Growth and Profitability

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Status quo ... trends ... strategic challenges

Overview:

• Upward trend in the insurance sector despite natural catastrophes in record height

• Regulatory challenges: Solvency II, SST (CH), VVG reform, IFRS 4, FINMA (CH), SQA (CH), MaRisk ... increased relevance of ratings

• Fundamental strategic challenges under consideration of the change of values for customers

• Financial crisis
Losses from major natural catastrophes

Source: Munich Re
Financial crises and Insurance
• Estimates by IMF

- Losses from current market turmoil estimated to around 1'405 Billion USD

- Depreciations in the banking sector of worldwide 700 Billion USD

- Necessary capital for the banking system in the next years: 675 Billion USD

- Worldwide losses of insurance companies are estimated to 150 Billion USD (realized and non-realized losses)
• Reasons

- 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 "culprit"
• Transparency in the financial sector …. AIG had 4.000 subsidiaries

AIG, Vice-Chairman for Restructuring Head, Ms. Reynolds:

“The best businesses are run by people who kick their tires every day. We don’t even know where the tires are, much less get to kick them. If we can get back to the size of a company where we can intelligently kick our tires every day, that would be a wonderful outcome.” (Fortune, Jan 19, 2009, p. 54)
Strategic target variables in the insurance sector

Profitability

Safety

Growth

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Growth

• Measuring output: premium growth (for new business), balance sheet total, capital investment volume, etc.

• Measuring input: human resources (indoor employees / field service), etc.

• Of vital importance: market share (presumes definition of the relevant market)

• Measurement in principle unproblematic
• European insurance market (still) growing

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**Life insurance**
- Europa: 8.9%
- Nord-Amerika: 7.1%
- Asien ohne Japan: 8.8%

**Non-life Insurance**
- Europa: 5.2%

Source: Swiss Re, WTF, OEF

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• **EU life insurance market**

![Graph showing growth and profitability in the EU life insurance market.](image)

**Infl.angepasstes Wachstum**

- **Prämienvolumen (CEA)**
- **Infl.angepasstes Wachstum**

**Growth and Profitability**

CEA Statistics 2008

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Life Insurance market and concentration in CH

Einzelversicherung
- Swiss Life: 24.9%
- AXA Winterthur Leben: 15.8%
- Zürich Leben: 12.8%
- Basler Leben: 11.1%
- Die Helvetia Leben: 8.1%
- Allianz Suisse Leben: 6.1%
- Generali Schweiz Pers.vers.: 4.2%
- Mobiliar Leben: 3.7%
- Nationale Suisse Leben: 3.4%
- Vaudoise Vie: 3.2%
- Pax: 2.8%
- Übrige: 3.8%

Kollektivversicherung
- Swiss Life: 33.9%
- AXA Winterthur Leben: 32.5%
- Basler Leben: 8.9%
- Helvetia Leben: 8.0%
- Allianz Suisse Leben: 5.3%
- Zürich Leben: 5.1%
- Pax: 2.3%
- Die Mobiliar Leben: 2.0%
- Nationale Suisse Leben: 1.7%
- Übrige: 0.3%

BPV Statistics 2007
Strategic target variables in the insurance sector

Safety → Profitability → Growth
Safety

- Insolvency of an insurance company can lead to „ruin“ of the policyholder
- Safety level of the insurance company directly influences the product quality
- Willingness to pay reacts extremely sensitive to variations of the safety level of the insurance company
- Safety of the insurance company is in the focus of rating agencies and legal regulations (Solvency II, Swiss Solvency Test)
• Measurement based on shortfall probabilities (cf. LPM$_0$, VaR) or average shortfall amounts (cf. LPM$_1$, TVaR, EPD ratio)

Table 12. Cumulative Average Default Rates

<table>
<thead>
<tr>
<th>Rating</th>
<th>Y4</th>
<th>Y5</th>
<th>Y6</th>
<th>Y7</th>
<th>Y8</th>
<th>Y9</th>
<th>Y10</th>
<th>Y11</th>
<th>Y12</th>
<th>Y13</th>
<th>Y14</th>
<th>Y15</th>
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</thead>
<tbody>
<tr>
<td>AAA</td>
<td>0.00</td>
<td>0.03</td>
<td>0.06</td>
<td>0.10</td>
<td>0.17</td>
<td>0.24</td>
<td>0.36</td>
<td>0.40</td>
<td>0.44</td>
<td>0.44</td>
<td>0.44</td>
<td>0.51</td>
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<tr>
<td>AA</td>
<td>0.01</td>
<td>0.09</td>
<td>0.19</td>
<td>0.29</td>
<td>0.40</td>
<td>0.52</td>
<td>0.62</td>
<td>0.71</td>
<td>0.81</td>
<td>1.01</td>
<td>1.12</td>
<td>1.28</td>
</tr>
<tr>
<td>A</td>
<td>0.04</td>
<td>0.12</td>
<td>0.23</td>
<td>0.38</td>
<td>0.59</td>
<td>0.81</td>
<td>1.06</td>
<td>1.29</td>
<td>1.55</td>
<td>1.83</td>
<td>2.06</td>
<td>2.26</td>
</tr>
<tr>
<td>BBB</td>
<td>0.27</td>
<td>0.76</td>
<td>1.32</td>
<td>2.06</td>
<td>2.83</td>
<td>3.56</td>
<td>4.15</td>
<td>4.76</td>
<td>5.27</td>
<td>5.82</td>
<td>6.37</td>
<td>6.90</td>
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<tr>
<td>B</td>
<td>5.38</td>
<td>11.80</td>
<td>17.14</td>
<td>21.24</td>
<td>24.16</td>
<td>26.45</td>
<td>28.37</td>
<td>29.91</td>
<td>31.15</td>
<td>32.38</td>
<td>33.48</td>
<td>34.44</td>
</tr>
<tr>
<td>CCC/C</td>
<td>27.02</td>
<td>35.63</td>
<td>40.93</td>
<td>44.39</td>
<td>47.58</td>
<td>48.78</td>
<td>49.98</td>
<td>50.64</td>
<td>52.17</td>
<td>53.05</td>
<td>53.79</td>
<td>54.57</td>
</tr>
</tbody>
</table>

Source: Standard & Poor’s Global Fixed Income Research, Standard & Poor’s CreditPro® 7.02.

1981–2005 …. but subprime?
Strategic target variables in the insurance sector

- Profitability
- Safety
- Growth

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Profitability and profitable (sustainable) growth

- Relative measure, synonymous for return
- Basis?
- Return on equity / total return …
- Gross or net return?
- Risk-adjusted return?
- Relation to profit quantities ("expected profit")?
- Relation to company value / shareholder value?
• Measurement of profitability based on annual report:

<table>
<thead>
<tr>
<th>KEY FIGURES</th>
<th>2007</th>
<th>2008</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CHF</td>
<td>CHF</td>
<td>EUR¹</td>
</tr>
<tr>
<td><strong>Business volume</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross premiums written, nonlife</td>
<td>3,190.6</td>
<td>3,214.8</td>
<td>2,172.9</td>
</tr>
<tr>
<td>Gross premiums written, life</td>
<td>3,677.8</td>
<td>3,739.1</td>
<td>2,527.3</td>
</tr>
<tr>
<td>Investment-type premiums</td>
<td>1,069.2</td>
<td>904.4</td>
<td>611.3</td>
</tr>
<tr>
<td>Total business volume</td>
<td>7,937.6</td>
<td>7,858.3</td>
<td>5,311.5</td>
</tr>
<tr>
<td><strong>Business results</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consolidated profit</td>
<td>820.1</td>
<td>386.7</td>
<td>261.4</td>
</tr>
<tr>
<td><strong>Balance sheet</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Investments¹</td>
<td>62,161.9</td>
<td>56,332.2</td>
<td>38,075.2</td>
</tr>
<tr>
<td>Technical reserves</td>
<td>47,826.4</td>
<td>44,068.6</td>
<td>29,786.1</td>
</tr>
<tr>
<td>Equity</td>
<td>4,975.3</td>
<td>3,895.6</td>
<td>2,633.1</td>
</tr>
<tr>
<td><strong>Ratios¹ in percent</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return on equity (RoE)</td>
<td>16.7</td>
<td>9.0</td>
<td></td>
</tr>
<tr>
<td>Combined ratio, nonlife (gross)</td>
<td>93.0</td>
<td>88.1</td>
<td></td>
</tr>
<tr>
<td>Combined ratio, nonlife (net)</td>
<td>95.1</td>
<td>90.9</td>
<td></td>
</tr>
<tr>
<td>New business margin, life</td>
<td>9.5</td>
<td>7.9</td>
<td></td>
</tr>
</tbody>
</table>

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• Which line of business performs better?

<table>
<thead>
<tr>
<th>Better portfolio under consideration of ...</th>
<th>Portfolio 1 (Casualty)</th>
<th>Portfolio 2 (Property)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Operating) Costs</td>
<td>10% of net premiums</td>
<td>15% of net premiums</td>
</tr>
<tr>
<td>Costs + Claims (Combined Ratio)</td>
<td>100%</td>
<td>95%</td>
</tr>
<tr>
<td>Costs + Claims + Investment Income</td>
<td>85%</td>
<td>90%</td>
</tr>
<tr>
<td>RoE</td>
<td>12%</td>
<td>15%</td>
</tr>
</tbody>
</table>

Risk?

Source: G. Egloff, Basler
• Profitability versus risk: An example from the bond market (year 2008)

Coupon payments:
4.25% Switzerland (CHF) 96-08
8.00% Rep. Argentina (€) 99-08

Returns till maturity
Switzerland: 2.30%
Rep. Argentina: 205.98%
Growth and Profitability

- Net present value
- EVA, RAROC, RORAC
- Costs of equity capital
- Integration of all cash-flows regarding the shareholder of the insurance company
- Consideration of investment risk (in the cash-flow or in the costs of capital)

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Profitable growth: RAROC or EVA (I.)

• Insurance practice: Identification of profitable business lines on the basis of risk-adjusted performance measures

• Measurement of the relative performance of individual lines of business

• Objective: Capital budgeting decisions (+ further objectives?)

• Often deals as a basis for compensation of decision management
Profitable growth: RAROC or EVA (II.)

- Definitions:

\[
\text{EVA: } \quad P - EC \cdot r_{\text{hurdle}} > 0
\]

\[
\text{RAROC / RORAC: } \quad P / EC > r_{\text{hurdle}}
\]

- Profit \( P \), hurdle rate \( r_{\text{hurdle}} \), or equity capital \( EC \) may be risk adjusted
Profitable growth: RAROC or EVA (III.)

- Practical implementation in three steps:

1. Derivation of an "economic equity capital" on the basis of a predetermined safety level for the insurance company

2. The determined equity capital is allocated to the business lines (segments)

3. The cost of the allocated equity capital are compared with a profit quantity of the business line and conclusions are drawn with respect to capital budgeting decisions – such as whether to expand or contract business segments
Profitable growth: RAROC or EVA (IV.)

RAROC (insurance company level) or EVA

EC-allocation

Line 1
RAROC₁

Line 2
RAROC₂

Line 3
RAROC₃

... Do all lines of business earn their costs of capital?
Example for three lines of business, hurdle rate 10%

- Profit $P$: 20, Equity capital $EC$: 100
- RORAC (Company level): 20%

EC-allocation

- $EC$: 10, $P$: 3
  - $RAROC_1 = 30\%$

- $EC$: 50, $P$: 14
  - $RAROC_2 = 28\%$

- $EC$: 40, $P$: 3
  - $RAROC_3 = 8\%$
Profitable growth: RAROC or EVA (V.)

• Pros and Cons:

- Chances and risk are focused simultaneously, cost of capital is considered

- RAROC or EVA are intuitive quantities and hence "well communicable" in the company

- To Step 1.: Results strongly depend on the design of RAROC / EVA and on the definition of "economic capital"

- Compatibility to the net present value concept is in principle not given
Profitable growth: RAROC or EVA (VI.)

\[
\text{net present value} = \frac{EC + E^Q(P)}{1+r_f} - EC
\]

\[
E^Q(P) = E(P) - \text{Riskadjustment}
\]

\[
\text{net present value} = \frac{1}{1+r_f} \cdot EC \cdot \left( \frac{E^Q(P)}{EC} - r_f \right)
\]

RAROC
Profitable growth: RAROC or EVA (VII.)

- To Step 2: There is no appropriate – in the sense of non-arbitrary – capital allocation method

- Reason: Allocation of costs of capital – $\rho_{hurdle} \cdot EC$ – is simply a common cost allocation problem

Table 8
Percentage Surplus Allocations for Different Risk Measures—Panjer Data

<table>
<thead>
<tr>
<th>Line</th>
<th>Beta</th>
<th>VaR</th>
<th>TailVaR</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10.1%</td>
<td>13.0%</td>
<td>13.0%</td>
<td>13.9%</td>
</tr>
<tr>
<td>2</td>
<td>46.3</td>
<td>21.7</td>
<td>36.1</td>
<td>23.2</td>
</tr>
<tr>
<td>3</td>
<td>0.3</td>
<td>1.0</td>
<td>0.1</td>
<td>1.1</td>
</tr>
<tr>
<td>4</td>
<td>6.9</td>
<td>6.4</td>
<td>3.1</td>
<td>6.8</td>
</tr>
<tr>
<td>5</td>
<td>1.4</td>
<td>2.8</td>
<td>0.6</td>
<td>3.0</td>
</tr>
<tr>
<td>6</td>
<td>22.9</td>
<td>18.7</td>
<td>26.9</td>
<td>20.0</td>
</tr>
<tr>
<td>7</td>
<td>-6.1</td>
<td>11.8</td>
<td>4.5</td>
<td>9.2</td>
</tr>
<tr>
<td>8</td>
<td>-2.6</td>
<td>6.1</td>
<td>1.6</td>
<td>4.9</td>
</tr>
<tr>
<td>9</td>
<td>-1.2</td>
<td>6.0</td>
<td>2.0</td>
<td>5.5</td>
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<tr>
<td>10</td>
<td>6.7</td>
<td>12.5</td>
<td>12.0</td>
<td>13.4</td>
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<tr>
<td></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: M. Sherris 2006, NAAJ
Profitable growth: RAROC or EVA (VIII.)

Source: M. Sherris 2006, NAAJ
Example for three lines of business, hurdle rate 10%

Profit $P$: 20, Equity capital $EC$: 100
RORAC (Company level): 20%

EC-allocation

$EC$: 10, $P$: 3
RAROC$_1$ = 30%

$EC$: 60, $P$: 14
RAROC$_2$ = 23%

$EC$: 30, $P$: 3
RAROC$_3$ = 10%
Profitable growth: RAROC or EVA (IX.)

- To Step 3.: Financial decisions based on the existing company structure are problematic: Growth strategy by expanding the (alleged) most profitable line of business may be wrong

- For assessment of the profitability of specific growth strategies and general capital budgeting decisions, the RAROC / EVA concept seems not to be suitable

- A comparison of net present values for strategic alternatives within the insurance company constitute a more sound basis

- What are your experience in this respect?
• Math phobic‘s nightmare
Strategic target variables / challenges

Profitability

Safety

Growth

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Strategic challenges

- Management of global developments:
  - Strongly varying market saturation degrees (also within Europe)
  - Concentration in the EU market
  - Convergence of basic insurance market structures (products, value added chain, distribution)
  - Demographic changes
  - Opening of new insurance markets
Growth and Profitability

Insurance density
(premiums per capita in USD)

Source: Swiss Re, Sigma 5/2006

Insurance penetration
(premiums in % of GDP)

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Place for innovations in the insurance business

The four most important factors for changes are:
- Demographic development
- Reconstruction of social security systems
- Regulation tendencies
- Growing individualization and ongoing erosion of solidarity

Source: I.VW
Impact of regulatory provisions

- Capital and risk management provisions (Solvency II)
  - Very strong: 38
  - Strong: 55
  - Moderate: 51
  - Very small: 11

- International accounting standards
  - Very strong: 18
  - Strong: 55
  - Moderate: 25
  - Very small: 2

- Product and consulting liability
  - Very strong: 12
  - Strong: 44
  - Moderate: 42
  - Very small: 2

- Consumer protection provisions
  - Very strong: 12
  - Strong: 37
  - Moderate: 47
  - Very small: 4

- Intermediary provisions
  - Very strong: 11
  - Strong: 44
  - Moderate: 42
  - Very small: 3

- Altered taxation systems
  - Very strong: 8
  - Strong: 45
  - Moderate: 44
  - Very small: 3

- Money laundering provisions
  - Very strong: 7
  - Strong: 22
  - Moderate: 56
  - Very small: 15

- Reregulation (tariff constraints, compulsory coverage)
  - Very strong: 5
  - Strong: 34
  - Moderate: 50
  - Very small: 11

- Laws regarding gene technology
  - Very strong: 5
  - Strong: 25
  - Moderate: 54
  - Very small: 15

Source: I.VW

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### Changes of market structures

<table>
<thead>
<tr>
<th>Change</th>
<th>Tendency</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Number of insurance companies in the German-speaking area</td>
<td></td>
</tr>
<tr>
<td>– Market share of foreign (EU) insurance companies</td>
<td></td>
</tr>
<tr>
<td>– Market share of foreign (non-EU) insurance companies</td>
<td></td>
</tr>
<tr>
<td>• Market share of alternative providers (e.g. VW-Bank, Tchibo, …)</td>
<td></td>
</tr>
<tr>
<td>• Market share of pure distribution organizations</td>
<td></td>
</tr>
<tr>
<td>• Market share of specialized niche suppliers</td>
<td></td>
</tr>
</tbody>
</table>

Source: I.VW
• These companies sell insurance!
Growth and Profitability

- Problems of participating endowment life insurance contracts
  - Pressure from investors on life insurers (risk-adequate return for the shareholders?)
  - Fiscal treatment of life insurance contracts (CH, Germany)
  - IFRS and balance sheet treatment
  - Consumer protection agency's critics
  - Competition by mutual funds with embedded guarantees / unit-linked life insurance products
Variable Annuities: The new product in life insurance?

- Participation in positive market development and, at the same time, assuring a guaranteed minimum payoff (chances for high returns and flexibility)

  Transparency: Costs for additional building blocks in addition to basic product are priced as a fixed percentage of fund value

  Choice of guarantee depends on investment strategy; guarantees fulfill need for safety

- Especially well suited for needs of "Generation 55+

  But: Highly complex product design, requires ambitious pricing and risk management (dynamic hedging strategies)
• Optional guarantees as additional building blocks "Guaranteed Minimum Benefit" (GMXB) with $X = I,D,W,A$

<table>
<thead>
<tr>
<th>Guarantee building blocks</th>
<th>Type of guarantee</th>
<th>Fee (approx.) in basis points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guaranteed Minimum Income Benefit (GMIB)</td>
<td>Guaranteed minimum annuity payment (at maturity)</td>
<td>30 – 70</td>
</tr>
<tr>
<td>Guaranteed Minimum Death Benefit (GMDB)</td>
<td>Guaranteed death benefit payment</td>
<td>10 – 40</td>
</tr>
<tr>
<td>Guaranteed Minimum Withdrawal Benefit (GMWB)</td>
<td>Guaranteed withdrawal benefits at fixed points in time</td>
<td>30 – 75</td>
</tr>
<tr>
<td>Guaranteed Minimum Accumulation Benefit (GMAB)</td>
<td>Guaranteed living benefit</td>
<td>30 – 70</td>
</tr>
</tbody>
</table>

historical values: too low!

• Guarantee costs depend on choice of underlying fund; substantial problems if fund value decreases
Conclusion

- Area of conflict: growth, profitability, and safety
- Evaluation of the profitability of a growth strategy is not a trivial task
- Strong changes of market conditions to be expected in the life insurance sector

Thank you very much for your attention
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