Date: 1 January 2026

NOTICE NO. TIU/N-2/2025/22

APPENDIX 1: TECHNICAL SPECIFICATIONS ON THE CAPITAL ADEQUACY FRAMEWORK FOR INSURANCE COMPANIES AND TAKAFUL OPERATORS

Contents

PART A
Background

1. INTRODUCTION

1.1. Risks that conventional insurers and Takaful Operators face are typically complex and largely unpredictable. This return aims to strike an appropriate balance between quantifying the risks accurately and avoiding onerous calculations that require insurers and Takaful Operators to make major operational changes.

1.2. These technical specifications provide insurers with information on the Capital Adequacy Framework (thereafter known as "the Framework") and guidance on how the calculation template should be completed.

Key elements of the technical specifications

1.3. The main features introduced in this technical specification are as follows:

(a) **Risk charges**: The computation of 4 different risk charges, with principles governing aggregation and diversification.

(b) **Capital tiering**: Capital tiering and qualifying criteria for available capital, representing the availability of financial resources to absorb losses at the different operating stages of the insurer.

PART B

Valuation of Assets and Liabilities

2. VALUATION OF ASSETS AND LIABILITIES

Total Balance Sheet Approach

2.1. Solvency assessment of insurers will be based on the total balance sheet approach. This approach recognizes the interdependence between all assets, all liabilities, all regulatory capital requirements and all capital resources. Material interactions between assets and liabilities are to be consistently reflected in both qualifying capital resources and capital requirements.

Valuation of Assets

2.2. Insurers are required to value assets based on the International Financial Reporting Standards (IFRS).

Valuation of non-insurance liabilities

2.3. The valuation of non-insurance liabilities will be adjusted to restate them on a "fair value" basis if they relate to the valuation of policy liabilities. However, for non-insurance liabilities that do not relate to valuation of liabilities, but instead, relate to admissibility for capital quality assessment purposes, they will be considered as deduction from available capital for the purpose of solvency assessment.

Valuation of Policy Liabilities

2.4. Insurers are required to use the existing Gross Premium Valuation ("GPV") method to determine the value of long-term policy liabilities.

2.5. Unless otherwise stated, policy liabilities are to be valued net of reinsurance ceded. Where the liabilities in respect of any policy of its insurance business are ceded out to a reinsurance counterparty, the insurer may reduce the value of the liabilities to reflect the reinsurance ceded. Liabilities relating to the reinsurance ceded are referred to as reinsurance liabilities should be reduced for any known impairments.

2.6. Insurers are required to value policy liabilities based on a Best Estimate plus a Risk Margin for Adverse Deviation ("Risk Margin") at a 75% confidence level.

2.7. The Risk Margin measures the uncertainty of best estimate cash flows associated with insurance obligations over the full-time horizon.

2.8. For life insurance and family takaful business, the Risk Margin should be determined using provisions for adverse deviations ("PADs") applied on the relevant risk factors.

2.9. For general insurance/takaful business, the Risk Margin should be determined by the actuary based on sound actuarial principles.

2.10. For valuing long-term life insurance policy liabilities using the GPV method, the following two liabilities shall be determined:

(i) Total Insurance Liability ("TIL"):

(a) Is applicable to the products under Participating Fund only;

(b) Includes both guaranteed and non-guaranteed cash flows in policy liability projections with Risk Margin. Any negative reserves at policy level are floored at zero; and

(c) Use Net Fund Earned Rate ("NFER")[1] to discount policy liability cash flows.

(ii) Guaranteed Insurance Liability ("GIL"):

(a) Is applicable to products under Participant Fund, Others Fund, PRF and SHF under takaful operators.

(b) Includes guaranteed cash flows in policy liability projections with Risk Margin. Any negative reserves at policy level are floored at zero.

(c) Use risk-free discount rate to discount policy liability cashflows.

2.11. For a general insurer/takaful operator, the net premium liability at the fund level shall be the higher of:

(i) The net Unexpired Risk Reserve ("URR")[2]; and

(ii) The net Unearned Premium Reserves ("UPR")[3], less any net deferred acquisition costs ("DAC")[4].

2.12. For general insurer/takaful operator, the net premium liability for each line of business shall not be less than the net URR[5].

2.13. The net URR for general insurer/takaful operator shall include:

[1] As defined in paragraph 3.24.
[2] URR is the sum of the value of the expected future payments arising from future events insured under the policies that are in-force as at the valuation date (including any expense expected to be incurred in administering the policies and settling the claims) and any Risk Margin for Adverse Deviation.
[3] UPR is the amount of reserves for unearned premium as defined in Insurance Regulations, 2006. If reflects the amount of premiums written but not yet earned. For general takaful operator, the net Unearned Contribution Reserves ("UCR").
[4] DAC is the amount of acquisition cost relating to policies written which are yet to be earned and will be recognised over the term of the policy.
[5] For general takaful operator, UCR.

(i) Value of expected future payments of in-force policies as at valuation date arising from future expected claim events, including expected expenses associated with claims handling and policy administration; and

(ii) Risk Margin calculated to achieve 75% level of sufficiency.

2.14. For general takaful operator, the expense liability of the SHF at the fund level shall be the higher of:

(i) The unexpired expense reserve ("UER") at 75% level of sufficiency; and

(ii) The unearned wakalah fee ("UWF"), less any net DAC.

2.15. For general takaful operator, the net expense liability for each line of business in the SHF shall not be less than the net UER.

2.16. For policy liabilities,

$$Policy\ liabilities\ for\ conventional\ general\ insurer = \sum claims\ and\ premiums\ liabilities$$

$$Policy\ liabilities\ for\ general\ takaful\ operator = \sum takaful\ liabilities\ and\ expense\ liabilities$$

Discounting of liabilities

2.17. The time value of money should be reflected in the valuation of policy liabilities for both life and general insurance business with a duration greater than one year, unless it is deemed not material. Actuarial judgement is permitted to determine whether discounting has a material impact on the valuation of policy liabilities.

2.18. The discount rates adopted should be consistent with the nature, structure and term of the liabilities.

Risk-free discount rate

2.19. The methodology used to determine the risk-free discount rate is based on a three-segment approach:

(i) Segment 1: Liquid segment based on market information on zero-coupon government bonds;

(ii) Segment 2: Extrapolation using the Smith-Wilson method;

(iii) Segment 3: Based on a stable Long-term Forward Rate ("LTFR")

2.20. For each currency, the transition from the first to second segment will occur at the last liquid point ("LLP") using the Smith-Wilson method to extrapolate between the LLP and the onset of the LTFR.

2.21. For liabilities denominated in BND, the Singapore government bond yields will be used as proxy.

2.22. For liabilities denominated in currencies other than BND or Singapore Dollar ("SGD"), the respective countries' government bond yield curves may be used.

2.23. Illiquidity premium will not be explicitly allowed for in the risk-free discount rate.

Net Fund Earned Rate

2.24. The Net Fund Earned Rate ("NFER") should be determined based on the historical yield and expected future earning of the Participating Fund, net of tax and investment expenses.

Treatment of Negative Reserves

2.25. Under circumstances where the present value of future income exceeds the present value of future outgo, there may be cases where life insurance policies have negative reserves calculated under the GPV method.

(i) Negative reserves will not be recognized for valuation and solvency purposes.

(ii) Any negative reserve at policy level should be floored to zero when calculating the life insurance policy liabilities.

PART C
Components of Required Capital

3. RISK COMPONENTS

3.1 Under this framework, risk charges will be specified for four risk components, namely:

3.1.1 R1: Insurance (underwriting) risk

3.1.2 R2: Market risk

3.1.3 R3: Credit risk

3.1.4 R4: Operational risk

3.2 The unit reserves of Investment-Linked Fund ("ILP") and Participants' Investment Fund ("PIF") are excluded from R1, R2 and R3 risk components only.

R1 – Insurance Risk

Life Insurance Risk

3.3 The life insurance risk charge under the framework includes the following risk components:

Table 1: Risk components of life insurance risk charge

Risk Component	Definition
Mortality risk	The risk associated with the variability in liability cashflows due to the incidence of death
Longevity risk	The risk associated with the variability in liability cashflows due to increasing life expectancy
Morbidity / Disability risk	The risk associated with the variability in liability cash flows due to changes in the incidence of disability claims, as well as recovery rates
Lapse risk	The risk associated with the variability in liability cashflows due to the incidence of lapses (including forfeitures, surrenders, terminations and non-renewals) by policyholders
Expense risk	The risk associated with the variability in liability cashflows due to the incidence of expenses incurred

3.4 The life insurance risk charge is calculated as:

$$Life\ Insurance\ Risk\ Charge = G^* - G$$

Where

- G^* denotes adjusted GIL after R1 shocks
- G denotes GIL

3.5 As the Risk Margin is already provisioned in the GIL, life insurance risk charge is calculated in excess of the Risk Margin and thus avoids double counting.

3.6 The shocks to be applied to the current estimate assumptions are as follows:

Table 2: Shocks to be applied for computation of life insurance risk charge

Risk Component	Shocks Applied
Mortality risk	+20% on current estimate mortality rates, provided that the payment of benefits depends on mortality risk
Longevity risk	-25% on current estimate mortality rates, provided that the payment of benefits depends on longevity risk
Morbidity / Disability risk	+30% on current estimate disability rates, provided that the payment of benefits depends on morbidity/disability risk
Lapse risk	+50% or -50% on current estimate lapse rates (including premium holiday and partial withdrawal rates), for whichever that produces a higher liability value
Expense risk	+10% on current estimate for renewal expenses (no stress to expense inflation rate)

3.7 The G^* is calculated in accordance with Paragraph 3.10(ii)(a) to 3.10(ii)(c) and with the shocks in the following scenarios applied simultaneously on the current estimate assumptions. The final G^* is the maximum G^* out of the four scenarios stated below:

3.7.1 Mortality shock + lapse up shock + other shocks

3.7.2 Mortality shock + lapse down shock + other shocks

3.7.3 Longevity shock + lapse up shock + other shocks

3.7.4 Longevity shock + lapse down shock + other shocks

Where other shocks refer to the morbidity / disability and expense shocks.

3.8 Within each scenario, the insurer is required to summarise the results according to the product groupings in the workbook.

General Insurance Risk

3.9 The general insurance risk charges under the framework address the risks of underestimating the policy liabilities and adverse claims experience.

3.10 The general insurance risk charge is calculated as the sum of the following risk components:

Table 3: Risk components of general insurance risk charge

Risk Component	Definition
Claims liability risk	The risk associated with incurred claims (for expired risks) and accounts for the risk that the amount set aside for claims and expenses for claims that have occurred will be inadequate
Premium liability risk	The risk associated with future claims (for unexpired risks) and accounts for the risk that the amount set aside for claims and expenses against the unearned premium reserves will be inadequate

3.11 Each component of the general insurance risk charge is calculated using the factor-based approach. The risk charge for each risk component (i.e., claims liability and premium liability) is to be calculated as the risk charge factor multiplied by the exposure for each line of business.

3.12 The risk charge factor should be applied on both the claims and premium liability computed at the 75% level of sufficiency, after allowing for Risk Margin on top of the current estimate liabilities.

3.13 The recognition of the diversification benefit within the claims and premium liability through the Risk Margin selection is allowed.

3.14 Liabilities used as exposure for general insurance risk charge calculation shall be net of reinsurance.

3.15 The claims liability risk charge for each line of business is calculated as:

$$claims\ liability\ risk\ charge\ factor\ \times\ net\ claims\ liability$$

3.16 The total claims liability risk charge shall be the aggregate of the claims liability risk charge for each line of business.

3.17 The premium liability risk charge for each line of business is calculated as the higher of:

3.17.1 The product of the premium liability risk charge factor and the net URR, plus the net URR, less the net premium liability; and

3.17.2 Zero.

3.18 The total premium liability risk charge shall be the aggregate of the premium liability risk charge for each line of business.

3.19 For general takaful operators, the expense liability risk charge shall be computed in a similar way as premium liability risk charge.

3.20 For general business, the following factors for claims liability risk and premium liability risk are to be applied for each individual line of business.

Table 4: Risk charge factors for general insurance risk charge

Line of Business	Claims Liability Risk Charge Factor	Premium Liability Risk Charge Factor
Property	28%	35%
Motor	28%	35%
Cargo	32%	40%
Marine Hull	36%	45%
Aviation	36%	45%
Energy	32%	40%
Engineering/ Contractors' Risk	32%	40%
Liability	36%	45%
Personal Accident	32%	40%
Workmen's Compensation	32%	40%
Others	36%	45%

R2 – Market Risk

Interest Rate Mismatch Risk

3.21 Interest rate mismatch risk charges address the risk arising from unexpected changes in the level of volatility of interest rate.

3.22 The interest rate mismatch risk charge is calculated by:

3.22.1 Applying the upward shock factor from the table below to the relevant base yield curve[6], then recomputing the value of the interest rate sensitive assets and liabilities using this adjusted yield curve. The yield curve after shock is subject to a floor of zero.

3.22.2 Calculate the resulting change in the values of the net assets[7] when the adjusted yield curve is used instead of the base yield curve.

[6] Refer to Appendix C for illustration.
[7] Net asset is referred to be the value of total assets less total liabilities.

3.22.3 Repeat the steps above by using the downward shock factor.

3.22.4 The interest rate mismatch risk charge is the higher of the change in the values of the net assets from (4.22.2) and (4.22.3) above.

Table 5: Shock factors for interest rate mismatch risk charge

Term	Upward Shock Factor	Downward Shock Factor
3 months	75%	-65%
6 months	75%	-60%
9 months	75%	-60%
1 year	75%	-60%
2 years	75%	-60%
3 years	75%	-55%
4 years	75%	-55%
5 years	70%	-55%
6 years	65%	-55%
7 years	65%	-50%
8 years	65%	-50%
9 years	65%	-45%
10 years	65%	-40%
11 years	60%	-40%
12 years	55%	-35%
13 years	55%	-35%
14 years	50%	-30%
15 years	45%	-30%
16 years	45%	-30%
17 years	40%	-25%
18 years	35%	-25%
19 years	30%	-25%
20+ years	25%	-20%

3.23 The assets that fall under the interest rate mismatch category include:

3.23.1 Any position in debt security or derivative

3.23.2 Any non-convertible preference share

3.23.3 Any position in a collective investment scheme with a mandate to invest in debt securities and debt derivatives only

3.23.4 Any position in convertible security that is not in line with the criteria detailed in Appendix B, Paragraph B.1

3.23.5 Any notional position arising from interest rate add-on for equity derivatives derived in accordance with Appendix B, Paragraph B.2

3.24 For the purpose of calculating net assets[8], the liabilities shall refer to:

3.24.1 For life business: the GIL as defined in Paragraph 3.10 (ii).

3.24.2 For general business: the policy liabilities as defined in accordance with Paragraph 3.16.

3.25 In calculating the net asset, general insurers/takaful operators:

3.25.1 If policy liabilities are not discounted and the weighted-average asset duration of interest rate sensitive assets (as defined in Paragraph 4.23) is less than two years:

- No re-computation of both assets and liabilities is required, in which case the change in value of both assets and liabilities under both the upward and downward interest rate scenarios will be zero.

3.25.2 If policy liabilities are discounted:

- may choose not to recompute the value of its general insurance liabilities, in which case the change in value of liabilities under both the upward and downward interest rate scenarios will be zero.

3.25.3 Can adopt the modified duration approach to approximate the change in asset value of each interest rate sensitive assets (as defined in Paragraph 4.23).

3.26 To determine the duration of callable bonds:

3.26.1 The term to final maturity shall be used for the upward interest rate scenario;

3.26.2 The term to first call date shall be used for the downward interest rate scenario.

3.27 A term until the next coupon rest date shall be assumed for floating rate instruments.

[8] Net asset is referred to be the value of the assets less liabilities.

3.28 For interest rate related derivative instruments, an insurer should use the current market value of the principal amount of underlying instruments to calculate the interest rate mismatch risk charge.

Foreign Currency Mismatch Risk

3.29 Foreign currency mismatch risk charge addresses the risk of economic loss due to adverse movements in the value of foreign currencies against the BND/SGD.

3.30 The foreign currency mismatch risk charge factor is 15%. The foreign currency mismatch risk exposure shall be calculated as the higher of the following:

3.30.1 For currencies with a positive net open position, the total net open positions of the insurer; or

3.30.2 For currencies with a negative net open position, the absolute value of the total net open positions of the insurers;

less 5% of the total value of assets in the fund, subject to a minimum of zero.

3.31 The concession of 5% is applied to recognize the lack of supply and liquidity of BND and SGD denominated assets.

3.32 The net open position for each currency is calculated by summing the absolute values of the following:

3.32.1 Total assets less total liabilities denominated in the respective currencies.

3.32.2 Total inflow less total outflow for the insurer in the currency in relation to the currency positions arising from any futures contract or forwards contract,

3.32.3 Net positions denominated in the currency in relation to any non-currency futures contract, forward contract and other derivatives.

3.33 The net open position in each currency should be converted to the BND using market spot exchange rate as at the valuation date. This risk charge will be applicable to all foreign currencies except for the SGD.

3.34 The foreign currency mismatch risk charge is then calculated as the aggregate of the calculations for all foreign currency exposures.

Equity Risk

3.35 Equity risk charge addresses the risk of economic loss due to fluctuations in the market value of equity.

3.36 The insurer is required to apply the following factors to the market value of equity exposures to calculate the equity risk charge:

Table 6: Risk charge factors for equity risk charge

Risk Component	Risk Charge Factor
Listed Equities (both developed and emerging markets)	30%
Unlisted Equities	45%

3.37 For Collective Investment Schemes ("CIS"), the asset risk charge can be calculated by the insurer by looking-through the underlying securities held by the CIS ("the look-through approach"). The asset holdings should be treated as separate and distinct investments. Under the look-through approach, adequate evidence should be provided by the insurer to show that the proposed allocation of the investment exposure of the CIS is feasible. If an insurer is unable to adopt the look-through approach, a 45% risk charge factor should be applied to the market value of the CIS.

3.38 For investments in commodities, the risk charge factor for "Unlisted Equities" will apply as they should be treated as equity investments.

3.39 For equity derivative instruments, the equity exposures are the current market value of the underlying equity instruments.

3.40 The equity risk charge is then calculated as the aggregate of the calculations for all equity exposures.

Property Risk

3.41 The property risk charge addresses the risk of economic loss due to changes in the value of property exposures.

3.42 The property risk charge is calculated by applying a 20% risk charge factor to the current market value of all immovable property without differentiating between investment properties and self-use properties.

3.43 For CIS, the asset risk charge can be calculated by the insurer by looking through the underlying property exposures held by the CIS. If an insurer is unable to adopt a look-through approach where the asset holdings are treated as separate and distinct investments, a 45% risk charge factor shall be applied.

3.44 The property risk charge is then calculated as the aggregate of the calculations for all property exposures.

R3 – Credit Risk

3.45 Credit risk arises from the inability or unwillingness of a counterparty to make its promised payments, as well as in the deterioration of an obligor's creditworthiness short of default, including credit migration and spread risk due to defaults.

3.46 The credit risk charge under the framework is the sum of credit spread risk charge and counterparty default risk charge.

Credit Spread Risk for Debt Securities

3.47 Credit spread risk charge addresses the risk of economic loss from a change in asset value due to movements in the market price of credit risk. This includes both the credit default as well as credit spread widening risk.

3.48 The factor-based approach is adopted in calculating credit spread risk charges, where the risk charge factor for each debt security varies by term to maturity and the credit rating (refer to paragraph 4.56).

3.49 The total credit spread risk charge is calculated as:

$$Total\ Credit\ Spread\ Risk\ Charge = \sum_{all\ k} (RCF_k \times Exposure_k)$$

Where RCF_k = Risk Charge Factor of Debt Security "k"

$Exposure_k$ = Market Value of Debt Security "k"

3.50 Insurers should exclude bonds issued by federal government or central bank of the countries where their sovereign credit ratings fall under credit rating categories 1 and 2 under the credit rating classification, as defined in paragraph 4.56.

3.51 Government bonds where the country's sovereign credit rating does not fall under credit rating categories 1 and 2 will be notched up to the next higher credit rating based on the existing sovereign credit rating.

3.52 Unrated corporate bonds issued by statutory board or multilateral agencies from countries with sovereign credit ratings under categories 1 and 2 shall be classified under credit rating category 1.

3.53 The other unrated corporate bonds, however, will be subjected to the same risk charge factor as credit rating category 5.

3.54 For credit related derivative instruments, the exposures are the current market value of the principal amount of the underlying instruments.

3.55 The classification of credit rating classes is as shown in the table below:

Table 7: Credit rating categories

Credit Rating Category	Standard and Poor's Rating Services (S&P)	Moody's Investors Service (Moody's)	Fitch Ratings (Fitch)	A. M. Best
1	AAA to AA-	Aaa to Aa3	AAA to AA-	A++ to A+
2	A+ to A-	A1 to A3	A+ to A-	A to A-
3	BBB+ to BBB-	Baa1 to Baa3	BBB+ to BBB-	B++ to B+
4	BB+ to B-	Ba1 to B3	BB+ to B-	B to B-
5	CCC+ to D	Caa1 to C	CCC+ to D	C++ to D
Unrated				

3.56 The credit spread risk charge factors vary by credit rating category and term to maturity are as shown in the table below:

Table 8: Risk charge factors for credit spread risk charge

Year/ Rating Category	1	2	3	4	5 or Unrated
0 - 1	1%	1%	1%	2%	3%
2 - 3	2%	2%	3%	8%	10%
4 - 5	4%	5%	8%	15%	20%
6 - 10	7%	8%	15%	25%	30%
11 - 15	10%	12%	20%	30%	35%
16 - 20	12%	15%	25%	40%	45%
21 - 25	15%	15%	25%	40%	50%
26 - 30	15%	18%	30%	45%	50%
31 - 35	15%	20%	30%	45%	50%
Above 35	18%	25%	35%	50%	55%

Counterparty Default Risk

3.57 The counterparty default risk charge addresses the risk of economic loss due to unexpected default of the counterparties and debtors of insurers.

3.58 The counterparty default risk charge is calculated as the risk charge factor multiplied by the exposure, where the risk charges factor varies across either credit rating of counterparty (see paragraph 5.63) or aging period (see paragraph 5.64).

3.59 The table below summarises the application of counterparty default risk charge factor to the different asset classes:

Table 9: Application of counterparty default risk charge factor for different asset classes

Assets	Vary by Credit Rating	Vary by Aging Period	Note
Cash in banks	Y	N	50% factor (i.e. reduction in risk charge) will be applied on the risk charge if the deposit can be withdrawn within 6 months unconditionally
Time deposits	Y	N	50% factor (i.e. reduction in risk charge) will be applied on the risk charge if the deposit can be withdrawn within 6 months unconditionally
Due from ceding companies	Y	N	Subject to 100% risk charge factor for the due exceeding 24 months
Funds held by ceding companies	Y	N	
Loss reserve withheld by ceding companies	Y	N	
Amounts recoverable from reinsurers	Y	N	Subject to 100% risk charge factor for recoveries exceeding 18 months
Other reinsurance accounts receivable	Y	N	Subject to 100% risk charge factor for receivable exceeding 18 months
Surety losses recoverable	Y	N	
Real estate mortgage loan	Y	N	
Collateral, guaranteed, and other loans	Y	N	

Purchase money mortgages	Y	N	
Unquoted debt securities	Y	N	
Derivatives	Y	N	Counterparty exposure is defined as the current market value of the contracts (floored at zero) + (notional amount x derivative exposure factor)
Loan investment	Y	N	Excluded policy loan as policyholders borrow against their own surrender values
Intra-group balance not related to insurance contract	Y	N	Subject to 100% risk charge for outstanding more than 3 months
Premiums due and uncollected	N	Y	Aging of outstanding premium for annual and multi-year policies starts from billable date (excludes the effects of delays by the insurer in policy issuance and billing)
Unearned interest income	N	Y	
Notes receivables, Sales contract receivables, Other loan receivables	N	Y	Trade debtors are to be based on value after impairment
Accounts receivables	N	Y	
Accrued Dividends Receivable	N	Y	Applicable to equity securities

3.60 The counterparty default risk charge factors by credit rating category are as follows:

Table 10: Risk charge factors by credit rating category for counterparty default risk charge

Asset Credit Rating	Risk Charge Factor
Rating Category 1	0.1%
Rating Category 2	0.3%
Rating Category 3	1.0%
Rating Category 4	7.0%
Rating Category 5	50.0%
Unrated	55.0%

3.61 The counterparty default risk charge factors by aging period are as follows:

Table 11: Risk charge factors by aging period for counterparty default risk charge

Aging Period	Risk Charge Factor
For less than 3 months	0.5%
For more than 3 but less than 6 months	0.5%
For more than 6 but less than 9 months	2.0%
For more than 9 but less than 12 months	10.0%
For more than 12 but less than 15 months	40.0%
For more than 15 but less than 18 months	70.0%
For more than 18 months	100.0%

3.62 The derivative exposure factor to be applied on the notional value of the derivative is as follows:

Table 12: Derivative exposure factor

Maturity of Contract	Physical Commodity Contracts	Interest Rate Contracts	Equity Contracts	Foreign Currency Contracts
12 months or less	10.0%	6.0%	1.0%	0%
More than 1 year but less than 5 years	12.0%	8.0%	5.0%	0.5%
More than 5 years	15.0%	10.0%	7.5%	1.5%

R4 - Operational Risk

3.63 The operational risk charge addresses the risk of economic loss due to direct or indirect losses resulting from inadequate or failed internal controls, processes, people or systems, or losses due to external events.

3.64 The operational risk charge is 1% of total asset value, subject to a cap of 10% of total risk charges from insurance, market and credit risks (after diversification).

3.65 The risk charge for operational risk shall be calculated as follows:

$$R4 = MIN(1\% \times Total\ Asset\ Value, 10\% \times \left(\sqrt{R1^2 + (R2 + R3)^2}\right))$$

Where:

R1: Insurance Risk

R2: Market Risk

R3: Credit Risk

3.66 For conventional life insurers, the unit reserve of Investment-Linked Fund is subjected to operational risk charge and it shall be included in the TCR of Others Fund.

3.67 For takaful operators, assets of PIF are subject to operational risk charge and it shall be included in the TCR of SHF.

Diversification

3.68 The diversification benefit shall be recognised explicitly between insurance and asset risks (i.e., market and credit risk).

The TCR shall be calculated as follows:

$$TCR = \sqrt{R1^2 + (R2 + R3)^2} + R4$$

Where:

R1: Insurance Risk

R2: Market Risk

R3: Credit Risk

R4: Operational Risk

PART D

Components of Available Capital

4. TOTAL AVAILABLE CAPITAL

4.1 Under the framework, all insurers shall determine their TCA as the sum of all Tier 1 capital and Ter 2 capital, less any adjustment to capital resources for each respective fund.

4.2 Tier 1 capital is an insurer's primary source of strength and is intended to absorb losses on a going concern basis.

4.3 Tier 2 capital serves as a complement to Tier 1 capital and is intended to absorb losses on a winding-up (or "gone concern") basis.

Components of Tier 1 and Tier 2 Capital

4.4 The components of Tier 1 capital are:

4.4.1 Full paid-up ordinary shares / common shares

4.4.2 Head office funds (in the case of insurers incorporated outside Brunei Darussalam)

4.4.3 Share premium / deficit / stock surplus

4.4.4 Statutory reserve funds

4.4.5 Non-cumulative, non-redeemable preference shares

4.4.6 Retained earnings / profits / capital reserves

4.4.7 General reserves

4.4.8 Fair value reserves arising from valuing financial instruments

4.4.9 Fund surplus[9]

4.4.10 Any other capital instrument approved by the Authority as a Tier 1 resource

4.5 The components of Tier 2 capital are:

4.5.1 Cumulative / irredeemable / perpetual preferred shares

4.5.2 Collective impairment allowances

4.5.3 Mandatory capital loan stock and other similar capital instruments

[9] Accumulated profits which have not been made available for distribution to policyholders and shareholders.

4.5.4 Revaluation reserves for property and other assets

4.5.5 Subordinated debt

4.5.6 Hybrid capital instruments

4.5.7 Qard from Shareholders' Fund[10] for takaful operators

4.5.8 Any other capital instrument approved by the Authority as a Tier 2 resource.

4.6 Assets in Participants Investment Fund ("PIF") should not be considered as part of the capital available in assessment of an insurer's solvency level.

4.7 The following resources are not considered as part of the capital resources under the framework:

4.7.1 Assets pledged to support credit facilities obtained by the insurer (i.e. charged assets); and

4.7.2 Credit facilities (e.g. loans, guarantees) granted by the insurer and secured against its own shares.

Limits of Capital

4.8 Tier 2 capital may not exceed Tier 1 capital under the framework.

4.9 In addition, subordinated debt may not exceed 50% of Tier 1 capital.

Adjustments to Capital Resources

4.10 Under the framework, adjustments will be made to the capital resources to recognize that some items will not be available to absorb losses or may be of poor quality and not free from encumbrance.

4.11 Deductions to the available capital include the following:

4.11.1 Reinsurance adjustment

4.11.2 Investments in subsidiaries and associates

4.11.3 Inter-group lending of capital nature

4.11.4 Qard to Takaful Funds in respect of Shareholders' Fund

4.11.5 Goodwill and other intangible assets

[10] To be considered as TCA for the Takaful Fund that received Qard from Shareholders' Fund.

4.11.6 Deferred tax income or expenses and deferred tax assets

4.11.7 BDCB statutory deposit requirement

4.12 For conventional life insurers, if the FSR of the Participating Fund is higher than that of the Others Fund, the TCA at company level will be adjusted such that the company CAR is capped at the FSR of the Others Fund.

4.13 Companies benefit from capital relief by ceding out insurance and investment risks to reinsurers. In addition to the recognition of the counterparty default risk associated with reinsurance recoverables, it is also necessary to recognize that the risk of counterparty default exists for the reinsurance reserves associated with future claims. The latter is recognized through a deduction to the available capital in the form of a reinsurance adjustment.

4.14 The reinsurance adjustment shall be computed as the sum of the product of reinsurance reduction[11] and the counterparty default risk charge factor of the reinsurer[12] for each counterparty.

4.14.1 For life insurers / family takaful operators, the reinsurance reduction is the liability gross of reinsurance less the liability net of reinsurance.

4.14.2 For general insurers / takaful operators, the reinsurance reduction is the sum of the reinsurer's share of UPR and reinsurer's share of outstanding claims.

Non-Guaranteed Benefits (For The Participating Fund)

4.15 Conventional life insurers with a segregated Participating Fund should include the non-guaranteed benefits for the Participating Fund as a positive capital adjustment to capital resources.

4.16 The non-guaranteed benefits for Participating Fund are calculated as the minimum of:

4.16.1 Difference between Policy Assets and GIL of the Participating Fund; and

4.16.2 Component of non-guaranteed benefits in TIL.

Computation of Fund Surplus

4.17 Fund surplus is one of the components of the Tier 1 capital. A different approach is used to compute the fund surplus for a segregated Participating Fund.

4.18 The descriptions of the approaches are summarized as follows:

[11] The reduction in the value of liabilities due to reinsurance ceded to the reinsurance counterparty (i.e. reinsurance liabilities)
[12] As prescribed under paragraph 4.61, which varies by credit rating of reinsurers.

Table 13: Computation of Fund Surplus

Type of Fund	Approach for Computing Fund Surplus
Applicable to all funds except for segregated Participating Fund	Fund Surplus = TFA – TFL where TFA = Market value of total fund assets TFL = Policy Liability* + other liabilities Policy Liability* is defined in Paragraphs 3.10 (ii) and 3.16.
Applicable to segregated Participating Fund only	Fund Surplus = TFA – TFL* where TFA = Market value of total fund asset TFL* = Policy Liability^ + other liabilities Policy Liability^ = Maximum (Policy Assets, TIL, GIL) The Policy Assets are defined as the market value of the total assets less shareholder's surplus[13] and other liabilities. Non-guaranteed benefits of Participating Fund should be recognized as part of the capital to support solvency level. (Refer to Paragraph 6.12)

[13] Shareholder's surplus refers to surplus attributable to shareholders through bonus declaration to participating policies, as defined in Section 20(5) of the Brunei Insurance Order, 2006 and Takaful Order, 2008.

PART E
Appendices

Appendix A – Glossary of Terms

Term	Description
Claims liability risk	The risk associated with incurred claims (for expired risks) and accounts for the risk that the amount set aside for claims and expenses for claims that have occurred will be inadequate.
Counterparty default risk	The risk of economic loss due to unexpected default of the counterparties and debtors of insurers.
Credit risk	The risk of economic loss when the counterparty is unable or unwilling to make its promised payments, as well as in the deterioration of an obligor's credit worthiness short of default, including migration and spread risk due to defaults.
Credit spread risk	The risk of economic loss from a change in asset value due to movements in the market price of credit risk. This includes both the credit default as well as credit spread widening risk.
Equity risk	The risk of economic loss due to fluctuations in the market value of equity.
Expense risk	The risk associated with the variability in liability cash flows due to the incidence of expenses incurred.
Foreign currency mismatch risk	The risk of economic loss due to adverse movements in the value of foreign currencies against the Bruneian/Singapore Dollar.
GIL (Guaranteed Insurance Liability)	The liability associated with guaranteed benefits discounted at risk free rate.
Insurance risk	The risk of accepting risks which are inappropriately accepted or inappropriately priced. This risk arises from fluctuations from timing, frequency or severity of insured events, relative to the expectations of the company at the time of underwriting or pricing.
Interest rate mismatch risk	The risk arising from fluctuations in the market interest rates, which affect the prices of debt securities and policy liabilities, where valuation of policy liabilities requires discounting of future policy liability cash flows using a relevant yield curve.
Lapse risk	The risk associated with the variability in liability cash flows due to the incidence of policy lapses (including forfeitures, surrenders etc.) by policyholders.
Longevity risk	The risk associated with the variability in liability cash flows due to increases in life expectancy.

Market risk	The risk arising from changes in market values or other features correlated with the investment markets, such as interest, inflation and exchange rate. It also includes the consequence of mismatching asset and liability cashflows.
Risk Margin	The risk margin reflects an additional provision that reflects the inherent uncertainty in future cash flows arising from insurance obligations.
Morbidity / disability risk	The risk associated with the variability in liability cash flows due to changes in the incidence of disability claims, as well as recovery rates.
Mortality risk	The risk associated with the variability in liability cash flows due to decreases in life expectancy or increases in the incidence of death.
Operational risk	The risk of economic loss due to direct or indirect losses resulting from inadequate or failed internal controls, processes, people or systems, or losses due to external events.
PIF (Participants' Investment Fund)	A takaful fund established to allocate a portion of a takaful participant's contributions for the purpose of investments and/or savings.
Premium liability risk	The risk associated with future claims (for unexpired risks) and accounts for the risk that the amount set aside for claims and expenses against the unearned premium reserves will be inadequate.
Property risk	The risk of economic loss due to changes in the value of property exposures.
PRF (Participants' Risk Fund)	A fund to which contributions paid by Takaful participants are allocated for the purpose of meeting claims by Takaful participants on the basis of mutual assistance or protection.
Takaful	A scheme in accordance to Hukum Syara' based on brotherhood, solidarity and mutual assistance which provides for mutual financial aid and assistance to the participants in case of need whereby the participants mutually agree to contribute for the purpose.
Takaful Fund	A fund established and maintained by the Takaful operator pursuant to section 20 of the Takaful Order, 2008.
TO (Takaful Operator)	A Takaful Operator which has been registered by the Authority under the Takaful Order, 2008.
TCA (Total Capital Available)	The total capital resource after inclusion of all Tier 1 capital and Tier 2 capital, less any adjustment to capital resources.
TCR	The Total Capital Requirements for insurance, market, credit and operational risks.

(Total Capital Requirement)	
TIL (Total Insurance Liability)	The liability associated with guaranteed and non-guaranteed benefits discounted at fund earned rate net of investment expense.
UFR (Ultimate Forward Rate)	The ultimate forward rate is the long-term discount rate to be used for discounting long-term liabilities. It addresses the issue where at longer maturities, there are no observable market reference points that are comparable to ascertain the long-term discount rates.

Appendix B – Conditions for Assets under Interest Rate Mismatch Risk

B.1 Any position in a convertible security:

- For which less than 30 days remain until the first date of the conversion.
- That is trading at a premium of less than 10%.

B.2 The notional position in an appropriate debt security should be derived by the insurer as follows:

- The maturity of the notional position should be equal to the period up to the expiry of the derivative contract.
- When the underlying equity position is a short position, the notional position should be a long position.
- When the underlying equity position is a long position, the notional position should be a short position.

Appendix C – Illustrative Example for Interest Rate Mismatch Risk Charges

Brunei Corporate Bond

Term to Maturity	7 years
Coupon per 100	10
Redemption Rate	100
Market Price	140 <=== Target Value
Constant Credit Spread	0.74% <=== Goal Seek Value

Year	Annual Cash Flow	Base		Base + Constant Credit Spread	
		Yield	Present Value of Annual Cash Flow	Yield	Present Value of Annual Cash Flow
0	-	-	-	-	-
1	10	0.35%	9.97	1.09%	9.89
2	10	0.80%	9.84	1.54%	9.70
3	10	1.30%	9.62	2.04%	9.41
4	10	1.75%	9.33	2.49%	9.06
5	10	2.20%	8.97	2.94%	8.65
6	10	2.60%	8.57	3.34%	8.21
7	110	3.00%	89.44	3.74%	85.07
			145.74		**140.00** <=== Value to Change

Note: The rates for the calculations above are as an example only

1. The base yield curve used is the Singapore Government Securities yield curve as the the Brunei Dollar is pegged to the Singapore Dollar at par.

2. The constant credit spread is identified using goal seek by eqauting the dicounted present value of the annual cash flows to the market value of the corporate bond.