



Singapore Actuarial Society

DRAFT

**Consolidated Responses to the
Monetary Authority of Singapore on the
MAS Consultation Paper (June 2012) on the
Review on the Risk-Based Capital Framework for Insurers in
Singapore
(RBC 2 Review)**

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Section 1 – Background and Scope

- 1.1 The Monetary Authority of Singapore (“MAS”) issued a Consultation Paper on 22 June 2012 entitled Review on the Risk-Based Capital Framework for Insurers in Singapore (“RBC 2 Review”).
- 1.2 An RBC 2 Special Taskforce (“the Taskforce”) was set up at the request of the Council of the Singapore Actuarial Society (“the Society”) to present comments and recommendations to the MAS on the RBC 2 Review Consultation Paper.
- 1.3 The recommendations and actions proposed by the Taskforce shall be presented to the Society’s membership at large for comment and posted on the Society’s website.
- 1.4 The recommendations and actions proposed by the Taskforce shall be reviewed and approved by the Council of the Society.
- 1.5 The comments and recommendations provided are:
 - based on actuarially sound principles and not on subjective bases or opinions;
 - independent views of the Society, not representing the views of any individual, company and/or association;
 - consistent and coherent views across different core practices (e.g., life insurance, general insurance and enterprise risk management);
 - the Society’s responses are solely directed to the RBC 2 Review and may not necessarily be applicable to any other solvency regime in jurisdictions outside Singapore.
- 1.6 The Taskforce presents their proposal for the Society’s response with an Executive Summary in Section 2, followed by more in-depth comments and recommendations for the individual proposals and consultation questions in Section 3 of this report.
- 1.7 The RBC 2 Taskforce terms of reference can be found in Appendix I.



Section 2 – Executive Summary

- 2.1 In general, the Society is supportive of the MAS' initiative in the RBC 2 Review. However, the Society would like to highlight several issues and concerns in the following paragraphs.
- 2.2 The Consultation Paper references Basel III and other banking regulations. During the IAIS Conference held in Seoul in September 2011, all discussions regarding systemic risk for insurance sector generally concluded that insurance sector is less susceptible to systemic / contagion risk as compared with the banking industry.
- 2.3 The Society agrees with Proposal 3 to have an explicit risk charge to capture operational risk within the RBC 2 framework. However, the Society believes that the formula used is not appropriately capturing operational risk.
- The Society proposes that the operational risk charge should not be imposed until conclusive industry studies / actuarial research around this area has been carried out.
 - The Society is prepared to lead and discuss any actuarial research work around operational risks if so requested by MAS.
- 2.4 The Society recommends different approaches to catastrophic risk, as proposed in Proposal 4.
- For General Insurers, the Society believes more research around catastrophe risk should be carried out, and will welcome the opportunity to assist MAS to design appropriate catastrophic scenarios.
 - For Life Insurers, a pandemic scenario is the most likely form of catastrophe that could affect life insurance business and a capital charge might be warranted. However, care must be taken to ensure that the calibration of this charge is separate to the calibration of the risk charges for other mortality risk such as trend and level mis-estimation.
- 2.5 The Society agrees with Proposal 5 to recalibrate risk requirements using the Value at Risk ("VaR") measure of 99.5% confidence level over a one year period. The timeline to finalise the calibration factors / shock scenarios by 1Q 2013 is a concern.
- 2.6 The Society does not agree with Proposal 6 to disallow diversification benefits. Not allowing for diversification may lead to an undue increase in regulatory capital requirements over the current requirements when the new risk charges come into effect.
- 2.7 The Consultation Paper introduces the proposal for partial or internal models in the next phase of the RBC review. The Society welcomes their potential, however, there are a number of factors which have been highlighted for the consideration of the MAS.
- 2.8 The Society proposes that there should be a cap on the release of negative reserves. The Society suggests that any cap should be carefully examined during the calibration of the standard formula with due reference to the lapse rate shocks to be determined.



- 2.9 For Proposal 10, the Society requests clarification of the definition of FRA under the Insurance (Valuation and Capital) Regulations 2004 if the intent is not to treat the APNGB as Tier 1 Capital.
- 2.10 The Society proposes that PCR should be maintained only at company level whilst MCR is maintained at insurance fund level. The Society's counter-proposal to Proposals 11 and 12, seeks to strike a balance in terms of not being overly excessive but still ensuring that the company is adequately capitalised and maintaining a minimum standard of capital adequacy at insurance fund level.
- 2.11 Removal of the Long Term Risk Free Discount Rate (LTRFDR) is more market consistent. However, the Society sees value in retaining the LTRFDR whilst retaining the flexibility under MAS319 to allow an insurer that has implemented an effective cash flow hedge or fair value hedge to elect to use the market yield of SGS of a matching duration as the discounting rate.
- 2.12 The Society believes that the cost-of-capital approach in determining the PAD will be appropriate for the life insurance business but not necessarily for the general insurance business. The regulations should also 'leave the door open' to other approaches which may be found to be appropriate in certain circumstances. A statement on the principles by which the PAD is to be calculated would therefore be desirable in the regulations.
- 2.13 The timeline for the implementation of the RBC 2 requirements depends on the timeline for the calibration of these requirements.



Section 3 – Responses on Individual Proposals & Consultation Questions

Proposal 1

MAS proposes to incorporate an explicit risk charge to capture spread risk within the RBC2 framework.

- 3.1.1 A credit spread widening could be due to the perceived increase in default risk of the bond issuer and the investor demanding a higher yield. Therefore, spread risk is one measure of the credit quality of bond issuers and there may be an overlap with the current debt specific risk charge.
- 3.1.2 More clarity should be provided as to how this new risk factor will be co-ordinated with the current debt specific risk charge to minimise the potential for double counting.

Proposal 2

MAS proposes not to impose an explicit risk charge for liquidity risk. MAS will work with the industry to conduct liquidity stress-testing, and assess the soundness of the insurer's liquidity risk management practices as part of MAS' risk-based supervision.

- 3.2.1 The Society agrees with the proposal that the liquidity stress testing exercise should be part of the risk assessment of the insurer.

Proposal 3

MAS proposes to incorporate an explicit risk charge to capture operational risk within the RBC 2 framework, calculated as:

x% of the higher of the past 3 years' averages of (a) earned premium income; and (b) gross policy liabilities, subject to a maximum of 10% of the total risk requirement.

Where x = 4% (except for investment-linked business, where x = 0.25% given that most of the management of investment-linked fund is outsourced)

Consultation Question 1

Is this formula or bases chosen appropriate? Should we be using written premium or net policy liabilities instead? Should there be differences in the formula for different types of insurers, for example, direct life, direct general and reinsurers?

Consultation Question 2

What type of data can the insurance industry start to collect in order to build up sufficient data to better quantify or model operational risks?



Consultation Question 1

- 3.3.1 The Society agrees with the proposal to have an explicit risk charge to capture operational risk within the RBC 2 framework. However, the Society believes that the formula used is not appropriately capturing operational risk.

Why the proposed formula is inappropriate

- 3.3.2 Premium and policy liabilities data are generally not sufficient bases for operational risk measurement. In particular, the proposed operational risk formula ignores the quality of risk control / risk management framework of insurance companies. For example, if Company A and Company B have similar premium size and policy liabilities, they would have similar risk charges for operational risks according to the proposed formula. This is in spite of Company A having excellent operational risk controls with a dedicated risk management team and Company B with no resources allocated to risk management. This does not provide any incentive for Company B to improve its operational risk management control in the future.
- 3.3.3 In addition, the formula does not capture different company's focus on diverse lines of business that will entail different levels of operational risks. For example:
- For life insurance (LI), term products are more straightforward and hence should have lower operational risks.
 - For general insurance (GI), operational risk exposure for consumer lines products are perceived to be higher than commercial lines products due to the nature of the products (high volume so operationally intensive), target market (primarily individual clientele so more attention in handling customers including complaints) and distribution channels (primarily agency business with more attention in servicing and handling agency issues).
- 3.3.4 The portion of operational risks that have been captured under the current expense risk module should be considered so as to ensure there is no double counting.

Gross or Net Liabilities?

- 3.3.5 Net of reinsurance basis is more appropriate as the gross basis includes the part of policy liabilities which are ceded out to reinsurers and therefore does not form part of the operational risk for the companies. In other words, the reinsured part of the policy liabilities is exposed more to credit risk than operational risk.

Why the common factor of 4% is inappropriate

- 3.3.6 Direct insurers and reinsurers have varying degrees of operational risk exposure and the one size fits all approach (4% of x) does not appear appropriate. Some companies have material differences between earned premiums and policy



liabilities, and using the same factor (4%) for both components may result in highly divergent measurements. This is particularly true for larger life companies that have large policy liabilities and will most likely hit the cap (10% of total risk requirement (TRR)). Hence, different factors should be used for earned premiums and policy liabilities.

Some alternative proposals

- 3.3.7 Rather than imposing a risk charge, operational risk could be better managed through qualitative assessment under the ERM / ORSA framework.
- 3.3.8 GI companies' operational risk management could be rated during MAS inspections (similar to CRAFT rating but with the focus on operational risk controls / framework). The value for 'x' in the formula could incorporate some form of qualitative assessment such as the CRAFT rating, but the Society understands that the rating was based on a wider range of considerations some of which will not relate to operational risk.
- 3.3.9 There is also a proposition that operational risk is not just about liabilities. The proposed formula does not consider the amount of assets a company holds. For LI companies, operational risk on new business is not fully captured if the impact on assets is not considered.
- 3.3.10 Another suggestion is to measure the operational risk charge as a percentage of the overall total risk charge as operational risk cuts across all areas of the company's operations, similar to the cap in MAS' proposal.

Recommendation

- 3.3.11 The Society therefore proposes that the operational risk charge should not be imposed until some conclusive industry studies / actuarial research around this area has been carried out.
- 3.3.12 The Society is prepared to lead and discuss any actuarial research work around operational risks if so requested by MAS. For example, the Society can perform further research and propose alternative tools and methodologies to capture operational risk.



Other general comments

- 3.3.13 Paragraph 2.9 in the Consultation Paper states that “there is no evidence to suggest that an insurer’s operational risk would be vastly different from that experienced by a bank.” The Society’s view is that historical events have shown that the frequency and magnitude of operational risks experienced by insurance sector is significantly lower than the banking sector. The Association of British Insurers (ABI) published a research paper in 2009 entitled “Analysing Operational Losses in Insurance”¹. It was stated in the paper that the insurance industry’s operations *‘involve fewer transactions and less trading, which are important drivers of operational failures.’* There are also other research papers² supporting the view.

Consultation Question 2

What type of data can the insurance industry start to collect in order to build up sufficient data to better quantify or model operational risks?

- 3.3.14 The Insurance industry can start collecting some key risk indicators (KRIs) data that can measure or highlight the operational risk profile of an insurance company: staff turnover, growth trends, number of policies, etc.
- 3.3.15 The industry can also collect data on operational risk loss events to populate an industry loss incident database. This process can start by first conducting some industry survey on historical loss events. However, the reliability and consistency of data received from an industry survey across companies can be a challenge.

¹ <http://www.abioric.com/home/abi-oric-research-paper.aspx>

² a) Risk Management Banks versus Insurers – powerpoint slides

(<https://web.actuaries.ie/sites/default/files/event/2011/07/111109%20Risk%20Mgmt%20-%20Banks%20vs%20Insurers.pdf>)

b) Why the current practice of operational risk management in insurance is fundamentally flawed - evidence from the field (<http://www.ermssymposium.org/2012/OtherPapers/Acharyya-Paper-01-16-12.pdf>)

c) Special Report on Systemic Risk in Insurance – Geneva Association, March 2010

(http://www.genevaassociation.org/portals/0/Geneva_Association_Systemic_risk_in_Insurance_Report_March2010.pdf)



Proposal 4

MAS proposes to incorporate an explicit insurance catastrophe risk charge in the RBC 2 framework. This would be done through prescribing a number of man-made and natural catastrophe scenarios, with an explicit risk charge computed accordingly from a combination of these scenarios. MAS intends to work with the industry associations, reinsurance brokers and the other risk institutes/academia in Singapore to design relevant standardized catastrophic scenarios. For life business, the explicit insurance catastrophic risk charge can be derived based on a pandemic event.

- 3.4.1 LI and GI companies have varying degrees of catastrophe risk exposure and the approaches to incorporate the risk charge may also vary between the two sectors.

General Insurance

- 3.4.2 Whilst Singapore has relatively low exposure to natural catastrophe events, catastrophe risk is a fundamental risk GI companies assume and accumulation risk still needs to be considered.
- 3.4.3 The concept of an explicit catastrophe risk charge using scenario testing is sound in principle.
- 3.4.4 The Society believes more research around catastrophe risk should be carried out, and will welcome the opportunity to assist MAS to design appropriate catastrophic scenarios.
- 3.4.5 If an explicit risk charge for catastrophe risk is adopted, care must be taken to avoid the overlap with the liability risk charges, and to consider the low correlation between natural catastrophe and other risk events such as economic recession. In addition, changes need to be made to the current stress testing framework to avoid double counting.

Life Insurance

- 3.4.6 As the consultation paper intimates, a pandemic scenario is the most likely form of catastrophe that could affect life insurance business and a capital charge might be warranted. However, care must be taken to ensure that the calibration of this charge is separate to the calibration of the risk charges for other mortality risks such as trend and level mis-estimation.
- 3.4.7 The suggested level of 1.5 per mille of sum at risk will be something to address during the calibration exercise. There are potentially many positive factors in Singapore's favour that may reduce the risk of spread of pandemic.



Proposal 5

MAS proposes to recalibrate risk requirements using the Value at Risk (“VaR”) measure of 99.5% confidence level over a one year period.

MAS will be engaging the industry on the calibration exercise, and target to finalise the calibration factors/shock scenarios by 1Q 2013. Data would need to be collected for this purpose. The recommended calibration factors or scenarios will be consulted prior to its finalisation.

Use of VaR or TVaR

- 3.5.1 The Society agrees with the proposal to recalibrate risk requirements using the Value at Risk (“VaR”) measure of 99.5% confidence level over a one year period, mainly because VaR is easy to compute and has been widely accepted and is used by regulatory regimes in other countries.
- 3.5.2 However, the Society would like to highlight that no risk measure is perfect and there is the need to appreciate the limitation of VaR to minimise wrong interpretation of results computed by VaR. For example, VaR is not suitable for non-symmetrical loss distribution (e.g., insurance catastrophe risks). VaR is also not a good risk measure at the tail (for extreme events) and ignores information beyond the calibration point.
- 3.5.3 TVaR, on the other hand, has the advantage of coherence, of being sub-additive which encourages diversification, and offers more information around the tail compared to VaR.

Timeline

- 3.5.4 Timeline to finalise the calibration factors / shock scenarios by 1Q 2013 is a concern especially when the stress test deadline has been brought forward to the end of the first quarter next year (31 March 2013).

Other general comments

- 3.5.5 When calibrating risk charges, say for long term mortality and morbidity risks, the Society recommends using a rolling number of years of actual / expected results to allow for random fluctuations, especially for smaller portfolios.
- 3.5.6 Can MAS clarify whether all the profit and loss items will be calibrated to the VaR 99.5% level? If so, it may be more relevant to wait for the implementation of internal models.



Proposal 6

MAS proposes not to allow for diversification benefits when aggregating the capital risk requirements.

MAS is, however, prepared to consider diversification benefits if the industry is able to substantiate, with robust studies and research conducted on the local insurance industry, that there are applicable correlations which can be relied on during normal and stressed times.

3.6.1 The Society proposes that diversification benefits should be allowed for when aggregating the capital risk requirements.

Why diversification benefits are relevant

3.6.2 Diversification is expected to reduce capital requirements quite significantly. For example, under Solvency II QIS5 results impact of diversification effect results in more than a 35% reduction in capital required¹. Not allowing for diversification may lead to an undue increase in regulatory capital requirements over current requirements, when the new risk charges come into effect. These increased costs will eventually be passed on to the consumers through more costly premiums and / or less coverage.

Taskforce's recommendation

3.6.3 The Society is prepared to lead and discuss any actuarial research work around diversification benefits if so requested by MAS, similar to what the Institute of Actuaries of Australia did² in 2001.

¹ https://eiopa.europa.eu/fileadmin/tx_dam/files/publications/reports/QIS5_Report_Final.pdf Graph

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² Bateup-Reed (2001 study) and Collins-White (2001 study)

**Proposal 7**

MAS proposes to allow the use of partial or internal model in the next phase of the RBC 2 review, after the implementation of the standardised approach. The internal model, which will be subject to approval by MAS, will have to be calibrated at the same level as the standardised approach.

- 3.7.1 The Society agrees with the proposal to allow the use of partial or internal models in the future but would like to note some points for the review of MAS as they consider the options available.

Taskforce's comments and recommendations

- 3.7.2 The CP is silent on how the internal model will affect the capital requirement of insurers. If there is no direct benefit from a regulatory capital perspective, it is unlikely that companies will invest money and resources to set up internal models simply because it is good risk management practice to do so.
- 3.7.3 The Society is also interested as to what extent companies will be allowed to use their parent companies' internal models which may be re-calibrated to meet the target criteria of the standardised approach.
- 3.7.4 There should also be clarity as to the approval / validation process and the involvement of external auditors.
- 3.7.5 Due to the complexity of designing and implementing these models, their use should not be made mandatory.
- 3.7.6 The Society considers that the implementation of the internal model should be made in conjunction with the implementation of the Own Risk & Solvency Assessment (ORSA).



Proposal 8

MAS proposes to incorporate the same Basel III features (i.e. equity conversion or write-down on breach of regulatory capital requirements) for the Approved Tier 1 resource.

This means that instruments that qualifies as Approved Tier 1 resource must:

- (a) automatically convert to ordinary share capital, as and when the insurer needs to absorb losses, and in any case, when the insurer breaches its regulatory capital requirement;
- (b) be subject to write down as long as losses persist, as and when the insurer needs to absorb losses, and in any case when the insurer breaches its regulatory capital requirement.

The limits on the amount of Approved Tier 1 resource that can be recognised, as set out in the existing Insurance (Valuation and Capital) Regulations 2004, will remain unchanged.

3.8.1 The Society has no comments on this proposal.

Proposal 9

MAS proposes to allow a part of the negative reserves to be recognised as a form of positive financial resource adjustment under Financial Resources. MAS will consult further on the amount to be recognised.

3.9.1 The Society proposes that there should be a cap on the release of negative reserves. The Society suggests that any cap should be carefully examined during the calibration of the standard formula with due reference to the lapse rate shocks to be determined.

3.9.2 With regards to the release of negative reserves, consideration should also be given to the valuation of policies only to the legal contract boundary (e.g. expiry of the term of policy). This would follow the approach in Solvency 2 where not all Expected Profits Included in Future Premiums (EPIFP) are recognised.

3.9.3 The Society also proposes two options on how negative reserves can be treated.

- One option is to allow negative reserve as a positive Financial Resource Adjustment (FRA). This will have no immediate tax implications, and the positive adjustment is therefore “off balance sheet” and appears in the numerator in the calculation of capital ratio. The permitted total negative reserve is therefore not reflected in the economic value of the business in the best estimate liability (BEL).
- The alternative option is for the negative reserve to be reflected in the BEL and consequentially appear on balance sheet. This approach gives credit to the economic value of business, and is more in line with a market consistent presentation of the liabilities of the insurer. However, any such adjustment for an insurer will bring potential advancement of the payment of tax arising from the immediate release and this consequence will have to be dealt with.

**Proposal 10**

MAS proposes to classify Aggregate of Allowances for Provision for Non-Guaranteed Benefits, where applicable, as a form of positive financial resource adjustment, rather than as a capital item.

This applies to an insurer maintaining any participating fund, and subject to the condition that the unadjusted capital ratio remains below the adjusted capital ratio, where:

Adjusted capital ratio, in relation to the insurer, means the ratio of the financial resources of the insurer (excluding the financial resources of any participating fund) to the total risk requirement (calibrated at 99.5% VaR over a one-year period) of the insurer (excluding such requirement arising from any participating fund); and

Unadjusted capital ratio, in relation to the insurer, means the ratio of the financial resources of the insurer (including the financial resources of any participating fund) to the total risk requirement (calibrated at 99.5% VaR over a one-year period) of the insurer (including such requirement arising from any participating fund).

3.10.1 Referring to paragraph 2 of First Schedule of the Insurance (Valuation and Capital) Regulations 2004, any financial resource adjustment (FRA) will be treated as part of Tier 1 Capital. MAS proposal is to treat the APNGB as positive FRA but this is contradictory to the MAS position that the APNGB does not meet the qualities required of a capital instrument. MAS should clarify the definition of FRA under the Insurance (Valuation and Capital) Regulations 2004 if the intent is not to treat the APNGB as Tier 1 Capital.

Proposal 11

Prescribed Capital Requirement (PCR) is the higher supervisory intervention level at which the insurer is required to hold sufficient financial resources to meet the total risk requirements which corresponds to a VaR of 99.5% confidence level over a one-year period.

An insurer which breaches its PCR will need to submit a plan on how to restore its capital position within 3 months. If the PCR is met, MAS will not normally intervene on capital adequacy grounds. This does not preclude MAS from requiring an insurer to maintain financial resources above the PCR if there are other supervisory concerns.

As a countercyclical measure, MAS will have the flexibility and discretion to allow insurers more time to restore its capital position, for example, during periods of market stresses.

PCR needs to be maintained at both the company level, as well as at an insurance fund level.

3.11.1 The Society proposes that PCR should be maintained only at company level.

3.11.2 Requiring PCR to be maintained at individual insurance fund level will mean that the company level PCR will always be met. However this may result in excessive capital held and increase the cost of business, ultimately increasing the cost of insurance for the public.

3.11.3 The Society's proposal seeks to strike a balance in terms of not being overly excessive but still ensuring that the company is adequately capitalised and maintaining a minimum standard of capital adequacy at insurance fund level.

**Proposal 12**

MCR is the lower supervisory intervention level at which the insurer is required to hold sufficient financial resources to meet the total risk requirements which corresponds to a VaR of 90% confidence level over a one-year period.

If an insurer breaches its MCR, MAS may choose to invoke the strongest supervisory action (such as stopping new business, withdrawal of licence etc).

MCR will be calibrated as a fixed percentage of the PCR. This percentage will be determined after quantitative impact studies are done.

MCR needs to be maintained at both the company level, as well as at an insurance fund level.

3.12.1 The Society proposes that the MCR is maintained at insurance fund level only.

Proposal 13

MAS proposes the following two approaches with regards to the risk-free discount rate for SGD-denominated liabilities.

(a) To keep to the same LTRFDR formula as set out in paragraph 5.5, but X and Y will now be 20 and 30 respectively. This is on the expectation that the 30-year SGS will have adequate liquidity when RBC 2 is implemented. This means:

- Durations 0 to year 20: Use prevailing yields of SGS
- Durations 30 year and above: 90% of historical average yields (since inception) and 10% of latest 6-month average yield of 30-year SGS
- Durations 20 to year 30: Interpolated yields

(b) To remove the LTRFDR formula altogether, ie.,

- Durations up to 30 Years: Use prevailing yields of SGS
- Durations 30 year and above: Keep the yield flat at the prevailing yield of 30-year SGS

Consultation Question 3

Which of the above approaches is more appropriate?

Consultation Question 4

Should MAS allow for some illiquidity premium adjustment in the risk-free discount rate for valuing certain portfolios such as annuity business?

3.13.1 Proposal b is more market consistent. However removing LTRFDR altogether will have tremendous implication on the insurance industry:

- Yields are at historical low levels and there will be a one-time large increase in the value of policy liabilities
- There is insufficient liquidity for the recently introduced 30-year SGS and minor trades may result in big changes in the market yield which is used to value liabilities.



- Theoretically assets and liabilities are now both fully sensitive to market movement in interest rates and hence move in tandem. However the lack of liquidity of the 30-year SGS coupled with the dearth of other long duration assets means companies will continue to have huge duration mismatch resulting in potential high earnings volatility.
 - In order to close the duration mismatch gap, companies may be forced to compete for the limited supply of long duration asset, resulting in further depression of yield. This will ultimately translate to increased cost of insurance to the public.
- 3.13.2 The Society sees value in retaining the LTRFDR whilst retaining the flexibility under MAS319 to allow an insurer that has implemented an effective cash flow hedge or fair value hedge to elect to use the market yield of SGS of a matching duration as the discounting rate.
- 3.13.3 The Society proposes that the supply and liquidity of the long term SGS should be built up to facilitate the eventual transit to discounting liabilities on SGS.
- 3.13.4 Allowing for illiquidity premium for in the discount rate for portfolios like annuities is reasonable as such business is usually sticky with very low lapse rate.

Proposal 14

MAS proposes that insurers follow the regulatory requirements pertaining to discounting as prescribed by the insurance supervisory authority in the jurisdiction issuing the currency, for valuing non-Singapore dollar denominated liabilities for both life and general business.

Consultation Question 5

If the relevant foreign supervisory authority has not prescribed any basis for discounting the liabilities denominated in that home currency, what should be the approach taken? Should the risk-free discount rate be the market yield of the foreign government securities of similar duration, and the yield kept flat for liabilities extending beyond the longest available government securities?

- 3.14.1 The discounting rate prescribed by another jurisdiction may have taken into account holistically the regulations applicable in that jurisdiction and other peculiarities of the jurisdiction. The Society is of the view that following the discounting rate prescribed by another jurisdiction without due consideration for other parts of the regulations in that jurisdiction may not be the appropriate approach.



Proposal 15

MAS proposes to extend the discount rate requirements for life business to general business as well, for liability durations above 1 year. For liability duration of 1 year and less, no discounting would be required.

- 3.15.1 The investment portfolios of GI and LI companies are typically different by type of assets and by duration. This is necessary due to the uncertain nature of the liabilities cashflow (both in size and timing) for GI companies compared to LI companies.
- 3.15.2 In addition, the average duration of GI liabilities in Singapore are significantly shorter compared to other countries which are more litigious (e.g. US), and the impact of discounting in Singapore is often immaterial.
- 3.15.3 The Society proposes to maintain the existing approach, i.e. allowing the actuaries to exercise their professional judgment in determining if discounting should be applied.

Consultation Question 6

Do you agree that the cost-of-capital approach, for computing the provision for adverse deviation for both life and general insurance liabilities, is appropriate?

If so, do you agree that it is appropriate to adopt a cost-of-capital rate of 6% per annum? As there is no evidence to suggest that the cost of providing the amount of available capital to support the policy liabilities would be substantially different for life and general insurers, a uniform rate has been proposed for all types of insurers.

Life Insurance

- 3.15.4 The current approach to PAD is computationally easy and also transparent. It is not market-consistent but then again this is not a stated aim of the valuation regulations as they currently stand. The level of the PAD does not currently affect the level of an insurers free assets. These are arguments for retaining the current approach and perhaps deferring a move to market-consistent liabilities to Phase II of the project.
- 3.15.5 On the cost of capital approach, we note that it has only recently, with Solvency II, garnered popularity. As mentioned in the consultation, it was studied alongside other methodologies by the International Actuarial Association, and was found to have properties desirable of a market-consistent approach to valuation of liabilities. However, other methodologies are also discussed in the actuarial literature from time to time and the cost-of-capital approach is only one of a number of different approaches that could be judged to be market-consistent.
- 3.15.6 The Society believes that the cost-of-capital approach will be appropriate should the MAS choose to adopt it for Life Insurance but that the regulations should also leave the door open to other approaches which may be found to be appropriate in certain circumstances. A statement on the principles by which the PAD is to be calculated would therefore be desirable in the regulations.



General Insurance

- 3.15.7 The cost of capital approach to compute PAD should not be implemented at least until after the implementation of internal models.
- 3.15.8 The current PAD approach is simple and easy to understand. The cost-of-capital approach adds extra complexity in the computation of PAD but not necessarily bring in more benefits. For example, the PAD derived under the new proposal does not enhance the probability of adequacy to any explicit level. It merely expresses the 'cost of expected profit' of running the liability off at 6%.
- 3.15.9 The cost of capital approach also adds in volatility to the PAD calculation due to its interest rate dependency.

Appropriateness of 6%

- 3.15.10 With regards to whether a rate of 6% is appropriate, without further study into the cost of the capital in the Singapore life and the general insurance market, all the Society can say at this stage is that it does not seem to be obviously inappropriate and is consistent with international calibrations of the cost of capital.
- 3.15.11 Given the timescales for implementation of RBC2, and other research priorities during that time, the Society would, on balance, propose to defer implementation of the proposal to Phase II of the project to give the industry time to calibrate the level of the cost of capital as well as implement the calculation methodologies into systems.

Proposal 16

MAS proposes to introduce Enterprise Risk Management requirements, including those relating to Own Risk and Solvency Assessment, to insurers. We will consult industry on the ERM requirements and target to issue a final document by end of 2012.

- 3.16.1 The Society supports the introduction of Enterprise Risk Management (ERM) requirements, especially those relating to ORSA.

Taskforce's proposed recommendation

- 3.16.2 As mentioned in the response to Proposal 7 regarding internal models, the Society proposes that ORSA should be implemented in conjunction with the implementation of rules on the use of internal models.
- 3.16.3 In order to encourage the insurance companies to implement sound and efficient ERM frameworks, the impact of these frameworks on the calibration of the operational risk charges will have to be considered (refer to the response to Proposal 5).



Other general comments

- 3.16.4 The Society agrees with the statement “ERM framework should be commensurate with the nature, scale and complexity of the risks that it bears”. ERM requirements will have to be proportionate to the size of the insurance companies and to be adapted to the reality of small entities.

Proposal 17

MAS proposes to implement the RBC 2 requirements for the accounting year ending 31 December 2013. There will be at least 2 years of parallel run with the existing RBC framework and appropriate floors imposed to prevent sudden release in capital requirements.

- 3.17.1 The timeline for the implementation of RBC2 requirements depends on the timeline for the calibration of these requirements for which the Society has expressed concern (see response 5.4 to Proposal 5).



Appendix I

Singapore Actuarial Society RBC 2 Special Taskforce Terms of Reference

1. The Monetary Authority of Singapore (“MAS”) issued a Consultation Paper on 22 June 2012 entitled Review on the Risk-Based Capital Framework for Insurers in Singapore (“RBC 2 Review”).
2. The RBC 2 Special Taskforce (“the Taskforce”) was set up at the request from the Council of the Singapore Actuarial Society (“the Society”) to present comments and recommendations to the MAS on the RBC 2 Review Consultation Paper. The recommendations and actions proposed by the Taskforce shall be governed by the Council of the Society.
3. The comments and recommendations provided are:
 - based on actuarially sound principles and not on subjective bases or biased opinions;
 - independent views of the Society, not representing any individual company and/or association;
 - consistent and coherent views across different core practices (e.g., between life insurance, general insurance and enterprise risk management);
 - the Society’s responses solely reserved for the RBC 2 Review and not necessarily applicable to any other regime / jurisdiction outside Singapore.
4. All valid views from the Society’s perspective (with reference to point 3 above) will be included in the responses.
5. The Taskforce delegates the detailed analysis work to the 3 sub-groups from the Society’s practice committees (Life Insurance, General Insurance and ERM).
6. The Taskforce would engage other members of the Society to contribute comments and recommendations on the RBC 2 Review through email and/or dialogue sessions.
7. The Taskforce would review the comments and recommendations from the 3 sub-groups and members of the Society.
8. The Taskforce would partner with MAS on any further studies, actuarial research or technical analysis work relating to the RBC 2 Review as appropriate.
9. The Taskforce would review and respond to circulars and requests from the MAS on any further updates on matters relating to the RBC 2 Review.