade corporate bonds but higher for non investment grade
 - Lapse and mass lapse PCR being considered in one module
 - Prescribed correlation matrices
 - Tiering of capital resources

Indonesia



- 2013 was the first year for the insurers in Indonesia to follow the new Risk Based Capital (RBC) regime, which was approved by the Ministry of Finance in April 2012. Under the new RBC regime, the balance sheet is constructed in the following manner
 - Assets : realised at market/realistic value
 - Technical reserves : best estimate liabilities plus MADs
 - Risk Based Capital (MMBR) : total funds required to anticipate loss risk that may arise from deviations in asset liability management.
 - Solvability level : difference between the amount of admitted assets minus the liabilities
- The new regime has created a discrepancy in the discount rate used between statutory and accounting rules and a mismatch between the asset liability valuation. It has further created some challenges for the industry as a whole
 - Valuation discount rate: cap of three-year average market yields plus a (upto 50bps) spread
 - MADs: need to be set at 75% confidence level for each key assumption
- Next Steps :
 - Set up a risk management framework
 - Separate conventional and sharia business

Malaysia



- **The Malaysian insurance industry has been regulated under the RBC framework since 1st January 2009**
- **The regulator took further steps to strengthen the risk and capital framework by introducing Internal capital adequacy process (ICAAP) in 2012, the key elements of which are:**
 - An individual target capital level (ITCL) that reflects a company's own risk profile and risk management practices
 - A capital management plan that takes into account the insurer's strategic business direction and the changing business environment
 - Processes that monitor and ensure the maintenance at all times of an appropriate level of capital that is commensurate with the company's risk profile
- **Risk and Capital Management implications** – Some of these changes have had a far reaching impact on the business and corporate strategies of the Malaysian insurers. While the industry is still coming to grips with the situation, a number of insurers have started considering the risk and capital management implications and potential solutions to address them.
- **Key challenges faced by the industry in the ICAAP implementation include:**
 - Developing a consistent set of risk appetite statements that are well-aligned to the organizational business strategy, and cascading these statements into operational risk limits
 - Deciding on a target level of capital that is consistent with the risk profile of the business
 - Developing a capital management plan that is forward-looking, comprehensive and well documented to include the contingency management action framework
 - Increasing the involvement from the board in areas related to capital management

Singapore



- **While the RBC framework has served the Singapore insurance industry well, MAS has embarked on a review of the framework (coined as “RBC 2 review”) in light of evolving market practices and global regulatory developments and proposed an RBC 2 roadmap for implementation.**
- **In march 2014, MAS issued a consultation paper updating the earlier version from June 2012. The new proposals include:**
 - **Solvency intervention levels:** Adopt the prescribed capital requirement and minimum capital requirement at both the company level and insurance fund level
 - **Valuation of assets and liabilities:** No changes to deriving PADs
 - **Components of required capital:** introduce new catastrophe and operational risk requirements; remove duration mismatch and debt instrument requirements and replace them with interest rate mismatch.

ERM developments

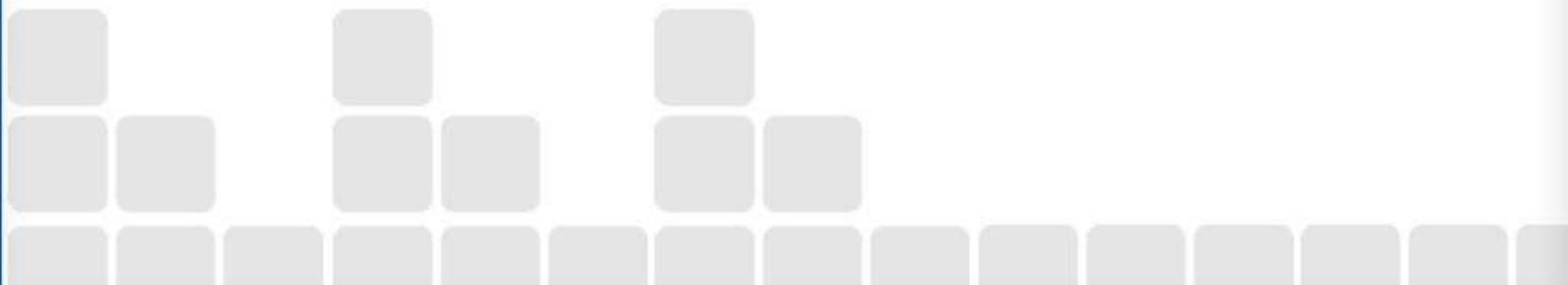
- putting in place risk identification and measurement processes, instituting and maintaining a risk management policy and risk tolerance statement, establishing a feedback loop, and performing an ORSA annually
- Adoption of economic capital, which is the amount of capital that an insurer needs to satisfy its risk tolerance and new business plans

Australia



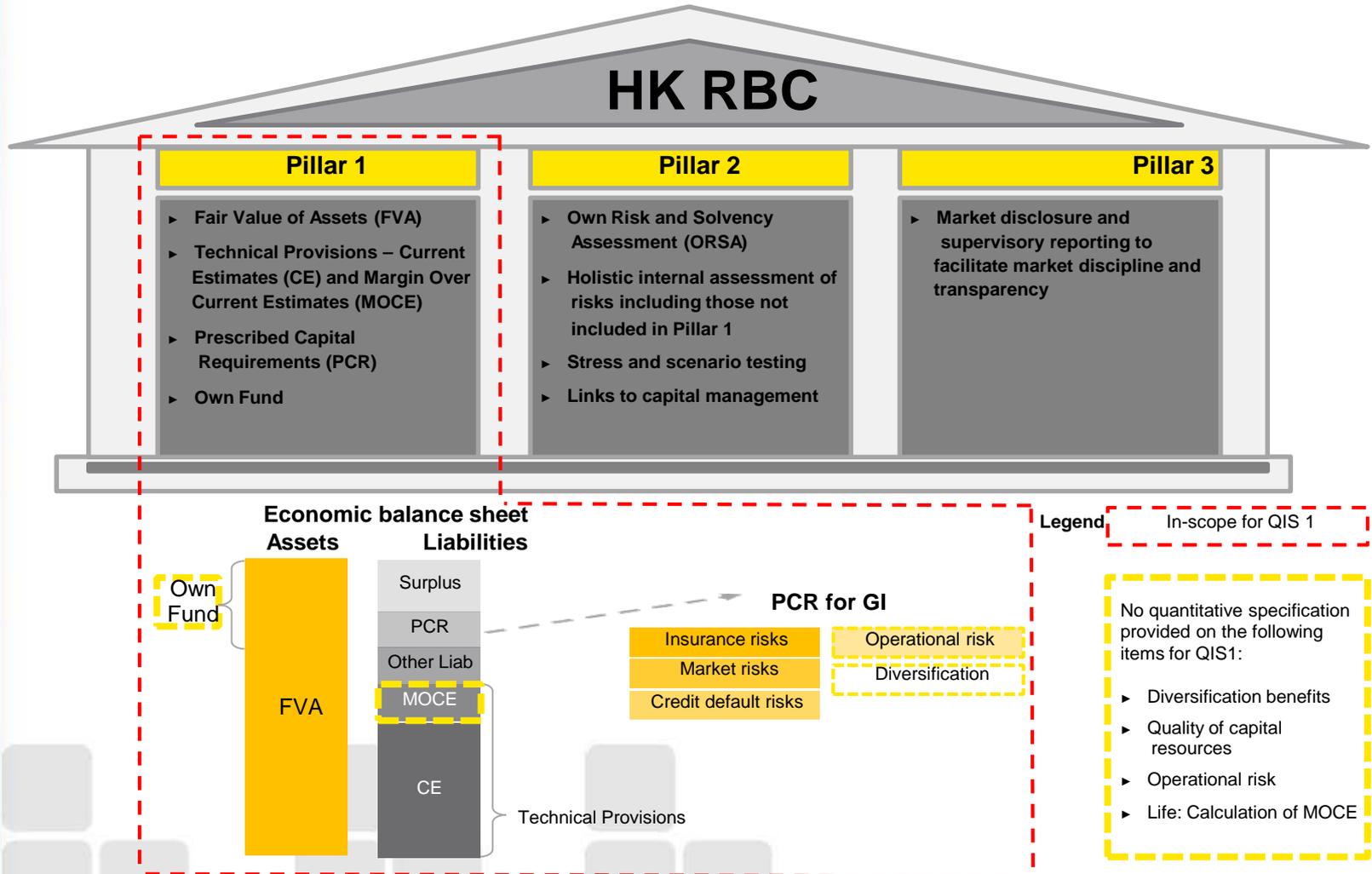
- **A second generation solvency regime was introduced in 2013 for both general and life insurers (LAGIC), is built on the three pillar approach and takes inspiration from Basel III and Solvency II.**
- **The first Solvency and capital standards were introduced in 1995 for life insurers and in 2012 for general insurers.**
- **According to the regulator, the expected RBC framework would consider the following key aspects:**
 - Designated risk management function
 - Appropriate risk management strategy and risk appetite
 - Process for reviewing the appropriateness, effectiveness and adequacy of risk management framework
 - A strategy to ensure that adequate capital is maintained over time
 - Stress testing and scenario analysis relating to potential risk exposures and available capital resources
 - Adequate policies, procedures, systems, controls and personnel to identify, measure, monitor and manage risk arising from the regulated organizations activities on a continuous basis.

RBC : Hong Kong Illustrative Example



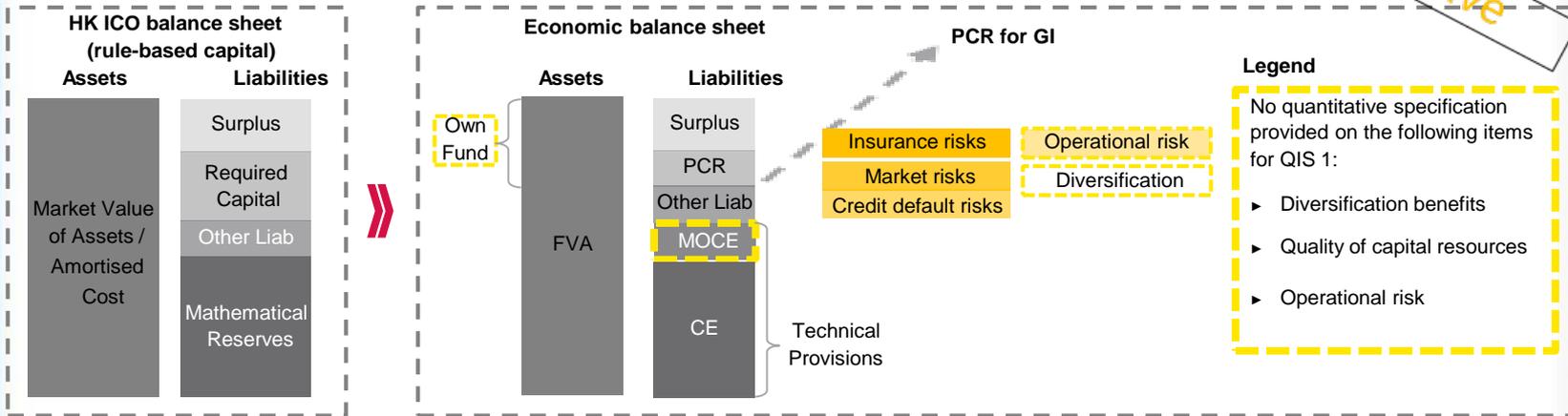
HK RBC framework

Proposed framework comprises a three-pillar framework

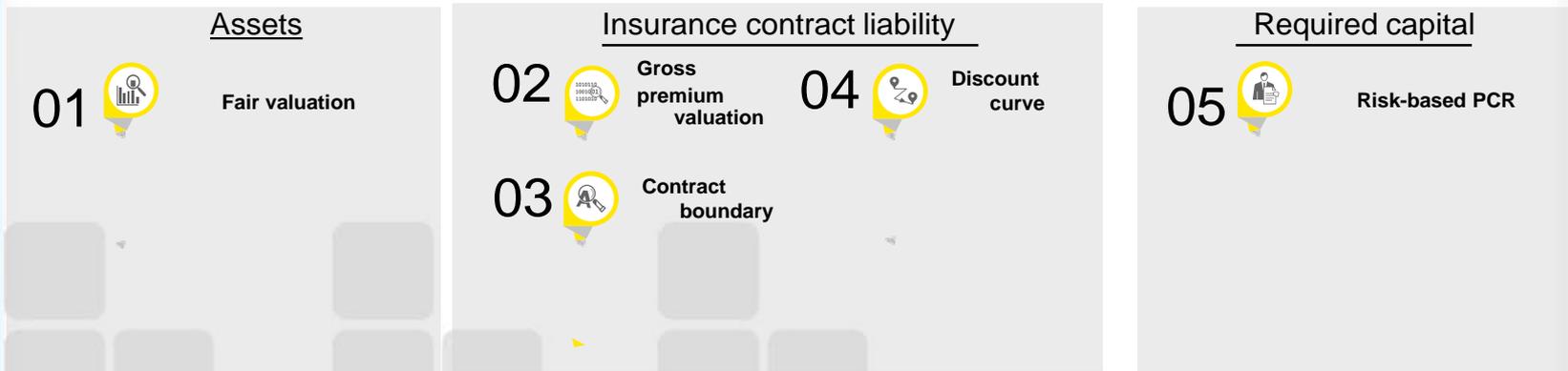


Key Challenges in adoption of the RBC Framework

Illustrative



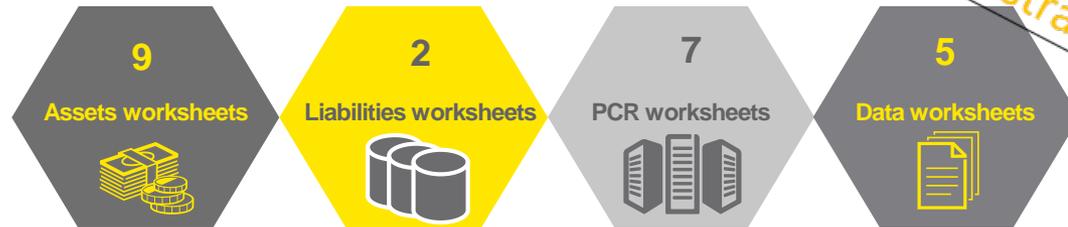
Key changes from HK ICO balance sheet to HK RBC balance sheet



Implementation Overview

Over 50 model runs are expected to complete QIS comprehensively

Quantitative Worksheets



Key expected activities:

- Reinsurance arrangement
- Business mix and diversification
- Capital management
- M&A
- Collating results for different shocks
- Populating qualitative templates

Thank You!

Questions?

