

# Responding To Risk

## Enterprise Risk Management Seminar

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Wednesday 13 September 2017

Actuaries Institute • Sydney





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# Responding to Paradigm Change

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**IAG**

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# Paradigm shift or regime shift?

## Paradigm Shift

- “fundamental change in the basic concepts and experimental practices of a scientific discipline”
- “How we do things around here, now.
- Or market, like reinsurance.
- Samples:
  - Quantum physics
  - Social media
  - Artificial intelligence

## Regime Shift

- “large, abrupt, persistent changes in the structure and function of a system”
- “What things look like, now.”
- Environmental, social or political
- Samples:
  - Earth average temperature
  - ‘low interest rates’

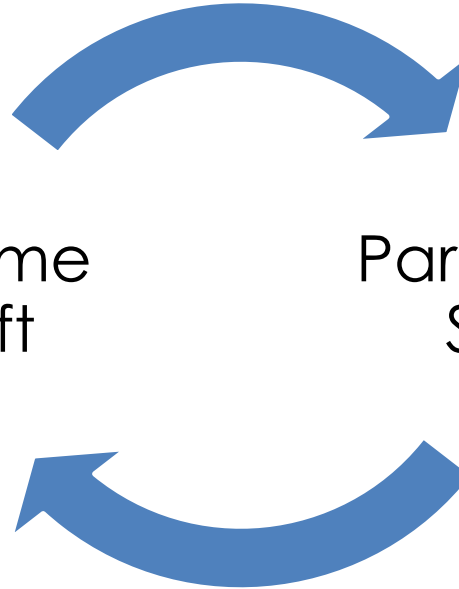


When the world  
changes, I  
change the way I  
do things.

Regime  
Shift

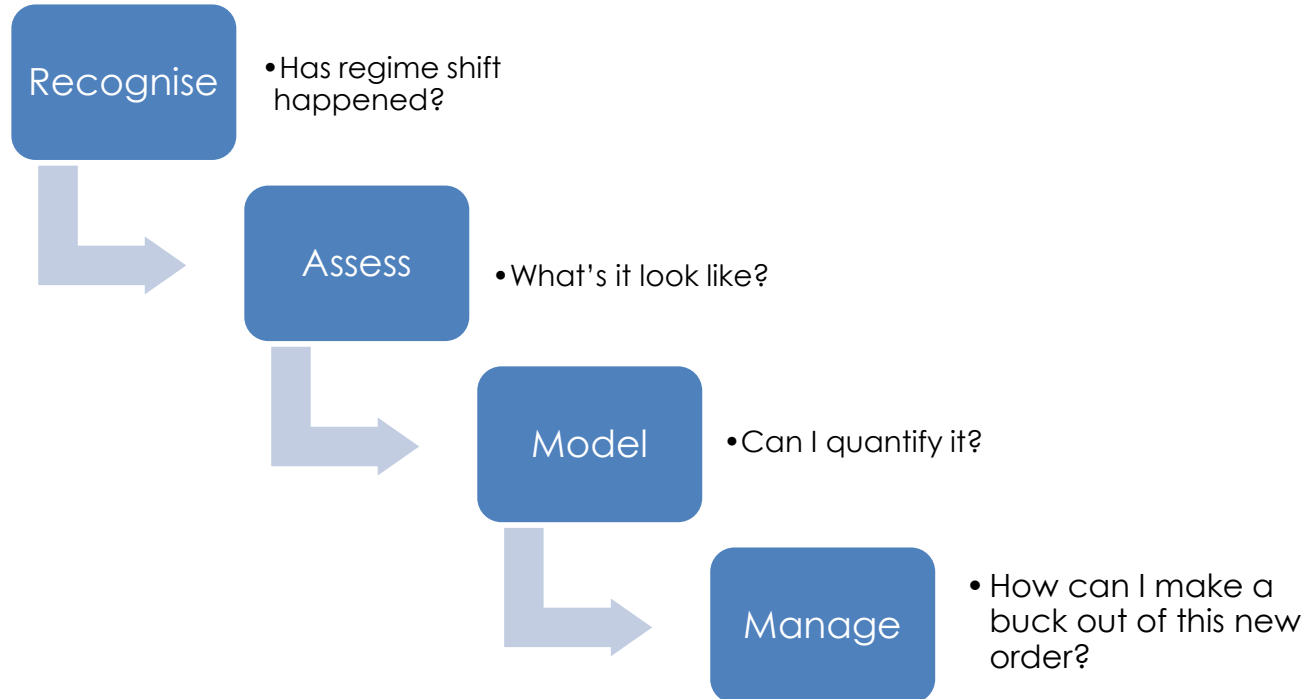
Paradigm  
Shift

The disrupters  
earn the rent.





## What to do about regime shift?

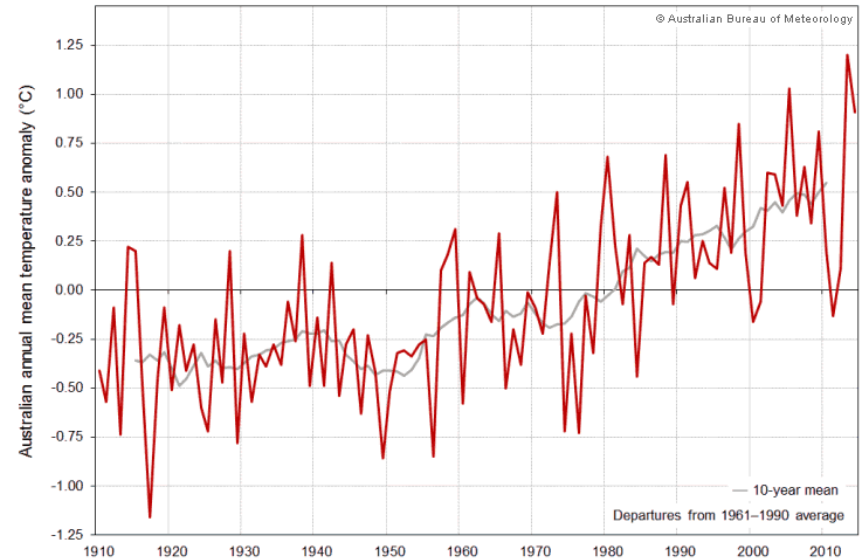




# Recognising Regime Shift



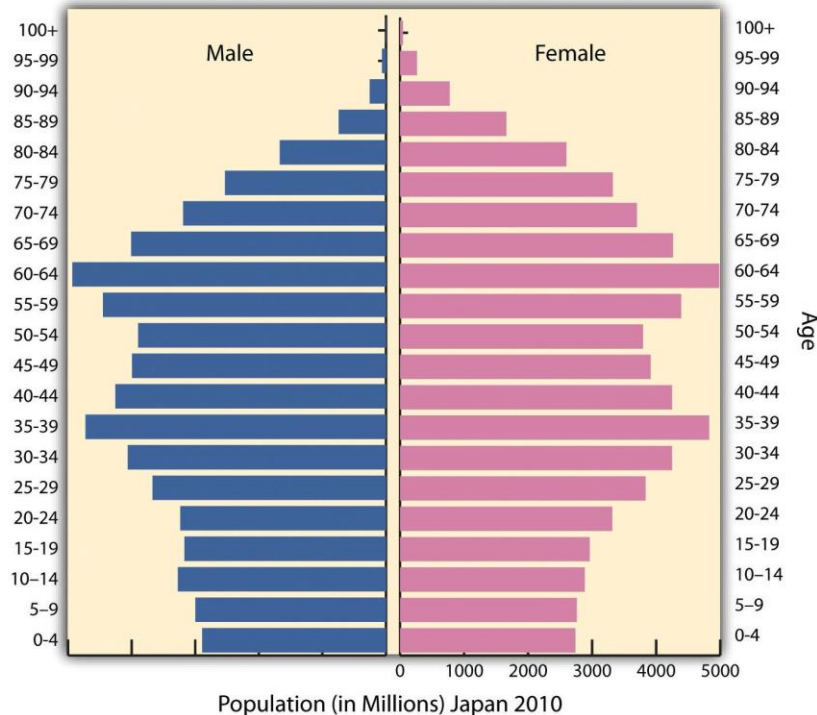
Source : Factset



Source : Bureau of Meteorology: ACORN-SAT



# “Pre”-cognising regime shift (“Japonification”)



- Economic development
- Lower fertility rates
  - Demographic bulge
  - Lower per unit productivity
- Lower GDP Growth
- Lower interest rates



# “Assessing” regime shift – traditional approach

- ✘ VaR
  - Build the model
- ✘ Sensitivity Analysis
  - “The Greeks” – understand how your model thinks the world changes
- ✓ Stress Testing
  - Hypothecate alternate states





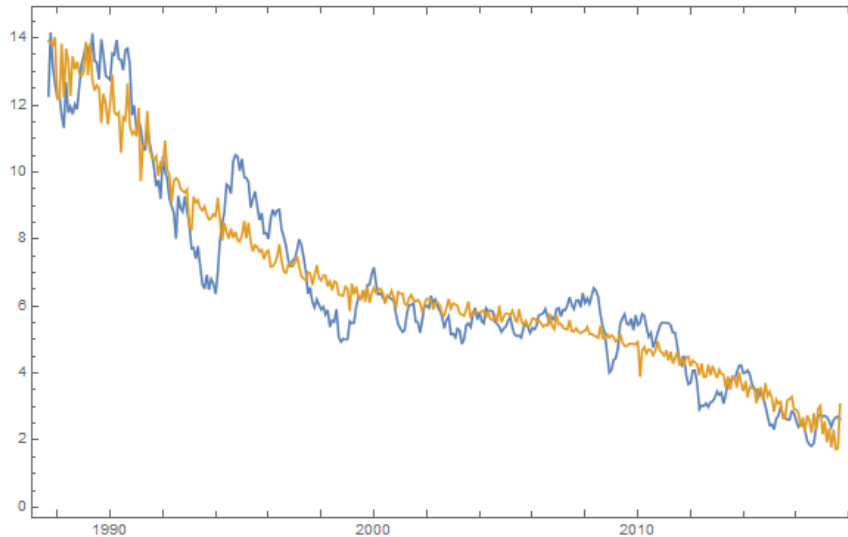
# Modelling regime shift

- Has this happened somewhere else (or is this a reversion to a prior regime)
- Has another field solved this problem?
- Do we need to model?
- Do we understand the structural forces leading to regime change

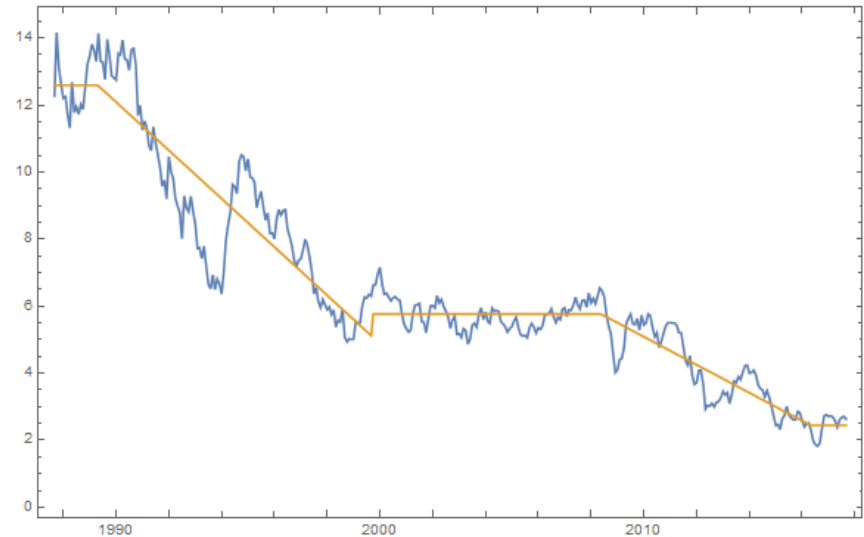


# Can computers model regime shift?

## Neural Net



## Trained data





# References

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- <http://www.bom.gov.au/climate/change/acorn-sat/#tabs=ACORN%E2%80%90SAT>