



# PROPERTY RISK & CATS: PLAYING TOGETHER

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# Framework is Technical Analysis

## Playing Nice/Negotiation Matters

### Covered so far: Preparation

- Theory
- Mechanics
- Actuarial Truth

### Now what? Market Seems Messy

- “Information means questions, more information means more questions. This is why I don’t want to share information.”
- “Our internal guidelines require . . .”
  - “ECO/XPL margins” (on small line buffer layer S&L property)
  - “Recognition of climate change”
  - “Meteor strike loads”

### Broad Takeaways

- Focus on bigger issues
- Facts and values
- Service and relationship matter
  - II: Underwriters will have to deliver ‘concierge service’ – Reins buyer

# Experience/Exposure Rating is Baseline

## Baseline May Contain Meaningful Error

### Profiles vs Curves

- Policy vs Risk Profiles
- European profiles can be PML/MFL
- Policy risk definition
- Premium allocation

### Building vs Contents

- COPE

### Static vs Updated Curves

- Lloyds; Swiss Re, Munich Re, Skandia
- Salzmann; Hartford
- INCPE; MBBEFD
- Pre-'94 ISO; PSOLD

### Unique lines

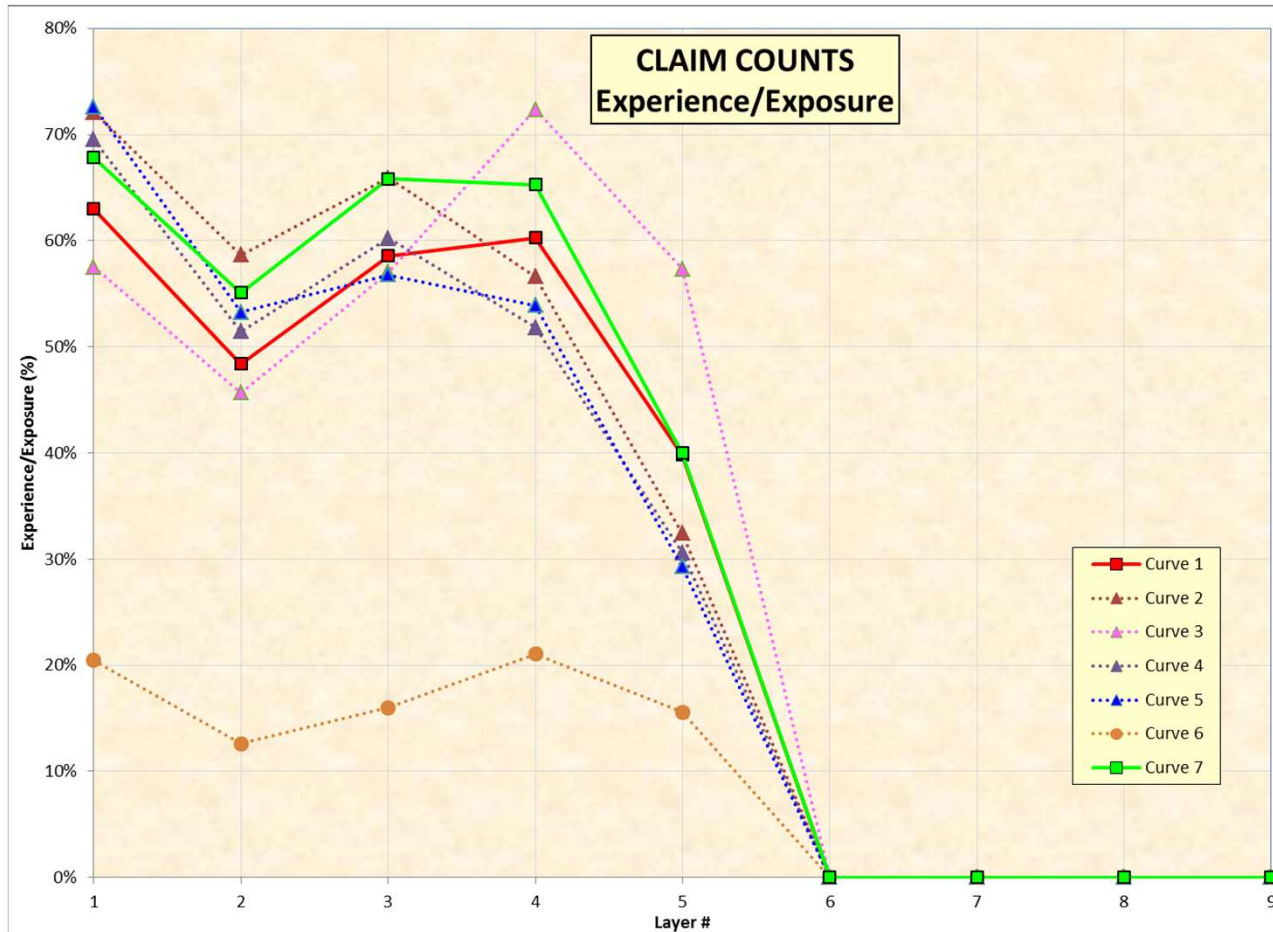
- EB, HPR
- CAR/EAR
- PML, MFL breaks

### Curve Selection

- Review experience vs exposure

# What is Your Baseline?

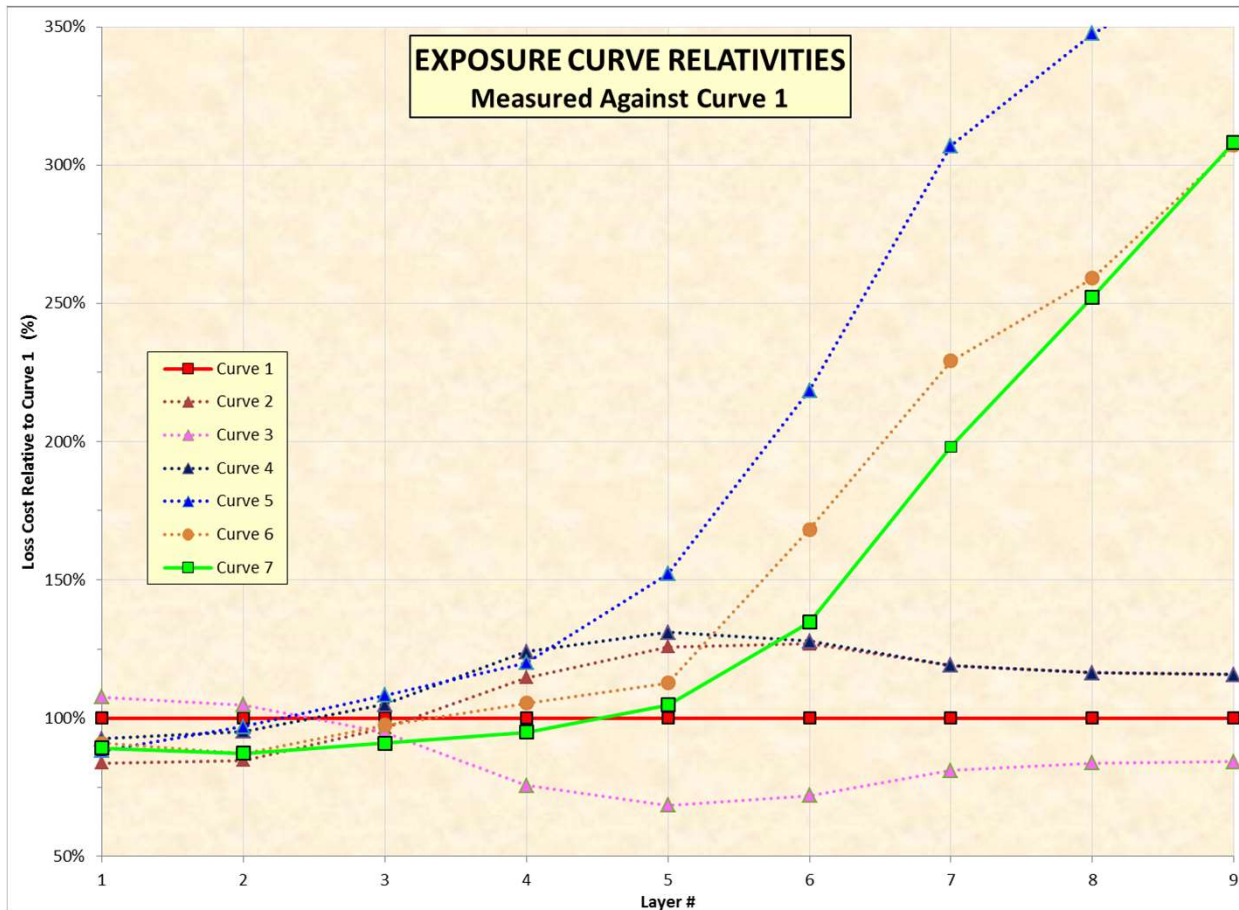
## Goal is Stable Experience to Exposure Ratio



- Credible experience in Layers 1-4
- Anomaly in Layer 2
- C-6 is a PML curve
- Where credible experience
  - Downward slope suggests exposure too severe (C-2, C-4 & C-5)
  - Upward slope suggests exposure too light (C-3)
- Still need to know differences in exposure curves where no experience
- How do 1 or 2 claims change the comparison?
  - Experience period?

# What is Your Baseline?

## Goal is Stable Experience to Exposure Ratio

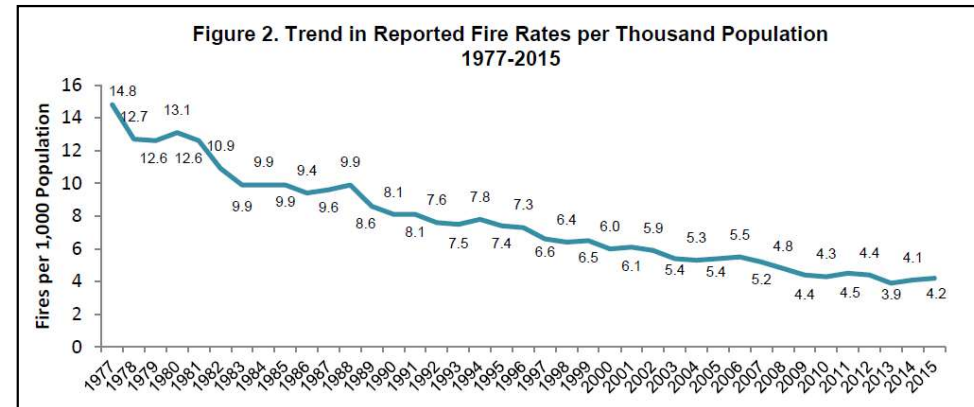


- Curve 7 has runaway tail
  - 3x+ loss cost of C-1 in L-9
  - No experience in layers 6-9
- Curve 5 approaches pro rata
  - Inappropriate given portfolio
- Understand source of curves
  - Loss cost vs margin
- Min rate per 100/TIV?
- Avoid information overload
  - Informed underwriting critical
  - But not this: “I like to see all this uncertainty. It allows me to choose the number I want.”

# Experience/Exposure Rating is Baseline Adjustments Can Be Meaningful & Require Judgment

- NFPA: 30-yr decreasing trend in fires
- AGCS Global Claims Review
  - Trends in corporate property loss
- Other Emerging Issues
  - Photovoltaics; combustible exteriors; multi-story wood structures; fire depts - paid vs volunteer, surround & drown; telematics
- Weather: Cycles vs Trends
- Changes in:
  - Underwriting leadership
  - Underwriting authorities
  - Line/class of business
  - Inuring reinsurance
  - Wordings

## NFPA Fire Trends



Source: Trends and Patterns of U.S. Fire Loss, January 2017, Marty Ahrens, NFPA, www.nfpa.org

## AGCS Loss Observations

- 1 INCREASING VOLATILITY AND SEVERITY
- 2 THE INNOVATION EFFECT
- 3 LARGER AND MORE COMPLEX BI AND CBI ACTIVITY
- 4 NEW LOSS SCENARIOS
- 5 THE CYBER EFFECT
- 6 INSURTECH IMPROVES CLAIMS PROCESS

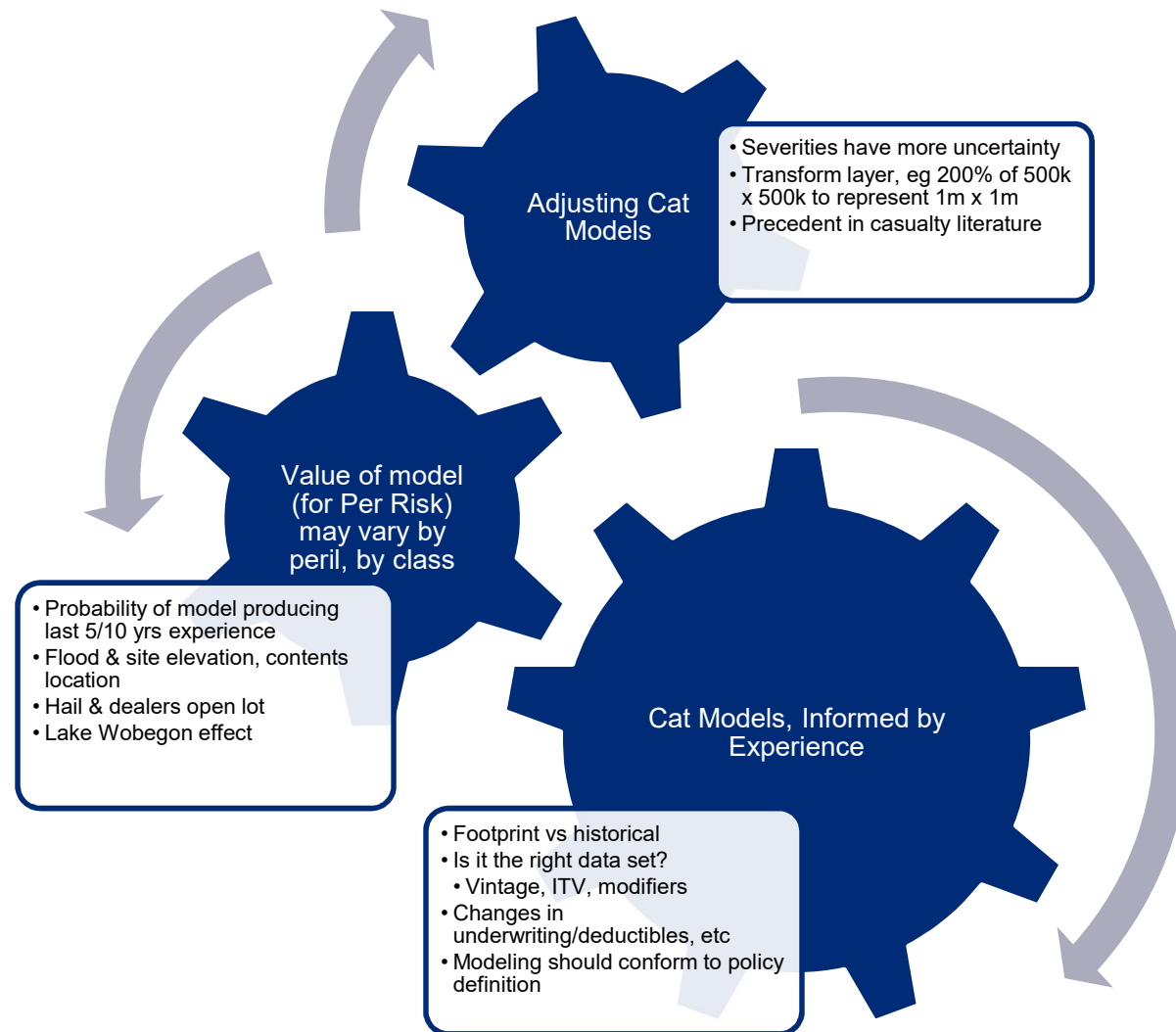
## Multi-Story Wood



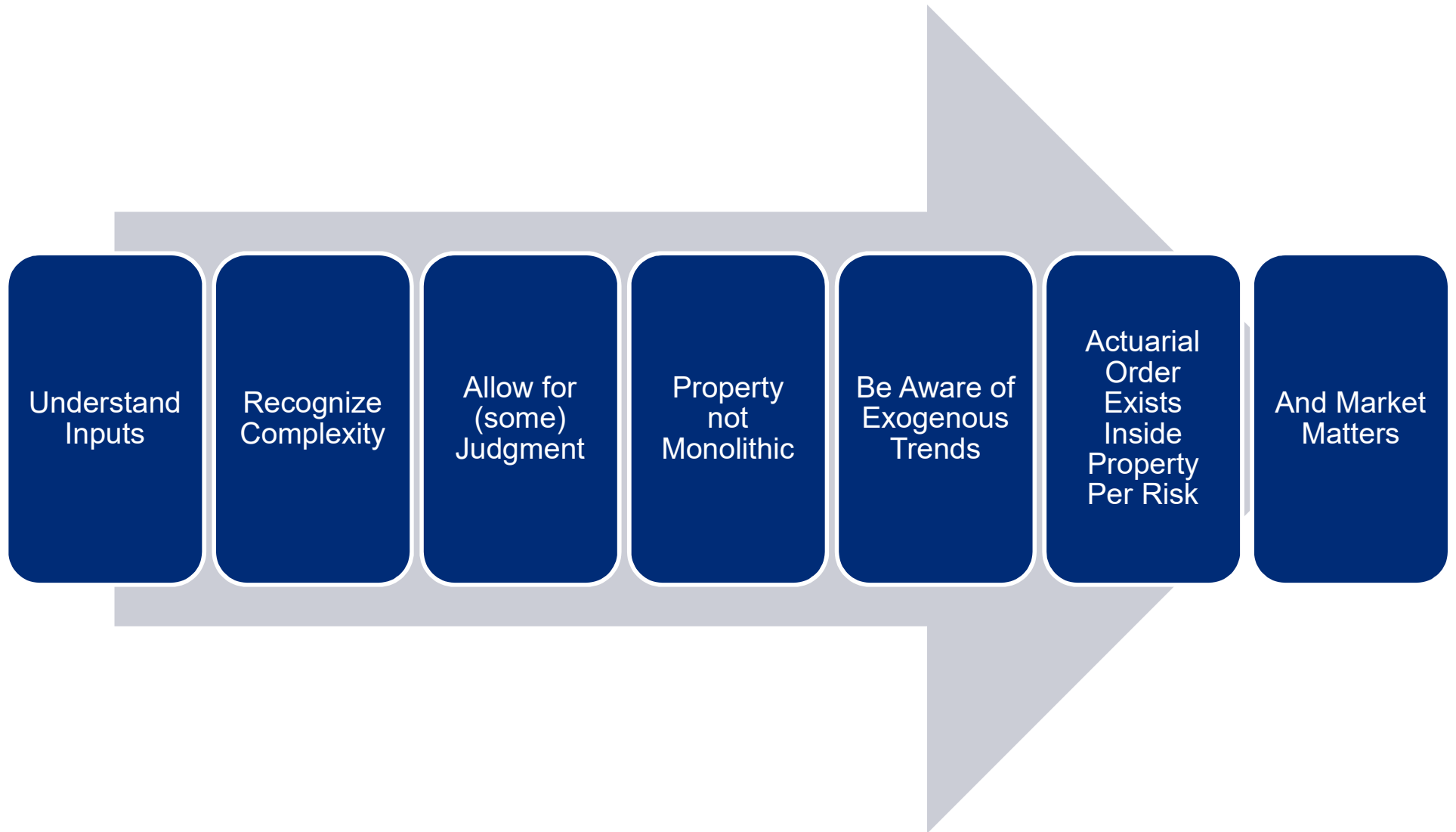
Plumbing pipe failure due to lack of shrinkage accommodation in adjoining wood stud hole

Source: [www.woodworks.org/wp-content/uploads/2014/04/Shrinkage-Multi-Story-Wood-Frame-Structures-WoodWorks.pdf](http://www.woodworks.org/wp-content/uploads/2014/04/Shrinkage-Multi-Story-Wood-Frame-Structures-WoodWorks.pdf)

# Property Cat is Multiple Causes of Loss Each May Need Separate Treatment



# Concluding Comments





# Disclaimers



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This presentation (report, letter) is not intended to be a complete actuarial communication. Upon request, we can prepare one. We are available to respond to questions regarding our analysis.

There are many limitations on actuarial analyses, including uncertainty in the estimates and reliance on data. We will provide additional information regarding these limitations upon request.

As with any actuarial analysis, the results presented herein are subject to significant variability. While these estimates represent our best professional judgment, it is probable that the actual results will differ from those projected. The degree of such variability could be substantial and could be in either direction from our estimates.

The estimated cash flows may vary significantly from amounts actually collected, particularly in the event that a reinsurer is unwilling or unable to perform in accordance with the terms of the reinsurance contract.

In performing this analysis, we relied on outside sources for publicly available data. We did not perform an independent review of these estimates.

# Appendix A

## Data Underlying Graphs on Slides 3 & 4

Layer	Curve 1	Curve 2	Curve 3	Curve 4	Curve 5	Curve 6	Curve 7
<b>A. Exper/Expos Frequency</b>							
1	63%	72%	57%	70%	73%	20%	68%
2	48%	59%	46%	51%	53%	13%	55%
3	59%	66%	57%	60%	57%	16%	66%
4	60%	57%	72%	52%	54%	21%	65%
5	40%	32%	57%	31%	29%	16%	40%
6	0%	0%	0%	0%	0%	0%	0%
7	0%	0%	0%	0%	0%	0%	0%
8	0%	0%	0%	0%	0%	0%	0%
9	0%	0%	0%	0%	0%	0%	0%
<b>B. Exper/Expos AAL</b>							
1	57%	68%	53%	62%	65%	63%	64%
2	55%	65%	52%	58%	57%	63%	63%
3	55%	57%	58%	52%	51%	56%	60%
4	55%	48%	72%	44%	46%	52%	58%
5	1%	1%	1%	0%	0%	1%	1%
6	0%	0%	0%	0%	0%	0%	0%
7	0%	0%	0%	0%	0%	0%	0%
8	0%	0%	0%	0%	0%	0%	0%
9	0%	0%	0%	0%	0%	0%	0%
<b>Exposure AAL as % of Curve 1</b>							
1	0%	-16%	8%	-8%	-12%	-9%	-11%
2	0%	-15%	5%	-5%	-3%	-13%	-13%
3	0%	-4%	-5%	5%	8%	-3%	-9%
4	0%	15%	-24%	24%	20%	5%	-5%
5	0%	26%	-32%	31%	52%	13%	5%
6	0%	27%	-28%	28%	118%	68%	35%
7	0%	19%	-19%	19%	207%	129%	98%
8	0%	16%	-16%	16%	248%	159%	152%
9	0%	16%	-16%	16%	276%	207%	208%
Layers 1-4 have meaningful experience							

## Appendix B

# NFPA: Large Loss Fires in the United States (Nov 2017)

**Table 2.**  
**Large-Loss Fires that Caused \$10 million or more in Property Damage, 2007-2016**

Year	Number of Fires	Number of Fires Causing \$10 Million or More (in 2007 Dollars)	Direct Property Damage (in Millions)	
			Unadjusted	In 2006 Dollars
2007	45	45	\$3,393	\$3,393
2008	34	28	\$2,322	\$2,178
2009	25	21	\$950	\$879
2010	17	12	\$652	\$572
2011	23	18	\$820	\$709
2012	26	18	\$1,463	\$1,247
2013	21	15	\$845	\$697
2014	26	23	\$714	\$599
2015	27	17	\$2,535	\$2,126
2016	25	18	\$1,444	\$1,187

Note: Number of fires and unadjusted loss are based on data from studies that appeared in previous annual large-loss studies. Some of the information may differ from previously published material because material was updated after publication.

Note: Adjustment for inflation is based on the Consumer Price Index using 2007 as a base year. Note that adjustment for inflation not only reduces the total dollar loss for each year but also reduces the number of fires when adjusted losses large enough to qualify as large-loss fires.

Source: NFPA's Fire Incident Data Organization

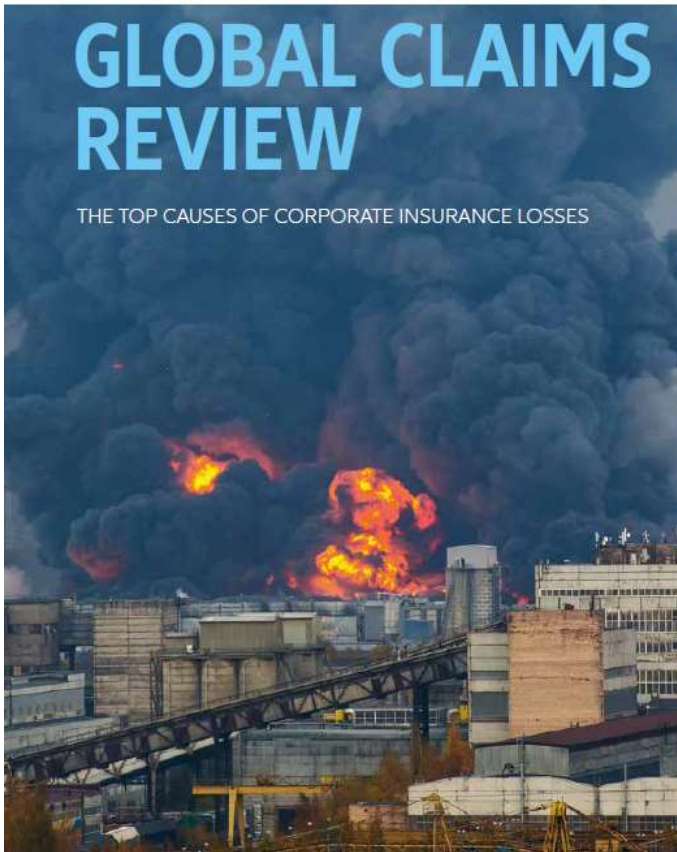
# Appendix C

## AGCS Global Claims Review

ALLIANZ GLOBAL CORPORATE & SPECIALTY

# GLOBAL CLAIMS REVIEW

THE TOP CAUSES OF CORPORATE INSURANCE LOSSES



ANALYSIS OF 470,000+ CLAIMS FROM  
OVER 200 COUNTRIES AND TERRITORIES



<https://www.agcs.allianz.com/news-and-insights/reports/claims-in-focus.html>

INDUSTRY OUTLOOKS

## PROPERTY CLAIMS TRENDS

Changes in corporate risk and demand for broader coverage to support the impact of innovative technologies are driving a trend towards increasing volatility in property claims, with larger claims, as well as supply chain and cyber losses.

### 1 INCREASING VOLATILITY AND SEVERITY

Analysis of AGCS claims shows an increase in the size of large losses, reflecting huge changes in how many sectors now operate. Globalization and the development of integrated supply chains are leading to much higher concentrations of insured values, both in terms of assets and business interruption (BI) exposures.

"In general, claims values are higher with inflation and greater concentrations in value," explains **Raymond Hogendoorn, Property and Engineering Claims Specialist at AGCS**. "For example, as manufacturing clients have become more efficient, the values per square meter have risen exponentially. Fire and flood claims are now much more expensive per square meter than even a decade ago."

One area where property claims have shown increasing volatility has been in natural catastrophes. Following a period of benign claims, 2017 brought a record year, marked by storms, wildfires and earthquake activity. After a quiet start, 2018 saw some large losses – Hurricane Florence resulted in unprecedented flooding in North and South Carolina, while California witnessed some of its biggest and deadliest wildfires on record.

"Top of the bill for largest losses were the storms and wildfires in the US in 2017 and 2018, although there have also been a number of large man-made losses, including dam breaches and industrial fires that will generate costly claims for insurers," says Hogendoorn. Although the frequency of natural catastrophe claims has not increased, the long term trend towards increased severity and volatility continues, in large part due to the steady increase in insured assets in catastrophe-exposed regions worldwide. Natural catastrophe claims in so-called emerging markets, for example, are becoming more costly with higher insurance penetration and economic activity. **Asia**, in particular, has seen an increase in large claims, especially **Japan**, but exposures are also increasing in other countries. In 2018, typhoons Mangkhut and Jebi caused extensive damage through wind, storm surge and flood in China, Hong Kong and the Philippines.

"Natural catastrophe losses in Asia are becoming more relevant as businesses invest in regions with significant exposures to storms, flooding and earthquakes, and as insurers like AGCS follow their clients into these markets," says Hogendoorn.

# Appendix D

## GIRO Paper: Property Per Risk



Institute  
and Faculty  
of Actuaries



### Analysing the disconnect between the reinsurance submission and global underwriters' needs

Property per risk

by the IFoA / CAS International Pricing Research Working Party

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1 August 2017 (Reprint)

<http://www.actuaries.org.uk/practice-areas/pages/international-pricing-research-working-party>

#### IFoA / CAS International Pricing Research Working Party - 2016 Analyzing the Disconnect Between the Reinsurance Submission and Global Underwriters' Needs - Property Per Risk

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