



Reinsurance: Playing the Queen's Gambit

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Risk Management as Opening Theory

- Opening Theory main objectives:
 - Optimal positioning of pieces
 - Controlling the centre of the chessboard
 - Safeguarding the King
- Risk Management main objectives:
 - Optimal selection of risks
 - Enabling strategic execution
 - Safeguarding Capital

Reinsurance as Insurance Risk Mitigation

- Reinsurance is defined in a broad sense as insurance risk mitigation.
- Conventionally, reinsurance premiums are perceived as isolated costs related to the reduction of insurance risk.
- Moving from the accounting-based world of Solvency I to the risk-based world of Solvency II, we expect to find:
 - Capital requirements based on Risk (Risk-Based Capital)
 - Risk and Capital to be directly related variables
 - but also (as a consequence of the above)*
 - Economic recognition of Risk Mitigation
 - Reinsurance surrogate to Risk Capital

Strategic Reinsurance as Capital Management

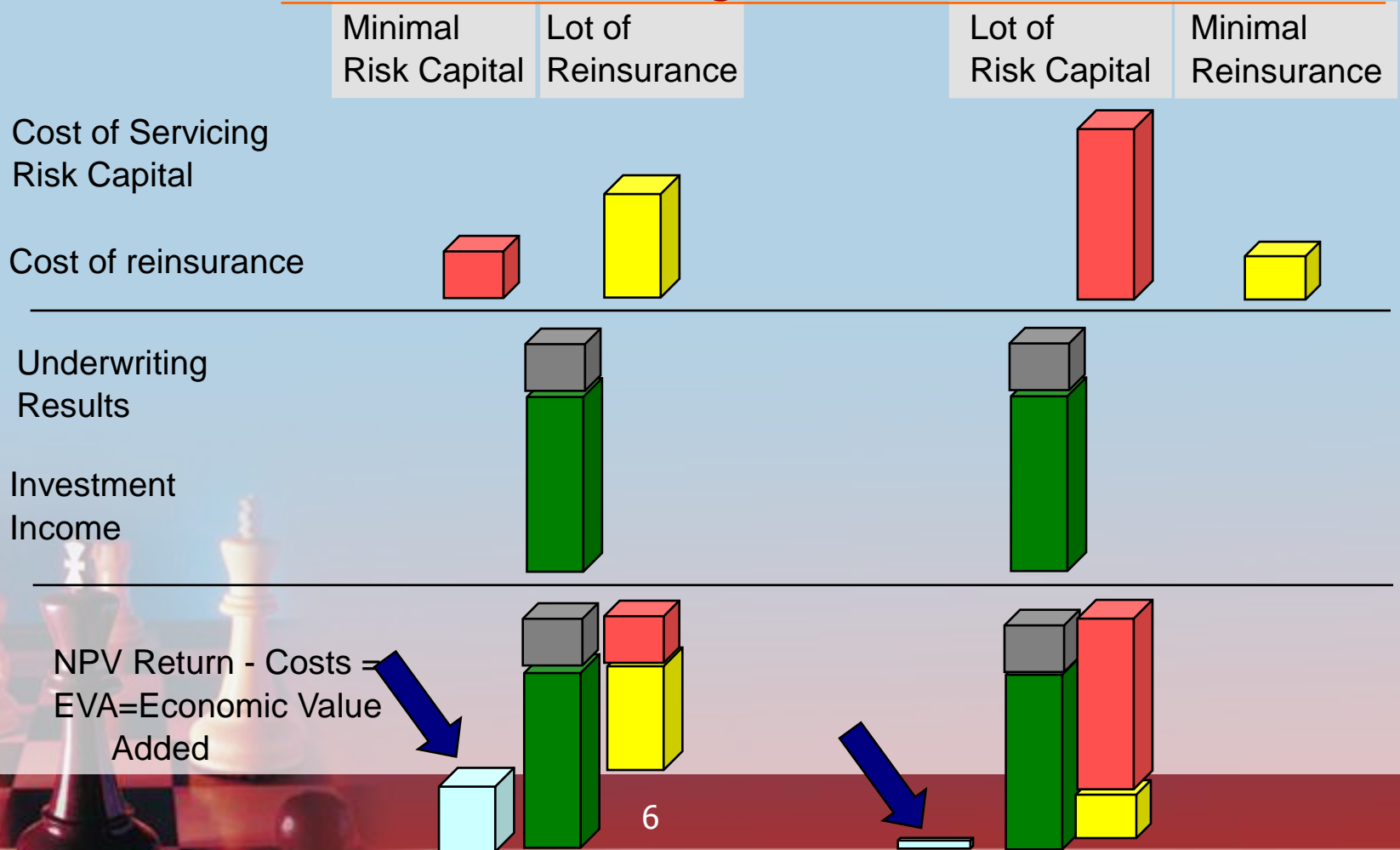
- Strategic reinsurance forms part of a comprehensive risk and capital management strategy.
- The main drivers of strategic reinsurance are:
 - *Protection of the available capital* - keeping RBC within reasonable ranges of the available capital.
 - *Diversification effect* - resulting in more effective use of RBC.
 - *Reduction in RBC* - leading to a reduction in Cost of Capital.
- The basis for designing an optimal reinsurance program is an economic capital model where the RBC for the different risks/lob is calculated.
- The efficiency of reinsurance is judged against the cost of capital saved by it.

Strategic Reinsurance as Gambit

- A gambit is a chess opening in which a player sacrifices material, usually a pawn, with the hope of achieving a resulting advantageous position.
- Reinsurance means sacrificing premiums in order to lower capital costs through the substitution of risk capital.
- Risk capital is not for free. Investors expect an adequate return on their investment. Reinsurance should be structured to minimize the total cost of capital and reinsurance.
- Thus we expect the cost of reinsurance to be lower than the cost of other sources of capital. This is very commonly the case because the capital requirement for the reinsurer is materially lower than the capital relief for the primary insurer.

Risk Capital & Reinsurance trade-off and Economic Value Added

Assuming same Level of Risk



Quantitative recognition of the effect of reinsurance

| Performance Level | Internal Model | Standard Approach | |
|----------------------------------|----------------|-------------------|---|
| Effect of reinsurance recognised | YES | YES | |
| Completely no limitations | YES | YES | |
| Proportional Reinsurance | FULL | PART | Structural features, like profit commissions, are difficult to depict |
| Non-Proportional | FULL | PART | QIS 5 attempts to recognise the value of Risk Excess of Loss reinsurances |
| Company-specific peak exposures | FULL | NO | If individual exposures differ materially, they should be separately modelled |
| Timeliness of recognition | FULL | PART | Material changes to the reinsurance structure are not captured immediately |
| ART recognised | PART | NO | Alternative Risk Transfer is absent |

Standard vs Internal Model (a surprising story)

- Originally, the 'standard model' was foreseen as a simple model for small and mid-size insurers.
- Big insurers, with more developed actuarial models, larger scale and more resources, were expected to work out a more sophisticated 'internal model'.
- Small and mid-size insurers are finding out that the 'standard model' is inefficient and the wrong instrument for risk management, lacking in full recognition of risk mitigation and in determining capital allocations per line of business.
- Limited size and product selection means a well-tuned internal model implemented easily throughout the organization.
- Due to the low complexity of risks (especially of market risks), outsourcing the task is both possible and cost-effective.

Standard vs Internal Model (a surprising story)

- The opposite happened in the world of big insurers.
- Big insurers coordinated Solvency II at Group level and started to challenge their business-units around 2009 to develop and implement Solvency II programs on basis of an 'internal model'.
- By 2010, it became clear that a lot of technical issues in the models were still unclear. Moreover, models were not integrated (condition) in the business and consolidating several 'internal models' revealed several consolidated inconsistencies.
- The complexity of developing a unified and consistent risk model turned out to be insuperable.
- Some big insurers are now considering to fall back on the 'standard model' (or partial model) before it's too late.

Partial Model approach to Full Recognition of Reinsurance

- Solvency II will permit insurers that satisfy certain conditions to calculate their capital requirements by means of a “mixed model”.
- The most common use of the partial model approach for reinsurance is likely to be estimating its effect on the underwriting risk.
- Standard formula is in use overall, but risk transfer is depicted in a partial model.
- Partial model to depict the special effects of a reinsurance strategy.
 - An SCR could be determined gross (without reinsurance) and then the reduction in solvency capital produced by a separately modelled reinsurance programme deducted.
 - Replace the modelling of the natural catastrophe risk in the standard approach with a more appropriate model of the risk and its mitigation using the company’s reinsurance programme.

Dynamic Financial Analysis (DFA) as a “Service”

- Cost-effective alternative to the partial internal model approach.
- A primary insurer could calculate the capital relief due to reinsurance through the quantitative risk analysis carried out by the provider of risk mitigation (broker or reinsurer).
- Such a quantitative risk analysis of an insurance company to evaluate its financial and risk situation involves the stochastic modelling and simulation of risk factors; the process is known as “dynamic financial analysis” (DFA).
- The DFA approach should be consistent with the partial model approach requirements and within the audit framework of internal models.
- It could also serve as an additional validation of a partial model developed by the primary insurer itself.

Internal Model as Risk Management Tool

- **Forget Compliance: Internal models are not primarily for regulatory capital assessment.**
- Their importance lies in measuring and aggregating risk to ascertain that their level of risk is in line with the company's risk appetite.
- **An internal model facilitates the allocation of overall capital requirement to different risk units.**
- Risk-adjusted-capital performance measures can be calculated (Combined Ratio is replaced with Return on Allocated Capital).
- **Better assessment of each risk unit's performance and a clear picture of the cost of capital among operating units.**
- Better pricing as profit targets will vary according to allocated capital.

Internal Model as Strategic Decision-making Tool

- It allows to assess the economic value of different risk expansion or risk mitigating strategies. Basis for optimal reinsurance design.
- Once capital has been allocated, the same process can be used to determine the capital released by different risk mitigation strategies or used by different expansion strategies.
- The cost of the risk mitigation strategies or marginal returns on expansion strategies can be compared to the costs of other sources of capital to determine the optimal capital structure.
- A good internal model is an effective tool for strategic decision-making:
 - too little capital would threaten the company's ability to meet its liabilities;
 - too much capital reduces the return on equity and can potentially distort economic decision-making.



"Risk comes from not knowing what you're doing."

Warren Buffett

THANK YOU

