Forward looking view on Casualty accumulation

Nancy Bewlay, Hub Head Casualty North America, Swiss Re

11th Annual Liability Regimes Conference

Keeping the Floodgates Shut? Mastering Accumulation and Bodily Injury Exposures in a Rapidly Changing Environment

4–5 November 2015, Rüschlikon
Forward looking view on Casualty accumulation

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Forward looking view on Casualty accumulation

• Casualty accumulation matters
• Managing your risk
• Forward looking models to unlock Casualty accumulation
• Exposure data is the key
• Conclusions
Casualty accumulation matters

Recent and less recent examples of Casualty catastrophes
The infamous record of the largest accumulation loss in insurance

History teaches us that the Casualty accumulation risk must be actively managed
Casualty accumulation matters in an interconnected and fast evolving society

It can be this...

... or this
The Methyl Tertiary butyl ether (MTBE) loss complex

Gasoline additive which gives water an unpleasant taste at very low concentrations
Not classified as human carcinogen

MTBE removal from groundwater and soil contamination in the U.S. is estimated to cost from $1bn to $30 bn.
Recently, a jury awarded the State of New Hampshire $236m.

Around 40 oil companies involved
Very long tail nature compared to other common premises/operations exposures of the energy sector
The accumulation view on the Volkswagen diesel emissions scandal ... a not so fictional tale
3D printing, a new industrial revolution with potential for Casualty accumulation risk ... and beyond

- General and product liability
- Product recall
- Professional indemnity
- Medical malpractice

- Business interruption
- Property damage
- Workers compensation
- Employer's liability

- Possible infringements of IP rights
- Strategic and reputational risks
- Environmental impacts
Managing your risk

Ideas to manage the Casualty accumulation risks
Casualty portfolio steering optimizes the usage of financial resources and risk appetite

- Gain clear understanding of in-force exposure and its accumulation potential for casualty accumulation scenarios.
- Define target liability portfolios in line with risk appetite for these scenarios.
- Take actions to steer the portfolios towards the targets.

Portfolio steering must aim at managing the in force risk and at positioning for the future
Swiss Re’s approach to assess the accumulation risk in an insurance portfolio

- Classic Clash
- Serial Aggregation
- Business Disaster
- Systemic Failure

Complexity increases and insurability becomes more difficult

Insurers face a diverse set of accumulation scenarios and should become aware of such exposures in their books.
Scenario analysis is well established to assess the accumulation risk

- The **Economic downturn** scenario is characterized by a clustering of mis-selling scandals, industry-wide misconducts and failures of institutions (“common revealing trigger” – not a causal link)
- The **Regulatory/legal change** scenarios is characterized by stricter enforcement of existing rules on a global basis

<table>
<thead>
<tr>
<th>Subscenarios</th>
<th>Historic examples</th>
<th>Insured loss 1</th>
<th>Economic Downturn</th>
<th>Regulatory/ Legal Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>case A 1</td>
<td>case B 1</td>
</tr>
<tr>
<td>Wrongful prof advice</td>
<td>UK pension industry scandal,</td>
<td>10-20bn</td>
<td>4 events</td>
<td>none</td>
</tr>
<tr>
<td></td>
<td>Madoff</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry-wide misconduct</td>
<td>Subprime crises</td>
<td>20-30bn</td>
<td>3 events</td>
<td>1 event</td>
</tr>
<tr>
<td>M&amp;A and IPO related</td>
<td>Daimler, CS First Boston</td>
<td>0-5bn</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>Accounting fraud / insolvency</td>
<td>WorldCom, Enron</td>
<td>0-5bn</td>
<td>10 events</td>
<td>10 events</td>
</tr>
<tr>
<td>Abusive Tax shelter</td>
<td>Sidley Austin Brown &amp; Wood</td>
<td>0-5bn</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>50-100bn</td>
<td></td>
<td>30-50bn</td>
</tr>
</tbody>
</table>

Backward looking scenarios provide guidance and help in assessing existing loss complexed, but need to be enhanced to model a changing society

1 Indicative and for illustration.
What makes accumulation a threat to (re-)insurance?

Should a large liability catastrophe arise, the following threats are considered to be the main dangers for (re-)insurance companies.

<table>
<thead>
<tr>
<th>Threat</th>
<th>Impact on</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large reserve increase</td>
<td>Capital, Rating, Profit</td>
</tr>
<tr>
<td>Continuous reserve increases</td>
<td>Rating, Capital, Long-term earnings, Reputation, Profit</td>
</tr>
<tr>
<td>Large immediate payment</td>
<td>Liquidity</td>
</tr>
<tr>
<td>Headline loss, loss after which no hard market follows</td>
<td>Rating, Reputation</td>
</tr>
</tbody>
</table>

**Note:** All dangers may be exacerbated in case of correlation with other business, e.g. L&H and Asset Management. Correlations can be calculated if risk drivers / scenarios are shared between Casualty and other business. While conceptually possible, this is currently out of scope.
Forward looking models to unlock Casualty accumulation

Forward looking models are key to shape the understanding of Casualty accumulation going forward
We need a forward-looking approach in liability modelling

- **Risk of change**
  - Anticipate changes adequately and consistently
  - Enter new markets and segments
  - Understand sensitivity of losses to key factors to better manage our portfolios

- **Liability accumulation**
  - Identify liability catastrophes (L-cat) early on in order to understand impact on market and own portfolios, to manage own accumulation and to steer risk appetite

➡️ Swiss Re uses a proprietary approach called Liability Risk Drivers™ as next generation pricing model
Understanding what drives risk in liability is key to improving underwriting quality

Cat event = laws of physics

Hazard + Vulnerability + Values + Conditions

Liability event = rules of life

Macro environment + Social standards + Legal system + etc. + Conditions

Swiss Re

Nancy Bewlay | GA Liability Regimes | November 2015
Scenarios provide transparency on loss drivers and allow to manage the accumulation risk

The loss scenarios contribute with less than 2% to the expected loss.
A forward looking model provides a structured framework to assess exposures where data is limited.
Early assessment of the accumulation risk due to legal changes influences underwriting strategy

Impact for a selection of industries

Effect of mass tort on expected loss from 2014 to 2017

<table>
<thead>
<tr>
<th>Industry</th>
<th>2014 - 2015</th>
<th>2015 - 2016</th>
<th>2016 - 2017</th>
<th>MD mass tort effect on top (base line)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemicals</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2016 - 2017</td>
<td>4.62%</td>
<td></td>
<td></td>
<td>0.63%</td>
</tr>
<tr>
<td>2015 - 2016</td>
<td>4.50%</td>
<td></td>
<td></td>
<td>0.89%</td>
</tr>
<tr>
<td>2014 - 2015</td>
<td>4.99%</td>
<td></td>
<td></td>
<td>1.52%</td>
</tr>
<tr>
<td>Food</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016 - 2017</td>
<td>4.41%</td>
<td></td>
<td></td>
<td>0.41%</td>
</tr>
<tr>
<td>2015 - 2016</td>
<td>4.27%</td>
<td></td>
<td></td>
<td>0.64%</td>
</tr>
<tr>
<td>2014 - 2015</td>
<td>4.69%</td>
<td></td>
<td></td>
<td>0.93%</td>
</tr>
<tr>
<td>Machinery</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016 - 2017</td>
<td>3.70%</td>
<td></td>
<td></td>
<td>1.17%</td>
</tr>
<tr>
<td>2015 - 2016</td>
<td>3.50%</td>
<td></td>
<td></td>
<td>2.23%</td>
</tr>
<tr>
<td>2014 - 2015</td>
<td>4.02%</td>
<td></td>
<td></td>
<td>0.33%</td>
</tr>
<tr>
<td>Transportation equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016 - 2017</td>
<td>3.35%</td>
<td></td>
<td></td>
<td>0.14%</td>
</tr>
<tr>
<td>2015 - 2016</td>
<td>3.27%</td>
<td></td>
<td></td>
<td>0.20%</td>
</tr>
<tr>
<td>2014 - 2015</td>
<td>3.49%</td>
<td></td>
<td></td>
<td>0.26%</td>
</tr>
</tbody>
</table>

- without mass tort (inflation plus general increase in willingness to claim)
- MD mass tort effect on top (base line)

Information on ratings used:
- Single company with 100m € turnover
- France domestic business for products and operations
- Lines of business covered: Public liability (incl Premises & Operations, EL, Pollution S&A), Products liability
Exposure data is the key

Why do we accept different levels of transparency between Property and Casualty?
It is the right time to start investing in actively managing the casualty accumulation risk

Exposure data quality and forward looking casualty event sets are key for assessing the casualty accumulation exposure
CRESTA-type standards for Casualty

The Property market has undergone a transparency transformation. Why do we accept this intransparency in Casualty?

Data standards will ensure high quality input for risk models. This enables to measure casualty accumulation risk which threatens the balance sheet.

Increased transparency of exposure will enable further risk-taking activities.
Conclusions

Casualty accumulation must be actively managed
Conclusion

Casualty accumulation matters in an interconnected and fast evolving society

• New technologies increase the threat of Casualty accumulation risk
• It is time to start increasing resilience of Casualty portfolios

Exposure data and forward looking models are key for a proper assessment and management of the risk

• New tools enable better understanding of underlying exposures

Active management of Casualty accumulation risk is key to enable future risk taking activities

• The insurance role in supporting the growth of society depends on it
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