Interest Rate Guarantees under ICS/Solvency II
– Don’t let your legacy book disturb you!

Dr. Günter Schwarz
Presentation to the AAC 2018 / Hongkong 18 September 2018
Interest Rate Guarantees under ICS/Solvency II

Agenda

- Don't let your legacy book disturb you!
- The challenge: ICS/Solvency
- How to reduce the strain with reinsurance
- Constraints and conclusion
Interest Rate Guarantees under ICS/Solvency II
– Don’t let your legacy book disturb you!

Challenges in the New Insurance World

Technology

- Insurance 4.0
- New Market Players
- Closer link between “Insurance Savings” and “Financial Services”

Economics

- Sustained interest rate decrease over the last decade
  - Increasing pressure on traditional product with fixed rate guarantees
  - Traditional investment strategies become questionable

Supervision

- New regulatory requirements in particular in view of interest rate risk
  - Solvency II (Europe)
  - Global Insurance Capital Standard (ICS)
  - Corresponding adjustment to national regulation in Asian countries to be anticipated
Life Insurance in the “New World”

Advanced Product Strategy

- Market demand for new saving and annuity products
  - Attractive return opportunity combined with realistic guarantee levels
  - Don’t forget policyholders’ wish to get guarantees (market dependent)
- Regulatory changes require modified product strategy in view of the consumption of capital for saving and annuity products
- Trend towards new products with a higher focus on the biometric cover observed on some markets

The Legacy Book

- Critical: In-the money guarantees
- Long-term obligations
  - Increasing capital demand
  - Supervisory constraints to take measures
  - Retain policyholder’s trust
Concepts for the Legacy Book

**Portfolio Sale**
- Release capital strain by selling the portfolio to (overseas) investors
  - One-time effort instead of long-term strain
- Supervisors and policyholder may react critical on such sales

**Portfolio Restructuring**
- Promote surrender actively by certain measures
  - How to retain policyholder’s trust into the company
  - Supervisory may not like this
- Increase efficiency of portfolio administration
  - Economic impact may be small
  - Helpful at most for elder or purely administered portfolios

**Effective De-Risking**
- Eliminate market risk - borne by the existing portfolio – as far as possible given the existing p
- Issues to be solved
  - Availability of risk mitigating instruments
  - Accounting
  - Supervisory rules
De-Risking of the Legacy Book

Asset Focused Concepts

- Use of derivative instruments and similar investment bank products to mitigate market risk
  - Standardized instruments
  - Supervisory and accounting issues
  - Special management of more complex instruments needed

Liability Focused Instruments

- Sale of less capital intensive products
  - Even a radical change of the product strategy will show an effect after years, only
- Reinsurance covering market risk
  - Portfolio specific instruments
  - Easy to manage
    (e.g. no derivative regulation/ no obligation to collateralize)
  - However, such concept are less well known (discussion with supervisors needed)
Don't let your legacy book disturb you!

The challenge: ICS/Solvency

How to reduce the strain with reinsurance

Constraints and conclusion
**Interest Rate Guarantees under ICS/Solvency II**

– The Challenge: ICS/Solvency

**ICS/Solvency Liability Valuation**

<table>
<thead>
<tr>
<th>Current GAAP</th>
<th>ICS / Solvency II</th>
<th>GAAP Plus Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Adjusted Valuation Approach</td>
<td>MOCE/ Risk Margin</td>
<td>GAAP Adjusted Approach</td>
</tr>
</tbody>
</table>

- **Valuation (Market Adjusted / Solvency Approach)**
  - Future cash-flows to be discounted at current market interest rate
    - (Minor) adjustment for liquidity margin possible
    - Extrapolation beyond the last liquid point
  - Additional contribution from Time Value of Financial Options and Guarantees (TVFOG)
  - Replace implicit (profit) margin by an explicit risk adjustment
    - Rule based prospective measure e.g. MOCE under ICS
  - “GAAP Plus” approach leads to very similar results

- **Impact on Long-term Guarantees**
  - In the current low interest rate environment liabilities may be significantly above the traditional GAAP Valuation:
    - Discount rates often below guarantee rates
    - High duration products are particularly exposed
    - TVFOG can have material impact

- In the current low interest rate environment liabilities may be significantly above the traditional GAAP Valuation:
  - Discount rates often below guarantee rates
  - High duration products are particularly exposed
  - TVFOG can have material impact
Interest Rate Guarantees under ICS/Solvency II – The Challenge: ICS/Solvency II

Capital Requirement – Interest Rate Risk

**Interest Rate Stress (Interest Down Risk)**

**Impact on Liabilities**
- MOCE
- TVFOG @ stressed interest
- DCF @ stressed interest

**Impact on Assets**
- Assets @ current fair value
- Assets @ stressed fair value

**Impact on Investments**
- Critical "interest down scenario" to be applied on investment portfolio as well
  - Considerable increase of values depending on ALM strategy (average bond duration), typically 3% - 8% of asset value
  - Capital release form bonds can be offset against capital demand from liabilities

**Impact on Liabilities**
- ICS/Solvency rules define critical "interest down scenario" reflecting a 99.5% one-year worst case scenario applied on the discount rate curve
  - e.g. relative stress -70% (short) / -30% (long) of the current rates or parallel shift (-100 bps) of the whole curve
  - Liabilities discounted at stressed interest curve significantly above current value (rule of thumb: 5% - 15% depending on duration)
- Capital demand for interest rate risk = Change of liability value under that stress

**MOCE**

**DCF**

**TVFOG**
Interest Rate Guarantees under ICS/Solvency II
– The Challenge: ICS/Solvency II

ICS/Solvency – Total Balance Sheet View

Regulatory Balance Sheet

Traditional (GAAP based) ICS/ Solvency II

- **Asset @ GAAP Value**
  - **GAAP Liability**
  - **Free Capital Required Capital**

- **Value**
  - **GAAP Equity**

- **Assets @ fair value**

- **S2 / ICS Liability**

- **Free Capital**
  - **Solvency Required Capital**

- **Required Capital**
  - **Solvency/ICS Own Funds**

Capital Impact

- Revaluation at current discount / fair value will result in differences between GAAP equity and Solvency/ICS own funds.
  - Available capital may drop (from GAAP Equity to Solvency Own Funds) depending on the business mix

- Required capital for market risk typically is well above “traditional” regulatory demand
  - Free Capital tends to drop significantly when ICS/Solvency II is introduced

Volatility

- New valuation at current risk free rate / fair value will lead to a substantial volatility of Own Funds under ICS/Solvency II
Interest Rate Guarantees under ICS/Solvency II – The Challenge: ICS/Solvency

ICS/Solvency – Increased strain from the Legacy Book

Observation

- Significant increase of liabilities for long-term guarantees portfolio
- TVFOG can have an substantial negative impact
- Unless a proper AL-matching is achieved, the Solvency ratio will be under pressure
- Additional strain from a potentially high volatility of the Solvency ratio under volatile interest rates

Countermeasures

- Traditional ALM, to reduce the mismatch
- Derivative financial instruments
- Reinsurance of market risk – see below
Interest Rate Guarantees under ICS/Solvency II

Don't let your legacy book disturb you!

The challenge: ICS/Solvency

How to reduce the strain with reinsurance

Constraints and conclusion

Interest Rate Guarantees and ICS/Solvency II
Interest Rate Guarantees under ICS/Solvency II – How to reduce the strain with reinsurance

The Concept

1. Traditional reinsurance cover on proportional basis
   - First Alternative: Proportional market risk cover
     - Guarantees obligations assumed by reinsurer on quota share bases
   - Seconc Alternative: Non-Proportional market risk cover:
     - Reinsurers pays for excess losses on guarantees, only

Relevant Topics

- Reinsurance allows “fine-tuning” of the solution to the demand to cover the guarantees on the liability side. (Instead of providing some additional investment return)
- Booking both, the traditional and market risk transfer, as an insurance contract can allow a beneficial accounting
- Diversification between traditional and market risk transfer can reduce economic price, compared with a pure capital market solution
- If the cedent realizes a negative „Investment income“, this can be covered as well
Interest Rate Guarantees under ICS/Solvency II – How to reduce the strain with reinsurance

Interest Rate Reinsurance: Details

Traditional Reinsurance (Quota Share)

- Reinsurer participates on original policyholder premiums and original benefits on a proportional basis
  - Additional expense commission possible
- Reinsurer proportionally participates in the change of reserve insofar they refer to premiums and paid benefits. Interest rate guarantee stays with the cedent
Interest Rate Guarantees under ICS/Solvency II – How to reduce the strain with reinsurance

Interest Rate Reinsurance: Details

1 Traditional Reinsurance (Quota Share)
- Reinsurer participates on original policyholder premiums and original benefits on a proportional basis
  - Additional expense commission possible
- Reinsurer proportionally participates in the change of reserve insofar they refer to premiums and paid benefits
  - Interest rate guarantee stays with the cedent

2 Interest Rate Reinsurance
- Complementary element in a traditional cover
- Reinsurer assumes obligation to contribute the guaranteed interest to the reserves
- Cedent shares its investment return, either
  2a proportionally, typically indexed based, e.g. calibrated at the actual risk free rate, or
  2b non-proportional at a fixed % of the reserve
Interest Rate Guarantees under ICS/Solvency II – How to reduce the strain with reinsurance

Interest Rate Reinsurance: Impact under Solvency II / ICS

<table>
<thead>
<tr>
<th>GAAP</th>
<th>S II / ICS without RI</th>
<th>S II / ICS after RI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Current</td>
<td>Stressed</td>
</tr>
<tr>
<td>GAAP</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Interest Rate Reinsurance**

- Components of interest rate reinsurance reduce the net liability under ICS valuation
  - Traditional quota share: Reduction of MOCE
  - Cession of guarantee requirement: Reduction of TVFOG
- Substantial reduction of market risk stress impact on the net liabilities after reinsurance:
  - Market dependent RI payments: Reduced discount rate will be offset by reduced realized return payable

**Positive impact**
- Increase of own funds
- Lower capital requirements
- More stable Solvency ratio
Interest Rate Guarantees under ICS/Solvency II
– How to reduce the strain with reinsurance

Hands-on Example: German Endowment & Annuity Portfolio
– Average Term 16 years, Guaranteed Rate 2.78% (portfolio average)
– 40% Quota Share Reinsurance, Interest Cover: Guarantee $\leq$ 10 y Bund Rate + 120 bps

[Diagrams showing best estimate without reinsurance and interest shock with reinsurance]

- Decrease TVFOG + RM
- RI asset offsets interest rate shock

Solvency Ratio w/o Reinsurance

[Bar chart showing solvency ratios before and after reinsurance]

Solvency Ratio 190% $\rightarrow$ 285%
Interest Rate Guarantees under ICS/Solvency II: Findings

Don't let your legacy book disturb you!

The challenge: ICS/Solvency

How to reduce the strain with reinsurance

Constraints and conclusions
Core Requirement: Appropriate Supervisory Recognition of the Non-traditional Structure

**Regulatory Classification**
- Reinsurance of market risk is straight-forward in view of economics and contractual terms
- To allow for the positive effects an appropriate recognition by supervisors is required
  - Reinsurance of market risk to be classified as „reinsurance“ (and not as financial instrument)
  - The transfer of market risk should not imply a classification as „finite/financial reinsurance“
- Regulation of reinsurance should allow for reasonable recognition of such risk mitigating measures for both, the underwriting and the market risk.

**Principles for Measurement of Reinsurance**
- Recognition of an reinsurance recoverable (reflecting the cash-flows from an RI cover) is a core
- Measurement principles for reinsurance need to be fully aligned to the liability measurement
  - Subject to credit risk adjustment
- Measurement under Solvency shock needs to reflect properly the variability of reinsurance cash-flows
Don’t let your legacy book disturb you!
- Challenges from technologies & economics urge towards new products
- Growing pressure on guarantee products form new supervisory regulation
- Decisive de-risking of the legacy book should be aspired

The challenge: ICS/Solvency
- Risk free discounting and TVFOG may endanger the existing capital basis
- Increasing capital demand for market risk – in particular interest down
- Drastic effect under low interest rates, but the effect can be persistent

How to reduce the strain with reinsurance
- Traditional reinsurance can help by reducing the SCR and MOEV
- Additional components to mitigate market risk are possible
- Substantial improvements to be expected under ICS/Solvency II

Constraints and conclusion
- Concept successfully implemented with clients, e.g. in Europe
- Appropriate regulatory recognition can be challenging
- Understanding of the concept by cedents, auditors und supervisors is key
Thank you for your attention

Dr. Günter Schwarz
Leading Expert
(Accounting & Regulation)
Financial Solutions Life

Tel: +49 89 3891 9499
E-mail: gschwarz@munichre.com