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The Cost of Improving the Solvency Margin

Quota Share Reinsurance vs. Subordinated Debt

Dr. Stefan Sperlich, Advanced Solutions

Hydra Meeting, September 2017

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Improving the Solvency Margin
Quota Share Reinsurance vs. Subordinated Debt

$$\text{Solvency Margin} = \frac{\text{Economic capital }(EC)}{\text{Required Capital }(RC)}$$

How to improve the Solvency Margin by 10%?

Option 1: Subordinated Debt

⇔ Increase the EC by 10%

Cost of subordinated debt:

$$CoC * EC * 10\%$$

Option 2: Q/S Reinsurance*)

⇔ Cede away 23% of Premium**)

Cost of Q/S reinsurance:

$$23\% * P * m$$

*) For the entire example we consider a Whole Account Quota Share on occurrence year basis.
**) This premium cession factor is estimated according to Solvency II market average.
CoC = Cost of Capital, more specifically cost of new subordinated debt // P = underlying premium volume // m = reinsurer‘s margin

Comparing the Cost of Improving the Solvency Margin

Quota Share Reinsurance vs. Subordinated Debt

When is Q/S reinsurance the more cost-effective solution?

⇔ If the costs for Q/S reinsurance are less than the costs of issuing new subordinated debt.

$$\boldsymbol{CoC * EC * 10\%} \geq \boldsymbol{23\% * P * m}\ ^{*)}$$

$$\Leftrightarrow \quad \boldsymbol{m \leq 44\% * CoC * \frac{EC}{P}}\ ^{**)}$$

*) See Appendix for more details.
**) The median of EC divided by P according to Solvency II market average is 132%.

SII median: Q/S outperforms costs for margins less than 60% of CoC

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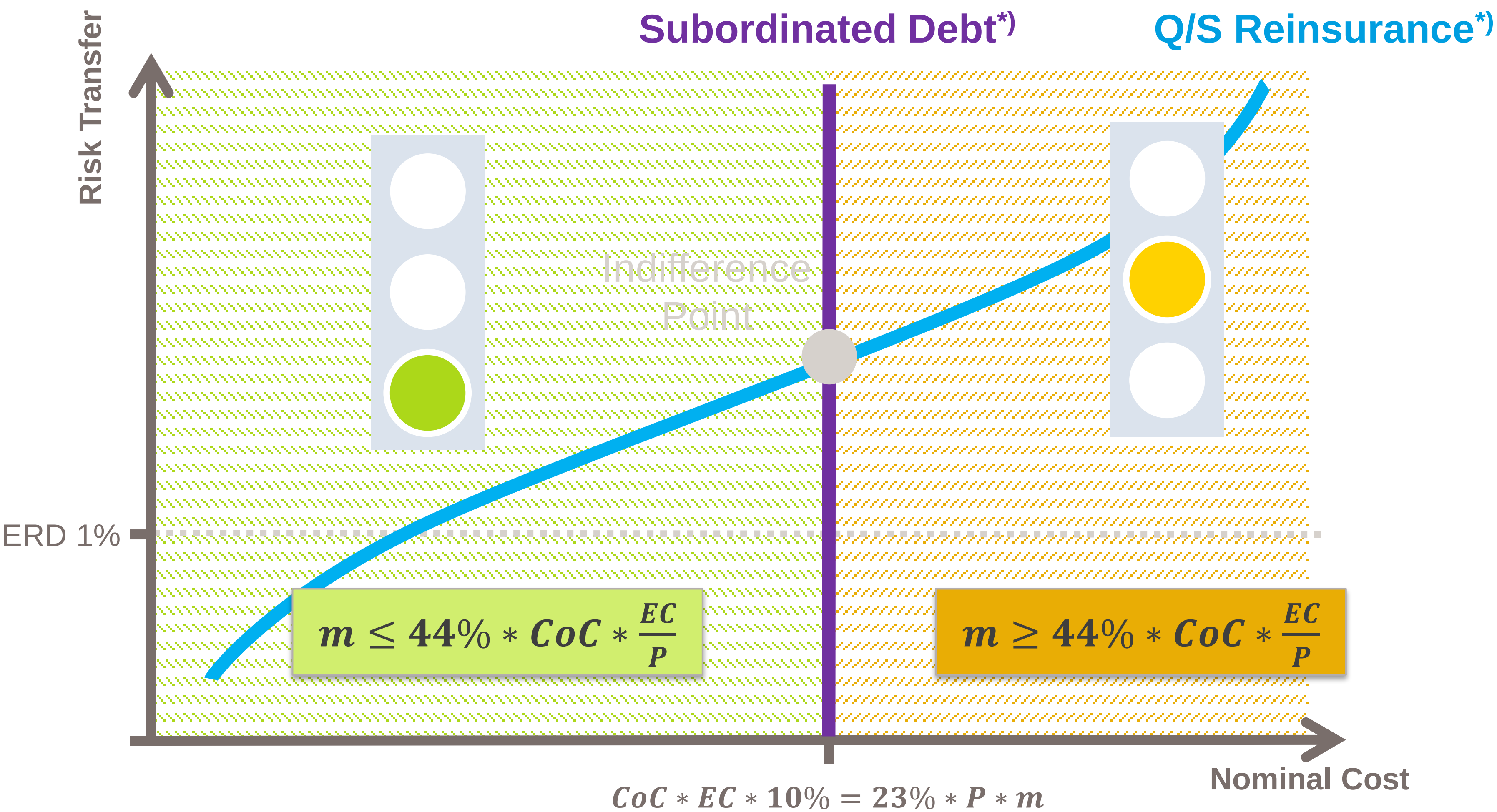
Comparing the Cost of Improving the Solvency Margin
Quota Share Reinsurance vs. Subordinated Debt



*) Required volume of debt resp. premium cession volume to improve the Solvency Margin by 10%.

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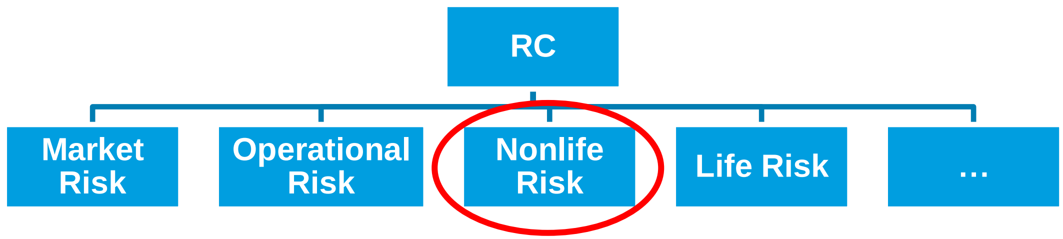
Striving for Efficiency

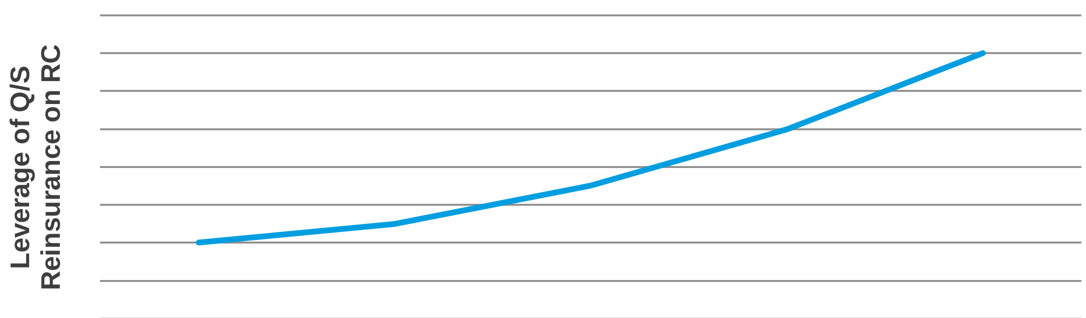
Quota Share Reinsurance at its most efficient use

$$\textit{Solvency Margin} = \frac{\textit{Economic capital (EC)}}{\textit{Required Capital (RC)}}$$

When does Q/S reinsurance become most efficient?

⇔ The leverage of Q/S reinsurance on the RC depends on various factors.





The larger the ratio of Nonlife Risk to RC the higher the leverage

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Comparing Qualitative Factors - other than costs

Quota Share Reinsurance vs. Subordinated Debt

	Subordinated Debt		Quota Share Reinsurance	
Risk Transfer	▶ **Increased financial leverage**	–	▶ **No increase in debt to capitalisation ratios:** loss absorbing character through transfer of insurance risk	+
Flexibility	▶ **No flexibility after issuance:** Nominal value, period and costs are fixed for several years (unlimited for Tier 1 and at least 10/5 years for Tier 2/3 capital, not considering exit options)	–	▶ **Full flexibility:** Annual or quarterly adjustments of cession, commission and risk transfer are possible; cancellation after one year is possible	+
Volume	▶ Often **only high volumes** are available	–	▶ **Large and small premium volumes** possible	+
Issuing Costs	▶ **Additional fixed costs** at issuance (legal costs, listing, road show, bank fees, …)	–	▶ **No additional costs** at issuance	+
Availability	▶ **Limited availability** depending on current capital market conditions and the individual access to capital markets	–	▶ **Fast and lean availability**	+
Others	▶ Negative rating implications possible ▶ Debt covenants	–	▶ Positive acknowledgement by rating agencies in general ▶ No debt covenants	+

Qualitative comparison: Subordinated debt outnumbered by Q/S

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Appendix
Assumptions and Remarks

$$\text{Solvency Margin} = \frac{\text{Economic capital }(EC)}{\text{Required Capital }(RC)}$$

▶ Assumptions:

- According to Solvency II market average, the factor $\frac{1}{40\%} * (1 - \frac{1}{(1+x\%)})$ approximates the required cession for a Whole Account Quota Share to reduce RC by $1 - \frac{1}{1+x\%}$, improving the Solvency Margin by x%.

- This factor is a rough approximation for the average non-life insurance company and can vary substantially.

The exact factor for your company can be calculated individually and we are happy to assist you with this task!

▶ Remarks on Q/S reinsurance:

- In contrast to subordinated debt, Q/S reinsurance additionally provides for insurance risk transfer.
- The reinsurer's margin has two components:
  1) admin expenses and the reinsurer's allocated risk capital.
  2) expected loss and volatility from the assumed insurance risk.

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