



The Solvency II Risk Margin

Presentation to AAE Webinar 'Update on Risk Management Topics'

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Agenda

- 1. Background
- 2. Views of AAE Solvency II Risk Margin Workstream

Presentation based on "*A review of the design of the Solvency II Risk Margin*" prepared by a sub-group of the AAE Solvency II Working Group, i.e. Malcolm Kemp (Chair), Peter Brühne, Shane Fahey, Maria Kamenarova, Daphné de Leval, Tjemme van der Meer, Dong Qingsheng, Frank Schiller, Jolanta Tubis and Lutz Wilhelmy

Views expressed are those of the authors / presenter and do not necessarily represent the views of their employers or of the AAE.



About the speaker

Malcolm Kemp, Barnett Waddingham

- Malcolm Kemp is Chairperson of the AAE Risk Management Committee, Adjunct Professor at Imperial College Business School, member of Advisory Scientific Committee of European Systemic Risk Board, Associate, Barnett Waddingham and Managing Director, Nematrian
- He is an internationally known expert in risk and quantitative finance, with over 30 years' experience in the financial services industry including senior roles in insurance and investment management
- Barnett Waddingham is a leading independent UK consultancy at the forefront of risk, pensions, investment and insurance







Background

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Current Solvency II Risk Margin methodology

- The Risk Margin is part of an insurer's technical provisions
- Based on an exit valuation targeting a specific ('run-off') approach to 'production' of insurance liabilities
 - Aligns with broader market consistent focus of Solvency II
- Current calculation defined in Solvency II Delegated Regulation Articles 37-39, where SCR(t) is the projected SCR of the reference undertaking ('RU'), r(t) is the annualised risk-free rate and CoC rate is currently time-independent and set at 6% pa:

$$RM = CoC \ rate \times \sum_{t=0}^{T-1} \frac{SCR(t)}{(1 + r(t+1))^{t+1}}$$



The Solvency II 2020 Review

- Call for advice from EU Commission to EIOPA in early 2019
- EIOPA issued "Consultation Paper on the Opinion on the 2020 review of Solvency II" (EIOPA-BoS-19/465) on 15 October 2019 with deadline for responses of 15 January 2020
 - AAE Solvency II WG coordinating AAE's response
- No apparent appetite from EU Commission to change the fundamental approach used to set the Risk Margin
 - Call for advice specifically interested in interaction with Long Term Guarantee (LTG) measures such as the matching adjustment (MA) and the volatility adjustment (VA)



Issues potentially include

- Is the exit valuation approach the most appropriate one?
- Is the 6% pa CoC rate appropriate?
 - Is it too high / too low?
 - Should it vary through time (or in some other way)?
- Is discounting at risk-free rates appropriate?
 - Linked to CoC rate, since discounting at a higher rate mathematically equivalent to using a time-attenuating CoC rate
- What assumptions should be used for the reference entity's SCR?



EIOPA's views on Risk Margin (1)

- Many commentators from within industry and regulatory community keen for change
 - E.g. Insurance Europe has argued that risk margin may be pitched too high and/or even if pitched reasonably may be too sensitive to interest rate movements
 - UK Prudential Regulation Authority joined in criticism of the current risk margin methodology in the 2016-17 review by the Treasury Committee of the House of Commons into EU Insurance Regulation
- Previously, EIOPA advised EU Commission to leave CoC rate unchanged at 6%pa (but delayed advice on other issues)
 - This time still proposing to retain 6% CoC rate and now also proposing no change to remainder of methodology



EIOPA's views on Risk Margin (2)

- Design of risk margin and transfer value concept
 - EIOPA gathered data on 44 transfers since 2016. Caution on results, but EIOPA thought didn't imply a systematic miscalibration
- Assumptions underlying the reference undertaking
 - EIOPA principally focused on interaction with MA and VA
- Use of a fixed CoC rate
 - EIOPA principally focused on interest rate sensitivity, which seems to vary widely by jurisdiction
 - UK seems to have highest sensitivity, linked to MA usage
- Assumptions used to derive the CoC rate
 - EIOPA reiterated desire to focus on historic equity premiums



AAE RM Workstream views

- No specific desire to adjust underlying aim
 - I.e. to provide quantification of hypothetical cost (in addition to the best estimate liability) that a third party would expect to charge to take on the book of liabilities planned at outset of Solvency II
- Propose some attenuation of cost of capital through time within the RM projection, if risk dependencies over time are material
 - Or equivalently discount at a higher than risk-free rate
- Explored most appropriate assumptions to adopt for the reference undertaking



Views of AAE Solvency II Risk Margin Workstream



Theory underlying current approach

- Current approach involves a total balance sheet approach
 - Ongoing ability of undertaking to change asset or liability position without an instantaneous impact on its overall Economic Net Worth ('ENW')
 - Total MV of undertaking is its ENW plus franchise value (i.e. value from new business)
- CoC approach quantifies contribution from unavoidable risk to ENW as the cost incurred by a reference undertaking that:
 - Assumes a minimum risk position, holds just 100% of the regulatory required capital, does not write any new business
- Assumes investors want same compensation for risk as implicit in the 99.5% 1-year Value-At-Risk used by Solvency II to set the SCR



Desirable qualities for RM

- RM design should ideally be theoretically sound
- But other desirable criteria include:
 - Robustness of end result
 - Ease of interpretability of the formulae involved
 - Simplicity of computation
 - Risk responsiveness
 - Avoidance of undue sensitivity to factors that are largely or wholly irrelevant to features the computation is aiming to capture



Topics considered in paper include

- 1) Overall magnitude and sensitivity to economic conditions: particularly interest rates
- 2) Interaction with developments elsewhere: particularly the MOCE in IAIS's ICS (and the IFRS 17 Risk Adjustment)
- 3) Risk coverage: risks the reference undertaking ('RU') should be assumed to carry
- 4) Cost of capital (CoC) and discount rates to use
- 5) Handling of multi-year dependencies
- 6) Treatment of tax
- 7) Interaction with Long Term Guarantee (LTG) measures (and related topics such as UFR and transitional measures) that arguably diverge from 'strict' market consistency



Interaction with ICS MOCE etc.

- IAIS currently developing a risk-based global insurance capital standard (ICS). ICS field testing included:
 - Cost of capital ('C-') Margin over Current Estimate (MOCE): similar to Solvency II RM, but lower CoC rate (5% pa) or one varying according to economic conditions
 - Prudence ('P-') MOCE: Different approaches for life and non-life, but both aiming (in conjunction with capital requirement) to provide a targeted level of protection
- Thinking behind C-MOCE may be relevant to Solvency II RM review
 - But IAIS now seems to be favouring the P-MOCE concept
- Workstream also explored **IFRS 17 risk adjustment** concept but thought it likely to be too principles-based to offer specific assistance



Risk coverage

- Buyer optionality. RU a shell writing no new business
 - Entity most likely to get maximum diversification benefits may be most likely to win auction for insurance obligations

• Operational risk

– Are consolidators likely to have better operational risk disciplines, because minimising operational risk is more important to them?

Interest rate (and LTG) risks

– Currently assumed can be hedged away. But is this always possible for long-dated risks e.g. relating to UFR change risk?



CoC rates, discount rates, multi-year dependencies

 CoC rates and discount rates are not mutually independent. Current formula can be generalised in two ways which are mathematically equivalent:

$$RM^{*} = \sum_{t=0}^{T-1} fixed \ CoC \ rate \times \frac{SCR(t)}{(1+r^{*}(t+1))^{t+1}}$$
$$RM^{**} = \sum_{t=0}^{T-1} varying \ CoC \ rate(t) \times \frac{SCR(t)}{(1+r(t+1))^{t+1}}$$

- Workstream focused on:
 - A. Overall level of CoC rate
 - B. Whether CoC rate should attenuate through time within this computation and/or a risky-discount rate be used



Overall level of CoC rate (1)

 CoC rate typically justified via weighted average cost of capital (WACC), i.e. along the following lines:

Equity Risk Premium (ERP) × Beta × Leverage Adjustment

- The ERP 'puzzle':
 - Past realised excess returns (6-7% pa, forms the basis of the current CoC rate calibration) may be higher than is justifiable looking forwards as equities may have benefited from a historic repricing that is unlikely to be repeated
 - E.g. Norges Investment Bank (2016) propose a forward looking ERP of 4% pa
- However, difficult to reach any firm conclusions



Overall level of CoC rate (2)

 Not easy to identify robust evidence of divergence between insurers and other corporates for other elements of WACC, e.g. Damodaran (2019) quotes the following market betas:

	General insurance	Life insurance	Property / casualty insurance	Total market	Total market excluding financials
(Basic) beta	0.92	0.99	0.74	1.04	1.06
`Unlevered' beta	0.64	0.50	0.61	0.58	0.77
'Unlevered' beta corrected for cash	0.87	0.67	0.65	0.67	0.82

• Figures fluctuate with economic conditions (but not we think by as much as implied by second ICS C-MOCE CoC rate approach)



An attenuating CoC rate

- A fixed CoC rate and risk-free discounting can contradict market consistency for long-dated contracts if 'emergence' of uncertainty through time (i.e. multi-year dependencies) has certain characteristics
 - E.g. Mass lapse risk: Projected SCR for RM purposes assumes that mass lapse occurs at time *t* having not previously happened, for each *t* prior to contract maturity. However, if a mass lapse does occur then absolute size of possible mass lapse in subsequent years reduces.
 - Arguably also true for longevity risk
 - And for whole SCR if we allow for **limited liability**
- Can be addressed by having CoC rate attenuate through time
 - Or by corresponding increases in the discount rate



Tax

- Should influence CoC rate, but again no clear differentiator versus other corporates
 - The (risk-free) return on the risk margin is a 'cost' of producing the liabilities so should it be tax deductible?
- Current requirement that any LACDT should be ignored in RM calculation may in theory be conservative
 - But may be tricky to identify a practical approach that does not also offer scope for double counting or regulatory arbitrage



Interaction between RM and LTG measures

- MA and VA arguably diverge from 'strict' market consistent principles:
 - If illiquidity premium is 'capturable': presumably discount rate used should be adjusted, but some allowance included in RM for default risk introduced by relying on VA or MA
 - If illiquidity premium is 'illusory': RU won't necessarily want the asset portfolio, so revert to risk-free?
- UFR change risk: pragmatically likely to be desirable to target consistency with SCR calculation
- Transitional measures: timelines for phasing-in explicitly political



Other Actuarial Contributions

- The IFoA Risk Margin Working Party, Pelkiewicz et al. (2019), recently published "A review of the risk margin – Solvency II and beyond"
- Argues that there is merit in considering the following changes:
 - "to allow for an automatic change in the assumed cost-of-capital rate when riskfree rates change;
 - to allow a prudent illiquidity premium to be used in the calculations of the projected future SCRs and in the risk-free rate used in discounting the future costs-of-capital;
 - to allow certain longevity risk to be treated as hedgeable and the relevant part of the risk margin to be replaced by the cost of the hedge;
 - to move to, or to allow as an alternative, the P-MOCE, which is being considered under ICS"



Summary

- Overall design of SII RM seems theoretically valid
- Difficult to come to a firm conclusion on whether the CoC rate is too high or too low
 - Although perhaps on high side if aim is to be forward-looking, given ERP 'puzzle'
- Some attenuation of the CoC rate may be desirable, if risk dependencies over time are material
- Workstream has also explored / made suggestions in relation to:
 - Risk Coverage to assume for the Reference Undertaking
 - Interaction with **LTG measures** (and UFR change risk)



Thank you for your attention

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