Bermuda Reporting Requirements

An overview of statutory and solvency reporting deliverables for long-term insurers

May 2021

Contents

Commonly used acronyms in the Bermuda reporting regime

AA	Approved Actuary
AO	Actuarial Opinion
BEL	Best Estimate Liability
BMA	Bermuda Monetary Authority
BSCR	Bermuda Solvency Capital Requirement
CISSA	Commercial Insurer’s Solvency Self-Assessment
CIRA	Commercial Insurer Risk Assessment
CSR	Capital and Solvency Return
EBS	Economic Balance Sheet
ECR	Enhanced Capital Requirement
FCR	Financial Condition Report
GSSA	Group Solvency Self-Assessment
MSM	Minimum Solvency Margin
RM	Risk Margin
SBA	Scenario-Based Approach
SFS	Statutory Financial Statements
TP	Technical Provisions

Overview of reporting landscape

Statutory reporting regime

To ensure that Bermuda continues to adhere to international standards and best practices for insurance regulation and supervision, in 2015 the BMA instituted a series of enhancements to its statutory and prudential reporting requirements for commercial insurers.

Statutory Reporting

The BMA recognizes that insurers having varying risk profiles arising from the nature, scale and complexity of their business. As a result, commercial insurers have additional reporting requirements, such as:

- Every commercial insurer shall, in addition prepare GAAP financial statements in respect of its insurance business for each financial year. A company can choose to report under US GAAP, Canadian GAAP or another framework (such as IFRS) as their ongoing reporting requirements.

What's audited?

Consolidated GAAP Financials

Prudential Filters

Consolidated Statutory Financial Statements – New requirement from 2016

Unconsolidated Statutory Financial Statements

When is it filed?

Must file within 4 months of the year-end unless an extension is obtained, which is usually issued 1 month at a time, provided that the company is in compliance and there is a valid reason for the request.

The principal representative is responsible for obtaining the extension.

Actuarial Opinion

Commercial classes require an actuarial opinion on the Technical Provisions on the EBS.

Solvency reporting and capital assessment

As a Solvency II equivalent jurisdiction, Bermuda adopts a Three Pillar approach to risk-based supervision. Insurers file a Capital and Solvency Return (CSR) within four months of the financial year end.

Solvency Reporting

An overarching objective of Bermuda's solvency regime over the past decade is to achieve and maintain Solvency II equivalence, which effectively enables Bermuda domiciled insurers to conduct business in the EU on a level playing field as EU domiciled insurers. The BMA is keen to sustain and continue to develop its risk-based regulatory approach that both (a) meets or exceeds international standards and (b) appropriately reflects the nature of the Bermuda market.

To this end, numerous legislation and guidance have been recently issued, that broadly mirror the Three Pillar approach of Solvency II.

Pillar 1 Quantitative Requirements	**Pillar 2** Risk Governance	**Pillar 3** Risk Disclosure
Required capital based on Economic Balance Sheet (EBS). Bermuda Solvency Capital Requirement (BSCR) computed using standard formula or approved internal model. Calibrated to approach but not exceed Solvency II.	Prepare Commercial Insurer's Solvency Self Assessment (CISSA), assessing risk governance and capital adequacy under normal and stressed conditions. Integrate at Group level where multiple legal entities exist.	Beginning with 2016 year end, prepare Financial Condition Report (FCR). Outline performance, risk profile, and organizational governance. To be made publicly available on insurer's website.

Statutory Financial Statements (SFS)

Statutory financials and scope of audit

In order to streamline the process and minimize duplication of effort, the BMA amended statutory accounting valuation standards to be consistent with GAAP valuation, subject to certain prudential filters.

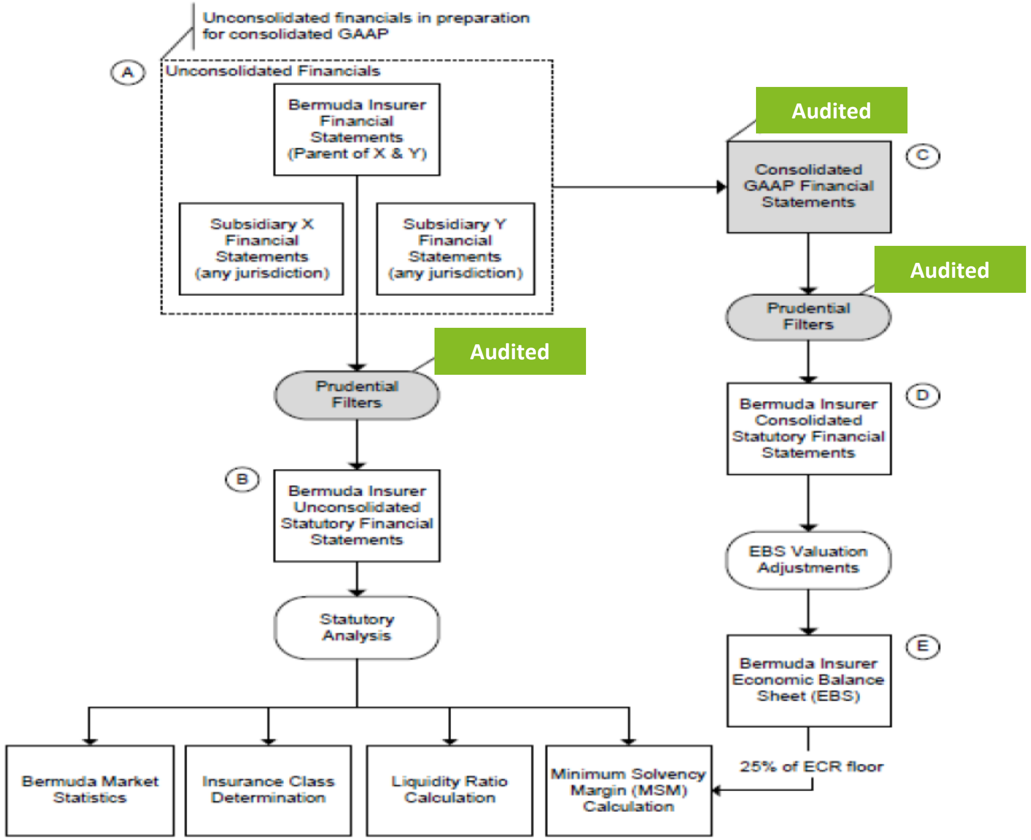
Scope of the Audit

GAAP Financial Statements and Prudential Filters are required to be audited.

The auditor’s opinion is whether the statutory balance sheet, statutory income statement, and statutory capital and surplus have been prepared in accordance with the Act and these Rules.

- Forms 1SFS, 2SFS and 8SFS

Some key prudential filters include:	
Goodwill	Valued at zero.
Other intangibles	Value of future economic benefits flowing to insurer, only if separable and evidence of similar exchange transactions; zero otherwise.
Prepaids and deferred expenses	Valued at zero.
Deferred acquisition costs (DAC)	Valued consistently with GAAP.
Contingent liabilities	Expected present value of future cash flows.
Deferred tax assets/liabilities	Valued consistently with GAAP.



Source: Bermuda Monetary Authority

Economic Balance Sheet (EBS)

The Economic Balance Sheet framework

Beginning with financial year 2016, the EBS framework forms the basis used to determine capital requirements for Bermuda commercial insurers. The Approved Actuary is also required to render an opinion on the reasonableness of EBS technical provisions.

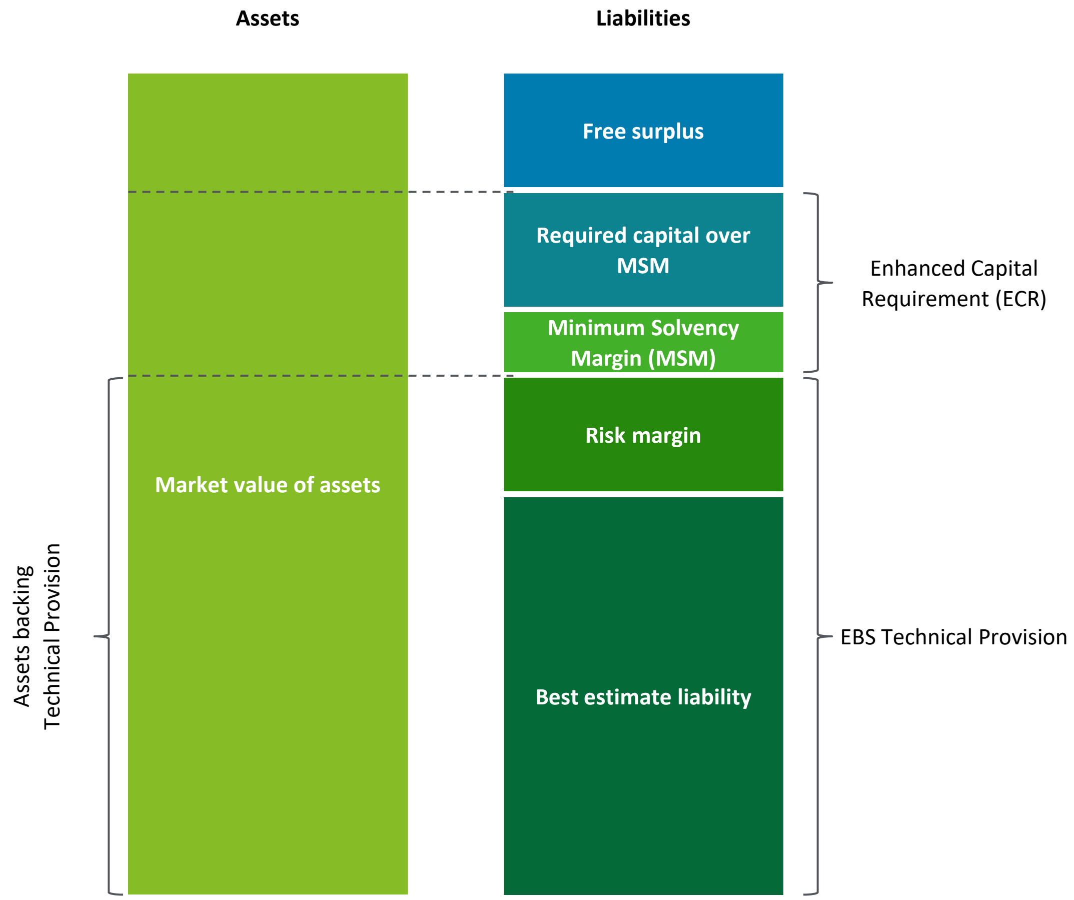
Principles of EBS

Assets and liabilities are assessed and included on the EBS at fair value in line with GAAP principles, or, if GAAP does not require an economic valuation, following the EBS fair value hierarchy.

Specifically with respect to insurance liabilities, an EBS Technical Provision (TP) is established as the sum of a best estimate liability (BEL) and a risk margin (RM). The BEL represents the value of best estimate cash flows, discounted to reflect the time value of money and appropriate illiquidity adjustment. The RM is included to provision for uncertainty inherent to the underlying cash flows.

When applying the EBS framework, the principle of substance over form is applied, for example when selecting actuarial methodologies.

Note, deferred acquisition costs are only implicitly recognized in unearned premium provisions, and are zero for long-term insurance contracts.



Unpacking the Technical Provision

The Technical Provision represents the amount required to meet insurance obligations as they fall due and compensate capital providers for assuming the risk inherent in these obligations.

1. Liability cash flows are projected according to the actuary's best estimate assumptions for the relevant risk drivers.

2. Cash flows are discounted to reflect time value of money and illiquidity. Most long-term insurers reference their asset portfolio rate to derive appropriate discount factors.

3. A risk margin is added to reflect the inherent uncertainty in the best estimate cash flows. This reflects the amount of compensation required by capital providers for bearing this uncertainty and is analogous to a provision for adverse deviation in US GAAP.

4. The EBS Technical Provision is the total liability value recorded for insurance obligations. The Approved Actuary renders an opinion on the reasonableness of overall TPs.

Discounting

Under EBS, best estimate cash flows are to be discounted at a rate reflecting the time value of money plus an appropriate illiquidity premium. It is particularly desirable for long-term insurance contracts to use actual asset portfolio yields as a reference rate, in order to appropriately reflect the company's ALM strategy in the calculated technical provisions.

Methodology

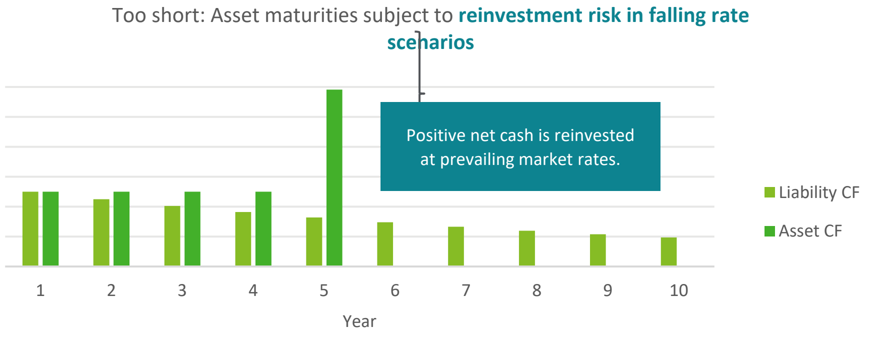
Standard approach: the BMA prescribes discount rates reflecting a risk-free rate plus illiquidity premium. This is generally not appropriate for long-term insurers.

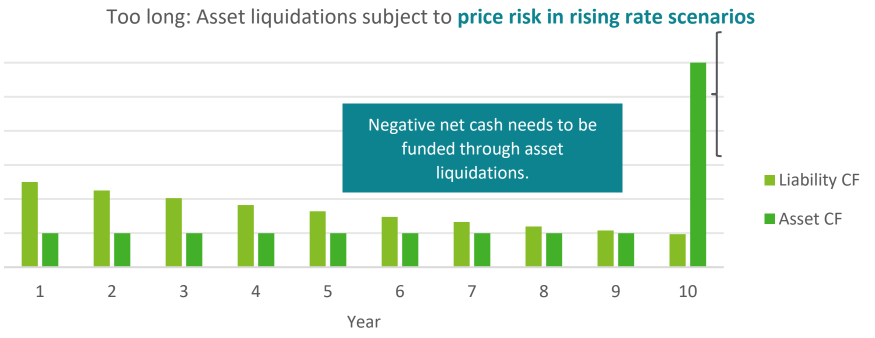
Scenarios-based approach: the insurer uses the actual portfolio of assets assigned to a block of business (as well as any projected reinvestments) to determine yields net of default costs.

The BMA prescribes eight interest rate scenarios that are calibrated to an approximately one sigma stress. The stresses are intended to adjust for any mismatch between asset and liability cash flows.

Under each scenario, the insurer is required to determine the amount of assets required to cover base liability cash flows (i.e., replicating portfolio approach), taking into account as necessary their reinvestment. The BEL is set to the largest such result across all scenarios.

Illustration





Key takeaways: The Scenarios-based approach rewards insurers that have well-matched asset and liability cash flows. A perfectly matched portfolio is immune to interest rate changes under the Scenarios-based approach. Well-matched portfolios generally yield lower BEL under the Scenarios-based versus Standard approach, and vice versa for poorly matched portfolios. While the TP fluctuates with yield curve movements, these are offset by corresponding movements in the asset portfolio, and the capital impact is therefore minimal for well-matched portfolios.

Interaction between EBS TP and unrealized gains/losses

Prior to the EBS framework, solvency was evaluated with respect to statutory surplus, and hence there was no direct linkage between changes in assets and liabilities due to market movements. Under EBS, both asset and liability values reflect current market economics.

Prior to EBS

Assets and liabilities are both valued as per the elected GAAP basis.

Since assets are typically fair valued, whereas reserves do not necessary fully reflect changes to fair value, any differences affect the surplus position.

Mitigating surplus volatility due to yield curve changes required an explicit interest rate hedge, as the asset and liability positions did not necessarily move in tandem.

Supplementary disclosure

When using the Scenario-based approach, the Approved Actuary must supplement their report with a signed memorandum disclosing the following:

- Best estimate under each scenario
- Best estimate under standard approach
- Explanation of any cash flows assumed to vary by interest rate scenario (asset and liability)
- Current investment and reinvestment strategy (consistent with company's policy)
- Yield spreads and number of assets by asset class
- Methodology to determine investment expenses and default costs

EBS Scenarios Approach

The liability value equals the market value of assets required to meet liability cash flows under the worst-case interest rate scenario.

To the extent that asset and liability cash flows are well-matched, unrealized gains (losses) on the asset side and reserve strengthening (release) on the liability side will offset. This immunizes the surplus position from changes in market economics. This framework effectively removes the need to explicitly hedge interest rate risk for well-matched portfolios.

Note that poorly matched portfolios still exhibit substantial volatility due to yield curve movements, due to the reinvestment and/or price risk discussed previously. Thus, explicit hedging may still be required to mitigate interest rate risk for poorly matched portfolios.

There is a proposed shock-based approach to measuring interest rate risk capital under the BSCR, which essentially extends the scenario-testing concept to more severe yield curve movements. Therefore, we can also expect potential capital savings for well-matched portfolios as the new regime is phased in (beginning year-end 2019).

Other EBS considerations

There are several other new concepts in the EBS framework that build on the statutory basis toward a more economically consistent technical provision. Notably, insurers need to calculate a risk margin, adjust reinsurance recoverables for default costs, and render an actuarial opinion on the overall reasonableness of the TPs.

Risk margin

A risk margin is added to the BEL to arrive at the total EBS technical provision. Although the BEL by definition reflects the expected value of insurance benefits payable, there is inherent uncertainty in the underlying cash flows.

Conceptually, the risk margin represents the compensation required by the insurer to bear this uncertainty. The preferred methodology is the Cost of Capital approach, but certain approximations are permissible. Under this approach, the insurer calculates the cost of holding its required capital over the lifetime of its insurance obligations, as follows:

$$RM = CoC \times \sum \frac{ECR_t}{(1 + r_{t+1})^{t+1}}$$

- ECR_t is the insurers required capital at time t, per the standard formula or its own internal model.
- r_t is the risk-free discount rate
- CoC is the cost of capital – currently 6%

Counterparty default

Under the EBS framework, reinsurance recoverables must be adjusted for expected losses due to counterparty default. The preferred methodology mirrors widely used expected credit loss approaches.

Actuarial opinion

Under the new reporting regime, an actuarial opinion is required on the reasonableness of EBS TPs.

The Approved Actuary should specifically discuss the following:

- Commentary on data underlying the EBS TPs
- Discussion of how the Actuary arrived at their actuarial estimates of the insurer's aggregate TPs
- Description of investment and ALM strategies in relation to electing the Scenarios-based approach
- Commentary on the methodology used to arrive at the adjustment included in the best estimate of reinsurance recoveries that was made to reflect expected losses due to counterparty default

Bermuda Solvency Capital Requirement (BSCR)

Capital requirements

Insurers are required to demonstrate capital adequacy with respect to the Bermuda Solvency Capital Requirement (BSCR), which is computed per the BMA's standard capital model or an approved internal capital model.

Risk categories

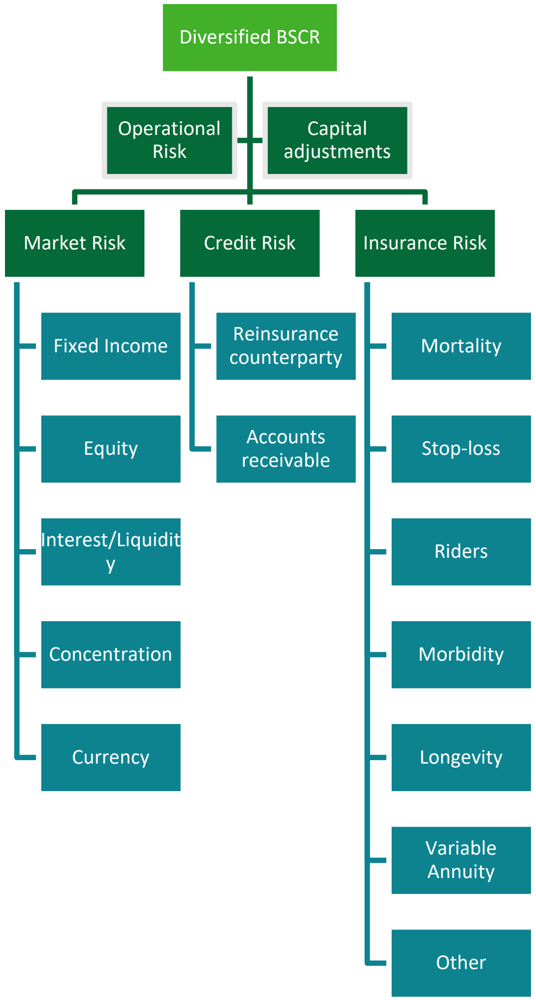
Long-term insurers must calculate capital requirements with respect to the categories to the right. Most capital calculations are determined by multiplying the prescribed capital factor by some defined exposure amount. Some key factors include:

- **Fixed Income:** ranges from 0-35% depending on credit quality
- **Equity:** 14.4% for common stock; 20% for investment real estate
- **Interest/Liquidity:** 200 bps x duration, plus ALM credit
- **Mortality:** NAAR x sliding scale factor of 1/1000 to 4/1000
- **Longevity:** EBS BEL x factor ranging from 2-7% depending on age
- **Other:** EBS BEL x 0.5% or 2%, depending on product

Aggregation

Capital requirements are aggregated in a straightforward manner, applying a very simple dependency structure as follows:

- Mortality, stop-loss and rider risks are perfectly correlated with each other
- The above risks have a 25% negative correlation with longevity risk
- All other pairs are independent of each other
- Operational risk and capital adjustments are added on post diversification



BSCR vs US RBC

Below we compare the risk charges under Bermuda’s BSCR framework versus the U.S. Statutory RBC framework for long-term insurers

Summary of BSCR vs RBC Charges

Risk Module	Bermuda BSCR	U.S. RBC
Fixed Income Investment Risk	Applies to all fixed income investments, and charges vary by asset class (corporate bonds, mortgages, etc.) and BSCR rating.	C-0 Affiliate asset charge equal to prorated share of affiliate’s RBC C-1o: All other asset risk. Charges for bonds, preferred equity, etc. vary by NAIC designation category. Mortgage charges vary based on property type and borrower credit. Different factors apply to common equity and real estate (vary by type and quality).
Equity Investment Risk	Applies to all equity investments and varies by various factors. Includes common equity, preferred equity, and real estate.	
Credit Risk	Applies to reinsurance exposure balances, as well as accounts receivables.	Reinsurance credit risk as a factor of ceded balances, net of assumed balances. Risk charge is included as part of C-1o asset charge.
Long-Term Interest and Liquidity Risk	Applies to total market value of assets and based on net duration gap.	C-3a: Interest rate risk. Factor-based approach applied to reserves. Factors vary depending on riskiness of the business.
Concentration Risk	Applies to top 10 asset exposures. Effectively, the insurer must hold double the asset risk charge on these 10 exposures; however, the additional charge is diversified with other risk modules.	Applies to top 10 asset exposures. Effectively, the insurer must hold double the asset risk charge on these 10 exposures. Risk charge is included as part of C-1o asset charge.
Long-Term Insurance Risk	Applies to any products with mortality, morbidity or longevity exposure.	C-2: Insurance risk. Factors applied to either net amount of risk of reserves as appropriate. Credit for premium stabilization reserves (e.g., experience rating refund provision).
Other Insurance Risk	Applies to all insurance products. 0.50% of EBS BEL for lapse-supported products; 2.0% of EBS BEL for lapse-sensitive products.	N/A
Diversification Credit	Applied using a straightforward covariance approach prescribed by the BMA.	Simple covariance formula approach. Note assumed perfect correlation between C-1o and C-3a. C-0 and C-4a are add-ons.
Operational Risk	Applies as a surcharge to diversified BSCR, based on the insurer’s self assessment of their risk controls and governance.	C-4a: Business risk. Generally, small percentage of premiums (1-3%).
Taxes	N/A	RBC on after-tax basis.

Solvency ratios and eligible capital

Financial instruments may qualify into one of three tiers according to their permanence and subordination. The BMA further enforces constraints on the quality of capital supporting the MSM and ECR.

MSM and ECR

The Minimum Solvency Margin (MSM) is a prescribed regulatory capital floor as a function of business volume. The Enhanced Capital Requirement (ECR) is the maximum of the MSM and BSCR requirements. The BMA imposes a target ECR coverage ratio of 120%. BSCR will almost always be greater than the MSM and will hence drive the ECR.

The minimum capital requirements are intended to reflect a 0.5% probability of insolvency, generally considered commensurate to a BBB-rated company. Companies targeting higher credit ratings would target higher coverage ratios as defined in their risk appetite.

Eligible capital

The general criteria for an instrument to qualify into one of the three capital tiers are outlined in the table to the right.

In the case where certain assets are encumbered due to the nature of a particular reinsurance structure, any excess encumbrances are classified as either Tier 1 or Tier 2.

Tier	Constraints	General criteria for eligibility
Tier 1	At least 80% of MSM At least 50% of ECR	Perpetual, unencumbered, non-redeemable, non-callable and the highest level of subordination.
Tier 2	At most 25% of MSM At most 50% of ECR	Relaxes some Tier 1 criteria to allow callable hybrids and some other non-perpetual instruments available under a going concern, and certain approved letters of credit/guarantees.
Tier 3	Ineligible for MSM At most 15% of ECR	Further relaxes criteria to allow more non-perpetual instruments, and certain approved letters of credit/guarantees.

Transition to new regime

In its continued effort to maintain Solvency II equivalence, the BMA planned several refinements to the BSCR standard model which were recently field-tested prior to implementation. The changes came into effect 1/1/2019 and phased-in over a ten-year period for long-term insurers.

Area	Changes effective 1/1/2019
Equity risk	In the current regime, equity risk charges range from 5% to 55% by type of holding. The new regime introduces various changes to these charges, notably increasing the charge on common stocks from 14.4% to 35%. Additionally, strategic or duration-based holdings are now charged 20%. Short positions used for hedging purposes may be netted. Additionally, equity holdings are classified into three buckets, which are assumed to be 75% pairwise correlated, as opposed to perfect correlation in the current framework.
Risk aggregation	In the current regime, risks are generally considered to be independent, with a few exceptions, leading to generous diversification benefits. The new regime uses multiple layers of correlation matrices, consistent with the Solvency II approach. The impact of risk aggregation changes is expected to have the most substantial impact to long-term insurers.
Operational risk	In the current regime, the operational risk surcharge ranges from 1% to 10% according to the insurer's score on the CIRA. The scoring process is unchanged; however, the new regime changes the associated range of surcharges to 1% to 20%, and steepening the scale such that insurers are further incentivized to implement comprehensive operational risk frameworks.
Deferred taxes	The BMA recognizes that certain Bermuda-licensed insurers pay taxes in a foreign jurisdiction, and consequently any loss absorbing capacity resulting from such should be deducted from the insurer's capital requirements. The new regime sets adjustment limits based on a combination of carried-back losses, current net DTL position, and anticipated carried-forward losses.

Transition to new regime (cont'd)

Area	Changes effective 1/1/2019
Interest rate risk	In the current regime, interest rate and liquidity risks are jointly captured via a simple duration approximation, with a high-level haircut for demonstrating certain ALM capabilities. The new regime introduces a shock-based approach, under which net cash flows are evaluated under a variety of non-parallel yield curve movements.
Risk mitigation	The BMA recognizes that risk mitigation techniques are central to many insurers' business strategies and will allow adjustments to capital requirements subject to certain criteria on the permanence and legal enforceability of such mitigation.
Management actions	The BMA recognizes management actions may be available to defer or cancel certain discretionary benefits and will allow defendable adjustments to capital requirements up to the present value of total future discretionary benefits.
Look through	In the current regime, risk charges for investments in collective investment vehicles or funds are evaluated on a total basis. The new regime requires "looking through" to the underlying assets within the fund and determining risk charges on an individual basis. If individual asset information cannot be reliably obtained, risk charges may be calculated based on a target allocation provided that the underlying assets are strictly managed to these targets, or based on investment limits, representing the riskiest allocation that is at any time permissible within the investment strategy.

Phase-in

Proposed changes are being linearly graded in over ten reporting years beginning with the 2019 year-end filings.

Note, the ten-year phase-in and grandfathering privileges apply only to long-term insurers. However, loss absorbing capacity of deferred taxes will be available immediately.

Grandfathering

Capital charges for equity investments backing existing long-term insurance liabilities as of December 31, 2018, will be grandfathered under the current rule set until said liabilities are completely run-off.

Governance and disclosure

Pillar 2 reporting

Commercial insurers are required to submit certain qualitative and quantitative reporting deliverables with respect to their risk governance. Notably, insurers must complete a Commercial Insurer's Solvency Self Assessment (CISSA), as well as report the Pillar 1 quantitative impacts as a result of a set of prescribed and self-identified stress tests.

CISSA

The insurer must self-assess its capital requirements with respect to the key risk categories identified by the BMA and provide commentary on why its self-assessment differs from the BSCR.

The insurer must additionally disclose contingency plans with respect to maintaining capital adequacy under stress.

Insurers with value-added CISSAs incorporate the results from the self-assessment into its key strategic decisions. Common areas where CISSA results are integrated into business decisions include:

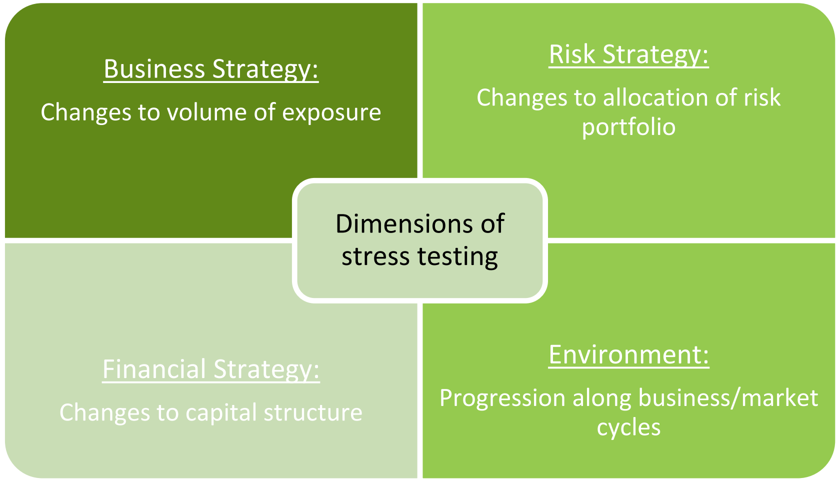
- Strategic planning
- Defining risk appetite
- Capital allocation
- Rating agency considerations
- Reinsurance strategy
- Profitability measurement
- M&A

As part of the CISSA, the Board must review risk governance policies and processes.

Stress Testing

Commercial insurers are also required to submit supplementary quantitative analysis describing the impacts of certain stresses on statutory surplus. The scenarios under consideration are a combination of those prescribed by the BMA, insurer-specific underwriting scenarios, and reverse stress tests.

When quantifying the financial impact of a particular stress test, it is important to consider the following key dimensions:



Pillar 3 reporting

Beginning with financial year 2016, commercial insurers are required to submit a Financial Condition Report (FCR), which is to be made publicly available. The report provides risk disclosure with respect to five key areas.

Financial Condition Report

The FCR requires the insurer to discuss its risk management function and overall business operations with respect to five key areas: business & performance, system of governance, risk profile, solvency valuation, and capital management.

This structure is analogous to similar disclosure requirements under Solvency II.

Business & Performance	System of Governance	Risk Profile	Solvency Valuation	Capital Management	Other
• Ownership • Group structure • Insurance business • Investment portfolio	• Board and senior management • Fitness and propriety • Key functions • CISSA • Outsourcing	• Material risks • Risk mitigation • Concentrations • Prudent person principle • Stress testing	• Valuation bases • Recoverables	• Eligible capital • Regulatory capital • Internal capital modeling • Partial model integration	• Subsequent events

[A copy of the Financial Condition Report shall be published on the insurance group's website within 14 days of the date the report was filed with the BMA. If an insurance group does not have a website, the insurance group is to provide the public a copy of a Financial Condition Report within ten days of receipt of a request made in writing]

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