2014 EAAC IN TAIPEI TAIWAN

18TH EAST ASIAN ACTUARIAL CONFERENCE

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Developments & Insights in Singapore RBC 2 and Overview of ORSA across Regions

Agenda

- RBC 2 Developments in Singapore
- Comparison of ORSA Across Jurisdictions

RBC2 Developments in Singapore

- In 2004, the Monetary Authority of Singapore ("MAS") adopted a risk-focused approach to assessing the capital adequacy and insurance fund solvency by introducing the Risk Based Capital ("RBC") framework for insurance companies

- MAS has embarked on a review of the framework in the light of evolving market practices and global regulatory developments, also known as the "RBC 2 Review"

- Following the first consultation on the roadmap of the RBC 2 in June 2012, MAS published the second consultation paper ("2nd CP") that sets out more specific proposals in March 2014

- MAS also invited interested parties to provide their expert views and comments on the proposed RBC 2 consultation

- Z&Z Consulting equally provided its in-depth expert view, a copy of which can be found on the website, www.zandzconsulting.com

RBC 2 Review Summary

Scope	Salient MAS' Proposal	Commentary
Solvency intervention levels	◢ Two supervisory intervention levels, namely, the Prescribed Capital Requirement ("PCR") and the Minimum Capital Requirement ("MCR") ◢ Requirement to submit a recovery plan during a breach of the PCR within three months	◢ The proposed three-month recovery timeframe may be too short for execution of some corrective action ◢ MAS should review the recovery timeframe to ensure that the recovery action plan is actionable
Discounting approach for SGD denominated policy liabilities	◢ Two approaches for construction of risk-free interest rate term structure ◢ Gradual removal of LTRFDR under the first approach for liabilities with durations beyond 30 years	◢ Difficult to justify which approach is more appropriate; MAS may require insurers to run both the first and the second approach to deriving the risk-free interest rate term structure, with one approach being run to provide a kind of cross-checking ◢ MAS should also explore a more sophisticated interpolation and extrapolation methodology such as the Smith-Wilson technique to produce a smoother yield curve

RBC 2 Review Summary *(cont.)*

Scope	Salient MAS' Proposal	Commentary
Discounting approach for Non-SGD denominated policy liabilities	◢ Collaboration between MAS and the industry to develop the prescribed discount rates for specific jurisdictions	◢ MAS may provide insurers with the risk-free discount curves for all relevant foreign currencies, derived based on the interest rate swaps yields or government securities, adjusted for credit risk
Introduction of Matching Adjustment (MA) – Determination of the spread for default and downgrade	◢ The cost of default will be determined based on the historical transition matrices combined with the loss given default, assumed to be 30% ◢ The cost of downgrade will be calculated based on the probability of bond downgrade implied by the historical transition matrices as well as the long-term average market spreads for different durations and credit ratings	◢ The proposed methodology for calculating the cost of downgrade may not be appropriate because the underlying assumption that an insurer will constantly rebalance its portfolio on downgrades is not consistent with the buy-and-hold strategy adopted under the MA framework ◢ The cost of downgrade can be more properly estimated using the CreditMetrics approach ◢ A floor of a fixed percentage of the long-term average spread over the risk-free interest rate may be put under the spread for default and downgrade to account for the basis risk

RBC 2 Review Summary *(cont.)*

Scope	Salient MAS' Proposal	Commentary
(MA) – Determination of the spread for default and downgrade *(cont.)*		◢ An annual update of the spread for default and downgrade might lead to rare jumps in the results in the absence of a floor under the proposed methodology. So, the spread for default and downgrade should be updated by the reporting time when there is a significant difference in terms of basis points
Introduction of Matching Adjustment (MA) – Criteria to be met in order to apply MA	◢ Conditions relating to admissibility of assets in the matching asset portfolio ◢ Conditions relating to product eligibility ◢ Conditions relating to matching of asset and liability cash-flow	◢ MAS may use a number of existing tools like disclosure requirements to monitor compliance with the eligibility conditions ◢ MAS needs to incorporate the frequency of the tests for product eligibility and cash-flow mismatching ◢ MA should not be restricted to the annuity business alone, but it should be extended to a wider range of long-term life insurance products, provided a stable underlying liability profile can be identified for these products ◢ The reduced transferability and scope for diversification between the portfolios where the MA applies and other funds as a result of ring-fencing of assets and liabilities should be properly reflected in adjustments to the Available Capital and the Required Capital

RBC 2 Review Summary *(cont.)*

Scope	Salient MAS' Proposal	Commentary
Components of Required Capital	◢ Under the Total Risk Requirement (TRR), MAS has proposed to decompose some of the risks under the C1 (insurance risk) and C2 (market risk) categories and introduced a new risk category to cover the operational risk (C4)	◢ MAS should review the equity investment risk charges and the credit spread risk charges as they are relatively high as compared to the undiversified risk charges under Solvency II ◢ To minimize the risk that concentrated assets may be used to meet the liabilities and risk requirements, some concentration risk indicators and triggers, e.g. the Herfindahl Hirschmann Index ("HHI") may be introduced ◢ Since most of the operational risk factors are not easily quantified, it is more effective to address the operational risk under the insurer's ERM or ORSA framework. Scenario-based analysis is more appropriate than data analysis for the purpose of operational risk capital calculation

RBC 2 Review Summary *(cont.)*

Scope	Salient MAS' Proposal	Commentary
Components of Available Capital	◢ Common Equity Tier 1 ("CET1") Capital and Additional Tier 1 ("AT1") Capital ◢ MAS has also proposed floors on the CET1 and Tier 1 capital respectively, i.e. the CET1 capital has to be at least 65% of the TRR of insurance funds excluding the participating fund; the Tier 1 capital should be at least 80% of the TRR of insurance funds excluding the participating fund ◢ MAS proposes to allow for partial recognition of negative reserves as a form of positive regulatory adjustment	◢ Negative reserves and the APNGB, which are not a real asset item, should also be excluded from the CET1 and Tier 1 capital in checking the floors ◢ The proposed approach to calculation of negative reserves, which applies all the applicable RBC 2 insurance shocks, may be too conservative and could lead to double counting of risk. Thus, it is recommended that the amount of negative reserves should be determined based on the negative best estimate policy liabilities subject to a lapse risk shock alone ◢ Negative reserves are technically a non-cash item and thus are not immediately usable to absorb losses. The possible lack of liquidity of the negative reserves should be properly assessed in the context of the ORSA

COMPARISON OF ORSA
Similarities

- Scope of risk categories – Insurance, Market, Credit, Liquidity, Operational
- Forward-looking taking into account:
  - Potential future risks
  - Possible stress scenarios
  - Company's own risk, tolerance limits and the funding plan for all the company's future capital needs.
- Approval process (including requirements on independent review)
- Frequency of report submission – mostly on an annual basis
- Mostly no regulatory intervention on Economic Capital

COMPARISON OF ORSA
Differences

- Scope of risk categories – Reputation, Legal, Strategic, etc...
- Exclusions – certain types/profiles of insurers excluded from ORSA requirements
- Target capital level
- Group's ORSA reporting requirement

ORSA in Asia Pacific

	SINGAPORE – MAS	MALAYSIA – BANK NEGARA	INDONESIA – BAPEPAMLK
Projection period	Consistent with nature of risks and business planning horizon	Consistent with business planning horizon, subject to minimum of 3 years	No guidance on ORSA implementation yet – BAPEPAMLK issued Risk-Based Capital (RBC) Guidelines in December 2012
Frequency of ORSA report submission	➢ 1 year (for Tier-1 insurers) ➢ 3 years (for Tier-2 insurers)	Annually	
Implementation date	1 Jan 2014	1 Sept 2012	
Exclusions	Captive insurers & Marine mutual insurers	None	
Approval/Review	➢ BoD approval – submission within 2 weeks of approval ➢ Independent review with direct reporting line to BoD (or member of BoD)	➢ Board approval ➢ Review of ICAAP annually ➢ Comprehensive independent review every 3 years	
Minimum risks to consider	➢ Market ➢ Credit ➢ Insurance ➢ Operational ➢ Liquidity ➢ Group (where applicable)	➢ Market ➢ Credit ➢ Insurance ➢ Operational	

ORSA in Asia Pacific *(cont.)*

	SINGAPORE – MAS	MALAYSIA – BANK NEGARA	INDONESIA – BAPEPAMLK
Role of Appointed Actuary	No specific guidelines	No specific guidelines	
Target capital levels	Economic capital to be determined to reflect own risk tolerance and business plans	Individual Target Capital Level (ITCL) to be set so as to maintain 130% supervisory target capital level after plausible adverse scenarios	
Regulatory intervention on economic capital	None	Bank Negara can adjust ITCL	

ORSA in Asia Pacific *(cont.)*

	HONG KONG – OCI	SOUTH KOREA – FSS	AUSTRALIA – APRA
Projection period	Phased implementation of the new RBC regime will take 3 – 4 years. The regulator will ensure the RBC regime is compliant with the IAIS ORSA framework, and would draw on the experience of other jurisdictions. They plan on consulting the industry on the proposed RBC framework in the coming few months. Then, they will develop detailed rules and conduct a quantitative impact assessment, before making necessary legislative amendments.	Internally reviewing an ORSA process adoption, but the FSS is not in the position to discuss the implementation schedule and details.	3 years
Frequency of ORSA report submission			Annually
Implementation date			1 Jan 2013
Exclusions			Superannuation, banking and health
Approval/Review			➢ Board approval ➢ Independent review of ICAAP every 3 years
Minimum risks to consider			➢ Asset (including mismatch and concentration) ➢ Operational ➢ Insurance (including concentration) ➢ Strategic and Tactical
Role of Appointed Actuary			Assessment of risk management framework to be included in FCR
Target capital levels			Capital target to be set with regard to the regulatory Prudential Capital Requirement (PCR)
Regulatory intervention on economic capital			APRA can adjust PCR (composition of capital base or calculation of prescribed capital amount)

ORSA in Asia Pacific *(cont.)*

	JAPAN – FINANCIAL SERVICES AGENCY	CHINA – CIRC
Projection period	ERM hearings held since 2011 cover risk profiles, risk appetite, risk tolerance , risk measurement, solvency assessment, risk and return. The FSA believes there is no difference between ERM and ORSA , and use the ERM hearings to check on the progress made by insurers in implementing/developing ORSA processes. As for the specific content of these reports, further consideration will be given to this matter in the future.	Life insurance companies are required to establish a comprehensive ERM framework. CRO has to be appointed and an independent risk management committee and systems need to be set up by 1 October 2013. Life insurers have to quantify risks using economic capital starting 2014 and there is an requirement on Dynamic Solvency Testing.
Frequency of ORSA report submission		
Implementation date		
Exclusions		
Approval/Review		
Minimum risks to consider		
Role of Appointed Actuary		
Target capital levels		
Regulatory intervention on economic capital		

ORSA in Europe and UK

	EU – SOLVENCY II /EIOPA	SWITZERLAND – FINMA
Projection period	Consistent with business planning timeframe	1-year projection period is applicable to both standard case and intra-year Swiss Solvency Test (SST) calculations
Frequency of ORSA report submission	At least annually	Insurers must determine target capital (TC) and risk bearing capital (RBC) at least once a year and report the analysis to FINMA
Implementation date	1 Jan 2016	1 Jan 2009
Exclusions	Applicable to all insurance entities (subs. and group)	Branches of foreign insurance companies, Reinsurance captives
Approval/Review	Board and senior management are responsible for the ORSA	➢ BoD is responsible for the suitability of risk model ➢ If standard model is not used, BoD may delegate the responsibility of developing internal model and its implementation to senior management
Minimum risks to consider	All material risks, including non-quantifiable risks like reputation risk or strategic risk, amongst others if part of a group, group risk needs to be considered	Insurance, Market, Credit and Other risk types (including Operational, Liquidity, Concentration and Model)

ORSA in Europe and UK *(cont.)*

	EU – SOLVENCY II /EIOPA	SWITZERLAND – FINMA
Role of Appointed Actuary	No specific guidelines	No specific guidelines
Target capital levels	Undertaking own assessment but need to test the assumptions and solvency capital requirement against own view of risk and quantify any material differences	Insurers to use either the standard model specified by FINMA or an internal model to determine TC and cover it by way of sufficient RBC
Regulatory intervention on economic capital	The risk profile determines the required capital. Standard level: SCR and MCR. If not sufficient, then an add-on applies.	FINMA defines 3 thresholds based on the SST ratio (100%, 80% and 33%)

ORSA in Europe and UK *(cont.)*

	UK – PRA	GUERNSEY – GFSC
Projection period	Consider risks not just on a one-year timeline but over the medium to long term to cover the normal business planning period	Own Solvency and Capital Assessment ("OSCA ") – assessment of current solvency position; ORSA includes assessment of current and medium-to-long term position.
Frequency of ORSA report submission	At least annually	Reporting is expected to be on an annual basis
Implementation date	1 Jan 2014 (preparation commences)	2015, No dry runs as OSCA has been in place since 2008 and insurers have ample time for the transition
Exclusions	No exclusion	ORCA should continue; insurers writing long term business and meeting specific criteria regarding the size of gross written premiums and non-linked technical provisions will be required to perform an ORSA.
Approval/Review	Board and senior management are responsible for ORSA	No information available
Minimum risks to consider	All material risks, including non-quantifiable risks like reputation risk or strategic risk, amongst others if part of a group, group risk needs to be considered	Since 2003 Guernsey has required insurers to assess and manage their risks. Regulations were revised in 2008 to include more detail on relevant risks which insurers are expected to address, and an annual OSCA requirement.

ORSA in Europe and UK *(cont.)*

	UK – PRA	GUERNSEY – GFSC
Role of Appointed Actuary	No specific guidelines	No information available
Target capital levels	Assess initially based on ICAS, ICAS+ and Solvency I and reconcile the assessment when specification for Solvency II is expected during 2014	OSCA is based on a proportionate application of the IAIS principles, standards and guidance on risk management for solvency purposes and not on the approach implemented under Solvency II.

ORSA in North America and Canada

	USA – NAIC	CANADA – OSFI	BERMUDA – BMA CISSA
Projection period	Time horizon in line with business planning and risk appetite	Time horizon appropriate for the business and risks being assessed	Business planning period
Frequency of ORSA report submission	At least annually	At least annually	At least annually
Implementation date	1 Jan 2015	1 Jan 2014	Year-end 2011
Exclusions	Insurers with annual direct written and unaffiliated assumed premiums of: ▪ < USD500 mln (for an insurer) ▪ < USD1 bln (for a group)	No exclusion	No information available
Approval/Review	ORSA report needs to include a signature of the CRO which is responsible for the ERM process. Report must be provided to BoD	BoD id responsible for the ORSA, including risk appetite and risk tolerance limits	Independent review is required
Minimum risks to consider	All relevant and material risks. Examples include, but are not limited to; ▪ Credit, Market ▪ Liquidity ▪ Underwriting ▪ Operational	▪ Underwriting/Insurance ▪ Market, Credit ▪ Operational ▪ Liquidity, Strategic/Legal/Reputation	All reasonably foreseeable material risks arising from operations or environment

ORSA in North America and Canada

	USA – NAIC	CANADA – OSFI	BERMUDA – BMA CISSA
Role of Appointed Actuary	No specific guidelines	No specific guidelines	No information available
Target capital levels	Group Assessment of Risk Capital and Prospective Solvency Assessment - demonstrate that current and future capital is sufficient to support the identified risks	➢ Determine whether explicit amount (quantity) and type (quality) of capital should be held for each risk ➢ Assess quality of capital resources both in the context of Internal Targets and regulatory requirements	➢ Insurers are required to determine the capital resources and benchmark with regulatory capital requirements; ➢ An explanation is required if the difference is > 15%

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THANK YOU

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