Dr. Hendrik Garz / Volker Kudszus / Claudia Volk

Playing with fire -
Insurance & Sustainability
Insurance / Strategy / SRI
Dual role of insurers: underwriters & asset managers - insurance companies’ sustainability balance

**Assets (investment side)**
- Climate change
  - Market reactions to major loss events; economic costs; M VaR
- Genetic engineering
  - The case of Monsanto, biotech stocks
- Geopolitical risks
  - Market reactions to the terrorist attacks of 11th September; overreactions, herd mentality

**Liabilities (claims side)**
- Climate change
  - Losses resulting from natural catastrophe: Tenfold increase since the 1950s
- Genetic engineering
  - Genetic testing improves pricing & Risk selection
- Geopolitical risks
  - WTC attack led to underwriting losses worth around $20bn

Source: WestLB Equity Markets
Structure of the UNEP FI study

TRIPLE-PILLAR STRUCTURE & DUAL INTERDEPENDENT EXPOSURE

Sustainability topics & the insurers

New business areas/products

Losses

Investments
SRI performance: “It pays off to be good”

\[ r_{P,t} - r_{f,t} = \alpha_P + \beta_{P,M} \cdot (r_{M,t} - r_{f,t}) + \beta_{P,\text{Value}} \cdot (r_{V,t} - r_{G,t}) + \beta_{P,\text{Size}} \cdot (r_{\text{Small},t} - r_{\text{Large},t}) + \varepsilon_{P,t} \]

Regression result multi-factor model (OLS estimates, t-values in brackets)

<table>
<thead>
<tr>
<th></th>
<th>Old result</th>
<th>Overall period (inc. retrospective bias)</th>
<th>Since start of index (10/01 - 08/03)</th>
<th>Since peak of speculation bubble (03/00 - 08/03)</th>
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<tbody>
<tr>
<td>Alpha</td>
<td>0.1706*</td>
<td>0.2572***</td>
<td>0.2521**</td>
<td>0.3156***</td>
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<td>(1.736)</td>
<td>(2.989)</td>
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<td>Market beta</td>
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<tr>
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<td>(5.594)</td>
<td>(5.488)</td>
<td>(-0.509)</td>
<td>(2.050)</td>
</tr>
</tbody>
</table>

* = 10% level, ** = 5% level, *** = 1% level

Source WestLB Equity Markets

- Individual examples, theoretical considerations with regard to the elements driving shareholder value, but especially empirical analyses prove that sustainability is evidently an independent factor driving profitability.
- Our conclusion “It pays to be good“ is therefore a call for the general introduction of a structured SRI approach to the insurers’ asset management.
Climate change & insurers - claims side

CLIMATE CHANGE AND REPERCUSSIONS ON THE CLAIMS PROCESS OF INSURANCE COMPANIES

Climate change & the insurers

- Losses
- Investments
- New business areas/products

**Non-life insurance**
- Storm, flood, etc.
  - building, household and personal effects
  - business interruption
- Drought
- Fire
- Crop failure
- Transportation
- Accident

**Public liability**
- Product liability
- Directors & Officers

**L & H**
- Life / pensions
- Health / nursing care

Source: WestLB Equity Markets
Climate change and the insurers’ investment business

CLIMATE CHANGE AND ITS REPERCUSSIONS ON THE INSURERS’ CAPITAL INVESTMENTS

Climate change & the insurers

Losses

Investments

New business areas/products

Regulatory measures
- Emissions trading
- CO₂-based taxation

Sales markets
- New products
- Duties of declaration
- Risks to reputation

Production
- Competitive advantages due to efficient use of resources (eco-efficiency)
- Acquisition of qualified staff
- Additional costs resulting from Emissions rights trading, higher insurance premiums

Capital market requirements & corporate governance
- Shareholder activism
- Initiatives taken by institutional investors (e.g. CDP)

Litigation risks
- Claims for damages (e.g. tobacco and asbestos industries)

SURVEY - CLIMATE CHANGE AND CAPITAL INVESTMENTS

9. How do you take account of CO₂ risks/climate risks (and/or opportunities) for the companies in which you invest?

- Systematic approach
- Selective (e.g. certain sectors)
- Not at all
Climate change and impact on insurers’ product business

CLIMATE CHANGE AND ITS REPERCUSSIONS ON INSURERS’ PRODUCT SIDE

Climate change & the insurers

- Losses
- Investments
- New business areas/products
  - Weather-based derivatives
  - Emissions trading
  - CAT bonds
  - Insurance of renewable energy projects
  - Consulting for industrial concerns

SURVEY - CLIMATE CHANGE AND THE PRODUCT SIDE

10. How do you assess the (growth) opportunities for new products/business lines arising from risks associated with climate change?

- For the insurance industry overall
- For your company

Source: WestLB Equity Markets
Gene technology & insurers - brave new world?

GENE TECHNOLOGY AND REPERCUSSIONS ON THE CLAIMS PROCESS OF INSURANCE COMPANIES

Gene technology & insurance

Claims
Capital investments
New business areas/products

Product liability
- Crop failure
- Unintentional distribution of GM seed
- Directors & officers
- Medical/pharmaceutical risks
- Foodstuff related risks

L&H
- Health/nursing care
  → Actuarial risks
  → Costs for medications & treatments
  → Insurability (genetic testing)

Source: WestLB Equity Markets
Geopolitical risks - uncertain times

‘SARS RISKS’ AND THEIR IMPACT ON THE INSURANCE INDUSTRY

‘SARS risks’ & insurance

**Claims**
- Business interruption
- L&H:
  - Life/ pensions;
  - Health/ nursing care
- Public liability:
  - Hospitals
  - Companies that send their employees to affected regions
  - (Directors & Officers)

**Capital Investments**
- Market risk
  - Risk premium
  - Overreactions
- Industry-specific risks (airlines, tourism)

**New business areas/products**
- Specialist insurers for employees who travel in or are dispatched to affected regions
- Individually tailored business interruption and public liability insurance policies

Source: WestLB Equity Markets
Geopolitical risks - uncertain times

SURVEY - TERRORISM RISKS AND THEIR REPERCUSSIONS ON THE CLAIMS PROCESS

Terrorism & insurance

Claims

New business areas/products

Capital investments

Non-life insurance
- Building, household and personal effects, assets
- Business interruption (e.g. FIFA World Cup 2006)
- Transportation
- Accident

Liability
- Airlines
- Construction industry
- Organizers
- Directors & Officers

L&H
- Life/ pensions
- Health/ nursing care

Source WestLB Equity Markets
Geopolitical risks - uncertain times

SURVEY - TERRORISM RISKS AND THEIR REPERCUSSIONS ON THE CAPITAL INVESTMENTS SIDE

24. How do you take account of terrorism risks (and/or opportunities) for the companies in which you invest?

- ex ante; systematic approach (e.g. scenario-based country- and sector allocation)
- ad hoc reaction to the occurrence of specific events (e.g. WTC attack)
- Not at all

Source: WestLB Equity Markets
Geopolitical risks - major loss events also impact the investment side

PERFORMANCE AFTER 11 SEPTEMBER

DJ STOXX 50

Index

10/09/01 22/10/01 03/12/01 14/01/02 25/02/02 08/04/02 01/07/02 12/08/02

DJ STOXX Insurance

Insurance vs. Market

Index

10/09/01 = 100

10.08.01 25.08.01 09.09.01 24.09.01 09.10.1 24.10.01 08.11.01

Source: Datastream, WestLB Equity Markets

DJ STOXX sectors (Performance in %)

(11.9 - 22.9)

Telecommunications -7.3
Healthcare -8.3
Non-Cyclical G&S -9.0
Food & Beverage -11.8
Utilities -14.0
Technology -15.5
Construction -16.8
Retail -17.1
Media -19.9
Energy -20.5
Basic Resources -21.0
Financial Services -21.1
Banks -22.7
Industrial G&S -22.9
Chemicals -28.3
Automobiles -29.7
Cyclical G&S -35.0

Source: Datastream, WestLB Equity Markets
Geopolitical risks - uncertain times

EMERGING MARKETS - RISKS AND OPPORTUNITIES FOR INSURANCE COMPANIES

Underwriting business: opportunities and risks

Particular EM risks
- Underwriting risks:
  - Political Risks
  - Fraud risks
  - Health risks (e.g. SARS)
  - Accident risks
  - Financial risks
- Operative risks:
  - Political risks
  - Currency risks (incl. transfer risks)
  - (premium-) default risks
  - Fraud risks

Products
- Adaptation of conventional insurance products to meet special EM conditions
- Growth: rising standard of living and population growth imply rising premium volumes
- New product: political risk insurance

Capital investments
- Financial and currency risks
- Instability of the financial sector
- Corporate governance
- Fraud risks
- Investment restrictions, Congruency principle

Source WestLB Equity Markets
Sustainability Value Added - incorporating sustainability risk in company valuation

Valuation of insurance companies: WestLB Appraisal Value model with sustainability risk adjustment

\[ \text{WestLB Appraisal Value} = \sum_{i=1}^{\infty} \frac{\text{Shareholder's Surplus}_i \times \text{Book Value}_i}{(1 + \text{CoE})^i} \]

\[ \text{CoE} = r_f + (r_M - r_f) \cdot \beta \]

WestLB Appraisal Value model: valuation gap implied by sustainability risk

diff. in %

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Source: WestLB Equity Markets
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