Principles-Based Regulation

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1. Safety level and regulation in the insurance sector
   • Why regulation?
   • Principles- versus rules-based regulation
   • Crisis in the insurance industry
   • Systemic risk within the insurance market and first implications

2. Selected forms of regulation in the insurance industry
   • Solvency regulation
   • Main differences between Solvency II and SST
   • Insurance Guaranty Funds (IGF)
   • Some questions unanswered so far

3. Some implications of regulation for primary P&C insurers
1. Safety level and regulation in the insurance sector

- Solvency regulation has a special importance in the insurance sector
  - Insolvency of an insurer can lead to a "ruin" of the policyholder
  - Safety level of the insurance company directly influences the product quality
  - Willingness to pay depends highly on the safety level of the insurance company
  - Safety level is in the focus of regulators (SST; Solvency II) and rating agencies
1. Safety level and regulation in the insurance sector

- However: Safety is not a goal in itself

- Do we really need regulation here?

- Third party problem

- Asymmetric information regarding the different stakeholders (in particular: Management versus policyholders)

- Hence: Reducing "signaling costs" for insurance companies

- Very little information can be derived regarding the cost-benefit-ratio of regulation
### 1. Safety level and regulation in the insurance sector

<table>
<thead>
<tr>
<th></th>
<th>Standard rules-based regulation</th>
<th>Principles-based regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Idea</strong></td>
<td>Regulator provides a detailed set of rules to follow and a model to implement</td>
<td>Regulator provides only a set of principles to follow and no information on how to implement Swiss Solvency Test</td>
</tr>
<tr>
<td><strong>Example</strong></td>
<td>Solvency I</td>
<td>Swiss Solvency Test</td>
</tr>
<tr>
<td><strong>Systemic risk</strong></td>
<td>Pro-cyclicality and similar behaviour problematic</td>
<td>Pro-cyclicality and similar behaviour less problematic</td>
</tr>
<tr>
<td><strong>Reflection of risk</strong></td>
<td>One-size-fits-all model cannot capture the full spectrum of individual risk profiles</td>
<td>Individual model to capture true, individual risk profile of the insurer</td>
</tr>
<tr>
<td><strong>Flexibility</strong></td>
<td>Low flexibility for handling individual situations</td>
<td>Higher flexibility for handling individual situations</td>
</tr>
<tr>
<td><strong>Innovation</strong></td>
<td>Little room for innovation</td>
<td>Might trigger innovation, for example, internal risk models (insurers need to develop to some degree their own risk models based on the principles)</td>
</tr>
</tbody>
</table>
1. Safety level and regulation in the insurance sector

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<thead>
<tr>
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<th>Standard rules-based regulation</th>
<th>Principles-based regulation</th>
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<tbody>
<tr>
<td>Integration in risk management</td>
<td>No integration, regulatory</td>
<td>Integration of regulatory</td>
</tr>
<tr>
<td></td>
<td>requirements and insurers RM</td>
<td>requirements into the</td>
</tr>
<tr>
<td></td>
<td>are mostly separate systems</td>
<td>risk management process</td>
</tr>
<tr>
<td>Model arbitrage</td>
<td>More effective</td>
<td>Less effective</td>
</tr>
<tr>
<td>Predictive power</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Complexity</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Implementation costs</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Data requirement</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Implementation</td>
<td>Easy</td>
<td>Difficult</td>
</tr>
<tr>
<td>Practical application</td>
<td>Easy</td>
<td>Difficult</td>
</tr>
<tr>
<td>Comparability</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Model risk</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Up-to-dateness</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Systemic risk</td>
<td>High</td>
<td>Low</td>
</tr>
</tbody>
</table>

- Trend: From principles-based regulation back to rules-based regulation?
1. Safety level and regulation in the insurance sector

- Three quite different cases
  - Mannheimer Lebensversicherung
  - Equitable Life
  - AIG
1. Safety level and regulation in the insurance sector

- Reasons for the current financial crisis
  - Propensity to consume and global financing policy of the U.S.?
  - Intransparent cross-linked capital markets?
  - Incentive structures in corporations led by managers?
  - Stochastic models and their interpretation?
  - Search for a "culprit"
1. Safety level and regulation in the insurance sector

- Model risk
  - Stochastic models are all about probabilities
  - Typically only the pure randomness is modeled
  - Stochastic phenomena stay stochastic (with or without risk modeling)
  - Using similar models (IFRS, Solvency II, etc.) forces systemic risk within the market

"All models are wrong, but some are helpful"

George Box
1. Safety level and regulation in the insurance sector

- Differences in the business model: "Insurance run" is rather unlikely to happen

- Cross-linked relationships between insurance companies are not comparable to the banking industry

- However, asset volatility as the main risk source of an insurer affects insurance companies in a similar way

- Including similar standards in large insurance markets may reduce competition in the regulation sector and may lead to similar behavior within the insurance industry
2. Selected forms of regulation in the insurance industry

- Important part: Risk Based Capital Standards in the context of Asset Liability Management and Enterprise Risk Management (Group Solvency)

- Other tools of regulation: E.g., product design in the life insurance sector, accounting

- Trends to a re-regulation of the insurance sector (partly because of the financial crisis); Example: EU-Insurance Guaranty Funds (IGF)

- In which respect solvency testing and other forms of regulation are in the interest of policyholders is widely unknown
2. Selected forms of regulation in the insurance industry

- **Overview Solvency**

<table>
<thead>
<tr>
<th>Model Typology</th>
<th>Model Name</th>
<th>Introduced by</th>
<th>in</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Model</td>
<td>Fair Insurance Code,</td>
<td>New Zealand</td>
<td>2001,</td>
</tr>
<tr>
<td></td>
<td>Insurance Companies Act</td>
<td></td>
<td>1994</td>
</tr>
<tr>
<td>Static Factor Models</td>
<td>Solvency I</td>
<td>EU</td>
<td>2004</td>
</tr>
<tr>
<td></td>
<td>General Insurance Reform Act</td>
<td>Australia</td>
<td>1973</td>
</tr>
<tr>
<td></td>
<td>Risk Based Capital Standards</td>
<td>USA</td>
<td>1994</td>
</tr>
<tr>
<td></td>
<td>Solvency Margin Standard</td>
<td>Japan</td>
<td>1996</td>
</tr>
<tr>
<td></td>
<td>Financial Analysis Solvency Tools</td>
<td>(Proposal of)</td>
<td>NAIC</td>
</tr>
<tr>
<td></td>
<td>Capital Adequacy Ratio</td>
<td>(Proposal of)</td>
<td>AM Best</td>
</tr>
<tr>
<td></td>
<td>GDV-Model</td>
<td>(Proposal of)</td>
<td>GDV</td>
</tr>
<tr>
<td>Dynamic cash flow based models</td>
<td>Stress Testing</td>
<td>BaFin</td>
<td>2002</td>
</tr>
<tr>
<td></td>
<td>Financial Assessment Framework</td>
<td>Netherlands</td>
<td>2006</td>
</tr>
<tr>
<td></td>
<td>Cash Flow Model</td>
<td>(Proposal of)</td>
<td>Schmeiser</td>
</tr>
<tr>
<td>Combination of Static Factor Models and Dynamic cash flow based models</td>
<td>Enhanced Capital Requirement, Individual Capital Assessment</td>
<td>UK</td>
<td>2004</td>
</tr>
<tr>
<td></td>
<td>Swiss Solvency Test</td>
<td>Switzerland</td>
<td>2006</td>
</tr>
</tbody>
</table>

- Clear implications in respect to market premiums
2. Selected forms of regulation in the insurance industry

- Timetable Solvency II

<table>
<thead>
<tr>
<th>Year</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>Directive Development (Commission)</td>
</tr>
<tr>
<td>2006</td>
<td>CEIOPS work on Pillar I</td>
</tr>
<tr>
<td>2007</td>
<td>CEIOPS work on Pillar II and III</td>
</tr>
<tr>
<td>2008</td>
<td>QIS1, QIS2, QIS3, QIS4, QIS5</td>
</tr>
<tr>
<td>2009</td>
<td>CEIOPS works on implementing measures</td>
</tr>
<tr>
<td>2010</td>
<td>CEIOPS work on the 3rd level of the Lamfalussy-Process</td>
</tr>
<tr>
<td>2011/2</td>
<td>The Actuarial Profession (revised)</td>
</tr>
</tbody>
</table>

Model calibration

Priorities
- Impact assessment
- Group issues
2. Selected forms of regulation in the insurance industry

- Solvency II: Three pillar structure

**1st pillar**

Two level approach:
- MCR
- SCR
- Internal models: Lower requirements?
- Impulses for the risk management of the insurance company?

**2nd pillar**

Control by the supervision
- Accreditation
- Review process
- Organizational consequences?
- Re-regulation?

**3rd pillar**

Market discipline
- Market transparency
- Disclosure
- In principle: Product rating
- Problematic incentive effects?
SST: Comparison of RBC with SCR

TVAR = Risk measure "Tail-Value-at-Risk" based on distribution of the RBC in t = 1 (1% level)
MB = Minimum amount (run-off costs in case of an insolvency)
SCR = TVAR + MB

RBC₀ > SCR Requirement
2. Selected forms of regulation in the insurance industry

- Risk measurement (TVAR versus VAR)
- Solvency II: Internal models will rather be the exception
- SST standard approach is much more advanced
- Handling of operational risk
- Group Solvency testing: Consolidated approach (Solvency II) versus legal entity approach (SST)
- Measurement of diversification: Legal entity approach (SST) versus business segment modeling (Solvency II)
- Role of stress testing
2. Selected forms of regulation in the insurance industry

- Very little correlation between the Solvency I results and the results given by the SST

![Graph showing the correlation between RBC / SCR and Solvency 1 ratio for Nonlife and Life sectors. The correlation for Nonlife is approximately -0.178, while for Life it is approximately 0.56.](image-url)
2. Selected forms of regulation in the insurance industry

- Insurance Guaranty Funds (IGF)
  - With respect to the current financial crisis: Search for a solution for an orderly run-off
  - Currently discussed in the EU
  - Problem: Present systems are not risk-based regarding payments to and from the fund
  - Effect: Subventions and wealth transfers between insurers
2. Selected forms of regulation in the insurance industry

- Premiums and payouts of the fund need to be defined
- Premiums and payouts of the fund affect the safety level of the insurer (cf. Solvency II!)
- Finding of a recent paper by the I.VW: There exists in general no risk adequate distribution scheme
- An IGF might cause bad incentives in the market
With respect to the financial crisis there are several questions that need answering:

- The handling of systemic risks (banking sector)
- Group solvency and integration of CRTIs (Capital and Risk Transfer Instruments)
- Organization of orderly run-offs
2. Selected forms of regulation in the insurance industry

- Group solvency
  - How is an adequate and at the same time not too complex assessment of capital and risk interdependencies (CRTI-approach) within a financial group possible?

- Integration of non-regulated entities of the group?
3. Some implications of regulation for primary P&C insurers

- Extensive regulation may introduce additional systemic risk in the insurance market

- Safety level gains more importance as a competitive factor (cf. transparency rules within the 3rd pillar)

- Ambitions to re-regulate increase transaction costs of insurers and the price of insurance products; thereby, cost-benefit-ratio of regulation is mainly unknown

- Appropriate impulse for risk management through Solvency regulation (?); increasing importance of reinsurance

- In general: Different regulatory concepts lead to highly different signals and hamper the management of an insurer
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