



The Actuarial Profession

making financial sense of the future

Momentum Conference 2012
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Recent Natural Disasters

Has the Reinsurance Market really changed?

Recent Natural Disasters

Has the Reinsurance Market really changed?

I would like to talk about the following questions

- Were the losses in 2010 and 2011 really exceptional?
- Were they a direct result of a changing Reinsurance market?
- How have prices on a global scale reacted after the events?
- Are we living in a different Reinsurance world today and how will it be going forward?

Recent Natural Disasters

Has the Reinsurance Market really changed?

Before we start....

- This presentation was written at the end of October
- It was going to be a great year for Reinsurance
- Two days before submission date....
- Sandy hit the North East
- It might not be that perfect after all....
- Such is life in Reinsurance



Recent Natural Disasters

Has the Reinsurance Market really changed?

Session Overview

- Introduction
- Reminder of the 2010 and 2011 disasters
- Comparison to previous years
- Reinsurance prices in 2012
- Why are today's prices where they are?
- Today's market in general
- Future risk areas
- Summary

Introduction

RJ Kiln

- One of the largest Lloyd's market managing agents
- Part of the Tokio Marine Group
- Manages a total of 4 syndicates
- Large part of the business is in property reinsurance
- Worldwide exposure to potential catastrophe losses



Disasters of 2010 and 2011

Major events in 2010 and 2011

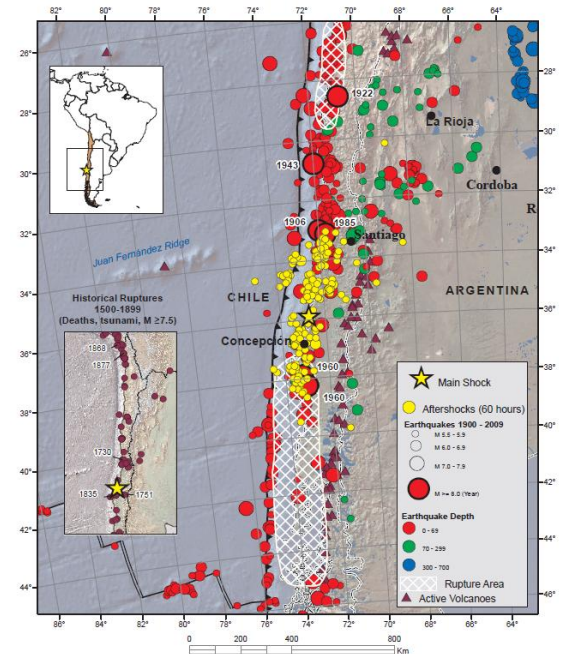
- Maule, Chile earthquake (27th Feb 2010)
- Windstorm Xynthia in Europe (27th Feb 2010)
- Christchurch, New Zealand earthquake (3 events)
- Queensland, Australia flood (Dec 2010 to Jan 2011)
- Tohoku, Japan earthquake (11th Mar 2011)
- Severe Thunderstorms in the US (April/May 2011)
- Thailand floods (Jul 2011)
- Hurricane Irene in the US (22nd Aug 2011)

Maule, Chile earthquake

27th Feb 2010

Event Details

- Largest Insured Loss of 2010
- Magnitude 8.8 off the coast of Chile
- Almost 700 people died in the event
 - Loss of life relatively low due to
 - Enforced building codes
 - Quality construction
 - Public awareness
- Insured Losses: USD 8bn*



Source: USGS

*Figures on this and the following slides from Swiss Re Sigma reports

Windstorm Xynthia

27th Feb 2010

Event Details

- 64 people lost their lives
- Damage predominantly in France
 - Properties, transport networks and infrastructure
- Insured Losses: USD 2.8bn



Source: BBC News

Christchurch, New Zealand earthquakes

Event Details

- First event in September 2010
 - Losses of USD 4.5bn
- Second event in February 2011
 - Losses of USD 12bn
 - 185 casualties
- Third event in June 2011
 - Insured Losses of USD 2bn
- Low magnitude but
 - Large losses due to liquefaction
 - Shallow epicentre, close to the city



Source: The Guardian

Queensland, Australia flood

Dec 2010 to Jan 2011

Event Details

- Area larger than France and Germany combined:
 - Queensland, New South Wales and Victoria
- Heavy rains in December and January
 - Due to strong La Niña
- Cyclone Tasha in December
- Losses of USD 4.4bn



Source: Telegraph

Tohoku, Japan earthquake

11th Mar 2011

Event Details

- 19,184 Victims
- Magnitude 9.0
- Event of such magnitude had previously not been recorded in the area
- Major Tsunami up to 6m
- Insured losses of USD 35bn



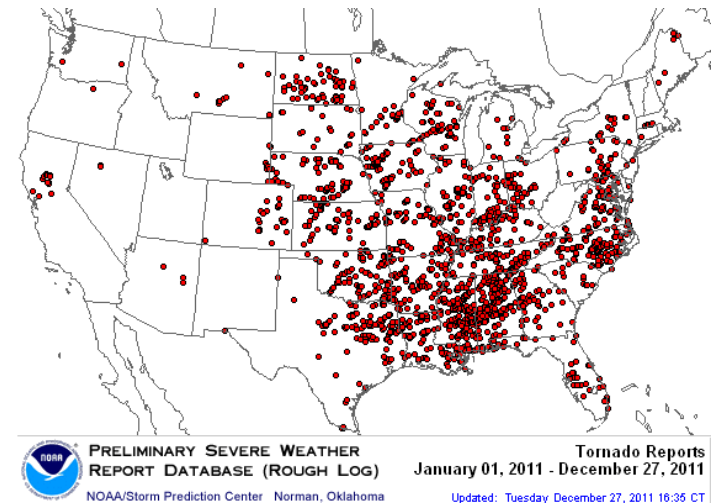
Source: econfix

Tornados in the US

April/May 2011

Event Details

- Two outbreaks
 - April 22nd to 28th, mainly in Alabama
 - May 20th to 27th in Missouri
- Hundreds of people killed across the US
- Overall losses in excess of USD 15bn



Thailand floods

July 2011

Event Details

- Losses of around USD 12bn
- Unusually Heavy monsoon
- Above average rainfall already before monsoon season
- 64 of 76 provinces affected by flooding



Source: U.S. Marine Corps photo by Cpl. Robert J. Maurer

Hurricane Irene

22nd Aug 2011

Event Details

- Extensive Flooding due to heavy rainfall
- Moved along the US coast from North Carolina to New York and Vermont
- Insured loss of USD 5.3bn



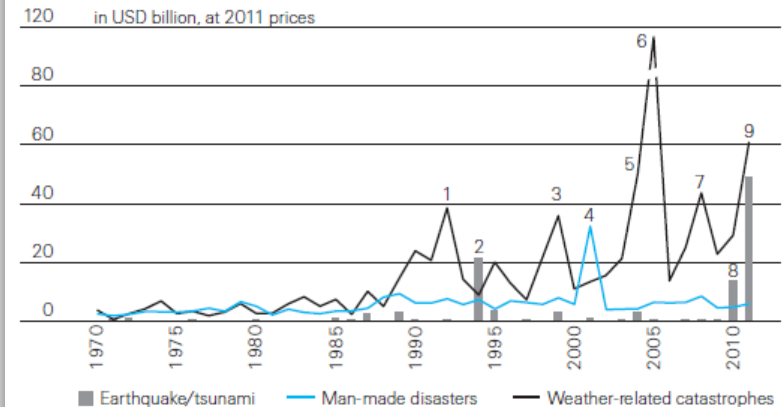
Source: NASA

Disasters of 2010 and 2011

Total Insured Losses

- 2010: USD 43.5bn
- 2011: USD 115.8bn
 - Most expensive calendar year for Natural Catastrophes on record
 - But without taking inflation into account
 - Even though we had comparably low Wind losses

Figure 3
Insured catastrophe losses 1970–2011



Source: Swiss Re Economic Research & Consulting

Comparison to previous years

Comparing the 2010 and 2011 season to previous years

- To answer the following questions:
 - Was the 2010/11 season really exceptional?
 - Has the market changed between 2005 and 2010?

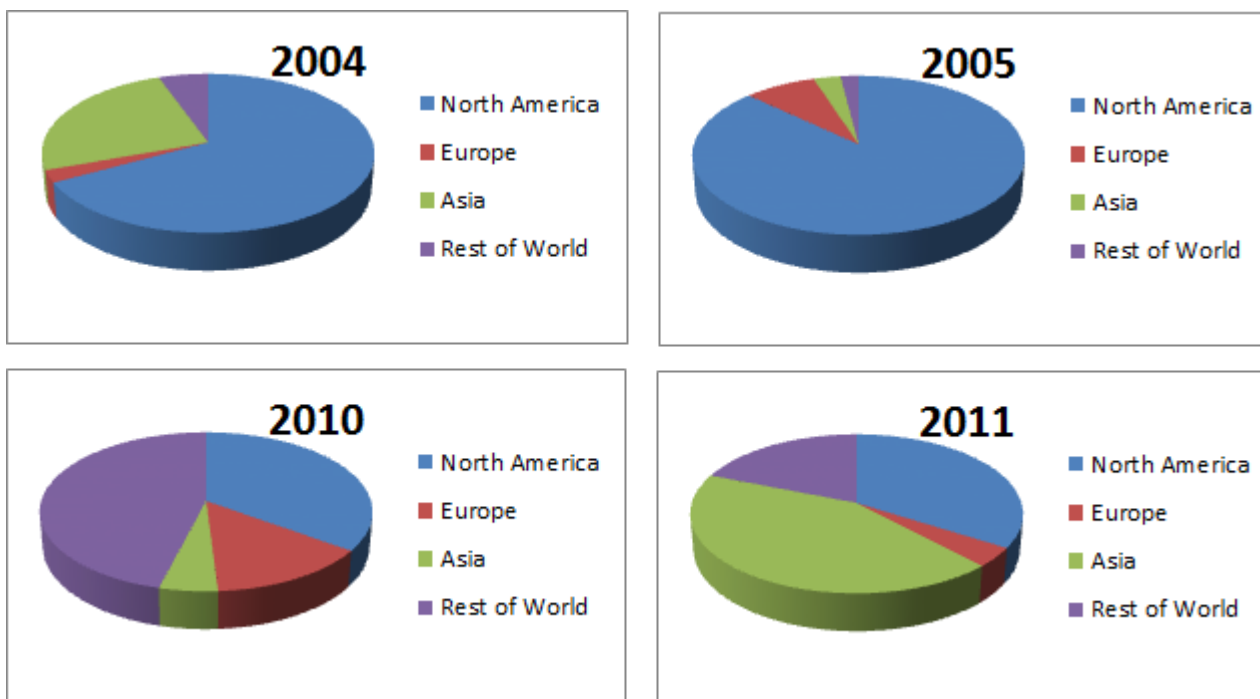
Comparison to previous years

Two previously 'Bad' years for Insurance :

- 2004 had losses of USD 49bn
 - Hurricanes Charley, France, Ivan and Jeanne
 - 16 Tropical cyclones in total
- 2005 total of USD 83bn
 - Katrina, Rita and Wilma in the same year
 - Katrina alone caused losses of around \$45bn
- Both years were the highest on record at the time.
- In today's terms 2005 would be similar to 2011 (\approx 110bn)

Comparison to previous years

Distribution of cat losses by territory (% of industry loss)



What apparently has changed since 2005?

Often quoted reasons for high losses in 2010 and 2011:

- Exposure outside traditional markets has grown
 - Diversification of Reinsurance
 - Population growth
 - Globalisation
- More disasters are happening
 - Possible impact of climate change
- Also an element of 'bad luck'
 - Several rare events occurred in a short time frame

What has changed since 2005?

Reasons for high losses in 2010/2011

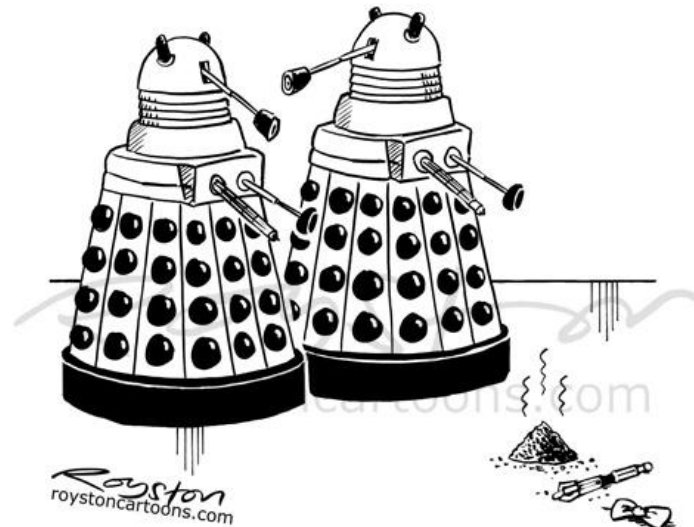
- My personal categorisation why these events caused high losses:

	Exposure Growth	Potentially Climate Change	Rare event	Common event
Chile earthquake				
Windstorm Xynthia				
Christchurch earthquake				
Queensland floods				
Tohoku earthquake				
Severe Thunderstorms				
Thailand floods				
Hurricane Irene				

What has changed since 2005?

Question

- Is this really so unlikely?
- I don't think it is.
- Less unlikely than...



“Do you ever get a hollow feeling when you’ve looked forward to something for ages and then it finally happens?”

Reinsurance prices in 2012

How did the 2010/11 season impact prices in 2012?

- Has the market reacted?
- Or is it just the same?
- It's important to look not only at prices but also at retentions and other contract structures

Reinsurance prices in 2012

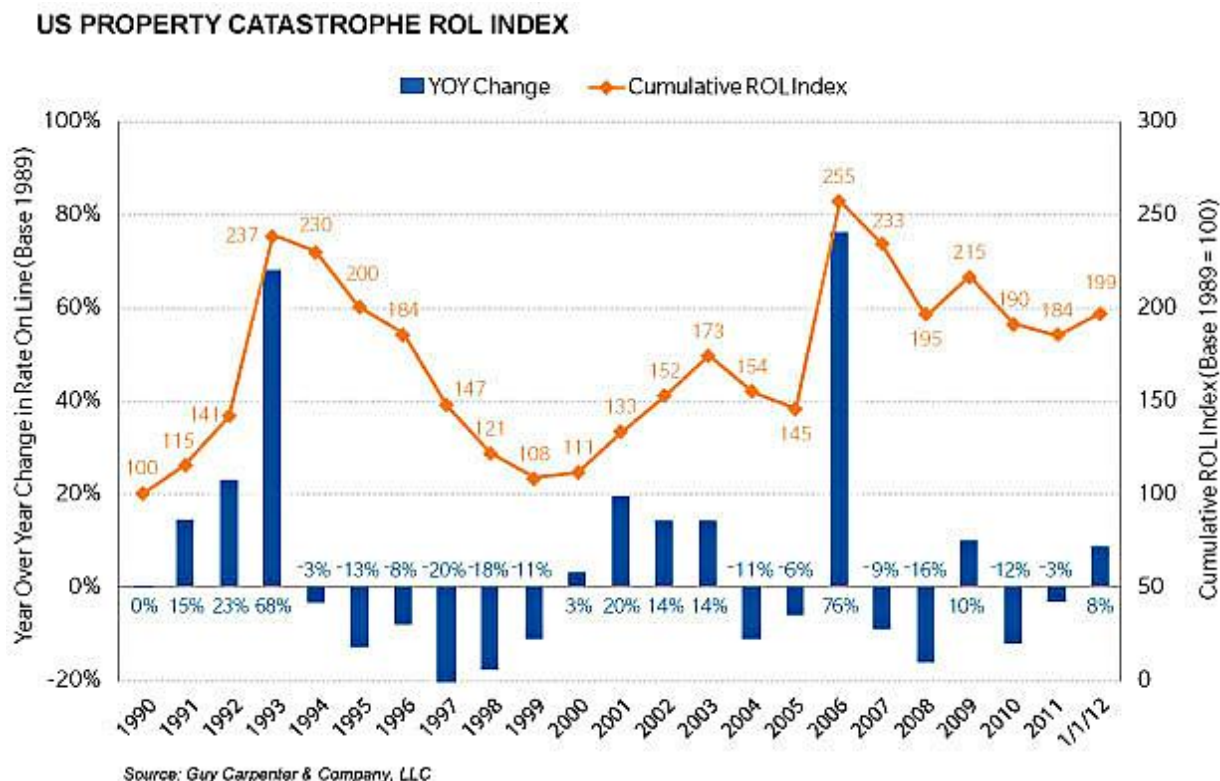
- US Hurricane:
 - Increase of 10% to 15% in January 2012 (Source: AON Benfield)
 - Mid 2012 level up around 7% compared to January (Source: Guy Carpenter)
 - But mostly consequences from Cat Model updates in 2011, not Catastrophes
- European Wind
 - No major price changes

Reinsurance prices in 2012

- Japan/Asia
 - Around 15% to 50% increase
 - But large variation on a per contract basis
- Latin America
 - Cat losses had little impact on the rates outside Chile
- New Zealand
 - January 2012 saw increases from 80% to 150%
(Source: Willis Re)

Price changes after previous losses

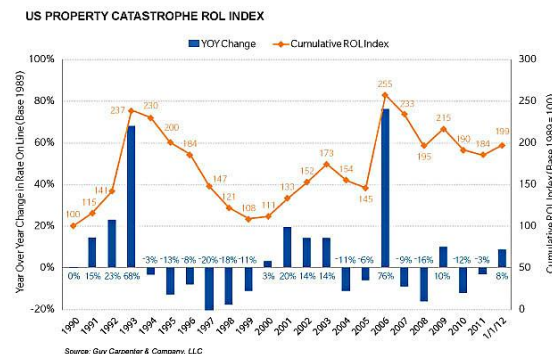
Guy Carpenter's Worldwide Cat ROL Index:



Price changes after previous losses

Worldwide Cat ROL index:

- Index needs to be seen in context
 - Shows premium/ROL only
- For example after Northridge quake in 1994 we see a decrease in ROL
- In reality reinsurance retention went to significantly higher levels
- Hence premium per expected loss actually increased



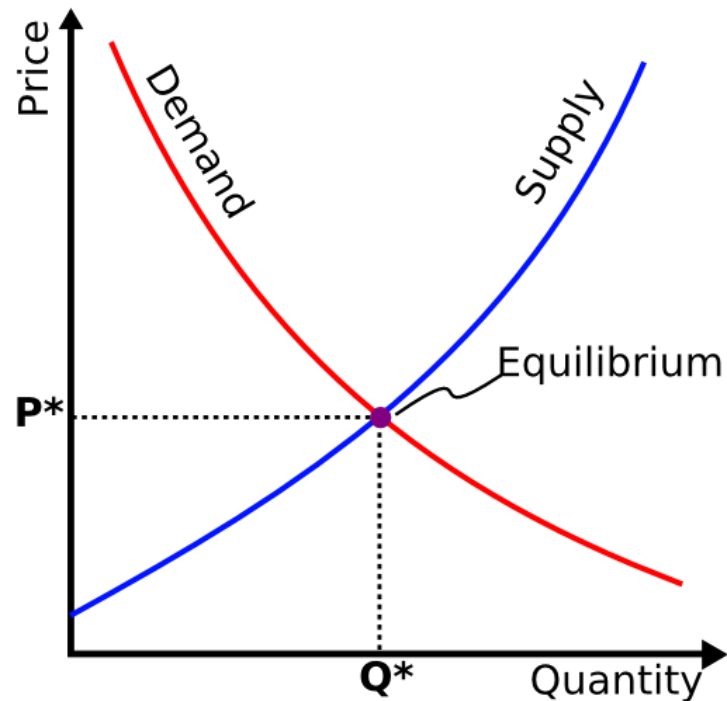
Price changes after previous losses

But it's important to note:

- Increase after Hurricane Andrew of 68%
- After Katrina around 76%
- After the events of 2010/11:
 - No major worldwide increase
 - Prices react slightly on cat model updates in the US
 - Only very local changes due to actual cat losses in
 - Japan
 - New Zealand
 - Thailand

Why has the market not reacted this time?

It might be:



Why has the market not reacted this time?

1. Capital

- The market started 2012 with roughly the same amount of Capital as in 2011
- USD 8bn of alternative capital since the 2010/11 Cat losses
 - Bonds, sidecars, structured industry-loss warranties and collateralized reinsurance vehicles
- Regulatory requirements means stronger Capital base
 - No major insurance defaults in 2010 or 2011

Why has the market not reacted this time?

2. Psychology

- In 1992 the losses through Andrew were of a scale previously unexpected
- World Trade Center in 2001 was a shock to the world and the insurance industry
- The bad year of 2004 was followed by Katrina as well as Rita and Wilma in 2005
- But we now expect years like 2011 to happen
- Hence price reactions are in line with expectations today

Why has the market not reacted this time?

3. Other reasons

- Catastrophe Models mean better preparation and realistic Capital base
- Reinsurers have again often changed their retention rather than prices after the events
- More sophisticated Underwriting
- Enterprise Risk Management stronger
- After the 2008 economic crisis a lot of Reinsurers retained excess capital
 - Fear of not being able to recapitalise

Outlook for 2013

- Most Reinsurers expect flat prices
- Reinsurance supply expected to exceed demand
- However:
 - What will Sandy bring?
 - Loss estimates at time of writing between USD \$10bn to \$40bn to the Industry
 - High flood deductibles would suggest Reinsurance losses might be acceptable
- I still believe this will not have a major impact on prices in 2013, except maybe for Business Interruption

Would an even larger US Cat change prices?

Impact of an even larger US cat loss

- Most likely the impact would be small due to
 - Capitalisation
 - Expectations by (Re)insurers
 - Recent Model updates
- Only an event worse than Katrina, or a chain of events, might be able to move prices significantly
- Sandy was (most likely) not such an event
- But even such an event might only change prices locally

Do we want US prices to increase?

A lot of people talk about the ‘market changing event’ but as Reinsurers we should ask:

- Do we really need prices to rise in the US?
- Every time prices increase we could lose clients to alternative vehicles
- If the entire market is waiting for opportunities after the next big event
 - Will we not be in the same situation we are now?
 - But after we had to pay out major claims?

Today's reinsurance market

Summary of today's Reinsurance Market

- The good
- The bad
- And some areas to look out for

Today's reinsurance market

The Good

- Stronger capitalised than in the past
- Able to withstand major cat losses
- More underwriting expertise
- Better modelling capabilities
 - Could however give false confidence
- Alternative capital available in the market
- Less reactive to past events

Today's reinsurance market

The Bad

- Opportunities in the underwriting cycle harder to find
- Potential overreliance on models
 - But limitations of the models are better understood
- Expertise in emerging markets still weak and in these new regions:
 - Moral hazard might be higher
 - Relationships not as valuable as in traditional areas
 - Uncertainty in areas with low data quality and no past loss experience

Future major Catastrophe Risk areas

Some example areas to watch out for

- The Expected: Flood exposure in 2070 (Source OECD, Paris)

Rank	Country	Urban Agglomeration	Exposed Assets Current (\$Billion)	Exposed Assets Future (\$Billion)
1	USA	Miami	416.29	3,513.04
2	CHINA	Guangzhou	84.17	3,357.72
3	USA	New York-Newark	320.20	2,147.35
4	INDIA	Kolkata (Calcutta)	31.99	1,961.44
5	CHINA	Shanghai	72.86	1,771.17
6	INDIA	Mumbai	46.20	1,598.05
7	CHINA	Tianjin	29.62	1,231.48
8	JAPAN	Tokyo	174.29	1,207.07
9	CHINA,	Hong Kong	35.94	1,163.89
10	THAILAND	Bangkok	38.72	1,117.54

- The unexpected: Business growth on the banks of the Amazon.....

Summary

Reinsurance – Has the market really changed

- The market suffered significant losses in 2010/11
- However price changes have been very regional
- This is largely due to amount of capital available and market expectations
- Questionable if even a major US event would move prices
 - I don't think Sandy will
- However today's Reinsurance market is more sophisticated and offers better protection
- Emerging markets offer an opportunity but bring with it high uncertainty

Questions or comments?

Expressions of individual views by members of The Actuarial Profession and its staff are encouraged.

The views expressed in this presentation are those of the presenter.

