

RISK-BASED CAPITAL FRAMEWORK FOR INSURERS IN MALAYSIA

**Kenneth Wong, FSA, MAAA
Senior Actuary
Bank Negara Malaysia**

PART I - INTRODUCTION

Background

The Risk Based Capital framework was issued by Bank Negara Malaysia (BNM) (Central Bank of Malaysia) in April 2007. It was developed and finalized following the release of two concept papers to the industry in 2004 and 2005 and the comments received. Several working groups were formed during the process of developing the framework which began in 2002. This included the RBC committee which looked at the overall framework as well as several specialist subcommittees which were tasked with developing specific parts of the framework including the new valuation basis for both life and general insurance. BNM also required the industry to submit various test survey results based on working requirements to gauge and fine tune the final risk charges.

The Bank was cognizant of developments in the international front especially the various papers released from the International Association of Insurance Supervisors (IAIS), the International Actuarial Association (IAA), Solvency II, International Accounting Standards Board (IASB) and the framework was meant to take these into consideration as well as to recognize the ongoing work and developments.

Risk-Based Capital Framework – Underlying principles

The Risk-Based Capital (RBC) framework (the Framework), is the capital adequacy framework for all insurers including reinsurers licensed under the Insurance Act 1996 (Act)

The Framework which requires each insurer to maintain a capital adequacy level that commensurate with its risk profiles has been developed based on the following principles:

- (i) Allowing greater flexibility for an insurer to operate at different risk levels in line with its business strategies, so long as it holds commensurate capital and observes the prudential safeguards set by the Bank;
- (ii) Explicit quantification of prudential buffer which is currently embedded under the existing valuation and solvency framework, with the aim of improving transparency;
- (iii) As incentives for insurer to put in place appropriate risk management infrastructure and adopt more prudent practices. For example, under the Framework, the level of capital required of an insurer shall also depend on qualitative factors that influence the choice of risk-profile including the quality of its board of directors and management, the adequacy of internal risk control measures and monitoring processes; ¹

¹ This aspect is addressed under the Risk-Based Supervisory Framework, where the Bank will evaluate the inherent risks associated with an insurer's significant activities and the quality of risk

management applied to mitigate those risks and may consequently require an insurer to adjust its internal target capital level

- (iv) Promoting convergence with international practices so as to enhance comparability with other jurisdictions and reduce opportunities for regulatory arbitrage within the financial sector;
- (v) Providing an early warning signal on the deterioration in capital adequacy level, hence allowing prompt and preemptive supervisory actions to be taken.

Under the Framework, each insurer is required to determine the adequacy of the capital available in its insurance and shareholders' funds to support the 'Total Capital Required' (TCR). This serves as a key indicator of the insurer's financial resilience, and will be used as an input to determine the appropriateness of supervisory interventions by Bank Negara Malaysia (the Bank).

The Framework is to be implemented on the basis that insurers meet the Bank's expectations that sound risk management practices and market conduct governance have been put in place and implemented effectively. These include periodic reviews of the strategies and internal policies, and decision-making processes by the board of directors and senior management of the insurers with respect to the risks that the insurers assume. Insurers are also expected to manage the adequacy of capital actively by taking into account the potential impact of the business strategies on risk profiles and financial resiliency.

The responsibility for the implementation of sound risk management practices and market conduct governance rests primarily with the board of directors and senior management of the insurer. The duty of sound management extends beyond the requirements of the Framework. It is the responsibilities of the board of directors and management of the insurer to ensure that risks which are not adequately addressed within the Framework are properly identified, monitored and controlled.

Applicability of RBC Framework

The Framework will be applicable to all insurers, including reinsurers, licensed under the Act for businesses generated from within and outside Malaysia. The Framework is also applied to insurance business generated outside Malaysia to mitigate the risks of losses that may arise from the foreign business that would adversely affect the capital adequacy position of the insurer and compromise the insurer's ability to meet its obligations to policyholders and beneficiaries in Malaysia.

Businesses outside Malaysia generated by a branch of a foreign insurer may be

exempted from the requirements of the Framework, subject to the Bank's prior approval. For this purpose, exemption may be granted if the following conditions are fulfilled:

- (i) there is an explicit agreement from the branch's head office that liabilities arising from businesses outside Malaysia are supported by the head office and the risks associated with these liabilities will not be assumed by the Malaysian branch;
- (ii) strong financial position of the foreign branch's group;
- (iii) the branch is subjected to a consolidated supervision by a recognised and competent home supervisory authority; and
- (iv) the foreign insurer's home supervisory authority is willing to cooperate with the Bank in the supervision of the insurer.

Internal models to determine capital adequacy position

The Framework has been developed based on a standardised approach. However, the use of internal models by insurers for determining the statutory capital adequacy position will be considered in the future. In this respect, insurers are encouraged to start developing internal models for the purpose of setting internal target capital levels. Pending such recognition, insurers that have already developed such internal models may use the models only for the purpose of setting own internal target capital levels.

PART II – CAPITAL ADEQUACY

Capital Adequacy Ratio (CAR) – the formula

The CAR measures the adequacy of the capital available in the insurance and shareholders' funds of the insurer to support the total capital required. The formula to compute the CAR is as follows:

$$CAR = [Total\ Capital\ Available / Total\ Capital\ Required] \times 100\%$$

For a life insurer with participating business, the CAR shall be computed as follows:

$$CAR_{life} = \text{Minimum} (CAR_{all\ funds}, CAR_{all\ funds\ excl\ par})$$

where,

- $CAR_{all\ funds}$ is the CAR taking into account all the insurance and shareholders funds;

And

- $CAR_{all\ funds\ excl\ par}$ is the CAR taking into account all the insurance and shareholders funds, excluding the participating life insurance fund.

The modified computation method reflects the ability of life insurers, subject to meeting policyholders' reasonable expectations, to adjust the level of non-guaranteed benefits to take into account the emerging experience of the participating life insurance fund. It also preserves the fundamental principle that the valuation surplus of the participating life insurance fund should not be used to support the capital requirement of other insurance or shareholders' funds.

Total capital available

The 'Total Capital Available' (TCA) of an insurer is the aggregate of Tier 1 and Tier 2 capital of the insurer. The main criteria used in the classification of a capital instrument into Tier 1 or Tier 2 categories is the degree of its permanence and whether the instrument is free and clear of any encumbrances. An insurer is required to maintain at least 50% of its TCA in the form of Tier 1 capital.

Tier 1 capital of an insurer is the aggregate of the following capital instruments:

- (i) issued and fully paid-up ordinary shares (or working fund, in the case of a branch of a foreign insurer);
- (ii) share premiums;
- (iii) paid-up non-cumulative irredeemable preference shares;
- (iv) retained profits²; and
- (v) the statutory valuation surplus maintained in the insurance funds.

Capital instruments which qualify as Tier 2 capital include:

- (i) cumulative irredeemable preference shares;
- (ii) mandatory capital loan stocks and other similar capital instruments;
- (iii) irredeemable subordinated debts;
- (iv) revaluation reserves for financial and other assets; and
- (v) subordinated term debts.

Subordinated term debts would, subject to the prior approval of the Bank on a case-to-case basis, include term debt and limited life redeemable preference shares which satisfy the following conditions:

- (i) unsecured, subordinated and fully paid-up;
- (ii) a minimum original fixed term to maturity of five years;
- (iii) early repayment or redemption shall not be made without prior consent of the Bank;
- (iv) the instruments should be subjected to straight line amortisation over the last five years of their life³;
- (v) there should be no restrictive covenants; and

² In the event that an insurer has accumulated losses, the losses should be deducted from the capital.

³ E.g. a subordinated term debt with original term to maturity of 7 years and remaining term of 2 years, will be recognised as Tier 2 capital only up to 40% (since only 2 out of 5 years remaining) of the issued amount.

(vi) the amount eligible for inclusion shall not exceed 50% of Tier 1 capital. In exceptional cases, this limit may be exceeded with the prior written consent of the Bank, on a case-to-case basis.

An insurer which plans to issue any new capital instruments is required to seek the Bank's approval on the classification of the instruments under the Framework.

Adjustments to capital available

For the purpose of calculating CAR, the following deductions should be made from the capital fund to arrive at the TCA:

- (i) goodwill and other intangible assets (e.g. capitalised expenditure);
- (ii) future income tax benefits and deferred tax assets;
- (iii) assets pledged to support credit facilities obtained by an insurer; and
- (iv) investment in subsidiaries.

Total capital required

The TCR is the aggregate of capital charges for credit, market, insurance and operational risks faced by an insurer. The TCR is determined as follows:

$$TCR = \sum [credit\ risk\ capital\ charges + market\ risk\ capital\ charges + insurance\ liability\ capital\ charges + operational\ risk\ capital\ charges]$$

The TCR shall be computed for all insurance funds and the shareholders' fund. In the case of an investment-linked fund, TCR shall be computed based on the non-unit portion of the fund, except for operational risk capital charge, which shall be computed based on the entire fund.

The same risk charges apply for both direct insurers and professional reinsurers.

Capital charges for credit risk

The credit risk capital charges (CRCC) aim to mitigate risks of losses resulting from asset defaults, related losses of income and the inability or unwillingness of a counterparty to fully meet its contractual financial obligations.

The formula to compute CRCC is as follows:

$$CRCC = \sum [(exposure\ to\ counterparty\ i \times credit\ risk\ charge\ i)]$$

where 'i' refers to the different exposures to counterparties in the insurance funds.

The detailed CRCC is given in Appendix 1 of the original paper and is not reproduced here.

Capital charges for market risk

The market risk capital charges (MRCC) aim to mitigate risks of financial losses arising from:

- (i) the reduction in the market value of assets due to exposure to equity, interest rate, property and currency risks;
- (ii) non-parallel movement between the value of liabilities and the value of assets backing the liabilities due to interest rate movements (interest rate mismatch risk); and
- (iii) over-exposure to particular counterparties or risky asset classes.

The formula to compute MRCC arising from the reduction in the market value of assets is as follows:

$$MRCC = \sum [(market\ exposures\ i \times market\ risk\ charge\ i)]$$

where 'i' refers to different asset classes in the insurance funds.

The MRCC for interest rate mismatching risk is applicable only for life insurance funds.

The MRCC for risks against over-exposures to particular counterparties or risky asset classes is determined based on the exposure to a particular asset class or counterparty in excess over a specified limit, where the excess exposure is subjected to 100% risk charge.

The detailed MRCC is given in Appendix 2 of the original paper and is not reproduced here.

Capital charges for general insurance liabilities

The general insurance liabilities risk capital charges (GCC) aim to address risks of under-estimation of the insurance liabilities and adverse claims experience, over and above the amount of reserves already provided for at the 75% level of confidence.

The formula to compute GCC is as follows:

$$GCC = \sum [(value\ of\ premium\ liability\ i \times risk\ charge\ i) + (value\ of\ claims\ liability\ i \times risk\ charge\ i)]$$

where 'i' refers to the different insurance liability classes of the general insurance business.

To arrive at the GCC, the risk charges are applied on the claims and premium liabilities calculated at the 75% level of confidence for each class of business after allowing for diversification.

For general insurers holding a claims liability provision above the 75% level of

confidence, the claims risk charges will be applied on the provision calculated at the 75% level of confidence (after considering the impact of diversification) for each class of business. The amount of claims liability provision in excess of the 75% level of confidence is not recognised as a reduction to the calculated claims liability risk capital charge.

For premium liability, the valuation basis requires general insurers to hold the higher of the Unearned Premium Reserves (UPR) or the Unexpired Risk Reserves (URR). The premium risk charges shall be applied to the URR at the 75% confidence level (after considering the impact of diversification) for each class of business. The amount of UPR in excess of the URR at the 75% confidence level is not recognised as reduction to the calculated premium liability risk capital charge.

Details of the risk charges are reproduced in Appendix I

Capital charges for life insurance liabilities

The life insurance liabilities risk capital charges (LCC) aim to address the risk of under-estimation of the insurance liabilities and adverse claims experience, over and above the amount of reserves already provided for at the 75% level of confidence.

The formula to compute LCC, other than short term medical and health insurance standalone policies or rider contracts, is defined as follows:

$$LCC = (V^* - V - PRAD) + SVCC$$

where

- 'V*' is the adjusted value of life insurance liabilities computed using the parameters stipulated; (these are reproduced in Appendix II)
- 'V' is the best estimate (current estimate) value of life insurance liabilities;
- 'PRAD' is the Provision of Risk Margin for Adverse Deviation determined such that the overall value of the liabilities secures a 75% confidence level
- 'SVCC' is the surrender value capital charge which is the aggregate of the max(aggregate surrender value in respect of policies in the insurance fund less the aggregate policy reserves of the insurance fund determined at 75% level of confidence, 0) for each of the participating and non-participating life insurance fund.

Where the valuation assumptions are not separated according to the categories as prescribed for Risk Charges for Life insurance Liabilities, the risk charges to derive V* in respect of the combined risk rates shall be the highest risk charge of the constituent risks as prescribed in the same appendix.

For short-term medical and health insurance standalone policy or rider, as well

as short-term personal accident plan for which premium and claims liabilities including 'Incurred But Not Reported' claims have been reserved, the applicable risk charges shall correspond to that as required for general insurance liabilities.

Capital charge for operational risk

The operational risk capital charges (ORCC) aim to mitigate the risk of losses arising from inadequate or failed internal processes, people and system.

The formula to compute ORCC is as follows:

$$ORCC = 1\% \text{ of total assets}$$

The above method serves as reasonable proxy to address operational risk for the time being in the absence of more established and internationally accepted methods.

PART IV – VALUATION OF ASSETS AND INSURANCE LIABILITIES

Valuation of assets

The existing statutory valuation requirements for assets are being streamlined with the applicable accounting standards as issued by the Malaysian Accounting Standard Board (MASB), and the principles underlying the Financial Reporting Standard 139 – “Financial Instruments: Recognition and Measurement” (FRS 139).

The application of FRS139 for financial instruments by insurers will be on the basis that insurers meet all supervisory expectations as set out by the Bank. The supervisory expectations outline the preconditions and the capabilities that need to be put in place by insurers to ensure the integrity of fair values reported under FRS139.

Valuation of insurance liabilities

The valuation of life and general insurance liabilities will be subjected to minimum requirements as specified below, with the aim of providing for a reserve at a specified level of adequacy with explicit prudential margins.

The valuation bases for life and general insurance liabilities are prescribed based on the principles which include, among others:

- (i) consistency with the principles of fair valuation where possible and appropriate or otherwise be consistent with the principle of prudence;
- (ii) securing an overall level of sufficiency of the policy reserves not less than the 75% adequacy level. To secure this level of adequacy, insurers are

required to calculate the best estimate value of their insurance liabilities and apply a 'Provision of Risk Margin for Adverse Deviation' (PRAD); and (iii) giving due regard to the regulatory duty of the insurer to treat policyholders fairly.

Valuation of general insurance liabilities

The risks for general insurance liability relate to that associated with the uncertainty of outstanding claims and unexpired risks (with respect to unexpired premiums) covering both the risks of adverse claims experience and under-estimation of premiums.

All insurers underwriting general insurance business must value their general insurance liabilities in the manner specified in the 'Valuation Basis for General Insurance Liabilities'. Relevant details are found in Appendix III.

In determining the premium liabilities, the amount of the unearned premium reserve determined in accordance with Part VIII of Insurance Regulations 1996 (Regulations), may be reduced for the reinsurance ceded, if the general insurer holds a deposit from a reinsurer, other than a licensed general reinsurer in Malaysia or a qualifying reinsurer.

A qualifying reinsurer refers to a reinsurer which is licensed under the Offshore Insurance Act 1990 and satisfies the following conditions:

- (i) the reinsurer has obtained an explicit and irrevocable guarantee from its parent company (or head office) to provide full support in the event of financial difficulties; and
- (ii) its parent company (or head office) is licensed by the Bank, or carries financial strength rating of at least 'A' or its equivalent, accorded by internationally recognised rating agencies.

The amount of reduction that can be made above shall not exceed the deposits held by the insurer on the valuation date, or the reserve ceded to the reinsurer, whichever is lower.

Valuation of life insurance liabilities

The risks for life insurance liability relate to that associated with the uncertainty in future claims contingent events, under-estimation of premiums and adverse claims contingent events.

All insurers underwriting life insurance business must value their life insurance liabilities in the manner specified in the 'Valuation Basis for Life Insurance Liabilities'. Relevant details are found in Appendix IV

The valuation basis recognizes the exit value approach whereby the liabilities are determined based on the amount that the transferee would be willing to pay to

assume all the obligations of the transferor based on market consistent values and discounted at the risk free interest rate.

PART V – INVESTMENT OF INSURANCE FUNDS

Investment and risk management policy

Greater investment flexibility will be given to allow better management of assets appropriate with the nature and profile of insurers' liabilities.

To ensure proper investment of insurance funds, insurers must put in place an investment and risk management policy. The investment and risk management policy should be approved and reviewed regularly by the board of directors and cover overall strategic investment policy, proper risk management systems, monitoring and control mechanisms.

The overall strategic investment policy should cover, at least, the following elements:

- (i) the investment objectives, with respect to overall and fund-specific levels;
- (ii) the risk and liability profile of the insurer;
- (iii) the strategic asset allocation, i.e. the long-term asset mix for the main investment categories, and their respective limits;
- (iv) the extent to which the holding of certain types of assets is restricted or disallowed, e.g. illiquid or highly volatile assets; and
- (v) an overall policy on the usage of derivatives and structured products.

The risk management systems must cover the risks associated with investment activities that may affect the coverage of insurance liabilities and/or capital positions.

The main risks include market, credit and liquidity risks.

As part of good risk management practices and to ensure proper monitoring and control of the investments, insurers are also required:

- (i) to establish adequate internal controls to ensure that assets are managed in accordance with the overall strategic investment policy, and in compliance with legal, accounting and all relevant risk management requirements. These controls should ensure that investment procedures are documented and properly overseen. There should be in place appropriate segregation of responsibilities for measuring, monitoring, settling and controlling asset transactions, from the front office functions;
- (ii) to have in place rigorous audit procedures that include full coverage of the investment activities to ensure timely identification of internal control weaknesses and operating system deficiencies. If the audit is performed internally, it should be independent of the function being reviewed;
- (iii) to install effective procedures for monitoring and managing the asset liability

position to ensure that the investment activities and asset positions are appropriate in relation to the liability and risk profiles;

(iv) to put in place contingency plans to mitigate the effects arising from deteriorating conditions;

(v) to undertake regular stress testing for a range of market scenarios and changing investment and operating conditions in order to assess the appropriateness of asset allocation limits; and

(vi) to ensure the key staff involved in investment activities have the appropriate levels of skills, experience, expertise and integrity.

The investment and risk management policy and any subsequent material revisions should be submitted to the Bank for information, immediately after the policy or the revisions have been approved by the board of directors.

The oversight and accountability for an insurer's investment policies and procedures rest ultimately with the board of directors. Given the significant investment flexibility accorded to insurers, and as part of improved governance and risk management practices expected of insurers under the Framework, each insurer is required to establish an investment committee, the terms and references of which must be approved by the board of directors.

At this juncture, the Bank does not intend to prescribe any specific requirements in relation to the composition of the investment committee. However, in terms of roles and responsibilities, the Bank expects the investment committee to be responsible for setting, managing and reviewing the strategic direction of investment policies of the insurer. In the case of a participating life fund, the committee should also be responsible to ensure that the investment policy is consistent with the bonus and/or dividend distribution policy of the insurer. The investment committee shall also ensure the proper implementation of investment policies approved by the board of directors, and timely and regular reporting of the insurer's investment activities.

Prudential investment and exposure limits

Individual counterparty limits cap the level of insurers' exposure to any single counterparty. The exposure limits are applicable on the *overall exposure* to individual counterparties, such as from investments in shares of, debt securities issued by or direct lending to a single counterparty, but excludes single counterparty exposure from transactions relating to contract of reinsurance. In addition, investment limits are imposed on certain asset classes in which substantial concentration is considered as unsuitable.

Investments or exposures to counterparties or in asset classes in excess of the limits will be subjected to 100% asset concentration risk capital charge, except for foreign assets, where investments exceeding the limit are strictly disallowed

Notwithstanding these limits, the Bank may impose requirements on an individual insurer to invest in a specified manner, or restrict or prohibit an insurer from investing in certain asset classes or individual asset to safeguard insurance funds. Such requirements, restrictions or prohibitions will form part of supervisory actions as a result of the Bank's assessment of an insurer's risk profile and investment risk management function.

PART VI – INTERNAL AND SUPERVISORY CAPITAL TARGETS

Internal capital target

The TCR prescribed under this Framework assumes an average industry level of risk within each business activity and that risks arising from these activities are mitigated by standard risk management practices. In practice, the actual risk profile and the quality of risk management measures adopted by each insurer to mitigate its risk exposure may differ significantly from that assumed under the Framework.

Each insurer is therefore, expected to set an internal target capital level that better reflects its own risk profile and risk management practices. The Bank expects the internal target to include additional capacity to absorb unexpected losses beyond those that are covered by the Framework. In general, the internal capital target level should be higher for insurers with higher risk profiles or weaker risk management practices. The assessment of an appropriate internal target capital level should be performed by the insurer by conducting appropriate stress and scenario tests.

The board of directors is primarily responsible for setting the internal target in the context of the Bank's broader expectations for individual insurer to have in place an appropriate capital management plan that takes into account its strategic business direction and the changing business environment. The Bank also expects each insurer to establish adequate processes to monitor and ensure the maintenance of an appropriate level of capital which commensurate with current risk profile.

Supervisory target under the Risk-Based Supervisory Framework

The Bank's supervisory approach of pre-emptive intervention means that regulatory action will be taken during the early stages of an insurer's financial difficulties. To meet this objective, the Bank has set a supervisory target capital level of 130%.

The supervisory target should be viewed as a benchmark against which an insurer should establish its own higher internal target. The Bank will assess ⁴ whether the internal target is appropriate with the insurer's risk profile, and on a

case-by-case basis, may require an adjustment to the level of the insurer's internal target. As a matter of policy, the Bank does not expect any insurer to set its internal target below the supervisory target level.

⁴ Under the Risk-Based Supervisory Framework, the Bank will evaluate the inherent risks associated with an insurer's significant activities, and the quality of risk management applied to mitigate those risks. This enables the Bank to assess the insurer's overall net risk with respect to its current level of capital and earnings.

When an insurer's CAR breaches its own internal target but remains above the supervisory target, the Bank will assess the circumstances and the insurer's remedial plans to restore CAR above its internal target, before deciding on the level of regulatory intervention required. Continued deterioration of an insurer's CAR below its internal target will attract increasing levels of regulatory attention. An insurer which CAR breaches the supervisory target of 130% will face stricter supervisory action, which may include business restriction and/or requirement for restructuring.

Restrictions on payment of dividends

An insurer shall not pay dividend on its shares if its CAR position is less than its internal target capital level or if the payment of dividend would impair its CAR position to below its internal target.

Where it is deemed necessary to ensure that capital is available to protect policyholders, the Bank may impose restrictions on insurers from making discretionary payments, including payment of dividends, interest or redemption of capital instruments. Such restrictions aim to prevent further depletion of the capital elements by management or owners of companies when the insurer faces financial difficulty.

PART VII – OTHER ISSUES

Statutory capital adequacy position

Given the requirement for insurers to monitor their capital adequacy positions at all times, insurers are required to submit CAR computation based on the financial year end positions, within 90 days after the end of each financial year end. The financial year end capital adequacy positions must be certified by the insurer's external auditor and the chief executive officer (CEO).

In addition, insurers are required to submit quarterly CAR computation to the Bank within 30 days after the end of each quarter. The quarterly capital adequacy positions need not be certified by the insurer's external auditor.

However, the CEO of the insurer should certify that the reported figures are reflective of the actual capital adequacy position of the insurer.

The Bank reserves the rights to require insurers with weak capital adequacy position to compute and report their CAR to the Bank on a more frequent basis. The statutory capital adequacy position of an insurer at any particular point of time shall be taken as the lower of the latest quarterly CAR and the audited CAR in the preceding financial year.

Minimum paid-up capital

Notwithstanding the capital requirement set out under this Framework, the amount of minimum paid up capital requirement for an insurer to operate insurance business in Malaysia pursuant to section 18 of the Act will remain unchanged.

An insurer shall not pay dividend on its shares if its CAR position is less than its internal target capital level or if the payment of dividend would impair its CAR position to

Implementation and Future steps

All companies are required to adopt the framework as from Jan 2009. However, the Bank will allow those companies who are in a position to adopt by Jan 2008 to do so provided a capital management plan is submitted to the Bank and approved. In the interim, all companies will be required to carry out parallel reporting on both the statutory and RBC basis.

The Bank will fine tune the framework if necessary prior to full implementation based on the results submitted during the parallel run and the ongoing developments within IAIS and IASB.

Appendix I: Risk Charges for General Insurance Liabilities

Risk charge applicable for Class, Claims liabilities, Premium liabilities

1. Motor – Act 25%, 37.5%
2. Motor – Others 20%, 30%
3. Fire - 20%, 30%
4. Marine, Aviation & Transit – Cargo 25%, 37.5%
5. Marine, Aviation & Transit – Hull 30%, 45%
6. Contractors' All Risks and Engineering - 25%, 37.5%
7. Liability - 30%, 45%
8. Medical and Health - 25%, 37.5%
9. Personal Accident - 20%, 30%
10. Workmen's Compensation & Employers' Liability - 25%, 37.5%
11. Bonds, Offshore Oil & Gas related and Others - 20%, 30%

Appendix II: Risk Charges for Life Insurance Liabilities

Note: Guaranteed here indicates guaranteed for 3 years or more

Risk Capital Factor Minimum Assumption

(i) Mortality (non-annuity)

(a) guaranteed premium – 140% of best estimate rates

(b) non-guaranteed premium – 120% of best estimate rates

(ii) Mortality (annuity) - Rates used in valuation with 5-year setback

Total and Permanent Disability

(a) guaranteed premium - 145% of best estimate rates

(b) non-guaranteed premium - 122.5% of best estimate rates

Critical Illness

(a) guaranteed premium - 145% of best estimate rates

(b) non-guaranteed premium - 122.5% of best estimate rates

Renewal Expense - 120% of best estimate

Persistency (except for annuity) - 50% or 150% of best estimate rates used in valuation, whichever produces a higher liability value at the fund level

Appendix III: Valuation Basis for General Insurance Liabilities

Background

1. The Valuation Basis for General Insurance Liabilities (Valuation Basis) specifies the manner by which a licensed insurer shall value the liabilities of its general insurance business at the end of each financial year. This Valuation Basis is to be read together with Part VIII of the Insurance Regulations 1996 which prescribes the manner to determine Unearned Premium Reserve (UPR).

2. In the valuation of general insurance liabilities, the Actuary (as defined in paragraph 4) shall use the methods and prudent valuation assumptions which:

- (a) are appropriate to the business and risk profile of the general insurance business;
- (b) are consistent from year to year, to preserve comparability;
- (c) include appropriate margins for adverse deviations in respect of the risks that arise under the insurance policy;
- (d) are consistent with one another;
- (e) are in accordance with generally accepted actuarial best practice;
- (f) accord a level of guarantee for the reserve held against the liabilities which is no less certain than that accorded by a Malaysian Government Security;
- (g) are consistent with the principles of fair valuation where possible and appropriate; and
- (h) secure an overall level of sufficiency of policy reserves not less than the 75% confidence level.

3. Where the Bank requires the insurer to determine the value of its insurance liabilities at any point in time other than at the end of its financial year, depending on the extent of the change in the insurer's business volume and profile, claims and underwriting process, and, policy and business conditions since the last financial year, the actuary may make adjustments to his last financial year end calculations or conduct a full revaluation of the insurance liabilities where appropriate, such that the value of the insurance liabilities is reflective of the insurer's profile at that point in time and secures an overall level of sufficiency of policy reserves not less than the 75% confidence level.

The Actuary

4. For the purpose of this Valuation Basis, a person deemed suitable to carry out the function of an Actuary shall fulfil the following criteria:

- (a) the person must be a Fellow of any one of the following bodies; the Institute of Actuaries in England; Faculty of Actuaries in Scotland; Casualty Actuarial Society in the United States of America; or the Institute of Actuaries of Australia;
- (b) the person must be a resident in Malaysia; and
- (c) the person is fit and proper to carry out the function and must have relevant and appropriate general insurance experience.

5. The insurer shall submit a written application to obtain the Bank's approval on the Actuary who will conduct the valuation for a financial year end, not later than two (2) months prior to that financial year end.

6. Notwithstanding paragraph 4 above, upon written application, the Bank may approve a qualified actuary with appropriate experience in general insurance business as deemed suitable, to carry out the valuation.

Coverage

7. The Actuary shall be responsible to determine the level of reserves required, based on his professional valuation of the insurer's general insurance liabilities, for each class of business, using the basis which is no less stringent than that prescribed in this Valuation Basis. The valuation will comprise of:

- (a) the best estimate value of the claim liabilities;
- (b) the best estimate value of the premium liabilities; and
- (c) a provision of risk margin for adverse deviation (PRAD) for each of the best estimate values.

8. The **best estimate value** should reflect the statistical central estimate of the underlying distribution of the insurance liabilities concerned. The principles for determining the best estimate values of the claim liabilities and the premium liabilities are subjected to considerations of materiality and the professional judgment of the Actuary, and shall reflect the individual circumstances of the insurer, for each class of business.

9. The **PRAD** is the component of the value of the insurance liabilities that relates to the uncertainty inherent in the best estimate. PRAD is an additional component of the liability value aimed at ensuring that the value of the insurance liabilities is established at a level such that there is a higher level of confidence (or probability) that the provisions will ultimately be sufficient. For the purpose of this Valuation Basis, the level of confidence shall be no less than 75% at an overall Company level.

10. **Claim liabilities** refer to the obligation by insurers, whether contractual or otherwise, to make future payments in relation to all claims that have been incurred as at the valuation date. These include provision for claims reported, claims incurred but not reported, claims incurred but not enough reserved and direct and indirect claims related expenses such as investigation fees, loss adjustment fees, legal fees, sue and labour charges and the expected internal costs that the insurer expects to incur when settling these claims. The value of claim liabilities will consist of the best estimate value of the claim liabilities and the PRAD calculated at the overall Company level (see paragraph 32).

11. **Premium liabilities** refer to the higher of:

- (a) the aggregate of the UPR for all lines of business; and
- (b) the best estimate value of the insurer's unexpired risk reserves (URR) at the valuation date and the PRAD calculated at the overall Company level (see paragraph 32). The best estimate value is a prospective estimate of the expected future payments arising from future events insured under

policies in force as at the valuation date and also includes allowance for the insurer's expenses, including overheads and cost of reinsurance, expected to be incurred during the unexpired period in administering these policies and settling the relevant claims.

12. The value of the insurer's general insurance liabilities shall be the aggregate of the values of the Premium Liabilities and the Claim Liabilities.

13. The investigation on the value of the general insurance liabilities by the Actuary shall be submitted as a report to the board of directors and shall be referred to as "The Report on Reserves for General Insurance Business" (the Report). The Actuary shall also disclose the extent of compliance with the requirements of this Valuation Basis and disclose reasons for non-compliance, if any.

14. The board of directors and the senior management are expected to discuss the results of the Report with the Actuary, including any non-compliance with the Valuation Basis. The board of directors is also expected to ensure proper actions and timely follow ups are undertaken based on these results.

Data and Information Used by the Actuary

15. The CEO of an insurer shall review the insurer's administrative procedures for maintaining its database and shall apply tests of reasonableness to satisfy himself that the data used by the Actuary is consistent, accurate and complete. The Actuary shall have unrestricted access to the insurer's data base and the CEO shall furnish the Actuary immediately, upon request, with data and explanation as the Actuary may require.

16. The Actuary shall apply reasonableness tests to satisfy himself that the data he receives is consistent, accurate and complete. A check for both the integrity and completeness of data should precede the valuation work.

17. The Actuary shall ensure that the data used gives an appropriate basis for estimating the insurance liabilities. The data includes the insurer's own exposure and claim experience data, and industry data where the insurer's own data is insufficient for the Actuary to make reasonable estimates. In circumstances where industry data is sparse, the Actuary may rely on his professional judgement in making the estimates. In this situation, the Actuary shall justify his approach.

18. The extent to which the Actuary relies upon the data provided by the insurer, and the work of external auditors, including the limitation such reliance places on the Actuary's confidence in the data, shall be clearly explained in the Report. Should the data prove to be incomplete, inaccurate, unreliable, or not as appropriate as desired, the Actuary shall consider whether the use of such data

may produce material biases in the results. In such circumstances, the Actuary shall make appropriate allowance in his estimations, and document the details.

19. The Actuary shall determine the most appropriate grouping of risks into lines of business or sub-lines of business, based on the availability of data, homogeneity of the data or similarity in business characteristics, nature of exposure to loss and loss settlement pattern, for the purpose of the valuation of the insurance liabilities. It is important not to subdivide data to such an extent that the analysis becomes unreliable due to the paucity of data within a particular line or subline of business. The Actuary shall explain in the Report, the manner in which the risks have been pooled into homogenous groups.

20. Notwithstanding the grouping of risks that the Actuary may use in determining the insurance liabilities, the value of the claims and policy liabilities shall also be reported for the lines of business (if applicable).

21. The Actuary may make adjustments to the data collated to account for abnormal items such as large losses or catastrophe losses. Where such adjustments are made, the nature, amount and rationale for the adjustments shall be clearly documented.

22. Besides quantitative information, the Actuary shall also seek qualitative information from the insurer's management regarding underwriting policy and processes and claims policy and processes, reinsurance arrangements, policy coverage, legal decisions affecting claim settlements, other operational issues such as change of computer system, turnover of key personnel, and any other relevant information that may assist the Actuary in his valuation of the liabilities. Failure to seek such qualitative information should be revealed in the Report including the reasons thereof.

Methods of Evaluating Best Estimates

23. The Report shall include a description of the methods used and the key assumptions made which may include those related to expenses, claims escalation, discounting, development factors and ultimate loss ratios selected, and reinsurance and non-reinsurance recoveries.

24. Where the Actuary has adopted a standard and well understood method such as the link-ratio method or the Bornheutter-Ferguson method to estimate the claim liabilities, a brief reference to the method would suffice. If a non-standard method or a modified standard method is used, the Actuary shall provide a detailed description of the method. Assumptions to validate the use of the non-standard method or a modified standard method shall also be furnished.

25. Whilst the Actuary has the discretion to use professional judgement in deciding on the methods and assumptions to be adopted for the valuation of the

insurance liabilities, he shall ensure that the methods and assumptions adopted are appropriate, taking into account factors such as:

- (a) the classes of business written,
- (b) the nature, volume and quality of the available data,
- (c) the circumstances of the insurer, and;
- (d) considerations of materiality.

26. Due to the uncertainty in insurance business, it is appropriate for the Actuary to use more than one method to evaluate the best estimate values. The assumptions for each method shall be clearly disclosed in the Report. The results obtained by one method should be tested against that of the other method(s). Where results of different methods differ significantly, the Actuary shall comment on the likely reasons for the differences and explain the basis for the choice of the results.

27. If the Actuary's valuation result is lower than the aggregate case-by-case claims reserves, and the Actuary wishes to take credit for the difference, the Actuary shall disclose why a release of reserves is justified.

28. For a reasonably homogeneous and stable portfolio, the URR may be estimated by extending the outstanding claim valuation model on the basis of claim frequencies, average claim costs and ultimate loss ratios or some similar measure of exposure. If this is done, the Actuary should adjust the assumptions to reflect the changes in risk exposure, underwriting standards, premium rate levels, and other relevant factors on the expected future claims experience. In any case, the Actuary shall give due consideration to the appropriateness of the method and assumptions used.

29. Where there are key differences in assumptions between the valuations of the Claim liabilities and the Premium liabilities, the Actuary shall provide justification(s) for these differences.

Methods of Evaluating Provision of Risk Margin for Adverse Deviation (PRAD)

30. In most cases, some judgment will be required in establishing appropriate levels of PRAD. It is the Actuary's responsibility to support this judgement with such formal analysis as is practical.

31. In estimating PRAD, the Actuary may have regard to the findings in recent actuarial research or literature on the topic, if this is deemed to be appropriate. If PRADs are based on internal analysis, details of this analysis shall be provided. If reliance is placed on external work (e.g. from actuarial research or literature on the topic), then the source of that work shall be disclosed.

32. To obtain a 75% level of adequacy at a Company level, the Actuary may allow for the diversification of risk due to correlations between the risks from different lines of business, by reducing the levels of PRAD calculated by line of

business. The amount of any credit taken for such diversification shall be determined consistently with the overall principles used in calculating the PRAD by line of business. The methodology, data, assumptions and justification used to determine such credit, shall be clearly disclosed in the Report.

33. Diversification results obtained from a statistical method must be rationalised to ensure that such results are not due to data quality issues and/or not due to the adoption of inappropriate assumptions / statistical methods, rather than a valid statistical reason. The actuary must consider the appropriateness of using a triangle of combined data and give due regard to the extent that underlying volatilities may be obscured. An insurer with business primarily concentrated in one particular class of business would expect very little or no diversification credit available compared to an insurer with a more even spread of business in various classes. Where the Actuary's calculated value of the diversification discount is more than 50% of the sum of the PRAD by class of business, the Actuary shall only consider a diversification discount of a maximum of 50% of total PRAD.

Outwards Reinsurance

34. Insurance liabilities may be determined net of reinsurance. The Actuary shall also consider the nature and spread of reinsurance arrangements, including significant changes to the arrangements, non-performance of reinsurance and the likelihood of obtaining the recoveries. Non-reinsurance recoveries such as recoveries by sale of salvage, carriers or other third parties in respect of claims paid shall also be considered.

35. In instances where there are significant changes in the reinsurance arrangements or where outstanding reinsurance recoveries have a material impact on the estimate of the value of the insurance liabilities, the Actuary shall consider conducting the valuation on both gross and net of reinsurance basis.

36. The Actuary shall disclose on how reinsurance and non-reinsurance recoveries have been taken into account in the valuation of the liabilities and the underlying assumptions of the treatment adopted. The underlying principle is that the amount of recoveries to be recognised shall be based on the extent of their recoverability. Where there is considerable uncertainty concerning future recoverabilities, the Actuary shall exercise a degree of caution such that liabilities are not understated.

Inwards Reinsurance

37. This Valuation Basis shall also apply to inwards reinsurance. Additional matters relating to inwards reinsurance are set out in **Appendix III(b)** (not shown in this paper).

Discounting

38. The Actuary shall exercise judgement on the use of discounting in the valuation of liabilities where the effect of such discounting is material. The Actuary shall apply explicit discounting, and shall only apply the discounting, if this is deemed to be justified in his professional judgement. The Actuary shall not apply implicit discounting in his valuation.

39. Where discounting is deemed to be justified, the rate to be used in discounting the expected future payments for a line of business shall be the risk-free discount rate. In any case, the Actuary shall ensure that the resulting reserve is sufficiently prudent to meet the liabilities.

40. The risk-free discount rate shall be derived based on the gross market yield at the valuation date, of a Malaysian Government Security, with corresponding duration similar with that of the insurance liabilities for that line of business.

41. Where discounting is used, the Actuary shall disclose in the Report, the categories of claims in relation to which discounting has been applied and the rationale behind the use of discounting.

Claims escalation

42. The Actuary shall incorporate assumptions on claims escalation either explicitly or implicitly in his valuation. Where discounting of liabilities is used, the Actuary shall apply explicit claims escalation assumptions.

43. The Actuary shall make appropriate allowance to take into account of future claims escalation which may be attributable to economic inflation factors such as wages and price inflation and other non-economic inflation factors such as increasing court awards, medical cost inflation and technological improvements:

- (i) Economic inflation factor may be determined based on the use of publicly available information on historic wage or price inflation and economists' forecasts to determine the future inflation rate; and
- (ii) Non-economic inflation factor may be determined by considering the insurer's own claim experience as well as known general industry trends in the lines of business written by the insurer. For smaller portfolios, where it is difficult to identify non-economic inflation or its level, it may be necessary for the Actuary to rely on industry analysis or other actuarially accepted views.

44. The Actuary shall disclose in the Report, the inflation rates, the source and the methodology from which they are derived.

Expenses

45. The Actuary shall make separate allowance for policy and claim administration expenses where such expenses are not included in the data being analysed for insurance liabilities. This allowance may vary between the claim and premium liabilities.

46. Where possible, the Actuary should analyse historical levels of expenses when determining the appropriate future expense assumptions. Where the insurer's own expense analysis does not properly allocate expenses between policy issue, ongoing policy administration, claim establishment and claim management, the Actuary may give regard to industry benchmarks. However, such effect shall be clearly documented.

Analysis of Experience

47. The Actuary shall carry out a comparative study between actual experience and the expected experience from the previous valuation or earlier reports of similar nature. This could include comparing the actual amounts incurred or paid during the year with the expected amounts from the valuation model. The actuary could also carry out comparisons on the number of claims, average claim size, claim frequency or any other analysis deemed appropriate. The results and interpretation of the comparative studies shall be included in the Report.

48. Should there be any major differences in the actual versus expected experience, the Actuary shall consider revising the assumptions used in his valuation to reflect the trends in the experience.

49. The Actuary shall consider the reasonableness of the results of his valuation and quantify the effects of changes in valuation basis since the previous valuation. Where there has been material change in the method and assumptions adopted since the previous valuation, the Actuary shall justify the change.

Business outside Malaysia

50. The valuation of liabilities in respect of policies for business outside Malaysia shall be conducted on a basis not less stringent than the basis required by the laws of the country in which the policy is issued but not less stringent than the basis in this Valuation Basis. In the absence of any basis specified by the laws of that country, the policies shall be valued in accordance to this Valuation Basis.

Foreign Currency-Denominated Policies

51. Foreign currency-denominated policies shall be valued as per this Valuation Basis and converted into Ringgit currency using the spot currency conversion rate as at the valuation date. The method for determining the spot conversion rate should be consistently used.

Presentation of the Valuation

52. For the purpose of presentation of the best estimate values of claims and premium liabilities and the PRADs in the Report based on the homogeneous classes as determined by the Actuary as per paragraph 19 of this Valuation Basis, the Actuary shall refer to the required format provided.

53. The Actuary shall provide detailed worksheets, relevant supporting documents and sufficient information leading to his estimation of claims liabilities and premium liabilities as appendices to the Report, such that any other suitably experienced actuary may verify the results without access to the Actuary.

Certification of the Valuation

54. Insurers writing general insurance business will be required to set up provisions for their Claims Liabilities and Premium Liabilities in accordance to this Valuation Basis and submit to the Bank, the Report signed by the Actuary and the CEO or his authorised signatory.

55. The Actuary shall state in the Report, his name and professional qualifications, and where the Actuary is an employee of the insurer or a related company, the capacity in which he is carrying out the investigation.

56. The primary responsibility for the adequacy of the valuation of insurance liabilities rests with the board of directors and senior management. The board of directors and senior management shall develop appropriate procedures to ensure adequate oversight and monitoring over the actuarial valuation. The report shall be submitted to the board of directors annually, not later than 3 months after the end of each financial year and the board of directors and senior management should discuss with the Actuary the results of his valuation.

Reporting

57. Insurers are required to submit the Report to the Bank within three months from the financial year end together with the annual audited financial statements or on other such date as may be requested by the Bank.

Review of Provision for Claims Liabilities and Premium Liabilities

58. Where the Bank has reason to believe that the provision for Claims Liabilities and Premium Liabilities made by the insurer is not appropriate having regard to the business and risk profile of the insurer, the Bank may:

- (a) recommend to the insurer a provision amount which it considers appropriate; or
- (b) require the insurer to obtain a valuation of its Claims and Premiums liabilities from another actuary. The actuary shall report directly to the Bank within a period as the Bank may require.

59. For the purpose of 58(b), the insurer shall submit the names of at least two actuaries together with such particulars as the Bank may require. The Bank may approve one of the two actuaries or may designate another actuary to carry out the valuation.

60. The insurer shall inform the approved or designated actuary of all the relevant regulatory requirements and all other requirements from the Bank, relating to the valuation of liabilities. The insurer shall provide the actuary with all

the data and explanation he requires, and any other additional information and facts relating to its business which the insurer considers relevant.

61. The insurer shall not require the approved or designated actuary to discuss his findings or seek its agreement to his valuation results.

Appendix IV: Valuation Basis for Life Insurance Liabilities

Introduction

1. The Valuation Basis for Life Insurance Liabilities (Valuation Basis) specifies the manner by which a licensed life insurer shall value the liabilities of its life insurance business at the end of each financial year.

2. In the valuation of life insurance liabilities, an appointed actuary shall use the methods and prudent valuation assumptions which:

- (a) are appropriate to the business and risk profile of the life insurance business;
- (b) are consistent from year to year to preserve comparability;
- (c) include appropriate margins for adverse deviations in respect of the risks that arise under the insurance policy;
- (d) take into account its regulatory duty to treat policyholders fairly;
- (e) are consistent with one another;
- (f) are in accordance with generally accepted actuarial best practice;
- (g) accord a level of guarantee for the reserve held against the liability in respect of guaranteed benefits which is no less certain than that accorded by a Malaysian Government Security (MGS);
- (h) are consistent with the principles of fair valuation where possible and appropriate; and
- (i) secure an overall level of sufficiency of policy reserves not less than the 75% confidence level.

3. Where the Bank requires the insurer to determine the value of its insurance liabilities at any point in time other than at the end of its financial year, depending on the extent of the change in the insurer's business volume and profile, claims and underwriting process, and, policy and business conditions since the last financial year, the appointed actuary may make adjustments to his last financial year end calculations or conduct a full revaluation of the insurance liabilities where appropriate, such that the value of the insurance liabilities is reflective of the insurer's profile at that point in time and secures an overall level of sufficiency of policy reserves not less than the 75% confidence level.

4. In this Valuation Basis, unless the context otherwise requires,

- (a) "life policy" means a policy by which payment of policy moneys is insured on death or survival, including extensions of cover for personal accident, disease or sickness and includes annuity but does not include a personal accident policy;
- (b) "non-participating life policy" means a life policy not conferring any right to share in the surplus of a life insurance fund;
- (c) "participating life policy" means a life policy conferring a right to share in the surplus of a life insurance fund; and
- (d) "annuity" means a right to a series of periodical payments at intervals of one year or less under a contract with a life insurer.

Valuation Methodology

5. The appointed actuary shall be responsible to determine the level of reserves

based on his professional valuation of the insurer's life insurance liabilities for each fund using a basis no less stringent than that prescribed in the following paragraphs.

6. The life insurance liability shall be valued, where appropriate, using a prospective actuarial valuation based on the sum of the present value of future guaranteed and, in the case of a participating life policy, appropriate level of non-guaranteed benefits, and the expected future management and distribution expenses, less the present value of future gross considerations arising from the policy discounted at the appropriate risk discount rate. For this purpose, the expected future cash flows shall be determined using best estimate assumptions with the appropriate allowance for provision of risk margin for adverse deviation from the expected experience, and with due regard to significant recent experience. This method shall not apply to life insurance liability of any other policy covered in paragraphs 7 or 8 and extension of that policy.

7. The life insurance liability of an annuity policy, and an extension of that policy, where appropriate, shall be valued using a prospective actuarial valuation method. The liability so obtained shall not be less than the calculated amount as follows. A mutually exclusive series of policy liability values are calculated by assuming that the policy will mature for its guaranteed surrender value at the end of each future policy year. The policy liability in each case shall be valued by computing the sum of the present values at the date of valuation of the future guaranteed benefits including future guaranteed surrender values, if any, provided for by such life policy at the end of each future policy year and the present values at the date of valuation of the expected future management and distribution expenses at the end of each future policy year, **less** the present values at the date of valuation of any future valuation considerations derived from future gross considerations, required by the terms of such life policy, that become payable prior to the end of such respective policy year. The greatest of the policy liability values obtained in this way shall be the life insurance liability. For this purpose, the expected future cash flows shall be determined using best estimate assumptions with the appropriate allowance for provision of risk margin for adverse deviation from the expected experience, and with due regard to significant recent experience.

8. In the case of a non-participating life policy where the future benefits and/or the future gross considerations are indeterminate and are not fixed, the future benefits in paragraph 6 above shall be derived by projecting the higher of the Guaranteed Maturity Fund or the actual fund value as at the valuation date, to the latest possible maturity date based on guaranteed interest credits and charges, and assuming the Guaranteed Maturity Premium continues to be paid. The Guaranteed Maturity Fund is derived as of the issue date based on any guarantees as to expense charges, mortality charges and interest credits and assuming the Guaranteed Maturity Premium is paid. The Guaranteed Maturity

Premium, is defined as the level premium derived at the date of issue that provides for an endowment at the latest possible maturity date provided for in the contract, taking into consideration any policy guarantees. The gross considerations in paragraph 6 above shall be based on a notional office premium derived at the date of issue taking into consideration the Guaranteed Maturity Premium. The life insurance liability value in respect of such non-participating life policy shall be based on the value computed using the method as stipulated in paragraph 6 above, and, an appropriate scaling by the ratio of the actual fund value to the Guaranteed Maturity Fund, subject to a maximum ratio of 1, shall be applied. Any secondary guarantees which provide the policyholder a guaranteed set of cash values, death benefits and/or maturity benefits regardless of the performance of the fund are to be reserved for explicitly at a minimum equal to reserves based on the form implied by the secondary guarantee.

9. Where policies or extensions of a policy are collectively treated as an asset at the fund level under the valuation method adopted, the appointed actuary shall make the necessary adjustment to eliminate the asset value from the valuation.

10. Other actuarial valuation methods may be used (e.g. retrospective actuarial valuation) where such prospective method as per paragraph 5 above cannot be applied to a particular type of policy or provided that the resulting reserves would be no lower than would be required by a prospective actuarial valuation.

11. Where the liabilities in respect of more than one policy are to be valued on the minimum basis and it is necessary to have regard to the ages of persons on whose lives the policies were issued or to any periods of time connected with the policies, it shall not be necessary to value the policies based on the exact ages and periods (i.e. it shall be sufficient to use model points) so long as the liabilities determined by not valuing the policies individually are reasonably approximate to the liabilities determined by doing so. In such cases, goodness of fit tests shall be carried out to ensure the approximations are appropriate and will not lead to understatement of the insurance liabilities.

12. If the aggregate surrender value of the business in force in respect of policies of a non-participating or a participating insurance fund is more than the aggregate valuation of liability under paragraph 5 above for each respective fund, then the difference shall be held as a Surrender Value Capital Charge.

13. An appointed actuary shall adopt a more stringent basis of valuation of liabilities compared to the basis set out above, if, in his professional judgment, it is appropriate to do so.

14. Where a more stringent basis is used, the basis shall be applied consistently in subsequent valuations, and if the basis is relaxed at a future valuation, the fact shall be disclosed in the appointed actuary's report and with reasons for his action and the impact of the change on valuation liability.

Coverage

15. The liabilities in respect of the policies of a non-participating, participating and annuity insurance funds shall be taken as the sum of the liability as determined under paragraph 5 above.

16. The liability in respect of policies of a participating insurance fund shall be taken as the higher liability value derived at the fund level:

- (a) where only the guaranteed benefits are considered, by discounting all cash flows at the risk-free discount rate as described in paragraph 25; or
- (b) where total guaranteed and non-guaranteed benefits are considered, by discounting all cash flows at the yield of an A2-rated private debt security (PDS) as described in paragraph 26.

17. A matched position shall be maintained in respect of unit liability of an investment-linked fund, and the value of the unit liability shall be taken as the Net Asset Value of the matched units as at the valuation date.

18. The valuation of the non-unit liability shall be conducted for each investmentlinked policy by a cash flow projection. The liability in respect of the non-unit component of an investment-linked policy is valued by projecting future cash flows to ensure that all future outflows can be met without recourse to additional finance or capital support at any future time during the duration of the investment-linked policy. The cash flow projection shall be conducted using a basis no more favourable than the requirement stipulated in paragraph 5 above.

19. All options and guarantees offered under a life policy shall be explicitly identified and the liability of a life policy shall correspondingly include an amount to cover any increase in liabilities which may result from the exercise of the said options and/or guarantees in the future.

20. An extension to a life policy covering contingency of death, survival or critical illness shall be valued in accordance to paragraph 5 above. For a 1-year life policy or a 1-year extension to a life policy covering contingencies other than death or survival, the premium and claim liabilities including Incurred But Not Reported (IBNR) claims shall be valued separately at a probability of sufficiency level of not less than 75%.

21. An appropriate reserve with the basis stated in respect of the following shall be considered for:

- (a) an immediate payment of claims;
- (b) future expenses and bonuses in the case of limited payment of policies and paid-up policies;
- (c) contingent liabilities which exist or may arise in respect of policies which have lapsed and not included in the valuation;
- (d) payment of benefits or waiver of premiums upon disability of the life

insured;

(e) provision of benefits or waiver of premiums upon occurrence of the life insured's disability in the future unless, in the appointed actuary's judgment, such specific provision is not necessary;

(f) a policy insuring a substandard risk or high risk occupation; and

(g) any other liability, or contingent liability, under life policies or extensions of life policies not covered by 21(a) to 21(f) above, including extensions of life policies, other than those referred to in paragraph 20 above.

Data and Systems

22. The CEO shall review the life insurer's administrative procedures for maintaining its database and shall apply tests of reasonableness to satisfy himself that the data on business in force provided to the appointed actuary is accurate and complete. The CEO shall allow its appointed actuary unrestricted access to its database and shall furnish the appointed actuary immediately, upon request, such data and explanation as he may require.

23. The appointed actuary shall apply reasonable tests to satisfy himself that the data on business in force is accurate and complete. A check for both integrity and completeness of data should be precede the valuation work.

Valuation Assumptions

(i) Discount Rates

24. The risk-free discount rate shall be used for all cash flows to determine the liability of a non-participating life policy and the non-unit liability of an investment-linked policy.

25. The risk-free discount rate shall be derived from a yield curve, as follows:

(a) for durations of less than 10 years: net market yield of MGS with matching duration; and

(b) for durations of 10 years or more: net market yield of MGS with 10 years term to maturity,

where duration is the term to maturity of each future cash flow and net market yield means net of tax on investment income of the life fund.

26. Where total guaranteed and non-guaranteed benefits are considered, the discount rate shall be derived from the net yield of an A2-rated private debt security (PDS) of similar duration except for durations of 10 years or more where the net yield of an A2- rated PDS with 10 year term to maturity shall be used.

27. *[Paragraph removed]*

28. The MGS and A2-rated PDS yields shall be obtained from the website <https://fast.bnm.gov.my/> or any other source as may be specified by the Bank. Where yields at certain durations are not available, these yields shall be appropriately interpolated from the observable data.

29. In the derivation of the risk-free discount rate, the method used to derive the rates shall be verifiable based on market data.

(ii) Non-guaranteed Benefits

30. For the purpose of this Valuation Basis, the level of discretionary benefits to be valued shall be determined based on sales practices and illustrations and with due regard to the insurer's regulatory duty to treat its policyholders fairly and meeting policyholders' reasonable expectations. For a participating life policy sold on or after 1 July 2005, the level of discretionary benefits assumed, including vesting terminal bonus, shall be based on the bonus scale as supportable by the most recent asset share study or any prevailing regulatory requirement as at the valuation date.

(iii) Expenses

31. The expense assumptions shall include distribution expenses and management expenses. Distribution expenses shall be allowed for based on the actual costs incurred. Management expenses shall be based on recent expense analysis and with due regard to likely improvement or deterioration in the future.

32. Where it is expected that future expenses may increase materially, suitable expense inflation with reference to available information on historical data and estimates of future wage and price inflation shall be factored in as appropriate. The expense inflation assumption shall be made consistent with the valuation discount rates assumption. All projected expected expenses shall be recognised in the valuation.

(iv) Mortality and Morbidity

33. The mortality and morbidity assumptions shall be based on rates of mortality and morbidity that are appropriate to the person whose life or health is insured as well as the nature of the cover based on the company's actual experience. Appropriate industry data may be used with due regard to credibility, availability and reliability of such information if in the judgment of the appointed actuary, the company's actual experience is inappropriate to be used in its entirety. The justifications for any such weights used shall be disclosed.

34. In the valuation of annuity contracts, any mortality improvement factor shall be explicitly considered.

(v) Persistency

35. The persistency rates reflective of actual trends shall be taken as the best estimate persistency assumption, with due regard to changing company practices and market conditions.

36. The possibility of anti-selection by policyholders and variations in persistency

experience for different cohorts of policyholders in respect of non-guaranteed benefits (for e.g. effect of premium increase for guaranteed renewable products) shall be allowed for.

Provision of Risk Margin for Adverse Deviation (PRAD)

37. The PRAD shall be determined by adjusting the valuation assumptions coherently, without necessarily setting all parameters to be at the 75% confidence level, such that the overall valuation of life insurance liabilities secures at least 75% sufficiency level and that there is no significant risk that the liabilities to policyholders will not be met as they fall due.

Surrender Value

38. An insurer shall provide a level of guaranteed surrender value in respect of any life policy except an investment-linked policy and shall be contractually liable to honour this liability in order to meet its regulatory responsibility to treat policyholders fairly. For a participating life policy, the total surrender value shall not be less than the asset share of the participating life policy.

Paid-up Value

39. The sum insured for a paid-up life policy shall be determined in accordance to generally accepted actuarial principles.

40. Where the Bank is satisfied that the paid-up value of a life policy determined in the manner set out under paragraph 39 above is not actuarially appropriate, it may require the appointed actuary to determine the paid-up value of that policy on a basis it approves.

41. A life policy shall be deemed to remain in force, in the event of an election for conversion to a paid-up policy, until the date on which the next premium for the original policy is due.

Reinsurance

42. The liabilities of the life business of a life insurer shall be valued on gross basis, and deducting reinsurance cessions only if:

- (a) the reinsurance arrangement involves a transfer of risk;
- (b) there is no obligation on the part of the licensed life insurer to repay any amount, other than the refund of deposit referred to below in (d), to the reinsurer in the event a policy lapses or the life insurer cancels the reinsurance contract;
- (c) the valuation of liability reinsured is made in accordance to paragraph 5 above; and
- (d) the life insurer holds a deposit from reinsurer, other than a licensed life reinsurer in Malaysia or a qualifying reinsurer, subject to the condition that any release of deposit shall not exceed the reduction of liability of the reinsurer.

43. For the purpose of paragraph 42(d), a qualifying reinsurer refers to a reinsurer which is licensed under the Offshore Insurance Act 1990 and satisfies the following conditions:

(a) the reinsurer has obtained an explicit and irrevocable guarantee from its parent company (or head office) to provide full support in the event of financial difficulties; and

(b) its parent company (or head office) is licensed by the Bank, or carries financial strength rating of at least 'A' or equivalent, accorded by internationally recognised rating agencies.

44. A deduction for reinsurance calculated in accordance with paragraph 42 above may be made, to the extent of the net amount determined by deducting the amount repayable on the cancellation of the contract on the valuation date from the valuation of the credit for reinsurance.

45. The amount of deduction which can be made under paragraphs 42 and 44 above shall not exceed the amount of deposit held on the date of valuation in respect of the corresponding reinsurance.