

Forward looking view on Casualty accumulation

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

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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



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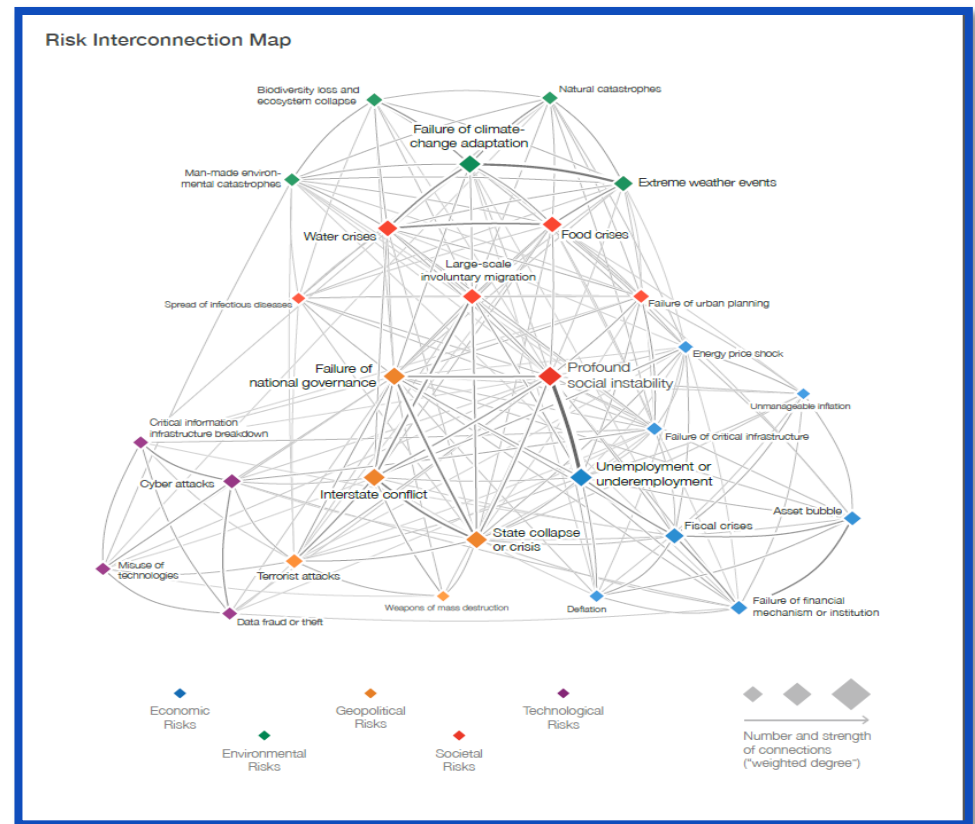
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History teaches us that the Casualty accumulation risk must be actively managed

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



Directors&Officers



Unemployment insurance



Employers Liability

Product Recall



Product Liability



Environmental Liability

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

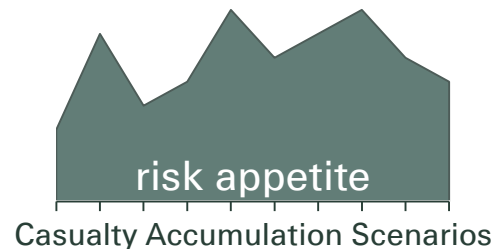
Ideas to manage the Casualty accumulation risks

Casualty portfolio steering optimizes the usage of financial resources and risk appetite

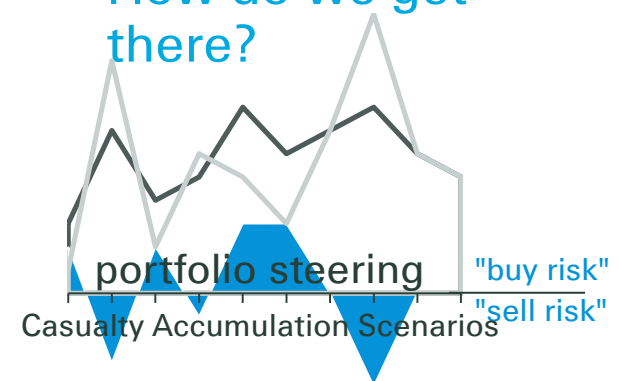
Where does our portfolio stand?



Where do we want it to be?



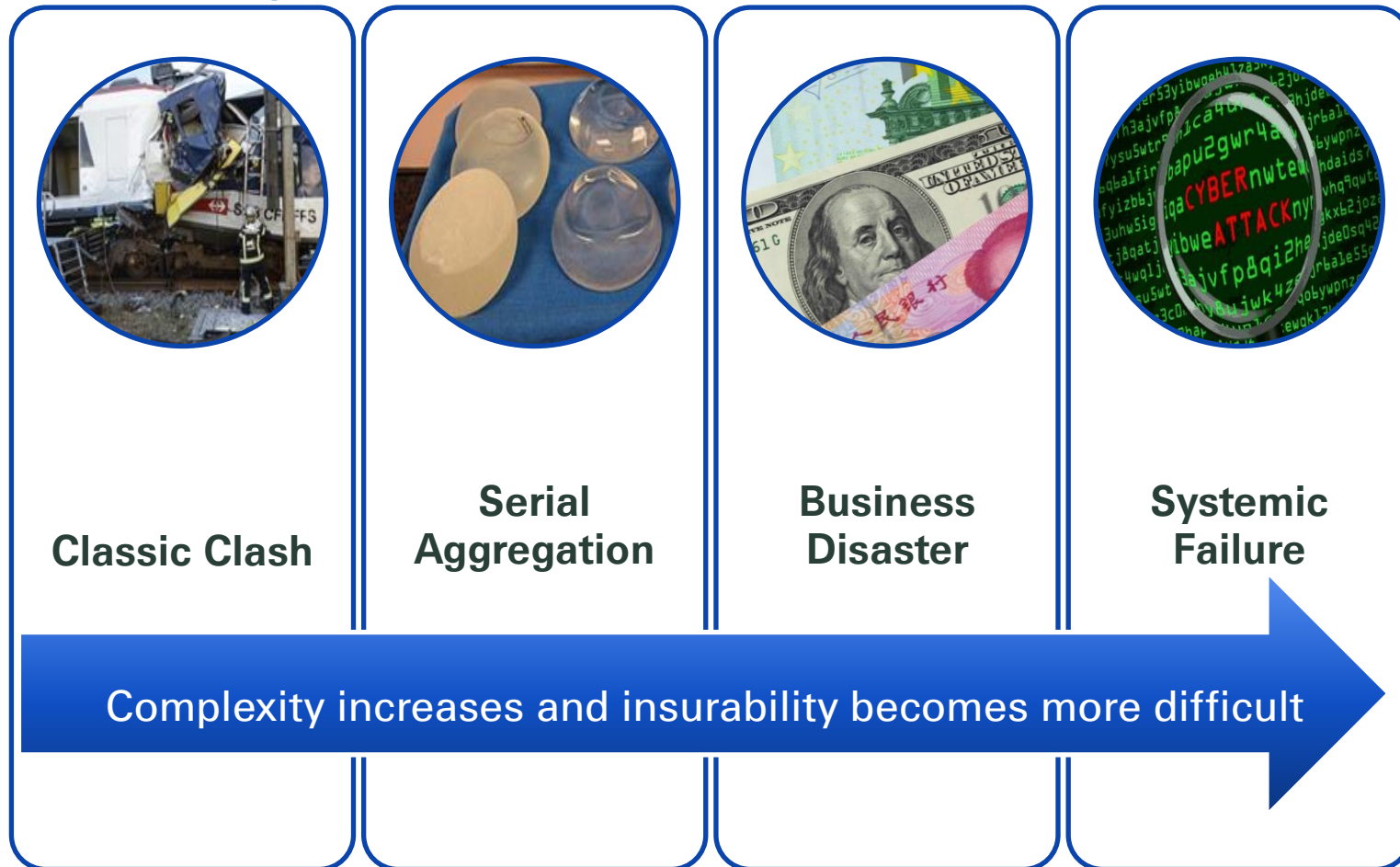
How do we get there?



- 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



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

¹ Indicative and for illustration.

Subscenarios	Historic examples	Insured loss ¹	Economic Downturn		Regulatory/ Legal Changes	
			case A ¹	case B ¹	case A ¹	case B ¹
Wrongful prof advice	UK pension industry scandal, Madoff	10-20bn	4 events	none	2 events	none
Industry-wide misconduct	Subprime crises	20-30bn	1 event	3 events	1 event	none
M&A and IPO related	Daimler, CS First Boston	0-5bn	none	none	none	none
Accounting fraud / insolvency related	WorldCom, Enron	0-5bn	10 events	10 events	2 events	2 events
Abusive Tax shelter	Sidley Austin Brown & Wood	0-5bn	none	none	none	10 events
		Total	50-100bn		30-50bn	

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

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.

Threat	Impact on
Large reserve increase	Capital, Rating, Profit
Continuous reserve increases	Rating, Capital, Long-term earnings, Reputation, Profit
Large immediate payment	Liquidity
Headline loss, loss after which no hard market follows	Rating, Reputation

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**

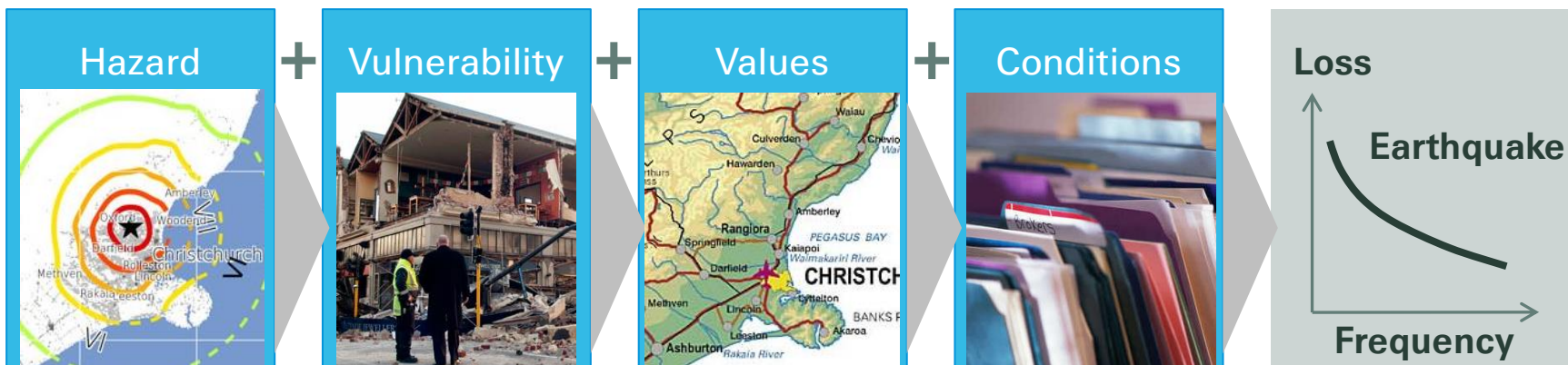
Liability accumulation

- ❑ **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

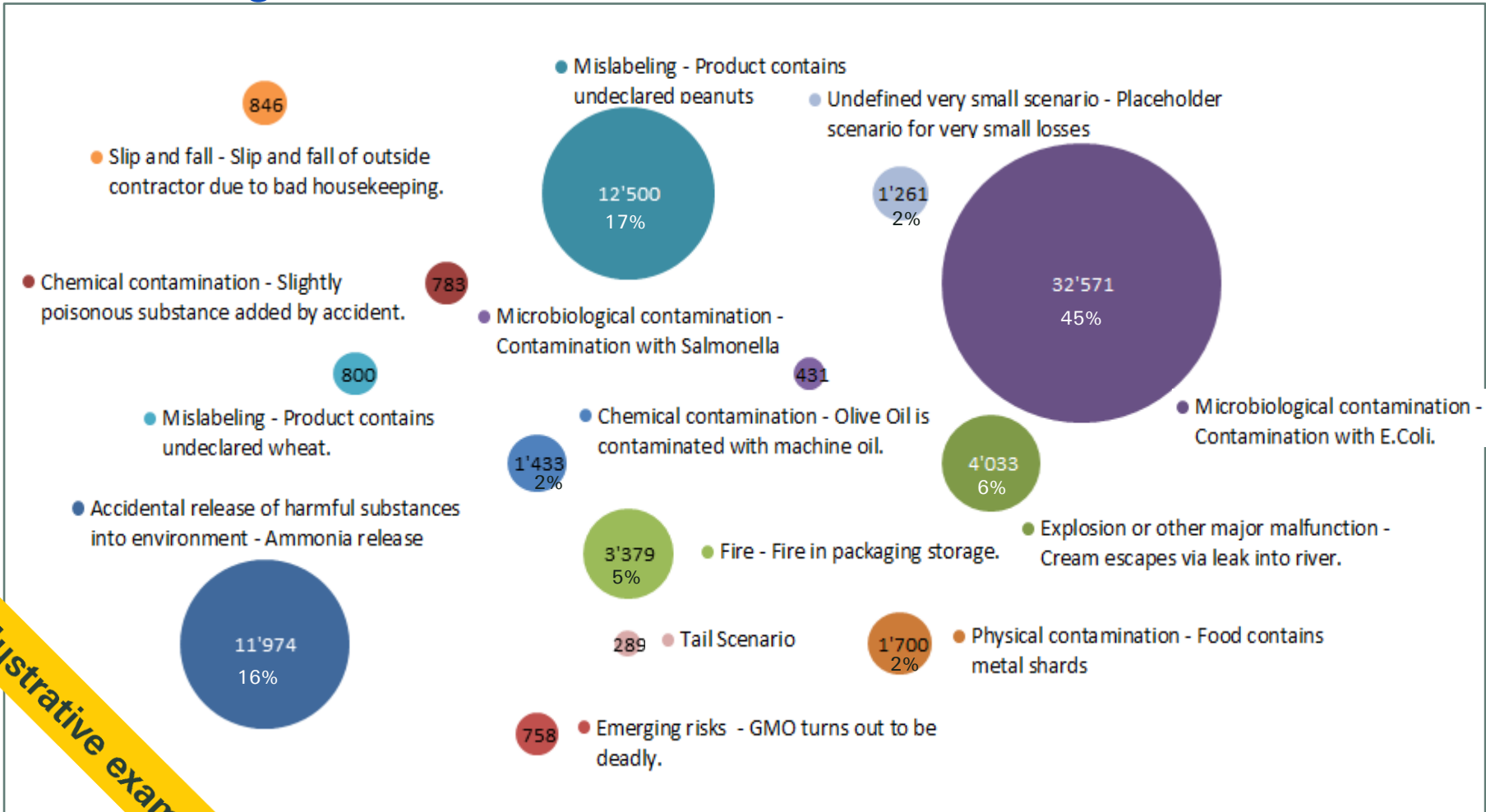
Cat event = **laws of physics**



Liability event = **rules of life**



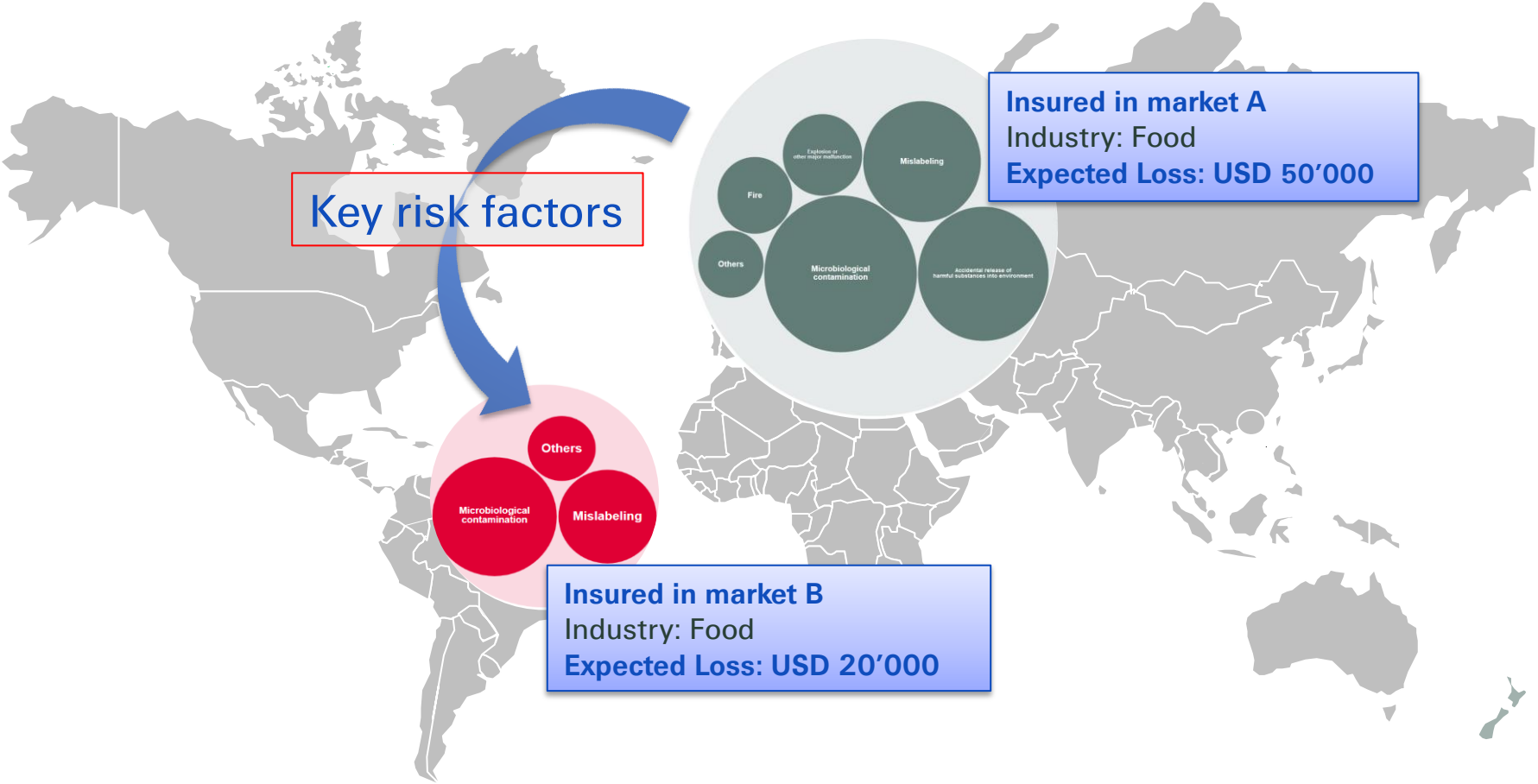
Scenarios provide transparency on loss drivers and allow to manage the accumulation risk



Illustrative example

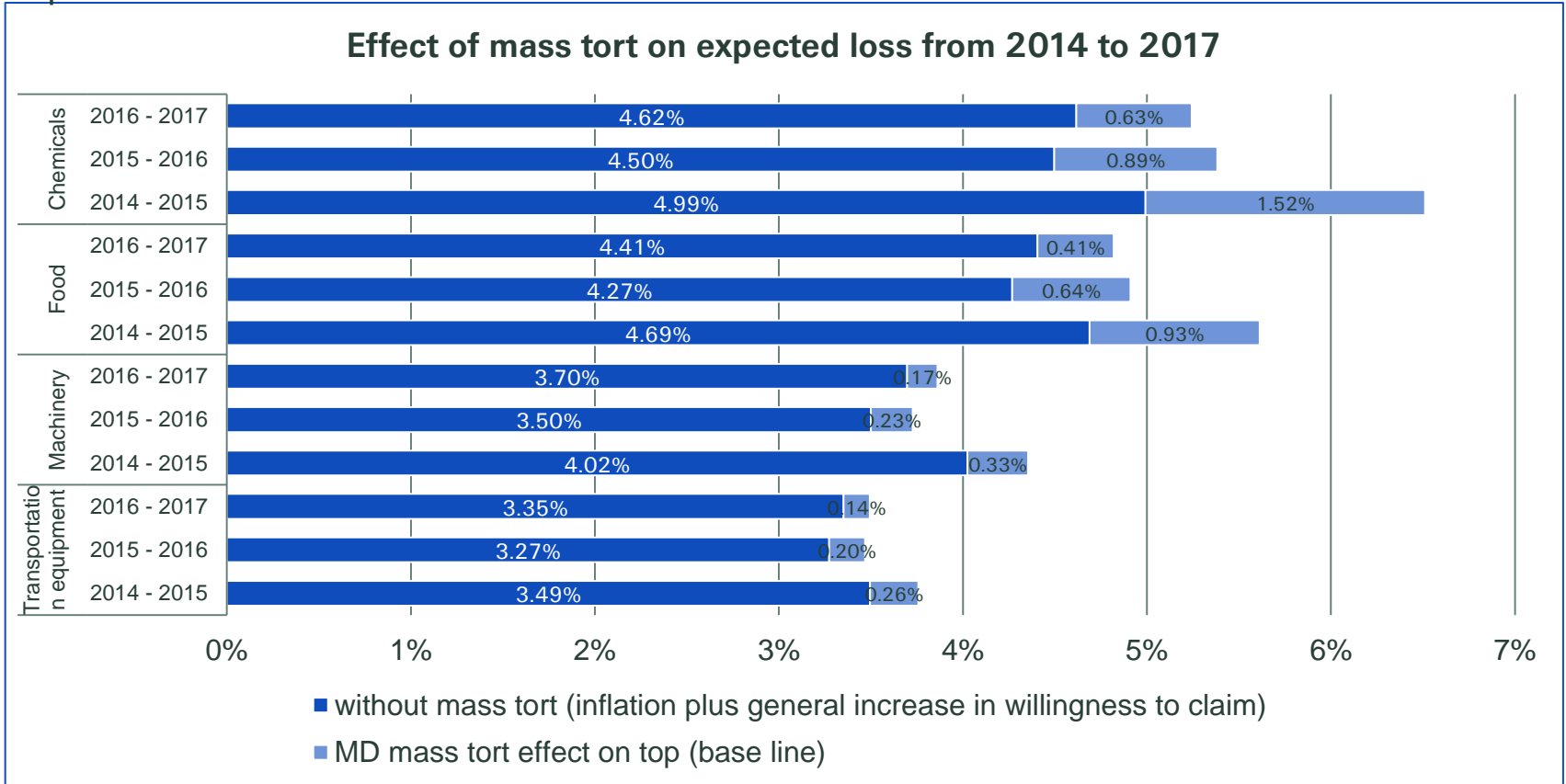
The loss scenarios ●●●●● contribute with less than 2% to the expected loss

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



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 ?

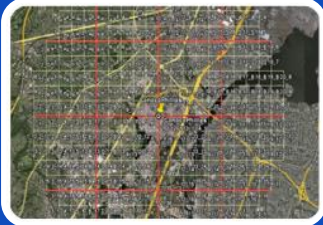
It is the right time to start investing in actively managing the casualty accumulation risk



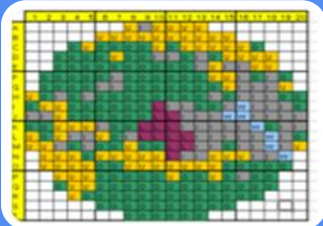
	Property		Casualty		
	Name	Example	Name	Example	Example
Level 1		Nat Cat		L-Cat	L-Cat
Level 2	Peril	TC	L-Cat type	LLC	ULC
Level 3	Main Scenario	TC North Atlantic	Main Scenario	Train Accidents	Building Materials
Level 4	Scenario	TC Florida	Scenario	Train Accident – Train collision with non-train	Asbestos, Chinese Drywall
Level 5	Event	Event x (Miami) Event y (Daytona)	Event (Context given)	ICE derailment 2008 (train runs into sheep causing 20 Bodily Injuries)	Ortiz vs. Fibreboard 1999 (global settlement agreement over \$1.5bn)

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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