

MILLIMAN RESEARCH REPORT

Life insurance capital regimes in Asia

Comparative analysis and implications of change

3rd edition

Summary report

July 2021



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Introduction

Capital regulations for life insurance companies in Asia are complex and varied. They are also subject to change, with such changes often affecting how insurers manage their business. In many markets in the region, regulators are introducing new risk-based capital (RBC) regimes or “upgrading” existing RBC frameworks, with increasing consideration being given to consistency with the new International Financial Reporting Standard 17 (IFRS 17), International Capital Standards (ICS) and other capital regimes worldwide.

In view of the pace of change and the increasing focus on regulatory capital across the region, we felt it was timely to produce an update to the second edition of the report we published in 2020. This “3rd edition” report covers the capital regimes in 13 markets in Asia plus “ICS Version 2.0 for the monitoring period.” The report also makes reference to Solvency II, Bermuda Solvency Capital Requirements (BSCR), Canada’s Life Insurance Capital Adequacy Test (LICAT) and the United States’ RBC regime (US RBC).

Our report aims to:

- i) Compare and contrast life insurance RBC regimes across selected Asian markets
- ii) Highlight some of the potential implications for life insurers arising from the future development of capital regulations
- iii) Contribute to the wider discussion on the potential impact of changes in regulation on the life insurance industry in Asia

The report seeks to provide a comparison of key quantitative and qualitative aspects of life insurance capital regimes in Asia and to show analysis of key capital results (e.g., capital ratio, risk charges, factors affecting capital) based on information publicly available and from other market sources. It does not attempt to provide all of the applicable details behind the capital regulations governing life insurance companies in the various markets analysed. It is important to recognise that the regulatory environment in Asia is changing fast and, consequently, the information contained in this report is time-sensitive. The various capital regimes covered in this report are based on the applicable regulatory environment as at 31 May 2021. Some of these regulations may have changed since this date. In addition, some markets have seen temporary changes in 2020 to capital regimes due to COVID-19, and further changes may be expected in the future. All changes may not be fully captured for all markets in this report.

We have produced an executive summary of the full report, which we are sharing here.

Please contact one of the Milliman consultants listed at the end of the report to request a copy of the full report or to discuss the RBC frameworks in any of the markets in more detail.

Executive summary

Comparison of technical specifications of capital regimes

Overview

Most insurance markets in Asia follow some form of RBC regime, although some of them, including Hong Kong, India and Brunei, are still currently using an EU Solvency I type of approach. In some markets, insurance regulators are reviewing the existing capital regulations, with Hong Kong, Taiwan, South Korea and Brunei in the process of developing a new RBC regime, and China and Malaysia looking to “upgrade” their existing RBC requirements. We have included in this report the latest details of China C-ROSS Phase II, an upgrade from the existing China C-ROSS (Phase I). The latest information is based on the draft technical specification released by the China Banking and Insurance Regulatory Commission (CBIRC) in December 2020, and is subject to change. In Taiwan, the industry is undergoing quantitative impact studies (QIS) for the upcoming new RBC regime, Taiwan ICS or T-ICS, the details of which are shown in this report. Table 1.1 provides an overview of the current status of capital regimes for the markets covered in this report.

TABLE 1.1: STATUS OF THE CAPITAL REGIMES

MARKET	INSURANCE REGULATORY/ GOVERNING BODY	EXISTING CAPITAL REGIME / APPROACH	DEVELOPMENTS
BRUNEI RBCS	Brunei Darussalam Central Bank (BDCB)	EU Solvency I Not risk-based	RBC framework is to be incorporated in the near future. The second parallel run will be conducted for financial year-end 31 December 2020 in Q2 2021 for submission by 30 July 2021.
CHINA C-ROSS	China Banking and Insurance Regulatory Commission (CBIRC)	C-ROSS Risk-based	The CBIRC is currently reviewing C-ROSS formulae and parameters, and field-testing is currently ongoing. The exact timing of C-ROSS Phase II remains uncertain, but the final quantitative requirements are expected to be released later in 2021.
HONG KONG RBC (RBC 2020)	Hong Kong Insurance Authority (IA)	EU Solvency I Not risk-based	Hong Kong is introducing a RBC framework, targeted for tabling to the Legislative Council in 2022 and to be effective in 2024 (depending on time spent on legislative process), although there have been discussions around possible early adoption for some insurers. There have been three rounds of industry quantitative impact studies (QIS) to date plus more voluntary studies on different refined approaches. The latest technical specification (named “RBC 2020”) was released for companies to perform stress and scenario testing as part of the ORSA requirements, and further refinements are possible before the framework is put forward to the Legislative Council.
JAPAN (REGULATORY)	Financial Services Agency (FSA)	Risk-based (US risk-based)	The FSA is contemplating the introduction of an economic value-based solvency regime. A recent field test was based on the ICS field test, although the FSA reminded the industry that this should not be interpreted as a final direction. The exact timing of the introduction of this new regime remains uncertain.
INDIA SOLVENCY I	Insurance Regulatory and Development Authority of India (IRDAI)	EU Solvency I Not risk-based	The IRDAI is contemplating the introduction of a RBC regime. However, the exact framework to be adopted has yet to be defined, and the timing of implementation remains uncertain.
INDONESIA RBC	Otoritas Jasa Keuangan (OJK)	Risk-based	We understand that no material future developments to the current RBC framework are expected in the near term.
MALAYSIA RBC	Bank Negara Malaysia (BNM)	Risk-based	BNM has initiated a review of its current RBC framework, conducted in phases since 2018. The first phase will focus on reviewing the prudential limits on assets and counterparty exposures, followed by a review of the standards for the valuation of liabilities and capital adequacy components. In December 2019, BNM issued an updated exposure draft of the life insurance liabilities valuation guideline. An exposure draft for updated RBC may be released later following the release of the valuation guideline. The exact timing of updated rules remains uncertain. In addition, in March 2020, BNM revised the stress parameters for the computation of interest rate capital charge to reflect prevailing market conditions.
PHILIPPINES RBC 2	Insurance Commission (IC)	Risk-based	We understand that no material future developments to the current RBC framework are expected in the near term.
SINGAPORE RBC 2	Monetary Authority of Singapore (MAS)	Risk-based	MAS is considering the allowance for countercyclical buffers within the existing RBC2 framework.

MARKET	INSURANCE REGULATORY/ GOVERNING BODY	EXISTING CAPITAL REGIME / APPROACH	DEVELOPMENTS
SOUTH KOREA RBC	Financial Supervisory Service (FSS)	Risk-based (US risk-based)	The FSS has announced its plan to adopt K-ICS, a principle-based capital framework, which is similar to ICS. The target effective date is expected to be the same as the effective date of IFRS 17. There have been three rounds of quantitative impact studies (QIS) to date, and further refinements are possible before the framework is put forward to the legislative council.
SRI LANKA RBC	Insurance Regulatory Commission of Sri Lanka (IRC SL)	Risk-based	There may be some tightening of the capital requirements in the near future, potentially leading to higher capital charges.
TAIWAN CURRENT RBC	Financial Supervisory Commission (FSC)	Risk-based (US risk-based)	The current RBC approach is based on prescribed risk factors multiplied by risk exposures. Going forward, Taiwan is set to move to an ICS-based regime, with the industry currently undergoing quantitative impact studies (QIS). Taiwan ICS (T-ICS) is scheduled to come into effect on 1 January 2026.
THAILAND RBC 2 (95TH PERCENTILE)	Office of Insurance Commission (OIC)	Risk-based	The current Thailand RBC 2 framework is based on a 95 th percentile confidence level. It is understood that the OIC may plan to introduce a 99.5 th percentile confidence level framework two years after IFRS 17 applies in Thailand.

A move towards an economic balance sheet framework across the region, but key differences exist

The assessment of required and available capital using an economic balance sheet approach has underpinned most of the recent changes in Asian capital regulations. A fundamental premise of the economic balance sheet framework is the endorsement of the concept that assets and liabilities should be valued on a consistent economic basis, leading to a reduction or elimination, where possible, of accounting mismatches. This economic balance sheet approach is also consistent with the approach used under Solvency II, ICS and IFRS 17 principles. In particular, for solvency purposes, an increasing number of Asian capital regimes require companies to:

- Assess their assets on a market value basis (e.g., Hong Kong's proposed RBC framework, Indonesia, Singapore, Thailand, Malaysia), although some are still measuring their assets using different accounting bases (e.g., for China's C-ROSS, Japan's regulatory capital)
- Value their liabilities using a gross premium valuation (GPV) approach allowing for an additional risk margin and, potentially, a time value of options and guarantees (TVOG), using a fair value approach based on "relatively market consistent" discount factors

Although there is a trend towards the use of an economic balance sheet framework, markets are moving at different paces, and many regulators in Asia seem to have taken a more practical approach that reflects market specifics, while ensuring a reasonable degree of conservatism (e.g., the flooring of reserves in some markets). This leads to inconsistencies between RBC regimes across the region. Table 1.2 gives an overview of some of these differences when assessing liabilities.

TABLE 1.2: APPROACH OF EVALUATING DETERMINISTIC INSURANCE LIABILITIES

CAPITAL REGIME	GENERAL		RISK MARGIN		TVOG	
	APPROACH	LIABILITY FLOOR	ALLOWED?	APPROACH	ALLOWED?	APPROACH
BRUNEI RBCS	GPV	Reserves floored to zero at policy level	✓	PAD	X	None
CHINA C-ROSS (PHASE I AND II)	GPV	CSV less capital requirement	✓	PHASE I: PAD PHASE II: Percentile method	✓	Deterministic only ^(b)
HONG KONG RBC (RBC 2020)	GPV	None	✓	PAD	✓	Stochastic / Deterministic
JAPAN (REGULATORY)	NPV	Reserves floored to zero at policy level	X	Considered implicitly	✓	Stochastic / Deterministic
JAPAN - ICS VERSION 2.0 FOR THE MONITORING PERIOD	GPV	None	✓	PAD /Percentile method	✓	Stochastic / Deterministic
INDIA SOLVENCY I	GPV	CSV (if there is a surrender value) or reserves floored to zero at policy level	✓	PAD	✓	Not explicitly specified
INDONESIA RBC	GPV	Reserves floored to zero at policy level	✓	PAD	X	N/A
MALAYSIA RBC	GPV	Reserves floored to zero at fund level	✓	PAD	✓	Stochastic / Deterministic
PHILIPPINES RBC 2	GPV	None	✓	PAD	X	N/A
SINGAPORE RBC 2	GPV	Reserves floored to zero at policy level ^(a)	✓	PAD	X	N/A
SOUTH KOREA RBC	NPV	Reserves floored to zero at policy level	X	Considered implicitly	✓	Stochastic
SRI LANKA RBC	GPV	No floor for the liability. However, the sum of reserves and required capital should not be less than the total surrender value of policies.	✓	PAD	✓	Stochastic / Deterministic
TAIWAN CURRENT RBC	NPV	Reserves floored to zero at product level	X	Considered implicitly	X	N/A
TAIWAN ICS	GPV	None	✓	Percentile method	✓	Stochastic / Deterministic
THAILAND RBC 2 (95 TH PERCENTILE)	GPV	Reserves floored to zero at product group level	✓	PAD	X	N/A
SOLVENCY II	GPV	None	✓	CoC	✓	Stochastic
BERMUDA BSCR	GPV	None	✓	CoC	✓	Stochastic
CANADA LICAT	GPV	Cap on credit taken for negative reserves and if CSV greater than reserves	✓	PAD	X	N/A
US RBC	NPV	Reserves floored to zero at policy level	X	Considered implicitly	X	N/A

Notes: GPV = Gross Premium Valuation, NPV = Net Premium Valuation, CSV = Cash Surrender Value, PAD = Provision for Adverse Deviation, CoC = Cost of Capital

(a) Singapore RBC 2 regime continues to floor policy reserves to zero but recognises negative reserves as an increase to financial resources

N/A: not appropriate

(b) Although C-ROSS Phase II uses deterministic factor approach to TVOG calculation, the factors only depend on the guaranteed interest rate while both remaining liability duration and guaranteed interest rate are considered in C-ROSS Phase I.

TVOG is a good example of such discrepancies. Universal life products offering guarantees are prevalent in many markets in Asia including China, Hong Kong and Singapore, but TVOG is only included in the newly proposed Hong Kong RBC (RBC 2020) and China C-ROSS regimes (Phase I and Phase II). Moreover, under C-ROSS I and II, TVOG is assessed using a prescribed deterministic formula that applies to the whole industry, whereas the Hong Kong regulator is encouraging companies to assess TVOG using stochastic asset liability management (ALM) models to better reflect their own cost of financial options and guarantees. The same discrepancies in TVOG methodology apply to participating business, which is material in many markets in Asia (e.g. Hong Kong, Singapore, Malaysia, China, India and Sri Lanka).

The risk margin is another example of discrepancies across RBC regimes in Asia. While provisions for adverse deviation (PADs) are adopted in most of the capital regimes in the region, the approach to derive the PADs, (and in particular the underlying risk charges used to calculate the PADs) differs from one market to another. In addition, the PAD approach (which is determined by recalculating liabilities by including an additional margin on top of the best estimate assumptions) is not consistent with the cost of capital (CoC) approach used for Solvency II and Bermuda BSCR. It may also not be in line with the approach adopted by some Asian life insurance companies under IFRS 17 (although some companies may also decide to use a PAD approach) or for economic capital purposes. It is worth noting that the method of determining risk margin based on a ratio with regard to insurance risk capital will be considered in the upcoming regimes such as C-ROSS Phase II and Taiwan ICS.

Discount rate: Market consistency and smoothing

Under RBC regimes, the yield curves used to assess the best estimate of liabilities (BEL) are typically defined using a “bottom-up” approach, whereby the discount rate reflects a market consistent risk-free rate plus an adjustment for illiquidity and smoothing prescribed by regulators. However, the valuation of liabilities requires the use of a yield curve that extends to very long durations, reflecting both market conditions and long-term economic views. This poses a challenge in Asia where available market data is often covering a much shorter duration than the projected cash flows. The reference yield curve is typically extrapolated from the last liquid market point (LLP) to some long-term equilibrium rate (ultimate forward rate or UFR). Table 1.3 compares the parameters used by the various regimes.

TABLE 1.3: DETERMINATION OF THE DISCOUNT CURVE

CAPITAL REGIME	BASIC YIELD	ILLIQUIDITY PREMIUM /SMOOTHING	LLP	UFR	INTERPOLATION/ EXTRAPOLATION
BRUNEI RBCS	Government bond yield curve (Singapore is used as a proxy)	N/A	20 years	3.8%	Smith-Wilson
CHINA C-ROSS (PHASE I AND II)	Government bond yield	30 / 45 / 70 bps depending on product and issue date	20 years	4.5%	Quadratic
HONG KONG RBC (RBC 2020)	Government bond yield for USD, swap for HKD	Matching adjustment with additional Long-term Adjustment (LTA) to equity and property under segregated participating / universal life portfolios.	HKD: 15 years USD: 30 years	HKD: 3.8% USD: 3.8%	Smith-Wilson method
JAPAN (REGULATORY)	Stipulated interest rate for policies issued after March 1996 with some exceptions. Otherwise, the (guaranteed) interest rates filed with FSA upon product launch.				
JAPAN - ICS VERSION 2.0 FOR THE MONITORING PERIOD	Swap rate or government bond yield	Prescribed illiquidity premium (three-bucket approach)	JPY: 30 years USD: 30 years	JPY: 3.8% USD: 3.8%	Smith-Wilson method

CAPITAL REGIME	BASIC YIELD	ILLIQUIDITY PREMIUM /SMOOTHING	LLP	UFR	INTERPOLATION/ EXTRAPOLATION
INDIA SOLVENCY I	Best estimate investment return (net of PAD)	N/A, although risk-adjusted corporate bond spreads may be included in the best estimate investment return	N/A	N/A	N/A
INDONESIA RBC	Government bond yield	Averaging of government bond yield plus a discretionary adjustment of up to 50bps	N/A	N/A	N/A
MALAYSIA RBC	Government bond yield	N/A, yet volatility adjustment and matching adjustment are introduced in the latest draft exposure for liability valuation, which may be a change of direction	15 years	Same level as at LLP	Based on forward rate
PHILIPPINES RBC 2	Bloomberg PHP BVAL reference rate for PHP Bloomberg international yield curve for USD	N/A	N/A	N/A	N/A
SINGAPORE RBC 2	Government bond yield	Allowance for illiquidity premium or matching adjustment	SGD : 20 years USD: 30 years	SGD : 3.8% USD: 3.8%	Smith-Wilson method
SOUTH KOREA RBC	Assumed (guaranteed) interest rates filed with FSS at a product launch.	N/A	N/A	N/A	N/A
SRI LANKA RBC	Government bond yield curve as specified by IRCSL	N/A	10 years	Same as the spot rate at the LLP	N/A
TAIWAN CURRENT RBC	US government bond yield	N/A	N/A	N/A	N/A
TAIWAN ICS	Swap rate or government bond yield	Prescribed illiquidity premium (three-bucket approach)	TWD: 10 years USD: 30 years	TWD: 4.4% USD: 3.8%	Smith-Wilson method
THAILAND RBC 2 (95TH PERCENTILE)	Government bond yield	Averaging of government bond yield	50 years	Same level as at LLP	N/A
SOLVENCY II	Swap rate or government bond yield	Volatility adjustment or matching adjustment	Euro: 20 years USD: 50 years	Euro 3.75% (Dec 2020) USD: 3.75% (Dec 2020)	Smith-Wilson method

Given the long-term nature of many life insurance contracts, life insurers typically require long-term assets to match their liabilities. Where those liabilities are “illiquid,” such that they have relatively predictable cash flow profiles, insurers can invest in such a manner that recognises that a forced sale of assets, in most cases, would not be required. The insurers can then potentially benefit from the risk premium that can be available to long-term investors, typically called an illiquidity premium. Furthermore, insurers are typically not exposed to short-term fluctuations in the price of assets, albeit the insurer is exposed to changes in the fundamental value of the cash flows on the assets, for example an increased probability of defaults. Illiquidity premium adjustments and smoothing adjustments (e.g., volatility adjustment, UFR, averaging of spot yield curve) are, therefore, applied in the discount rate to reduce the short-term economic balance sheet volatility, stabilise the net asset value (i.e., difference between assets and liabilities) and better reflect the long-term nature of insurance businesses, in particular the illiquid nature of liabilities. RBC capital adequacy ratios (CAR) and the different blocks of the economic balance sheet are usually sensitive to the discount rate, which is often a key component in different

phases of quantitative impact studies and testing from regulators. Some RBC regimes are currently reviewing the approach to determine the discount rate in order to more appropriately reflect the asset and liability management position of insurance companies and dampen the impact of the prevailing low (and potentially volatile) interest rate environment. With IFRS 17, this topic has also become increasingly important as insurance companies need to reflect the characteristics of the liability cash flows when setting the IFRS 17 discount rate, and in particular the level of liquidity.

Capital requirement modules and submodules are broadly consistent across RBC regimes in Asia, but underlying parameters differ

The exhaustive list of risks considered in determining capital requirements varies across different capital regimes. However, key material risks considered are typically similar, and include insurance risk, market risk, counterparty default risk and operational risk.

- Life insurance risks include mortality or longevity risk, morbidity risk, lapse risk (long-term and mass lapse) and expense risk. Mortality catastrophe risk is also sometimes explicitly considered.
- Market risks typically consist of equity risk, interest rate risk or ALM risk, credit spread risk, property risk and foreign exchange risk. (Note that equity volatility and interest rate volatility risk are typically not considered within RBC regimes in Asia.)
- Operational risk is normally quantified by applying risk factors to risk drivers, with premiums being one of the most common risk drivers.

As there are natural hedges between different risks, correlation matrices are usually considered to reflect diversification benefits across various risk modules and sub-modules. In particular, most of the RBC regimes in Asia (and in particular all of the RBC regimes revised recently) consider diversification benefits when aggregating the sub-modules under the insurance and market risk modules. Some RBC regimes consider diversification between all risk components other than operational risk, while some others only consider diversification between asset risk and insurance risk.

There is generally a trend towards making risk charge parameters and stress factors more consistent from one regime to another, to the extent possible. However, material discrepancies remain, as illustrated by the comparison of interest rate stress factors for selected markets in Asia in Table 1.4.

TABLE 1.4: KEY PARAMETERS COMPARISON FOR INTEREST RATE FOR SELECTED TERM TO MATURITY, SHOCK DOWN

CAPITAL REGIME	INTEREST RATE/ALM, STRESS-BASED						
	APPLIES TO INTEREST RATE OR OTHERWISE AS STATED						
TERM TO MATURITY (YEAR)	1	3	5	7	10	15	20
BRUNEI RBCS	-60%	-55%	-55%	-50%	-40%	-30%	-20%
CHINA C-ROSS (PHASE I) ^(a)	-73%	-68%	-58%	-50%	-37%	-28%	-24%
HONG KONG RBC (RBC 2020)	-75%	-64%	-61%	-57%	-53%	-49%	-43%
MALAYSIA RBC ^(b)	-15%	-15%	-15%	-15%	-15%	-15%	-15%
PHILIPPINES RBC 2	-100%	-59%	-54%	-54%	-54%	-51%	-51%
SINGAPORE RBC 2	-70%	-65%	-60%	-50%	-40%	-30%	-25%
SRI LANKA RBC	-75%	-56%	-46%	-39%	-31%	-27%	-29%
THAILAND RBC 2 (95TH PERCENTILE)	-40%	-38%	-36%	-34%	-31%	-26%	-21%
SOLVENCY II	-75%	-56%	-46%	-39%	-31%	-27%	-29%

Notes:

(a) China has different shocks for assets and liabilities. The asset shocks are shown in the table. The liability shocks are generally lower.

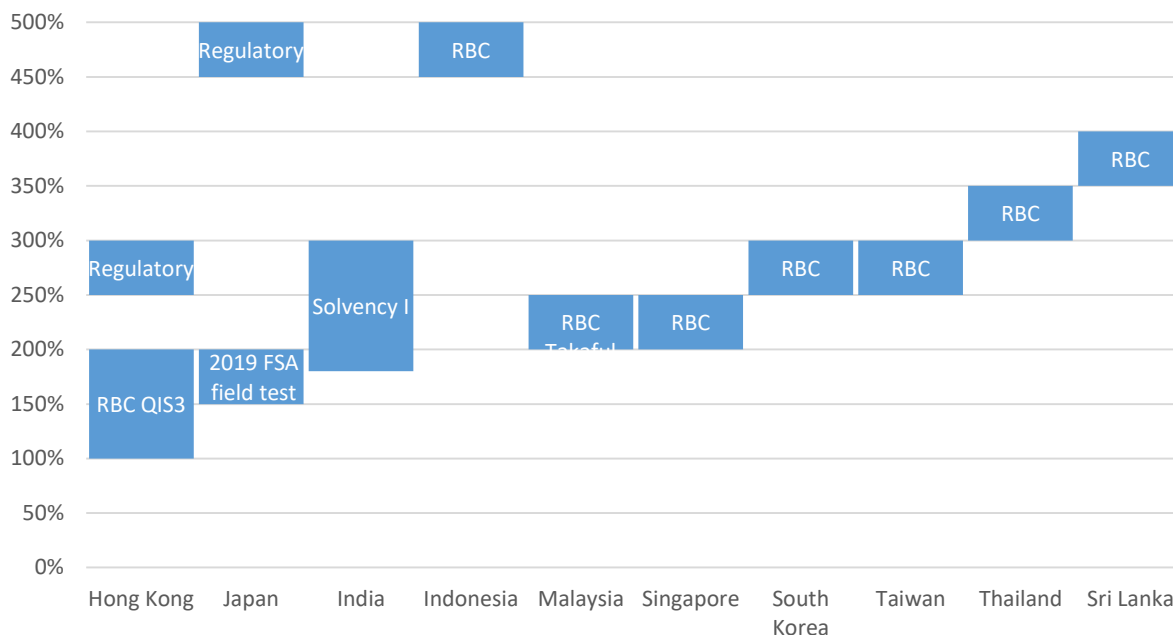
(b) For Malaysia, the stress is formula-based and depends on the MGS yield. The stress shown above for comparison purposes is applicable as at end of 2020.

Comparative analysis of key capital results across Asia and impact of new RBC regimes on life insurance companies

Comparative analysis of capital adequacy ratios across Asia

Figure 1.5 shows the industry average capital adequacy ratios for each market covered in this report, except for China, Brunei and the Philippines, where there are data limitations. Most of the markets have an average regulatory solvency ratio within the range of 180% to 400%, except for Japan and Indonesia, which have relatively higher average solvency ratios above 450%.

FIGURE 1.5: TYPICAL INDUSTRY SOLVENCY RATIO LEVEL



Source: Estimates based on public information and Milliman internal data. Specific companies may have different solvency ratios to the typical industry solvency ratios in Figure 1.5.

Note 1: The solvency ratios shown above are as at 31 December 2020, based on prevailing RBC regimes in each market except: a) the Japan regulatory solvency ratio and India Solvency I ratio are as at 31 March 2020 to reflect their financial year-ends; b) Japan 2019 FSA field test results are as at 31 March 2019; c) Sri Lanka and Singapore results are as at 31 December 2019; and d) Hong Kong RBC QIS 3 results are as at 31 December 2018.

Note 2: The latest industry-wide solvency assessment was carried out by the IA via QIS 3 in 2019, and the resulting average industry solvency ratios as at the end of 2018 were in the range of 100% to 200% based on information gathered from the industry. Similarly, Japan’s FSA carried out an economic balance sheet RBC field test in 2019, and the resulting average solvency ratios were in the range of 150% to 200%. However, both quantitative impact studies were conducted using parameters and approaches that are subject to review and further industry consultation. The typical industry solvency ratios under the final implemented RBC requirements are likely to differ (potentially significantly) from those shown.

Note 3: For Singapore, the ratios shown are based on the RBC 1 regime, as statistics under the new RBC 2 regime are not publicly available

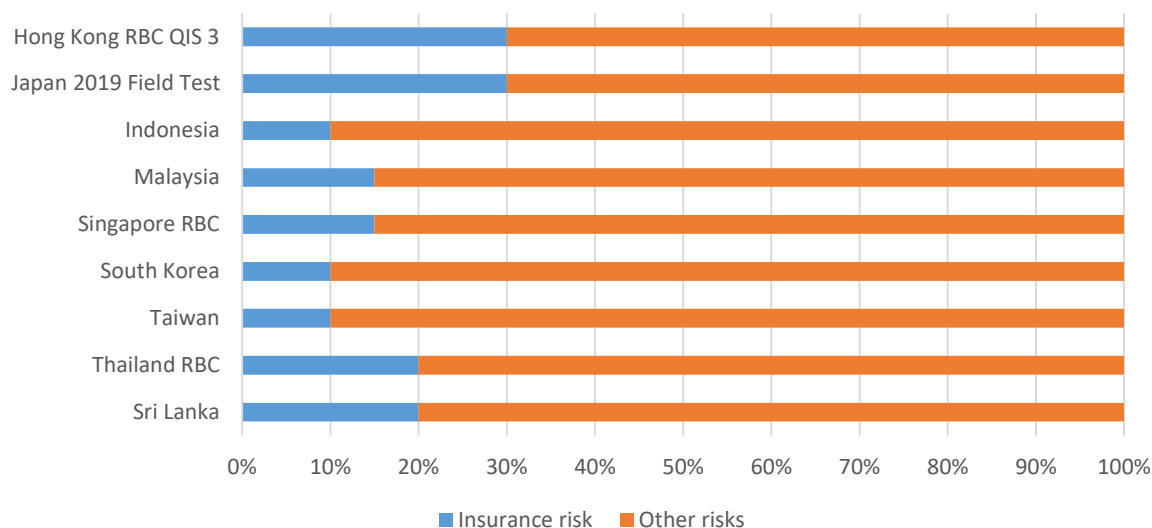
In general, industry-level solvency ratios in Asia have been relatively stable over the past few years, with small changes driven primarily by changes in the interest rate environment (with government bond yields typically used to determine the discount rate, as discussed above). Since early 2020, the outbreak of the COVID-19 pandemic has hit the global economy, with many Asian governments cutting interest rates in order to stimulate economic activity, with government bond yields falling. The downward pressure on fixed income yields has affected both assets and liabilities of life insurance companies, leading to a decrease of solvency ratios under an economic balance sheet framework in most markets across Asia, especially in the first half of 2020.

It is worth noticing that regulators introduced relief measures in several markets in 2020 to help offset some of the negative impacts of the COVID-19 pandemic. The MAS introduced a transitional measure in Singapore that came into effect from 31 March 2020 and is planned to be gradually phased out by the end of 2021. The OJK in Indonesia introduced a new regulation entitled “Countercyclical Policies against the Impact of the Coronavirus Disease 2019

for Non-banking Financial Services.” effective from April 2020, which has been extended until April 2022. The IC in the Philippines provided temporary relief to insurers by lowering the minimum CAR while the IA in Hong Kong relaxed some aspects of the methodology to determine the valuation interest rate in 2020.

As shown in Figure 1.6, for markets with RBC regimes, the total capital requirement tends to be mainly driven by market risks (i.e., interest rate, equity and credit spread), although lapse risk and morbidity risks are also key contributors. In some markets such as Japan, currency risk can also be material.

FIGURE 1.6: RISK CHARGE BREAKDOWN – INSURANCE RISK VERSUS OTHER RISKS



Source: Estimates based on public information and Milliman internal data.

Note 1: The figures above are as at 31 December 2019 based on prevailing RBC regimes of each country except: a) Japan 2019 FSA field test result is as at 31 March 2019, and b) The IA carried out QIS 3 for the developing RBC regime in 2019. Since then, there has been no further industry wide assessment for Hong Kong.

Note 2: For Singapore, the above breakdown is based on Singapore RBC 1 parameters.

The industry-level CARs and the breakdown of risk charges can be explained largely by the nature of assets, the nature of liabilities and the matching (or lack of matching) of assets and liabilities.

More than half of the life insurance assets across these markets are invested in bonds, with insurers in some markets investing a high proportion in government bonds (e.g., Thailand), while others are investing higher proportions in corporate bonds (e.g., Hong Kong) and alternative credit (although this remains small). The proportion of equities varies by jurisdiction, with markets having a material proportion of participating business (e.g., Singapore, Malaysia, Hong Kong) typically investing more in equities with less in liquid asset classes (e.g., private equity, debt/equity/property funds).

Liabilities also differ significantly from one market to another due to product mix differences. The proportion of unit-linked business is significant in some markets (e.g., Indonesia, India and Malaysia), while universal life business has been popular in Hong Kong, Singapore and South Korea. Non-participating traditional business (e.g., endowments, whole life, credit life, term life) remains a material product category for all the markets studied. Participating business (e.g., endowments, whole life) is also a popular line of business for some markets across the region, including Japan, Hong Kong, Singapore, India and Sri Lanka. Unit-linked business and insurance products with lower investment guarantees and more protection benefits typically look more attractive under an economic balance sheet framework, whereas savings products with higher investment guarantees (implicit or explicit) generally look less attractive (the degree of attractiveness being typically measured in terms of new business margin). As a part of the liability in the economic balance sheet framework, TVOG measures the in-the-moneyness of the investment guarantees embedded in the products. Table 1.7 provides a high-level overview of the materiality of TVOG for selected markets.

TABLE 1.7: OBSERVATIONS ON TVOG IN SELECTED MARKETS

MARKET	CAPITAL REGIME	TVOG CONSIDERED?	MATERIALITY OF TVOG
HONG KONG	Solvency I (moving to RBC)	✓ (under RBC QIS)	TVOG could be relatively material for participating and universal life products, two of the main product categories sold in Hong Kong.
INDIA	Solvency I	✓	Generally not material as: <ul style="list-style-type: none"> The level of guarantees for participating products are typically low and interest rates are still relatively high. Hence, participating product guarantees are typically out-of-the-money. Capital guarantees are not widespread for unit-linked business. However, for non-linked group funds management business, guarantee costs may be significant depending on the level of asset/liability duration mismatch.
INDONESIA	RBC	X	Generally not material for multinationals as a high proportion of products sold by these players are unit-linked without investment guarantees. The traditional savings products sold by domestic players may have a significant TVOG.
MALAYSIA	RBC	✓	Generally not material as: <ul style="list-style-type: none"> TVOG for participating products are currently out-of-the-money. Other products typically do not have material TVOG.
SINGAPORE	RBC	X	TVOG is not assessed as part of the RBC framework, hence no formal quantification of TVOG is publicly available. While TVOG is not expected to be material for most products (as investment guarantees are generally low and out-of-the-money), it is expected to be material for some products such as universal life, single premium participating products and recent tranches of new participating products where investments guarantees can be high.
TAIWAN	RBC	X (might be considered under T-ICS)	TVOG is not assessed as part of the current RBC framework, hence no formal quantification of TVOG is publicly available. When moving to T-ICS, TVOG is expected to be material given the nature of products sold in the market. However, as the industry is currently undergoing QIS, the exact impact is not known at present.
THAILAND	RBC	X	Generally not material as: <ul style="list-style-type: none"> Most products are non-participating in nature. The participating component is typically not material and does not lead to a material TVOG. Unit-linked (without investment guarantee) are also becoming more material for some companies.

Source: Estimates based on public information and Milliman market intelligence.

The comments regarding the materiality of TVOG in the table above are general comments related to the relevant market in question, based on our observations. The situation for individual companies within the market may vary.

Potential impact of changes in capital regimes for life insurance business in Asia

A move to a more “economic” RBC regime tends to incentivise life insurers to optimise and potentially de-risk their balance sheets by shifting more risks to policyholders and third-party asset managers, reducing the level and cost of guarantees, tailoring existing insurance product features to be more RBC friendly, improving ALM, and optimising investment and hedging strategies. In particular, the management of RBC balance sheet volatility becomes increasingly important as a result of:

- (i) The typical fair value approach used to value assets and liabilities
- (ii) The current more volatile and unpredictable economic environment

These new capital regimes necessitate insurers to use more sophisticated and value-risk based techniques to set and validate strategic decisions and manage their business.

- **Strategic planning and risk management.** In line with shareholder expectations, many insurers currently conduct their strategic planning with a key focus on traditional top-line revenue and bottom-line profitability growth metrics, e.g., annualised premium equivalent (APE) growth, (traditional) embedded value (EV) growth, value of one year’s new business (VONB) margin or growth using deterministic investment return assumptions. Under the new RBC regimes (and IFRS 17), these measures would need to be accompanied

by additional risk-based metrics that clearly identify the trade-off between shareholder value (e.g., measured in terms of EV or VONB) and risk (e.g., measured in terms of RBC requirements and return on capital). Strategic planning will not only be a matter of finding the appropriate business strategy to grow revenue and profitability, but also a matter of optimising the allocation of capital and controlling and reducing risk, via potentially the definition of a “return on capital” type of metric. For new business in particular, life insurers will need to find the right balance between maximising top line (by selling products with attractive returns to customers but with potentially expensive financial options and guarantees) and optimising capital (by selling products that are more capital-efficient but which may not be so attractive to customers). Ultimately, more emphasis is likely to be placed on recognising diversification benefits (both product and risk) for a given line of business.

- **Capital management, strategic asset allocation and hedging strategy.** Changes in capital regulations will likely prompt insurers to revisit their existing capital management, strategic asset allocation and hedging programs. In particular,
 - Optimising capital requirement and return on capital will become an increasingly key priority. Management actions will need to be tailored to better reflect management decisions under stress scenarios that affect the risks faced by the company, and ultimately to make allowance for this within the assessment of RBC capital.
 - Strategic asset allocations will need to be revised, with potentially less focus on levels of asset returns and more emphasis on risk-based metrics. More dynamic hedging programs may become increasingly relevant, targeting a certain level of volatility whilst keeping a material exposure to achieving upside.
 - The financing strategy of insurance companies may also be impacted as a result of the introduction of new definitions of eligible capital, typically grouped into tiers.



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