

“We are conducting an enormous chemical experiment with potentially huge consequences for our environment, for our economies, and for human life”

A Turner, Vice Chairman, Merrill Lynch

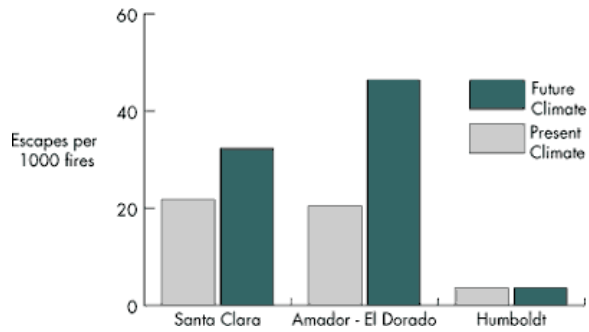
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Climate change and the insurance landscape

- Climate change and insurable risk and insurance
- Pricing risk
- Need for new models and data
- Current market and a false sense of security
- The perfect storm scenario
- Fire, insurance and CG in Australia
- Conclusion

Insurable risk increasing + more volatile

- Bigger cyclones
- More frequent and intense bushfires
- Stronger more frequent storms
- New areas of exposure
 - Eg the 27° C trigger for cyclones



Average frequency of escaped wildfires under present and future (double CO2) climate scenarios, by region. More fires escape initial containment efforts under climate change.

Contributing to increased losses

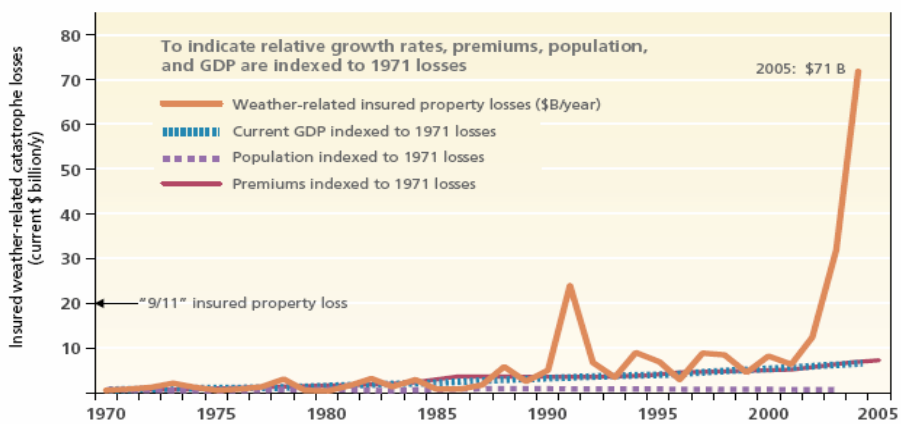
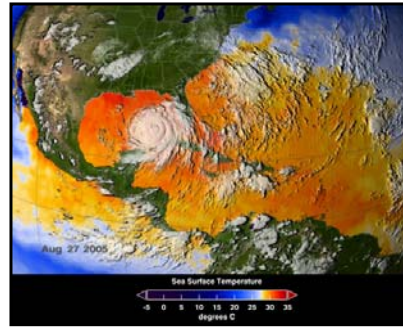


Figure 1. U.S. Insured Catastrophe Losses Growing Faster than Premiums, Population, GDP

Source: Mills, Roth, and Lecomte (2005) updated to show 2005 losses

And insurer insolvency

“... the 2005 hurricane season has prompted some hurricane researchers to suggest adding category 6 to their existing 1 – 5 damage scale. The industry’s own catastrophe modellers warn that significantly more costly storms than Katrina are possible and, indeed, inevitable. AM Best Co estimates that such storms, with \$100 billion in losses, would bankrupt as many as 40 insurers.” [Ceres Report: From Risk to Opportunity]



Climate change → reduced insurability

And the Threat



The Opportunity

- Shortening time between loss events
- Changing variability
- Shifting spatial distribution of events
 - Eg cyclones & the 27°C SST trigger
- Damage that increase exponentially with weather intensity
- Single events but multiple, correlated consequences
- The ‘experience irony’
 - Our knowledge is reducing

And to inadequate controls

- Insurance pricing relies on risk controls eg
 - Building codes
 - Bush fire protection
 - Planning controls
- But based on historical data
 - For both size and locations of exposures
- “Make it insurable” - tomorrow
 - Infrastructure
 - Planning & building codes
 - In a three tier government environment
- It's time to act now



Creating issues for pricing risk

- Insurance pricing is (should be) based on the law of large numbers
- Which assumes some level of predictability
- Currently based on historical experience
- The dice are now loaded
 - But pricing is locked into the old experience paradigm
 - As are customer pricing expectations

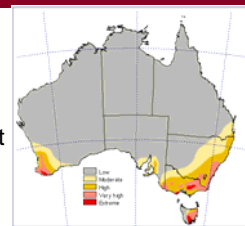


Potential for accelerated pricing increases

- Increased & more sophisticated regulation since HIH etc collapses
- But still based on old paradigms
 - And subject to a high level of self assessment subjectivity
 - With competing drivers (competition, stock analysts, remuneration)
- ABI “Financial Risks of Climate Change” in 2005
 - Potential MCR (minimum capital requirement) increases >90% US hurricanes & 80% Japanese windstorm
- Increasing importance of rating agencies
 - Global, better resourced & informed – quicker to move
 - RMS model now used by S&P for US ratings – 2X increase in natcat capital

Need to build new models

- The future is going to be significantly different from the past
 - Changes to normal weather patterns
 - Changes to frequency & intensity of severe events
 - Changes to the impact
- Modelling based on retrospective analysis no longer sufficient
 - “Exposure can no longer be presented in terms of a long-term average but must be calculated on a prospective basis”
 - An important lesson from Katrina therefore is to include the inconceivable in risk evaluations” (Munich Re)
- RMS hurricane modelling incorporates forward looking estimates of medium term activity
 - But not accepted by Regulator who have approved a model that “significantly underestimates the level of hurricane hazard”



And collect more data

- Increasing realisation of the value of exposure mapping
- Enabled by technology
- More specific mapping
 - Risk more precisely understood
 - And can be priced accordingly
 - Or avoided all entirely
- The Australian flood example
- The Katrina example

“As of March 2006, 225,971 homeowner’s policies were cancelled and 224,868 non renewals were issued. . . State Farm (the State’s largest property insurer) won’t renew 39,000 windstorm policies in 2006 and plans to cancel all condominium building policies. . . In Rhode Island, some insurance companies plan to discontinue homeowner coverage in coastal neighbourhoods altogether.”

[Ceres Report: From Risk to Opportunity]



Lloyds posted a profit of \$2.4bn in 2004 and a loss of \$180m in 2005 which equates to \$1.12 paid for every \$1.00 in premium revenues, thanks largely to hurricane losses

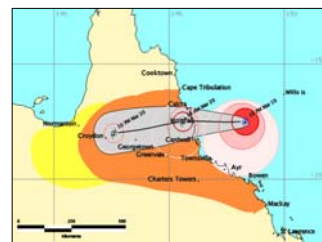
- The industry must do more now to understand and actively manage CG risk
- Recent events have shown capital and pricing models to be wanting. We must regularly update and recalibrate our models to keep pace with reality.
- Climate change means that exposures are changing and new ones emerging. Insurers must regularly review and communicate conditions of coverage.
- Effective partnership with business and government will be key to managing risk. The insurance industry must engage now

Current market conditions creating false sense of security

- Current insurance market conditions
 - Soft market
 - Intense competition for growth
 - Benign claims environment assisted by regulatory reform
 - Positive investment environment
- Technical pricing?
- Do we 'need' a 'trigger event'
 - What will it be?
 - Will there be any insurer casualties?

The perfect storm scenario

- Major multiple cat events
- Major losses for Australian insurers
- Ratings downgrades
- Increased prudential capital requirements
- Reduced stock market confidence – PE ratios drop
- No appetite for further insurer investment – too much uncertainty & volatility
- Big increases in reinsurance costs & reinsurance cover withdrawn
- Insurance cover reduced or withdrawn
- Government substitution



Fire, insurance and climate change in Australia - multiple mixing pots

- The environmental mixing pot
 - Temperature, Precipitation, Humidity, Fuel levels
- The human mixing pot
 - Controls, Planning, Funding, National Parks
- The political mixing pot
 - Commonwealth, State and Local Governments
- The elephant in the room
 - Water



In conclusion – we need to rethink the future

- Climate change science is evolving
 - “Global warming will continue and is likely to accelerate” (Allianz & WWF)
 - And generally the news gets worse, not better
 - Use scenario planning as prime source of risk analysis
 - Remember above average is average
 - Don't just look for risk under the same stones, in the same places
- Rethink controls
 - From a new perspective based on scenarios rather than past events
- And don't assume insurance will always be available
- And we will have to learn to drastically restrict carbon emission
 - Including carbon pulses from bush fires