Global Warming – Impact on Financial Services

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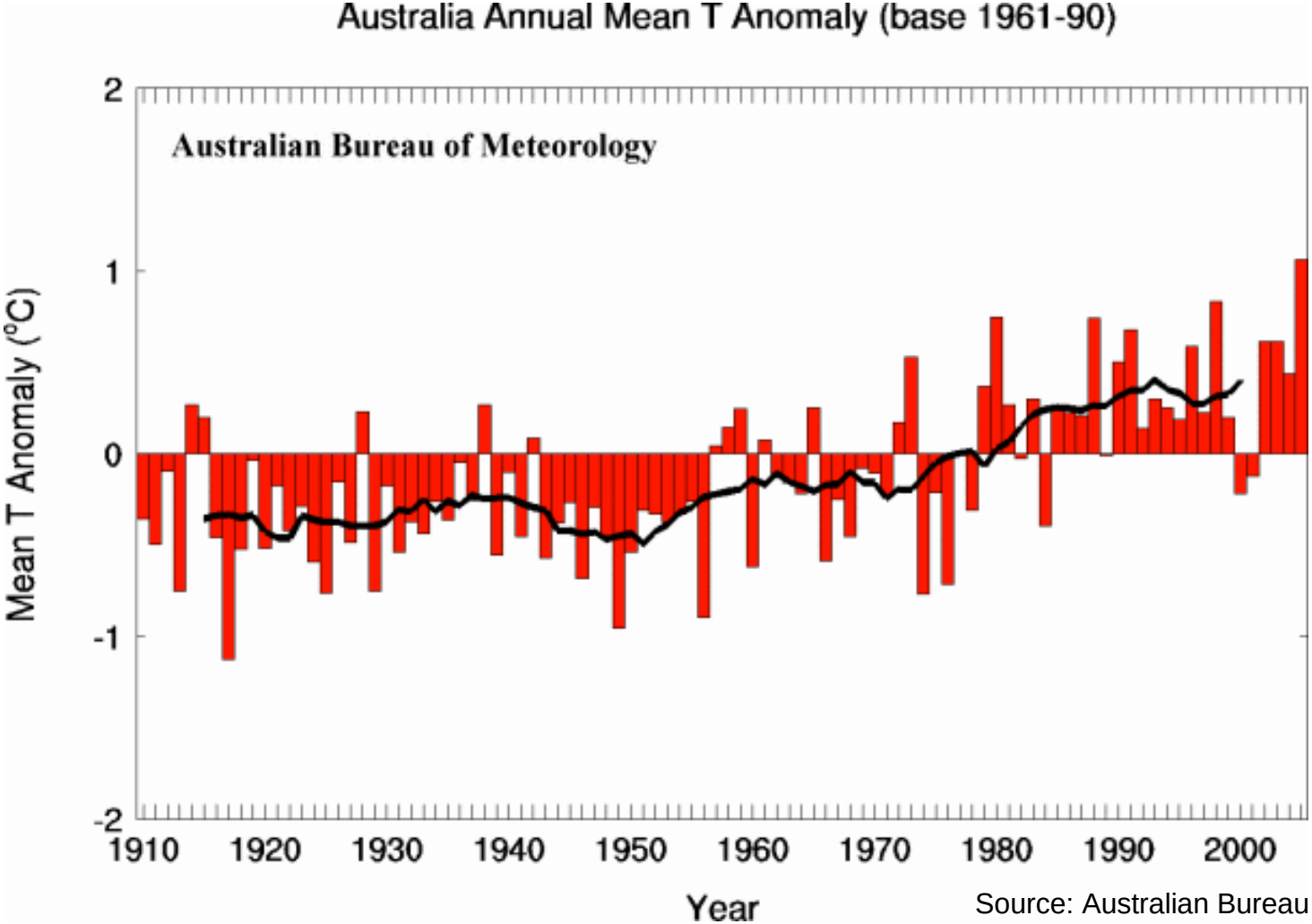
Global Warming – impact on Financial Services

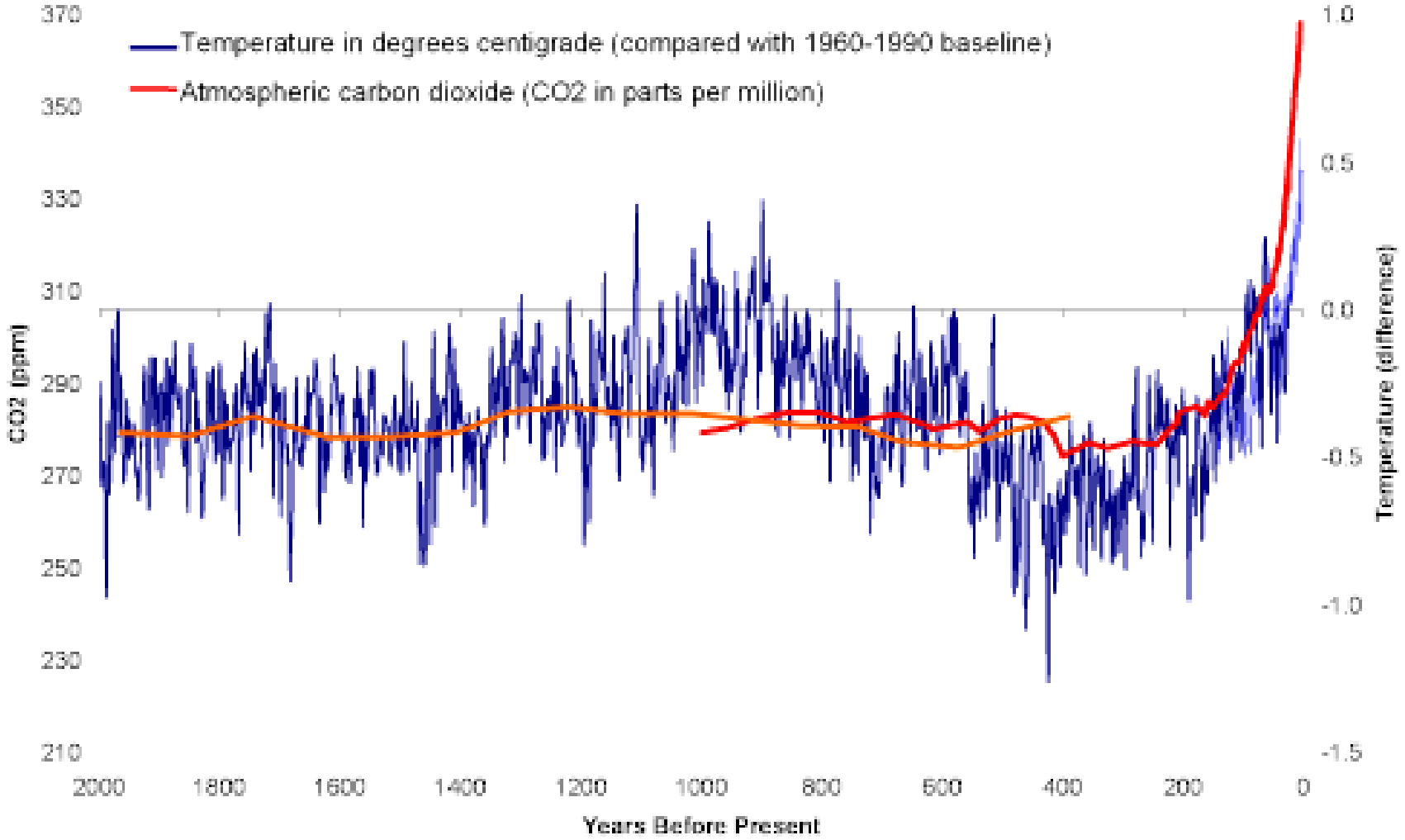
- What's the state of play?
  - What do we now know?
  - What the the Scientists think?
  - What kind of things will or may happen?
- What's this mean for the financial services sector?
  - Banking
  - Insurance
  - Funds management
  - The consumer
- Some concluding thoughts

We know it's getting hotter



Source: Australian Bureau of Meteorology

And hotter



Source: Department of Meteorology, Stockholm University – Anders Moberg and others

We know we're causing it

- Anthropogenic (human driven) climate change is accepted.
  - *"Human driven emissions of greenhouse gases, primarily CO2, are the major cause of observed surface warming since 1950"* [Steffen]
  - *"Human-induced climate change is real and is becoming a serious and growing threat, not only to our environment and human health, but also to our economic systems"* [UN Environment Programme Finance Initiative (partnership between UN and private FS sector) – Dec 2005 CEO Briefing]

We know it's not some 'Greenie' religion

- *"As business leaders representing a cross-section of the Australian Economy, we believe that climate change is a major business risk and we need to act now"* [Joint CEO statement from Australian Business Roundtable on Climate Change (BP Australasia, IAG, Origin Energy, Swiss Re, Visy, Westpac)]
- *"Against the backdrop of global warming, more and more strong and unusual climatic and atmospheric events are taking place. The strength of typhoons are increasing, the destructiveness of typhoons that have made landfall is greater and the scope in which they are travelling is farther than normal."* [Qin Dahe, Head of the China Meteorological Administration]
- *"Lawsuits, junk science, and energy industry propaganda won't change the evidence about climate change"* [Dr. Peter Gleick, President of the Pacific Institute for Studies in Development, Environment, and Security in Oakland, California]
- *"Climate change is the most severe problem that we are facing today, more serious even than the threat of terrorism."* [David King, UK government chief scientific adviser 2004]

We know the problem is getting bigger

Anticipate results in the Kyoto Period	1990	2010
Total	30.20 billion tonnes	45.15 billion tonnes
Industrial countries	61%	45%
Emerging countries	39%	55%

Source: Pottsdam Institute for Climate Impact Research

And that it's complex and Global

- *"I like to compare the Kyoto Protocol with a huge tanker embarking on a voyage to bring aid across the oceans to a crisis area. The ship is being piloted out of the harbour by tugboats and on the bridge there are hundreds of captains each with a different idea of what course to take. Then we also have stowaways and saboteurs on board. . ."*
  - Prof Hans Joachim Schellnhuber, Director of the Potsdam Institute for Climate Impact Research – Munich Re Topics January 2006

But the Ostrich is not endangered

Many of whom are “Consumers” – your ‘clients’

What do the scientists think?

- Intergovernmental Panel on Climate Change
  - 2001 Third Assessment Report (TAR) prediction of Global Warming between 1.4 – 5.8°C by 2100
  - Fourth Assessment Report due 2007
- Target of restricting warming to 2°C (Recommendation of the International Task Force on Climate Change adopted by EU)
- "There is now perceived to be a greater risk that the upper end of the TAR estimate of 1.4 – 5.8°C will be reached or exceeded by 2100" [Steffen]

Scientists have found 3 new drivers

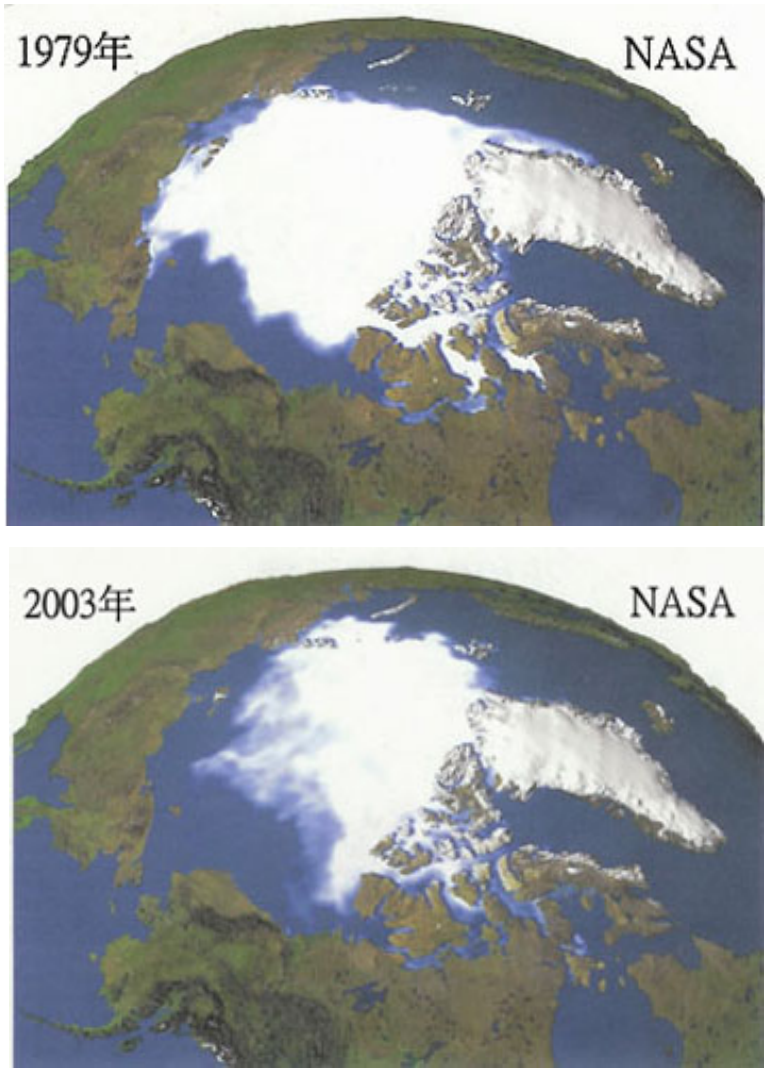
- Radiative properties of Aerosols
- Decrease in Albedo
- Potential changes in Terrestrial Carbon Cycle Dynamics

Aerosols – a hidden mask?

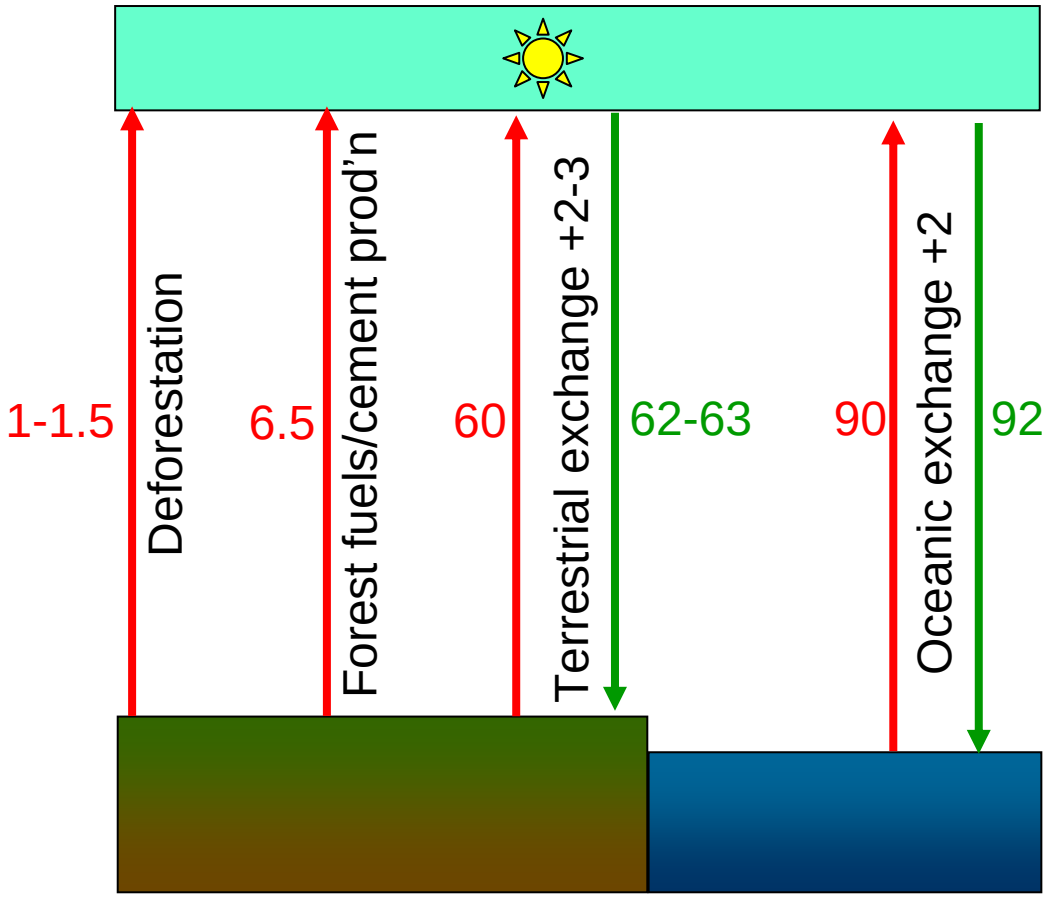
- Smoke, dust and sulphate particles = common aerosols
  - Cause health problems, ecosystems (acid rain, urban air pollution)
  - Strong incentives to reduce & shorter life span than CO2
- Climate affected by aerosols through direct radiative effect on incoming sunlight
  - Leads to cooling acting in opposition to warming effect of GHG
  - Will lead to an acceleration effect later in the century
  - Early days but projections in recent studies put potential effect at +2°C to +8°C

Loss of Albedo

- Albedo = reflectivity of Earth's surface
- The best reflector is ice and snow
- Artic sea ice and snow cover in northern high decreasing
- Effect on temperatures not yet predicted



Terrestrial carbon cycle dynamics



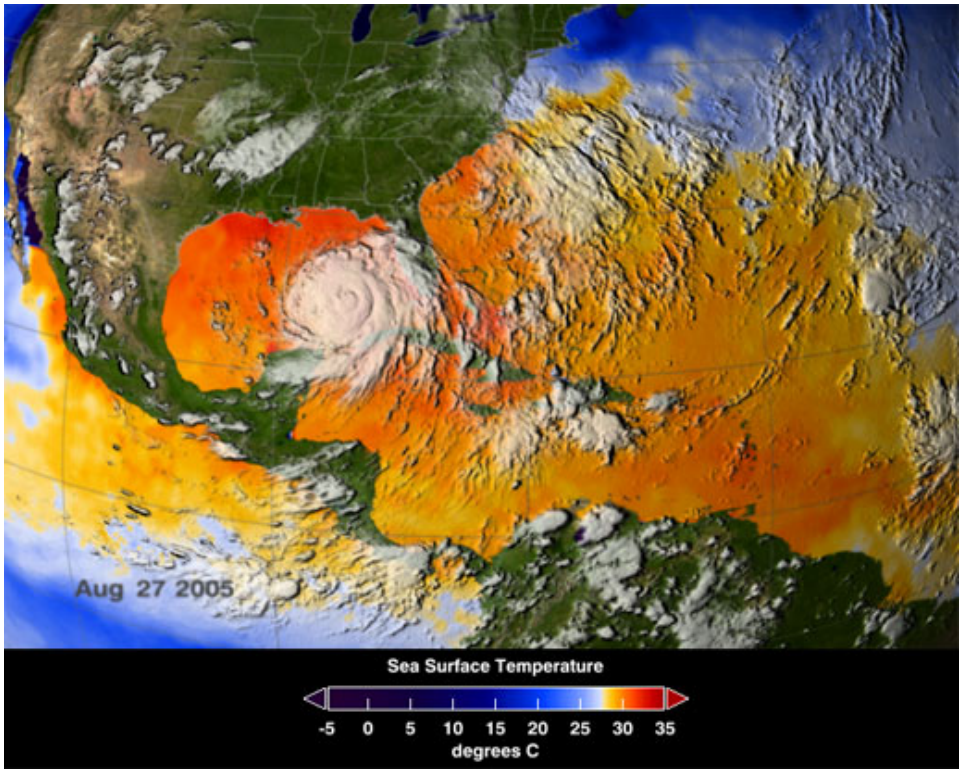
- Warming soil and melting permafrost = CO2 release ↑
- More bigger forest fires = CO2 'pulses' ↑
- Warmer oceans = less CO2 absorption
- = Reduced sinks
- Increases of 0.1-1.5°C plus possible 4°C more

What could or may happen

- Increased probability of heatwaves
  - Europe 2003 - 5°C above ‘normal’; 21,000 excess deaths
  - Eastern Australia 2/2004 – 5-7°C above normal; “most significant medical emergency in SE corner on record” Qld ambulance service
- Storms, floods & cyclones
  - 30 climate related disasters with insured losses >US$1bn during last 2 decades
  - Difficulty of separating out increases due to increased amount and value of infrastructure
  - But studies suggest increased in climate change driven events

What could or may happen (cont)

- Increased number of tropical cyclones
  - Increased in Atlantic but 'natural' variability
  - But correlation between warming oceans and cyclone severity
  - Category 4 & 5 have increased



High sea surfaces fuelled Katrina. 3-day average of actual sea surface temperatures (SSTs) for the Caribbean Sea and the Atlantic Ocean, from August 25-27, 2005. Every area in yellow, orange or red represents 82 degrees Fahrenheit or above. A hurricane needs SSTs at 82 degrees or warmer to strengthen. Source: NASA

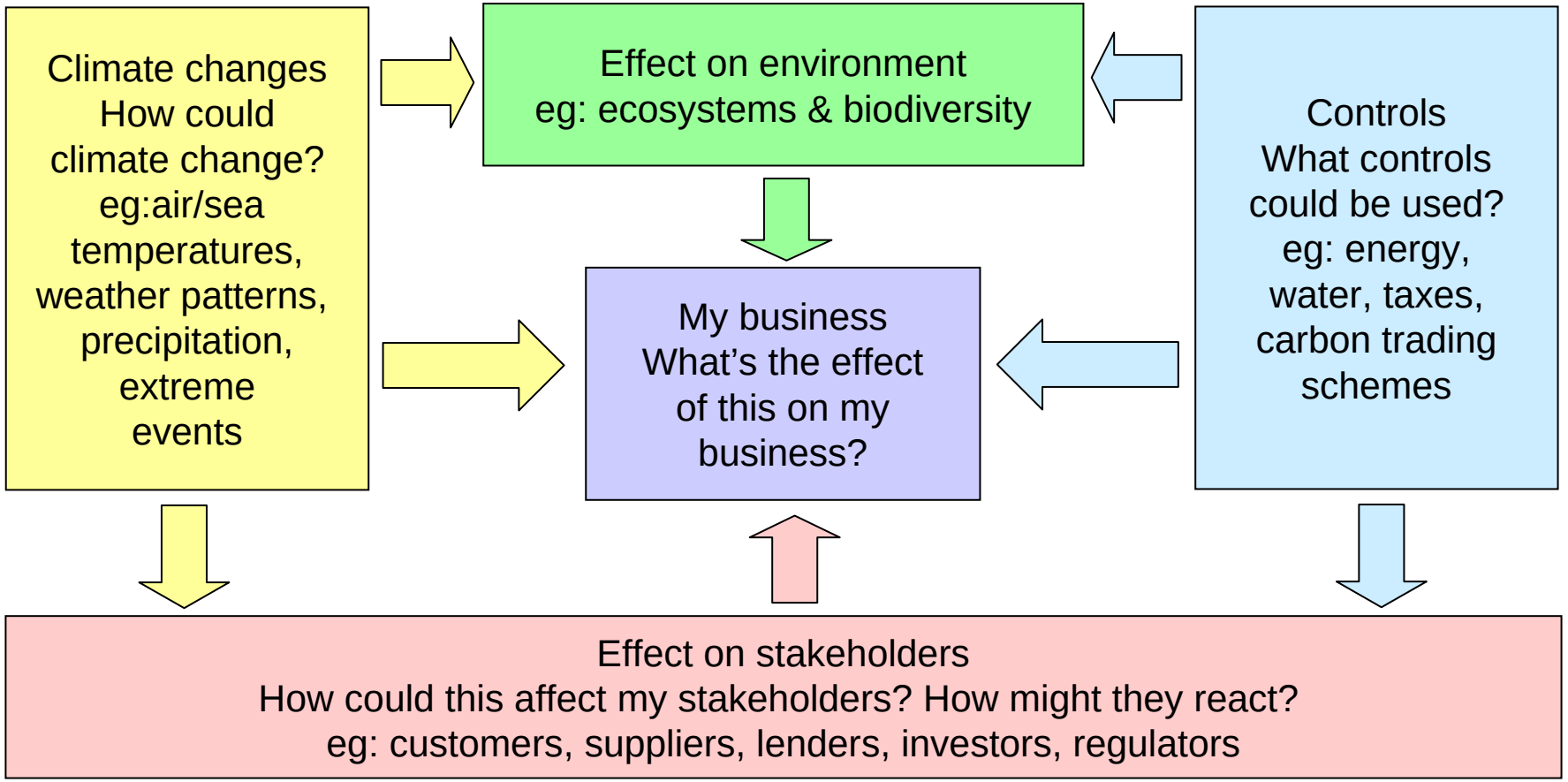
What could or may happen (cont)

- Biodiversity
  - Significant loss of bio diversity if increases > 1.5°C or > 0.5°C per century
  - Extinction rate currently 100 – 1000 times greater than background rate projected to increase by more than 10x
- Warmer more acidic oceans
  - "the prognosis for the world's coral reefs for 2nd half of this century is dismal" [Steffen]
- Sea level rise
  - Global variability but estimates between 28 – 48 cms by 2100

What could or may happen (cont)

- Droughts and drying trends
  - If climate change is driving current trends “large parts of India and China, as well as sub-Saharan Africa will face increasingly severe water resource challenges in the coming decades” [Steffen]
  - Reducing water resources for sub tropical Australia
  - Increased fires
  - Loss of agricultural production (but improvements in some areas)
- Possibility of abrupt changes in ocean circulation
  - More uncertain but potentially catastrophic shutdown of N Atlantic thermohaline circulation (severe cooling in NW Europe)

A complex cause and effect chain



Climate change and the banking sector

- Naturally risk averse
- With relatively good risk management and systems
  - Historically more reactive than proactive
- But limited appreciation of exposure to natural hazards
  - Lagging behind insurers
  - Believe cat risk is transferred to insurers – but is it?
- Well informed with own research capabilities
- Short term commitments
- Some banks have it clearly on their radar screen
  - But not yet an industry issue
  - Both as a threat and opportunity
- No evidence yet in credit policy
  - But recognise will happen over next couple of years
- Will be a lead indicator
  - But need event driver
- Smaller, local banks may have significant aggregation and continuity risks

Climate change and the insurance sector

- Strong reliance on historical data and modelling
- Strong scientific research base amongst leading general reinsurers
- Climate change is recognised as a global industry issue
  - Considerable climate change analysis being done
- Still extensive non and under insurance by consumers
- Improved profitability of direct insurers means retaining more of the risks they insure
- Some reinsurers and direct insurers using cat bonds to tap other capital markets for additional capital

Climate change and the insurance sector

- Industry believes that there is increasing event severity
  - Event itself
  - Damage escalation
- And frequency
- Increasing uncertainty of historical data
- Plus difficulty of assessing underlying exposure
- Creating more uncertainty
- Major players are investing heavily in research and new models
  - Smaller players rely on brokers but appreciation of the potential impacts variable

Climate change and the insurance sector

- Will be lead indicator but struggle to change pricing without ‘event’ evidence
  - For some that may be too late
- Major event(s) will have multiple consequences
  - Direct losses PLUS reduction in value of assets
  - An increase in prudential capital requirements
  - Probably at same time equity markets reduce investment in insurance stocks
- Leading to a major reduction in capacity
- And withdrawal from ‘high risk’ classes and regions
  - The flood & terrorism examples
  - Katrina
- Increased pressure on government substitutes and disaster relief

Climate change and funds management

- Not risk averse
  - But increasing amount of pension savings
- Poorly informed
  - Rely on intermediary research capability
  - Addicted to DCF analysis
- Measured on short term performance
- Markets likely to become more volatile once climate change factors start being understood
- Need for return overrides SRI

Risks for the financial services consumer

- Poorly informed – the last to find out!
- Loss of insurance
  - "But I thought I was covered"
- Credit withdrawal where collateral at risk because of climate change
  - "I am afraid we cannot extend the term of your loan"
  - "And I am sorry we don't lend on your kind of property any more"
- Sudden decline in asset values!

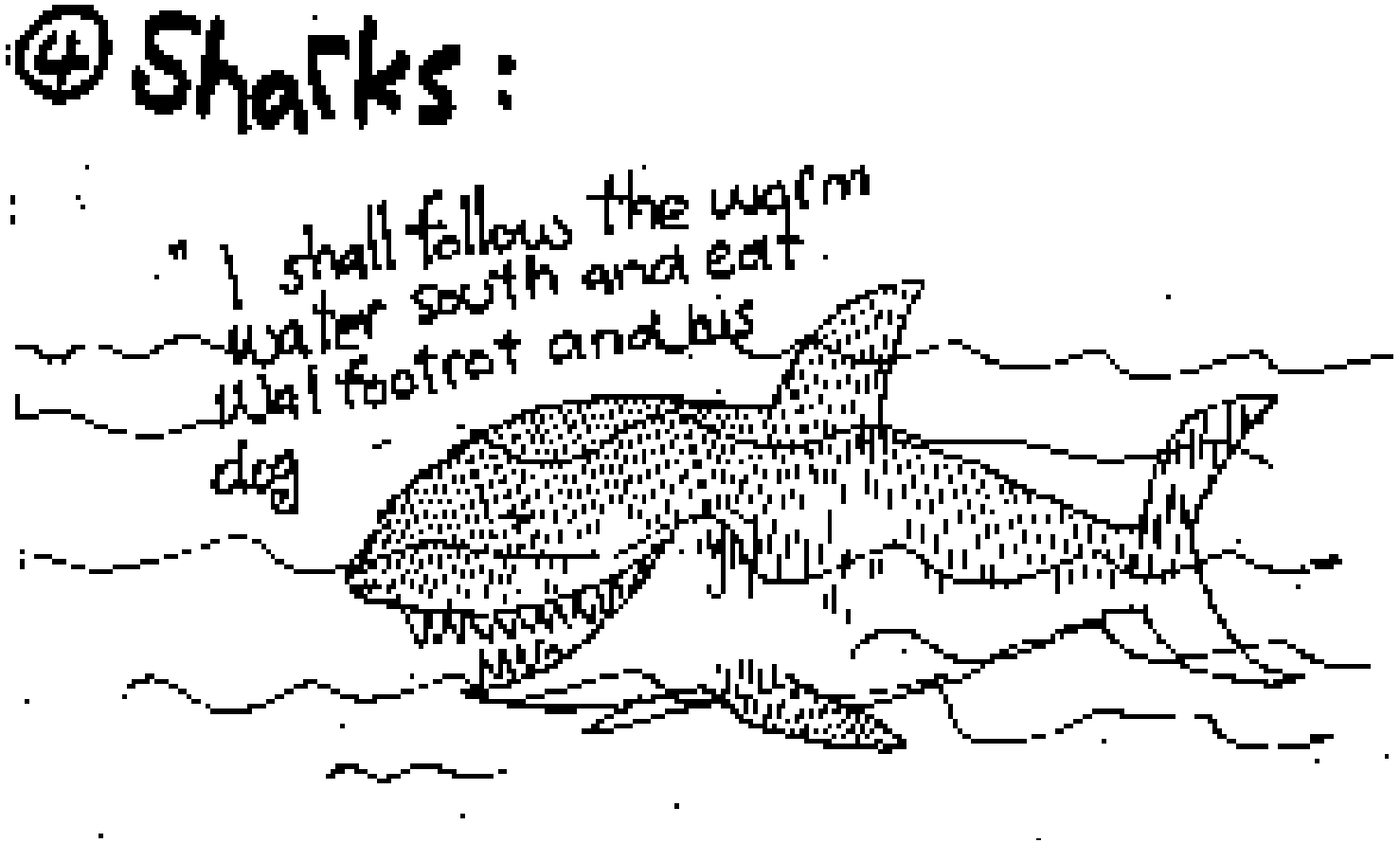
And some concluding remarks

- Above average is average
- The 3 rules of real estate – Water, Water & Water
- Risk management - Include the inconceivable
- Beware ‘adaptation’
- Beware technology silver bullets
- Visit the GBR with your children – soon
- Plan carefully

Easily misunderstood

"Sum Reactions to the Greenhouse effect" from Footrot Flats No 16 published in 1990

Easily misunderstood



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Principal information sources

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- The Business Case for Early Action by the Australian Business Round Table on Climate Change
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