

Risk Based Capital in Singapore - A model for Asia Pacific?

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Abstract

This paper discusses the proposed risk based capital framework in Singapore that will be introduced in 2004. The paper highlights the process that the regulator (the Monetary Authority of Singapore (“MAS”)) adopted to make the changes and the key features of the new model. The paper discusses issues concerning its applicability as a benchmark model for other markets in Asia Pacific.

Keywords

Risk Based Capital, Best Estimate; Provision for Adverse Deviation, Capital Adequacy Ratio

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1 Introduction

- 1.1 In 2000, the MAS decided to investigate the feasibility adopting a risk-based supervisory framework for insurance companies. This in turn led to looking at the feasibility of introducing a risk-based approach for determining capital requirements in insurance companies.
- 1.2 A further objective of the MAS was also to try to align a new framework with approaches adopted in other financial sectors in Singapore.
- 1.3 This paper discusses:
 - the current system for determining capital in Singapore;

- the process adopted by the MAS for investigating an alternative approach;
 - the proposed new model;
 - the testing process;
 - the implications of the new model; and
 - the applicability of the new model in other markets
- 1.4 The MAS issued a Consultation Paper for the new framework in November 2003, which is located on the MAS website www.mas.gov.sg. Although this paper discusses the framework set out in this paper, it is still possible following the consultation process that specific aspects may change. We consider major changes to the proposed framework to be unlikely however.
- 1.5 The focus of this paper is on life insurance, although non-life companies are also subject to a change to a risk-based framework, as set out in the same Consultation Paper.

2 Background

- 2.1 Life insurance companies are currently subject to the Insurance Act (Cap. 142) Revised Edition 2002, the Insurance (Amendment) Act 2003 and the Insurance Regulations (Chapter 142, Section 64) Revised Edition 2002. A minimum valuation basis is specified, using the net premium methodology. Solvency margins are set to be a percentage of reserves and a percentage of the sum at risk, as follows:
- 3% and 2% of reserves for non-participating and participating funds respectively; and
 - 0.1% of the sum at risk for policies with original term less than 2 years or less and 0.2% otherwise;
 - 50% of net premium income from accident and health policies of the fund in the preceding accounting period.
- 2.2 The MAS recognises that the formula for calculating solvency margin is the same for all companies regardless of the risk they incur.

- 2.3 Until recently the minimum capital for life insurance companies was S\$25 million (~ US\$15 million).

3 Deriving a new framework

- 3.1 The MAS decided to establish a working party (“The RBC Working Party”) to derive a new framework. Initially, the working party comprised of representatives from the MAS and representatives from the Singapore Actuarial Society (“SAS”).
- 3.2 Later, as the project progressed and as the industry embarked on a ‘testing process’, the group was expanded to include the Appointed Actuaries of each company (10 in total).
- 3.3 By involving the industry in the process, the industry has learnt about and ‘bought into’ the new framework as it has been developed.
- 3.4 In the process of developing the framework, these discussion papers were issued by the MAS between July 2001 and December 2002, covering the valuation of assets and liabilities, and capital requirements for life and non-life business.

4 Models examined

- 4.1 The starting point was to analyse the valuation and solvency regulations in other jurisdictions. The countries examined were:
- UK
 - USA
 - Australia
 - Canada
- 4.2 The initial observation was that the methodology to value the liabilities should be consistent to the approach for assessing capital requirements. That is, they should ‘fit together’.
- 4.3 The Australian approach was favoured initially, but was eventually dismissed as the ‘Margin on Services’ (“MOS”) approach for valuing liabilities was deemed to be inconsistent with the ‘fair value’ concepts that are being developed globally. If MOS had been selected, there would be a likely requirement to significantly change the

approach and methodology for valuing liabilities in the future, in the event that fair value reporting requirements be introduced in Singapore.

- 4.4 The final framework involves a cash flow best estimate plus margin approach for valuing the policy liabilities. As such it is easy to explain and understand. It should also be relatively straightforward to convert this to a fair value framework as and when this is required.

5 The new framework

- 5.1 An extract of the new framework, as contained in the MAS Consultative Paper, is set out in the Appendix to this paper. A summary of the key points is discussed below.

Valuation of assets and liabilities

- 5.2 A fundamental shift away from the current net premium approach to one that uses a more realistic and transparent methodology and basis.
- 5.3 One implication is that there is a requirement for enhanced professional judgement of actuaries and accountants.

Assets

- 5.4 A change to adopt market value of assets. Any excessive concentration of assets or risk will be reflected in capital requirements

Liabilities

- 5.5 A realistic approach using Best Estimate (“BC”) assumptions with a Provision for Adverse Deviation (“PAD”). The PAD reflects the uncertainty of BE assumptions.
- 5.6 The policy liability is simply the discounted value of cash flows using the BE and PAD.

Participating business

- 5.7 The policy liability is derived not only by aggregating policy liabilities of all policies, but is also dependent on the value of assets in the fund, and the extent to which liabilities are guaranteed.
- 5.8 To provide greater clarity between shareholder and policyholder funds, a ‘surplus account’ is to be established within the participating fund. Credits via the 90:10 rule are added to this, and withdrawals can be made if they are not required to meet capital

requirements. Any remaining assets are available to meet the policy liabilities, and are referred to as Policy Assets (“PA”).

5.9 The policy liability is generally equal to the PA, subject to:

- the policy liability being not less than a Minimum Condition Liability (“MCL”); and
- the policy liability being the aggregate of policy liabilities for each and every policy.

5.10 The MCL is the discounted value of guaranteed liabilities using a risk-free rate. The policy liabilities reflect guaranteed and non-guaranteed benefits, using a BE investment return.

5.11 Shareholders need to inject capital in the event that the PA falls short of either floor. This amount can then be repaid in full in the future, when PA no longer falls short of the floor. This is a significant difference to the current approach where capital is repaid via the 90:10 gate.

5.12 The 90:10 rule remains, but the cost of bonus is derived using the MCL basis. It is also proposed that the Board of Directors, and not Appointed Actuaries, will approve bonus rates.

5.13 Risk are computed into three classes:

- LC1 – Insurance risks that are calculated by applying specific risk charges to key parameters affecting policy liabilities, such as mortality, expenses, lapses, etc. Many of the risk charges are specified. For example, there is a prescribed mortality table;
- LC2 – Risks in the asset portfolio. It includes exposure to various markets and mismatching; and
- LC3 – Concentration risks of certain assets.

5.14 The Total Risk Requirement (“TRR”) is defined to be:

$$TRR = LC1 + LC2 + LC3$$

Fund Solvency Requirements and Capital Adequacy Requirements

5.15 Capital requirements are now risk-based. They are derived using a consistent approach to the liabilities and act as a buffer to absorb losses. There are two

requirements, namely, a Fund Solvency Requirement (“FSR”) and a Capital Adequacy Requirement (“CAR”).

Fund Solvency Requirements (“FSR”)

- 5.16 To satisfy the FSR for each fund, an insurer must have Financial Resources (“FR”) in excess of the fund TRR. For a non-participating fund, the FR is simply the excess of assets over the liabilities. For a participating fund, FR comprises of the surplus account plus the provision for non-guaranteed benefits. This provision depends on the value of the PA, the MCL and the aggregate provision for non-guaranteed benefits.

Capital Adequacy Requirements (“CAR”)

- 5.17 To satisfy the CAR, an insurer must have a CA Ratio of at least 100%, and a FR not falling below \$10 million. The CA Ratio is:

$$\frac{\text{FR for an Insurer's Operation}}{\text{TRR for an Insurer's Operation}}$$

- 5.18 The numerator comprises of Tier 1 and Tier 2 reserves, and the provision for non-guaranteed benefits. Tier 1 resources will generally be represented by aggregated surpluses in an insurer’s funds. It can also include other sources, including paid up ordinary share capital, surplus outside insurance funds, etc.
- 5.19 Tier 2 resources are capital instruments that are ‘less permanent’ than Tier 1, for example, cumulative or redeemable preference shares, etc.
- 5.20 Various other restrictions and adjustments apply in deriving the final CA Ratio.
- 5.21 The objective is that the MAS will define ‘trigger points’ for regulatory action. One warning event will occur if the CA Ratio falls below 120%, in which case an insurer will be asked to submit a plan for rectification.
- 5.22 The MAS also has the power to change the level of capital based on an assessment of other risks that it sees in a specific insurer.

Reporting

- 5.23 There will be a removal of the revenue account concept, as part of a review of reporting requirements. Policy liability and surpluses are to be shown on the balance sheet.

6 The testing process

- 6.1 As the framework was being developed, the working party considered it appropriate to request the industry to examine the implications of the proposed change via a series of tests. The tests were designed so that companies could slowly develop their systems to cater for the new framework, derive the necessary assumptions, and understand the implications of the results.
- 6.2 The first series of tests, which were carried out over a period of nine months, one-by-one were as follows:
- Determination of best estimate assumptions including expense assumptions;
 - Determination of the policy liability;
 - Determination of LC1, LC2 and LC3; and
 - Re-calculation of the various components, as the MAS tweaked the framework.
- 6.3 At various stages, the MAS produced various discussion papers for circulation to the industry.
- 6.4 Towards the end of the testing process, the MAS feedback results to the industry as a whole (at this stage also introducing CEOs, CFOs, CIOs, etc), and then to specific companies face-to-face.
- 6.5 The face-to-face meetings between the MAS and individual companies were held so that the companies had a chance to raise, uses or lobby for changes based on their own specific results and situations.

7 Issues and Implications

- 7.1 Several issues arose in the process of deriving the framework.

Legislation

- 7.2 The new framework requires a re-drafting of the insurance regulations. A draft of the new Insurance (Valuation and Capital) Regulations 2004 was attached to the Consultation Paper.

Tax

- 7.3 The change in the methodology to calculate the policy liabilities will have an impact on taxation. The MAS and the industry (via the Life Insurance Association (“LIA”))

are in discussion with the tax authorities concerning the implications with a view to lobbying for a change in this area. As it happens, there are currently several grey areas concerning life insurance taxation that have been the subject of discussion for several years. The impact of RBC could lead to a complete review of taxation in the life insurance sector.

Long-term risk-free rate

7.4 The most significant assumption affecting the capital requirements for most companies is the long-term risk-free discount rate. Since long-term yields have recently been historically low, the policy liability derived for non-participating business and minimum condition liability for participating funds is particularly high, and, in some cases, this may impact on the overall financial condition of a company, particularly for those companies that have an average term of business, in excess of 15 years. The liability is also particularly sensitive to this assumption.

7.5 It is likely that similar issues will arise in other markets, where long-term yields are more volatile and where there is a shortage of medium to long-term government debt.

Lower minimum capital

7.6 In anticipation of the new RBC framework, the MAS announced a reduction in the minimum level of paid up capital from S\$25 million to S\$5 million for an insurer writing a low risk single line of business, and \$10 million for any other direct insurer. The rationale is that the capital for a company will be based on its own underlying risks, making the minimum capital requirement less important.

Participative business

7.7 The new framework makes an assumption that policy liability equals the PA. In essence, this ignores the existence of an estate which is an integral part of the workings of a participating fund in most countries. This is one of the few outstanding issues that is likely to be further discussed, and will possibly lead to a revision in the suggested approach.

7.8 In parallel to the Risk-Based Capital Working Capital Group, the MAS has set up a participating product working group. One of the areas of focus for the participating product working group is the development and importance of asset shares as a tool to help companies determine bonuses. One interpretation is that the policy liability should equal the asset share.

Product mix

- 7.9 Although it is perhaps too early to judge the implication of the new framework, it is likely that some companies may review their product portfolios having regard to the capital implications. The popularity of unit-linked products in Singapore is already well-established, but may further increase. Traditional annuities may become even less popular, leaving scope for the design of alternative products (non-conventional annuities, etc.).

Transition arrangement

- 7.10 Insurers can adopt the new framework from 1 January 2004, but it becomes compulsory as at 31 December 2004.

8 Observations

- 8.1 As other countries consider the adoption of a risk-based framework, the Singapore model is likely to be examined as a possible outcome.
- 8.2 In our view, it is likely to be considered as an appropriate benchmark, particularly in jurisdictions that have similar fund accounting (with a segregation of participating and non-participating funds), and where there are similar available investments.
- 8.3 Any move to introduce risk-based capital should be carefully planned. The Singapore process has taken over three years to introduce with much discussions and changes in direction along the way. The importance of not rushing the implementation of a new framework should not be underestimated.
- 8.4 Of key importance is getting the industry to understand the new framework and its implications. The MAS's approach of involving SAS and of asking companies to perform testing has helped the industry become familiar with the framework, as it has been developed. The current Consultation paper is the conclusion of the process, and contains no surprises.
- 8.5 It is important to take account of specific factors in particular markets and to design the framework accordingly. In Singapore, the impact of the long-term risk discount rate was of particular concern and, after lobbying from the industry, the MAS proposed an acceptable solution.

References

1. Consultation Paper: Risk-Based Capital Framework for Insurance Business, Monetary Authority of Singapore, November 2003

EXECUTIVE SUMMARY

Insurance companies are facing greater challenges in their businesses, particularly in terms of volatility of assets and diversity of insurance risks, as well as keener competition from other financial institutions.

While the existing statutory solvency framework, which relies on undisclosed margins and approximations, has served its purpose well, it is not sufficiently transparent or risk-focused to adequately reflect the true financial conditions of the insurance companies in the new environment.

To address these inadequacies, the Authority proposes to adopt a risk-based capital (RBC) framework, which was formulated in close consultation with insurance practitioners and representatives from the actuarial and accounting professions.

The proposed framework, based on emerging international standards and good practices in developed countries, is risk-focused. It reflects the relevant risks that the insurance companies face. The minimum capital prescribed under the framework, which includes a consistent approach to the valuation of assets and liabilities, will serve as an effective buffer to absorb losses. With greater transparency, it will facilitate comparisons across insurance companies. It will also provide clearer information on the financial strength of insurers, and facilitate early and effective intervention by the Authority, if necessary. Under the new framework, the requirements have been aligned across financial institutions as far as possible, so as to minimize capital arbitrage in an increasingly integrated financial landscape.

In May 2003, the Authority issued a consultation paper on the proposed amendments to the Insurance Act required to establish the new RBC framework. The Authority has considered the feedback received during that consultation phase carefully, and made necessary changes to the Insurance (Amendment) Bill 2003.

This consultation paper seeks to obtain feedback on operational details, and the draft regulations, notice and guidelines relating to the new RBC framework for insurance companies.

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Annex 1: Draft Insurance (Valuation and Capital) Regulations

Annex 2: Draft Insurance (Accounts and Statements) Regulations

Annex 3: Draft Insurance (Actuaries) Regulations

Annex 4: Draft Notice on the Valuation of Policy Liabilities of Life Business

Annex 5: Draft Guidelines on the Valuation of Policy Liabilities for General Business

1 BACKGROUND

1.1 While the existing statutory solvency framework, which relies on undisclosed margins and approximations, has served its purpose well, it is not sufficiently transparent or risk-focused to adequately reflect the true financial conditions of insurance companies in the new environment. With the financial services sector becoming increasingly volatile, diverse and competitive, there is a need for a more transparent and risk-focused regime.

1.2 The Authority has therefore proposed to adopt a risk-based capital (RBC) framework. This new framework seeks to amend the existing valuation methodology for assets and liabilities, fine-tune the operations of life insurance funds, establish new capital requirement rules, update the role of actuaries, and introduce a new set of statutory reporting standards.

1.3 The Authority has been working closely with the insurance industry in formulating the proposed RBC framework. Following the announcement of the RBC concept in the 2001 exposure draft, work groups consisting of insurance practitioners and representatives from the actuarial and accounting professions were formed to look into various valuation and capital treatment issues. The work groups issued 3 discussion papers between July 2001 to December 2002 on the valuation of assets and liabilities, capital requirements for life insurance business, and capital requirements for general insurance business. The Authority has also engaged insurance companies in carrying out tests on the proposed framework since mid-2002. Draft amendments to the Insurance Act (IA) necessary to establish the RBC framework were released for consultation in May 2003. Careful consideration was given to the feedback received during that consultation phase. Necessary changes were subsequently made to the Insurance (Amendment) Bill.

1.4 This consultation paper will describe, and seek the public's feedback on, the significant features of the new RBC framework and the regulations, notice and guidelines created for this framework.

2 VALUATION OF ASSETS AND LIABILITIES

2.1 Before we discuss the amount of capital requirements for an insurer, we need to first determine the value of its assets and liabilities.

2.2 The proposed valuation regime makes a fundamental shift away from the current philosophy, which is built upon estimations of asset and liability values with undisclosed margins and approximations, to one that emphasizes greater transparency and provides a more accurate picture of the insurer's financial position. This is achieved by using more realistic valuation methodology and bases. More assumptions will need to be made in the valuation process. This shift will inevitably place greater reliance on the professional judgement of actuaries and accountants. The Authority will therefore continue to work closely with the two professions to fine-tune the valuation standards in relation to insurance business.

2.3 We will now highlight some of the key features of the proposed assets and liabilities valuation rules. Details of the rules can be found in the draft regulations, notice and guidelines in the **Annexes 1, 4 and 5**.

Valuation of assets

2.4 The "lower of book or market" rule used currently in asset valuation usually does not portray an insurer's true financial strength. To arrive at a realistic valuation, the proposed asset valuation rules will need to adopt the market values of assets.

2.5 In addition, all assets of an insurer will be reflected in its balance sheet. Issues relating to eligibility of assets such as over-concentration in certain type of assets, or excessive exposure to certain counter-parties, will be dealt with in the capital requirement rules instead.

Valuation of liabilities

2.6 The Authority made its first move to a more realistic valuation of insurance liabilities in 2001 when it imposed new valuation requirements on the general insurance sector. General insurers are required to determine best estimates (BE) of their insurance liabilities, and additional provisions for adverse deviation (PAD) that reach at least the 75% level of sufficiency. The requirements apply to both the risks related to insurance services that have yet to be provided (the "premium liabilities") and claims that have been incurred but not yet settled as at valuation date (the "claims liabilities").

2.7 We propose to extend the new valuation requirements of insurance liabilities to life insurance business. The net premium valuation method using

prescriptive valuation assumptions will be replaced. In its place, insurers will determine BE, and additional PAD. The BE shall be determined by first projecting future cash flows using realistic assumptions (including assumptions on expenses, mortality and morbidity rates, lapse rates, etc.), and then discounting these cash flow streams at appropriate interest rates. PAD is determined by using more conservative assumptions in the projection to reflect the inherent uncertainty of the BE.

2.8 The policy liability for any policy (be it a participating policy, a non-participating policy or an investment-linked policy) will simply be the sum of its BE and PAD. For participating policies, policy liability should include provision for future payments arising from both guaranteed and non-guaranteed benefits.

2.9 The policy liability of a life insurance fund made up solely of non-participating or investment-linked policies is calculated by aggregating the policy liabilities of all policies in the fund. On the other hand, for a life insurance fund that consists of participating policies (or more commonly know as the participating fund), the policy liability of the fund is derived not only by aggregating the policy liabilities of all policies in the fund, but is also dependent on the value of assets backing the liabilities and the extent to which benefits are guaranteed. This is best discussed in conjunction with changes proposed on the operations of the participating fund.

3 OPERATIONS OF THE PARTICIPATING FUND

3.1 The Insurance (Amendment) Bill 2003 that will come into effect in 2004 introduces some significant modifications to the participating fund, one of which is the establishment of a “surplus account”.

The “Surplus Account” and policy liability of participating fund

3.2 To add greater clarity in relation to allocation to shareholders and capital support provided by them, each life insurer shall establish a “surplus account” within its participating fund. Any allocation of the participating fund to shareholders via the “90/10 rule” of bonus distribution will be credited to this account, which is separately maintained. Shareholders may withdraw the balances in the surplus account if they are not required to meet capital requirements. This account will also keep track of any future capital support that shareholders may provide to satisfy the fund’s capital needs.

3.3 The surplus account defines the part of the participating fund that belongs to shareholders. Therefore, the remaining assets of the fund, after deducting the interest of other creditors, are available to meet the policy liabilities of the fund. We call this the “policy assets” (PA).

3.4 Policy liability of a participating fund is generally set to be equal to PA, subject to two floors—

- First, policy liability of the fund must not be less than the funds “minimum condition liability” (MCL), a measure representing guaranteed policy benefits. The calculation of MCL requires discounting of guaranteed liabilities of policies of the fund (including non-participating policies, if there is any) using a risk-free interest rate.
- Next, policy liability of the fund must not be less than the aggregate of the policy liability of each and every policy in the fund. This means both guaranteed and non-guaranteed benefits are accounted for. Valuation of participating policy for this purpose would be based on an insurer’s own best estimate of the investment return of the fund.

3.5 A participating fund is deemed to be unable to support its liabilities in relation to insurance policies when PA of the fund falls short of either of the two floors used in determining the policy liability of the fund described in paragraph 3.4. Shareholders must then provide capital support to the fund. This is achieved by deducting from the surplus account an amount equal to the shortfall. Such deductions may be recoverable in the future when the PA no longer falls short of the two floor values. However, should there be insufficient balance in the surplus account for such a deduction, a top up of the surplus account must be made from shareholders’ resources through a transfer of assets to the participating fund.

Bonus distribution

3.6 The second significant change to the operations of participating fund relates to bonus distribution. While the “90/10 rule” remains, the net premium valuation method will no longer be used to determine the cost of bonus. In its place, the cost of bonus will be calculated using the MCL basis.

3.7 The responsibility of approving bonus distributions will also shift from the appointed actuary to the board of directors. This is to reflect the current market practice, which is in line with the emphasis to strengthen corporate governance of insurers in Singapore. Before approving any bonus distribution, the board of directors

will need to take into consideration the written recommendations of the appointed actuary.

3.8 The detailed rules governing the operations of the surplus account can be found in the draft Insurance (Valuation and Capital) Regulations in ***Annex 1***.

4 FUND SOLVENCY REQUIREMENT AND CAPITAL ADEQUACY REQUIREMENT

4.1 Having determined the value of an insurer's assets and liabilities, we are ready to discuss the capital required of an insurer's operations.

4.2 The proposed capital requirement framework takes into account emerging international standards and good practices of developed countries. This framework is built on several principles. It is risk-based, as it reflects relevant risks faced by the insurance company. The new capital requirements, whose derivations are consistent with the approach used in assets and liabilities valuation, will serve as an effective buffer to absorb losses. The framework will facilitate comparisons across companies. The requirements have also been aligned, as far as possible, across financial institutions so as to minimize capital arbitrage in an increasingly integrated financial landscape. The new framework should serve as an early indicator of financial strength or weakness, and facilitate progressive intervention by regulators, if necessary.

4.3 The proposed framework consists of two requirements: the Fund Solvency Requirement (FSR), applicable to each insurance fund established and maintained under the IA; and the Capital Adequacy Requirement (CAR), applicable to each insurer's Singapore operations. This framework will replace the current solvency margin requirements.

Components of the capital requirements

4.4 Risks arising from an insurer's assets and liabilities are grouped into the following three components:

- Component 1 (C1) requirement:
This component relates to insurance risks undertaken by an insurer. For general insurance business, the requirement is calculated by

applying specific risk charges on an insurer's premium and claims liabilities. The risk charges applicable to different business lines vary according to volatility of the underlying businesses. For life insurance business, the requirement is calculated by applying specific risk margins to key parameters affecting policy liabilities such as mortality, morbidity, expenses and policy termination rates.

- Component 2 (C2) requirement:
This component relates to risks inherent in an insurer's asset portfolio. It is calculated based on an insurer's exposure to various markets including debt, equity, property, and foreign exchange. The C2 requirement also reflects the extent of the mismatch between assets and liabilities.
- Component 3 (C3) requirement:
This component relates to concentration risks in certain types of assets, counter-parties or groups of counter-parties. It is calculated based on an insurer's exposure in excess of the prescribed concentration limits.

4.5 We define "total risk requirement" (TRR) as the sum of C1, C2 and C3. The amount of capital available to meet TRR is called "financial resources" (FR). The following paragraphs will describe what the FSR and CAR are, and how FR should be derived.

Fund Solvency Requirement

4.6 To satisfy the FSR for each insurance fund, an insurer shall maintain an insurance fund's FR in excess of the fund's TRR. For all insurance funds (except for a participating fund), the FR is simply the excess of the fund's assets

over its liabilities. However, for a participating fund, FR will consist of two components, namely:

- Balance of surplus account; and
- Provision for non-guaranteed benefits.

4.7 The inclusion of the provision for non-guaranteed benefits as part of FR is to recognise the ability of the participating fund to adjust future bonus rates for participating policies to absorb adverse fluctuations. The size of this component of capital depends on the value of PA (which is the amount of assets available to back the policy liabilities of the fund), MCL (the amount of guarantee that the fund has made), and the aggregate of provision for non-guaranteed benefits from all participating policies of the fund (an amount linked to future bonus assumed in the valuation).

4.8 Some deductions will be made to FR for assets that are of poor quality and not free from encumbrance. These deductions include those made against future tax benefits, charged assets, and most financial reinsurance arrangements.

Capital Adequacy Requirement

4.9 To satisfy the CAR, an insurer shall maintain a Capital Adequacy Ratio (CARatio) of at least 100% and a FR for its Singapore operations not falling below \$10m. The CARatio is defined as:

$$\frac{\text{FR for an insurer's Singapore operations}}{\text{TRR for an insurer's Singapore operations}}$$

4.10 The denominator is determined by aggregating all TRRs from each insurance fund that an insurer maintains. An insurer incorporated in Singapore will also add to the denominator, risk requirements relating to assets and liabilities outside of insurance funds (including those relating to the insurer's overseas branches).

4.11 The numerator is calculated as the sum of 3 components, namely "Tier 1 resources", "Tier 2 resources" (applicable to insurers incorporated in Singapore) and the provision for non-guaranteed benefits (applicable to insurers who maintain a participating fund).

4.12 Tier 1 resources are those capital instruments that are able to absorb losses on an on-going basis. They should not have any maturity date, nor should they be redeemable at the option of the holder of the instruments. They should be issued and fully paid-up, and non-cumulative in nature. They should be ranked junior to policyholders, general creditors, and subordinated debt of the insurer. Tier 1 resources should neither be secured nor covered by a guarantee of the issuer or related entity or other arrangement that may legally or economically enhance the seniority of the claim vis-à-vis the policyholder. Tier 1 resources will generally be represented by the aggregate of the surpluses of an insurer's insurance funds. In addition, a Singapore incorporated insurer may add to its Tier 1 resources its paid-up ordinary share capital, its surpluses outside of insurance funds, and irredeemable and non-cumulative preference shares.

4.13 Tier 2 resources are capital instruments that are "less permanent" compared to Tier 1 resources, but may be available to serve as buffer against losses made by the insurer. Examples of these instruments include cumulative or redeemable preference shares and certain subordinated debt.

4.14 Three further adjustments are required to be made to the CARatio. First, inadmissibility adjustments similar to those required under the FSR should be made to the numerator. Next, total Tier 2 resources recognised for the computation of total FR cannot exceed 50% of Tier 1 resources. And lastly, as the provision for non-guaranteed benefits is not available to absorb losses not related to the participating fund, the CARatio calculated will be limited by the following ratio:

$$\frac{\text{FR (excluding FR relating to participating fund)}}{\text{TRR (excluding TRR relating to participating fund)}}$$

4.15 The new capital regime will facilitate early and progressive intervention by the Authority. The CARatio allows the Authority to define "trigger points" for regulatory actions. A "financial resources warning event" will occur when an insurer's CARatio falls below 120%, in which case the insurer must notify the Authority and submit a plan on how it intends to bring the CARatio back up above the 120% level.

Some further comments

4.16 The prescribed FSR and CAR are not all-encompassing and may not capture certain risks that are specific to particular insurers. Therefore, the new section 18(4) introduced by the Insurance (Amendment) Bill 2003 gives the Authority the flexibility to adjust the FSR or CAR having regard to "risks arising from the

activities of the insurer and such other factors as the Authority considers relevant". Examples of such risks include operational risk, weak corporate governance and internal control, and lack of access to additional capital. The Authority will assess the need for, and the quantum of, additional capital for specific insurers via its risk-based supervisory process.

4.17 The insurance industry has provided the Authority with feedback over the past years on the discussion papers issued and the tests conducted. After reviewing the feedback and considering the broader operating environment, we are proposing three exemptions:

- Offshore insurance fund (OIF) of registered reinsurers in Singapore. As reinsurers are subjected to significantly lower solvency requirements under the current solvency margin framework compared to direct insurers, reinsurers will be significantly impacted by the introduction of the RBC framework. The Authority has therefore decided to allow reinsurers more time to meet the RBC requirements by implementing the framework in phases. For year 2004 and 2005, reinsurers' will be exempted from complying with the FSR for their OIFs. The Authority is also considering extending this exemption beyond year 2005 to any foreign-owned reinsurer or reinsurer operating as a branch in Singapore if it can be demonstrated that—
 - the reinsurer has strong group-wide financial position;
 - the reinsurer is subjected to consolidated supervision of an acceptable standard in its home jurisdiction; and
 - the reinsurer's home regulator is willing to cooperate with the Authority in the supervision of the reinsurer.

In the meantime, the Authority expects all reinsurers to have in place a robust risk management system. The Authority reserves the right to revoke the exemption to comply with the FSR for the OIF where we have any concern based on our ongoing supervisory review.

- Application of RBC framework on specialist insurers. The Authority recognises the uniqueness of the risk profiles facing specialist insurers such as financial guarantee insurers, credit and political risk insurers, marine mutuals and Lloyds syndicates. Therefore, exemptions will be granted to these entities in 2004 and 2005 from complying with the FSR and CAR as the Authority studies how best to fine-tune the RBC model

for them. These entities will continue to be required to comply with the current solvency requirements.

- Application of RBC framework to captive insurers. Captive insurers are set up primarily to insure risks from within their related companies. To the “clients” of a captive insurer, the benefit of enhanced transparency offered by the RBC framework may be less significant compared to the cost involved in implementing the RBC framework. The Authority therefore intends to exempt captive insurers from complying with the FSR and CAR, but they will need to continue to comply with the current solvency requirements.

4.18 In conjunction with the launch of the RBC framework, the Authority will be lowering the minimum paid-up capital requirement to:

- \$5m for any direct insurer who is subjected to the full RBC framework and underwrites only a single low risk line of business (such as investment-linked life business or short-term accident and health insurance business); and
- \$10m for any other direct insurer who is subjected to the full RBC framework (i.e. any other company registering as direct life or general insurer).

The minimum paid-up capital requirement for insurers not subjected to the full RBC framework (i.e. those mentioned under paragraph 4.17) will remain at the current level.

5 REPORTING REQUIREMENTS

5.1 Other than modifying the annual statutory returns to reflect the changes in the valuation and capital requirements, the Authority has also taken this opportunity presented by the establishment of the RBC framework to review other aspects of the existing reporting requirements.

5.2 One of the key changes proposed is the removal of the “revenue account” concept. Currently, the value of a life insurer’s policy liabilities cannot be determined from the statutory balance sheet (the current Form 1) because the “balance of revenue account” merely shows the net cumulative inflow of policy monies into the insurance fund. Under the proposed framework, however, policy liabilities and surpluses will be explicitly shown on the balance sheet. In addition, a new Form 2, containing a single profit and loss statement for both life and general insurance

business, will replace the current Form 2 and Form 6 that relate to the revenue account.

5.3 To provide the Authority and other users of the statutory returns a better insight into the financial condition of insurers, additional annexes to the balance sheet and profit and loss statement have also been drawn up.

6 TRANSITIONAL ARRANGEMENTS

6.1 To ensure smooth transition to the RBC framework, the Authority will put in place transitional arrangements to allow insurers to make the necessary changes to their internal systems. We shall now discuss these transitional arrangements for reporting and capital requirements.

Reporting requirements

6.2 For the 2004 accounting period, insurers will be required to submit—

- annual statutory returns and quarterly returns relating to the 2004 accounting period using the current basis, format, and mode of submission, and according to existing deadlines; and
- balance sheets as at 31 December 2004 using the new valuation basis and reporting format.

Otherwise, submission based on the new basis and format will not be mandatory during 2004. However, for insurers that are ready to adopt the new framework, they may make additional submission of the quarterly returns based on the new basis and format.

6.3 The Authority expects to roll-out a new web-based returns submission platform in the first half of 2004. Insurers may test the new platform over the rest of 2004 to get accustomed to the new reporting basis and format. The use of this platform will become mandatory for the submission of the year-end 2004 balance sheet (to be submitted by 31 March 2005) and any subsequent annual or quarterly returns.

Capital requirements

6.4 During 2004, the existing solvency requirements will remain in-force. An insurer may, however, opt to be assessed under the new RBC requirements when it

is ready. The insurer should give prior notice to the Authority on its implementation of the new framework. The insurer will not be allowed to switch back and be assessed under the previous capital requirements.

6.5 All insurers (except those who qualify for exemption as described in paragraph 4.17) will be assessed based on the new RBC requirements from 1 January 2005 onwards.

7 INSURANCE REGULATIONS AND NOTICES

7.1 The Authority will be amending some of the existing regulations and notices in conjunction with the introduction of the RBC framework. The following draft regulations and notice are included in this consultation paper for the public's comments:

- Draft Insurance (Valuation and Capital) Regulations attached as **Annex 1** (this replaces the parts on valuation and solvency margin rules in the current Insurance Regulations);
- Draft Insurance (Accounts and Statements) Regulations attached as **Annex 2** (this replaces the existing Insurance (Accounts and Statements) Regulations);
- Draft Insurance (Actuaries) Regulations attached as **Annex 3** (this replaces the existing Insurance (Actuaries) Regulations and Insurance (Duties of Actuary) Regulations); and
- Draft Notice on the Valuation of Policy Liabilities of Life Business attached as **Annex 4**
- Draft Guidelines on the Valuation of Policy Liabilities for General Business attached as **Annex 5**.

7.2 The Authority will also review existing regulations and notices to ensure that they are consistent with the new RBC framework.

8 REQUEST FOR COMMENTS

8.1 The Authority invites interested parties to provide their views and comments on the draft regulations and notices relating to the new RBC framework. Written comments should be submitted by 9 January 2004 to:

Insurance Supervision Department
Monetary Authority of Singapore
10 Shenton Way
MAS Building
Singapore 079117

Email: rbcon03@mas.gov.sg
Fax: (65) 6229-9694

8.2 Please note that all submissions received may be made public unless confidentiality is specifically requested for the whole or part of the submission.

About the authors



Richard Holloway
Managing Consultant
Watson Wyatt Insurance Consulting Private Limited, Gurgaon

Richard graduated from New College, Oxford University in 1987 and later qualified as a Fellow of the Institute of Actuaries in 1990.

Richard has spent his entire career working with Watson Wyatt which now exceeds 15 years. He is a partner of Watson Wyatt LLP UK.

For five years he worked in the company's office in Reigate, England, working in the life and non-life sectors. In February 1993, Richard was transferred to the company's office in Jamaica where he worked for two and a half years successfully developing the life insurance consulting practice.

In July 1995, Richard transferred to Watson Wyatt's Hong Kong office and then to the Singapore office in February 1997. He is currently Managing Director of Watson Wyatt Insurance Consulting Pte Ltd, a role he has held for over six years.

During his time in Asia Pacific, he has worked extensively on life insurance projects in all countries in the region, but with a greater focus on South East Asia and the Indian sub-continent. Assignments have included statutory valuations, appointed actuary work, mergers and acquisitions (due diligence and company valuations), embedded value reporting, product pricing, business planning and strategic advice.

Richard is a regular speaker at conferences in the region. He has previously sat on the life insurance committee of the Actuarial Society of Hong Kong and sat on the Council of the Actuarial Society of Singapore for three years from January 1999.

Richard's responsibilities extend to managing our insurance and financial services work in South East Asia including Singapore, Malaysia and Indonesia. This includes the management of Watson Wyatt's insurance team in India.

Richard has been a working member of the Risk-Based Capital Working Group in Singapore since its inception in 2000.



Heerak Basu
Director & Consulting Actuary
Watson Wyatt Insurance Consulting Pte Ltd, Singapore

Heerak graduated in Mathematics from Cambridge University in 1989 and qualified as a Fellow of the Faculty of Actuaries in 1993. In 1996 he also obtained an MBA from Strathclyde Graduate Business School in the United Kingdom. Prior to joining Watson Wyatt in 1999 Heerak had worked for Scottish Amicable Life Assurance Society in Glasgow and for ANZ Grindlays Bank in Kolkata.

While at Scottish Amicable Heerak was involved in a wide variety of actuarial tasks including product pricing, financial modelling and embedded value work. While at ANZ Heerak was responsible for investing the monies of the retirement benefit funds and for advising on actuarial valuations of retirement benefit funds.

Since joining Watson Wyatt Heerak has been involved in several projects for several players in the Indian insurance market. Heerak has been involved in the areas of strategy development, product pricing, training of insurance company senior management, business planning and market analysis. Heerak has also carried out strategic projects covering the Indian mutual fund and banking sectors.

Heerak is also a Fellow of the Actuarial Society of India and sits on the Executive Committee of the Actuarial Society of India.

Heerak is Director & Consulting Actuary with Watson Wyatt.