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Climate change for DB pensions actuaries: Implications for financial assumptions

Nick Spencer, Claire Jones & Andrew Claringbold

22 November 2018

Agenda

- Why should actuaries do something?
- What should we be doing?
- Case study



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Why should actuaries do something?

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Implications of 4 degrees warmer

- Impacts of climate change could be quite significant
- Some economic impact scenarios may be underestimating the compounding impact of physical effects
- Eg studies on 4 degrees warmer have shown¹
 - Large uninhabitable areas of world
 - Loss of biodiversity eg 85%+ Amazon
 - 9 m+ rises in sea level

1. Sources quoted include <https://www.newscientist.com/article/mg20126971-700-how-to-survive-the-coming-century/>, <http://rsta.royalsocietypublishing.org/content/369/1934>, <https://www.resilience.org/stories/2015-09-17/four-degrees-of-devastation/>, <http://www.climatecoded.org/p/what-lies-beneath.html>



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Why should actuaries consider climate change?

1. Material financial risk
2. Professional duty
3. Widespread interest



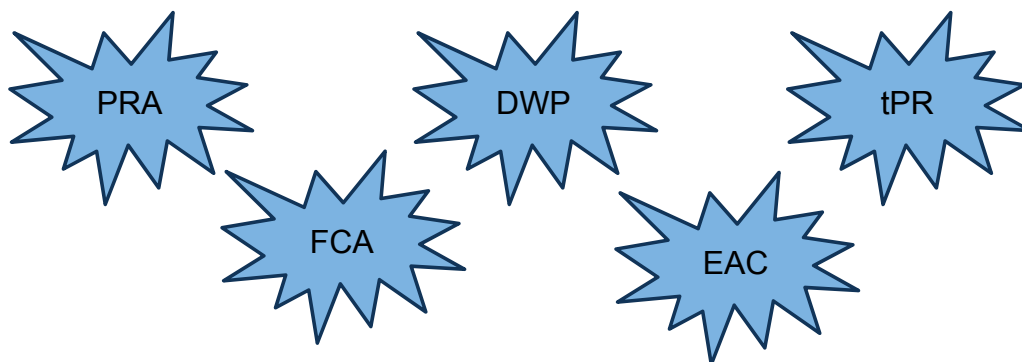
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Regulators are engaged and focused on climate risk

Eg in UK in just last 6 months



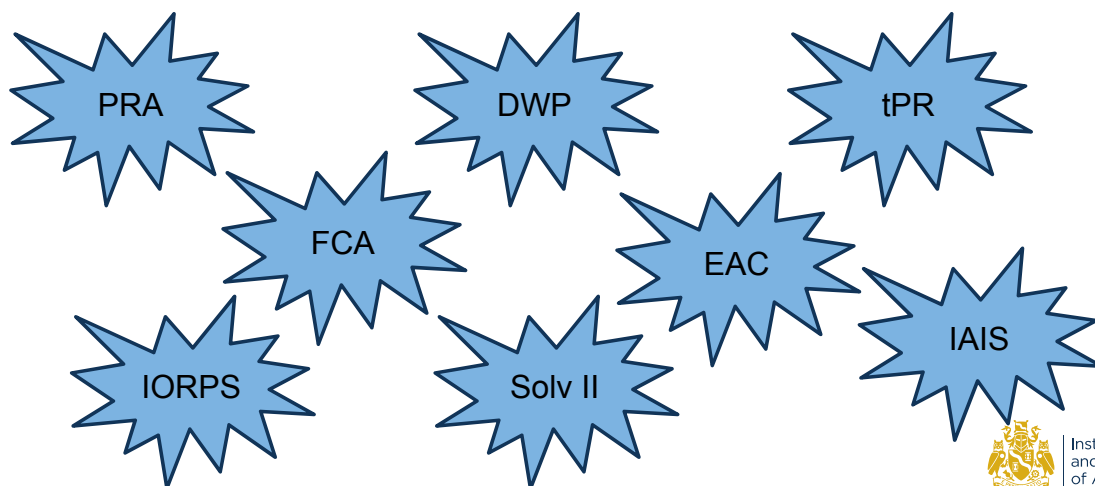
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Regulators are engaged and focused on climate risk

Also applies EU & globally...



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What should we be doing?

Claire Jones

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What practical actions are there?

- ✗ Explicitly adjust market-based assumptions by x% pa
- ✗ Recalibrate stochastic models
- ✓ Explore scenarios of alternative futures

“Given the importance of forward-looking assessments of climate-related risk, the Task Force believes that scenario analysis is an important and useful tool”



Technical supplement: The use of scenario analysis in disclosure of climate-related risks and opportunities, June 2017

Purpose of scenarios

- Aid understanding
- Decide whether to act
- Identify areas of focus
- Inform choice of actions

Possible actions

- Review investments
- Monitor covenant KPIs
- Inform level of prudence
- Inform recovery plan



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Developing and using scenario analysis



- ✓ Use multiple scenarios
- ✓ Consider physical and transition risks
- ✓ Focus on narratives not numbers
- ✓ Extend time horizon?
- ✓ Shocks and trends?
- ✓ Incorporate all relevant aspects
 - gilt yields, inflation, covenant, mortality
- ✓ Understand and communicate limitations



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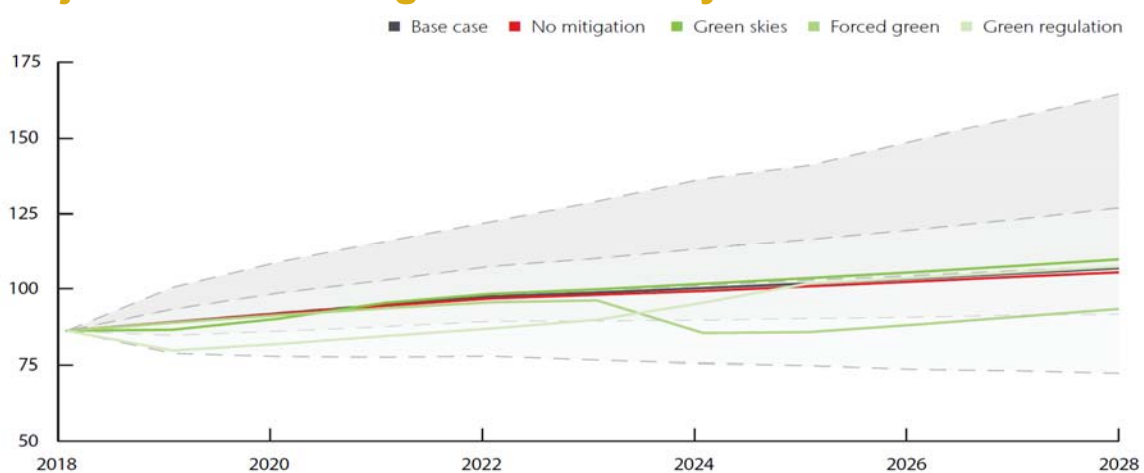
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Case study

Andrew Claringbold

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Projection of funding level over 10 years



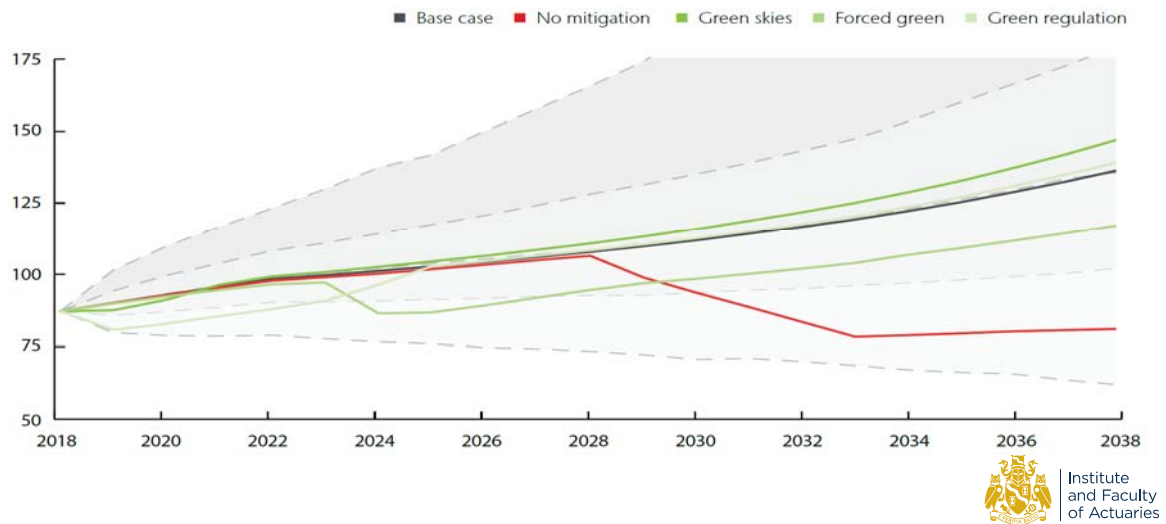
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Projection of funding level over 20 years



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So what?

Investment Strategy

Lots of options?
What if de-risked?

Covenant

Affordability in
same scenarios?

Time horizon

Fully funded by
when?

Contingency Planning

Identify warning
signs?
Actions?

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**Questions****Comments**

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