



Institute  
and Faculty  
of Actuaries

# Managing Uncertainty

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# Agenda

- Objectives for today
- Intro to the working party's key conclusions – see paper for more
- Professional challenges: video “head to head” (sorry no Neil Hilary!)
- Face up to uncertainty
- Models can be helpful, but also dangerous
  - Case Study: M&A
- Bring people with you
- Q&A



# Objectives today – things to take away

- Technical and professional challenges arising from uncertainty already well known
- Heightened awareness of some of the issues involved (and the emotions!)
- Further context to help think more deeply about the issues you are grappling at the moment
- Worth investing time to get greater confidence in tackling the problems, including “taking people with you”
- **Be prepared! Our paper aims to help.**
- Please read the paper and give us any feedback: sessional paper at Staple Inn in February 2019



# Working party activities – Norfolk weekend



# The working party and our high level principles

- Working party since 2013 with a focus on decision making
  - The working party experience
- Proposed high level principles for managing uncertainty:
  - Face up to uncertainty
  - Deconstruct the problem
  - Don't be fooled (un/intentional biases)
  - Models can be helpful, but also dangerous
  - Think about resilience
  - Bring people with you



# IFOA professional skills video

## An ethical dilemma: parts 2 and 3 of “head to head”

- Part 1, the scene:-
  - Peter = reserving actuary, Stephanie = FD, meeting chaired by an NED.
  - Newish classes of business, including cyber exposures
  - Peter presents a mid point IBNR of £170m, mentions uncertainty, actuarial standards and a wide range of potential outcomes from £120m to £205m.
  - When challenged further, Peter quotes 80% probability of IBNR within £160m to £180m

Part 2 (video): Stephanie “unofficially consults” a friend who is an actuary

Part 3 (video): A decision is made, and Peter says little.

**NOW RUN VIDEO, parts 2 and 3**

# After the “head to head” video, are we (still) sitting comfortably?

- How would you have performed in Peter’s shoes? Was he doomed to fail?
- Is the world really like this? - how extreme is this example?
- Or does it simply reflect the inherent conflicts within board reserving decisions?
- Can we become more confident / prepared / effective by preparing better?
- This frames our paper
- We try to go beyond communicating uncertainty, to the need to make decisions in the face of uncertainty; which we think is an essential perspective for actuaries as well as being relevant to non-actuaries.



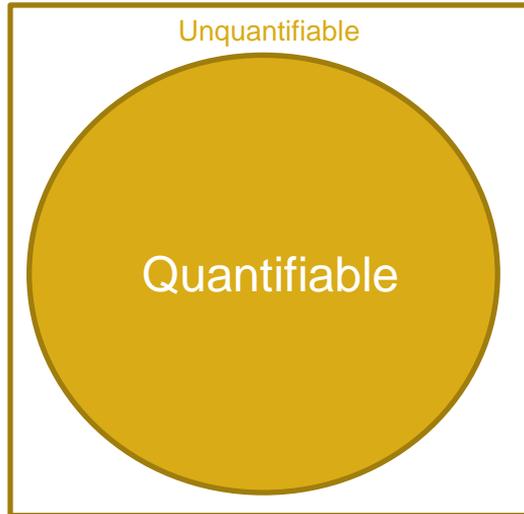
# Face up to uncertainty

- We are often confronted by uncertainty when making decisions
- There is a tendency for people to downplay/ignore uncertainty when doing so
- A degree of uncertainty is present in any decision

*We all need to “tune in” to uncertainty, with all its messiness and unpredictability, in spite of our deeper instincts to turn away.*



# Some things are unknown and cannot be modelled



**A modelling challenge**



**An uncertainty challenge**



# Uncertainty in practice

- Uncertainty is a fact of life
  - E.g. Take buying a house, it's not only the future house prices that are unknown!
- Additional research may reduce some of the uncertainty but it will not completely remove it or necessarily bring it within acceptable levels



# Models can be helpful, but also dangerous

*“All models are wrong, some models are useful”*  
George E. P. Box

- Models can be very useful in allowing us to do things otherwise not possible
  - Additionally, the effort of constructing a model will often yield useful insights
- But where true uncertainty exists, complex models can be dangerous
- The use of a poor model, or inappropriate use of a good model, can give misplaced confidence or insight to a decision maker and be dangerous



# The value of heuristics in uncertain situations

*“Heuristics: any approach to problem solving, learning or discovery that employs a practical method not guaranteed to be optimal or perfect, but sufficient for the immediate goal” (Wikipedia)*



# M&A case study introduction

The following case study is framed through a typical actuarial exam type question.

It was road tested on a group of nearly / newly qualifieds at LCP in order to draw out the “text book” answer.

Questions 1 and 2 are fair-game for an exam question.

Question 3 goes beyond and tackles the sorts of issues that the working party have been thinking about.



# Question 1



You work for an insurer and an opportunity has arisen to acquire another firm.

Discuss the considerations that would be made in deciding whether or not to proceed.



# Question 1 guinea pig answers

Consider the different stakeholders and what is in it for each of them. Who is making the suggestion and “Always ask why me?”

## Reasons to acquire firm:

- market share;
- diversification;
- synergies;
- expertise in a field;
- human capital;
- purchasing power;
- culture;
- relationships;
- reputation;
- IP;
- assets and;
- market access.

## What to consider:

- How has the price been calculated?
- What will the new culture be and how will both parties be affected?
- Is the acquisition a transfer of a back book or bringing across new business?
- How will the IT systems link up?
- Are there any effects on the policy holders?
- Talk to the people who run the company, to help understand:
  - If they know the business, and how well?
  - How likely they are to stay, and if you want them to stay?
  - The culture of the firm?



## Question 2

Your financial model suggests a price 20% below the asking price.

Management has asked you for a report setting out your projections and valuation of the company.

Outline what you what say in this report.



## Question 2 guinea pig answers

Report to include;

- Set out suggested price and highlight key areas of uncertainty.
- Methodology used to derive the valuation.
- Explanation of any assumptions used in the valuation.
- Discussion and explanation of all uncertainties.
- Scenario analysis, what does flexing the assumptions look like.
- Opinions on the validity of the data, highlighting what is and isn't covered.
- The impact of risk management.

Possible framework to consider impacts

Soft factors	Existing business	New business
Diversification		
Management style		
Expertise		

Also think about ...

- What the 20% below asking price looks like.
- What the reasons are for the sale.
- Ensuring all of the business engages in order to fully understand the issues affecting the decisions.
- Ensuring professional communication.



## Question 3

You concluded that the price being considered would have a negative impact on the financials of your firm.

However, the CEO is adamant to proceed with the acquisition.

What should you do?



## Question 3 answers?

We will open up for discussion shortly, but first a few thoughts to get started...



# Range of acceptable estimates

There is a range of uncertainty, the price lies within an acceptable range of our central view.

So it may turn out to be good value...

... but we still think that it is more likely that it will not.



# “Good” (rational) reason to pay a higher price?

A text book answer would touch on this, but in reality there is a lot to consider here:

*Warning - some of this may seem unprofessional, but we should recognise the real influences that management may have.*

- Increase scale - not just for economies of scale (textbook), but for market perception – more influence, leverage with brokers etc.
- Perception that we’re being pro-active and have a strategy.
- May protect us from takeover ourselves!



# How to communicate influence

CA3 exam – be clear, avoid jargon, blah...

Yes, but want to go beyond that and actually influence, eg:

- Warm people up – informal chats, get people on-side
- Personalities – adapt communication style to different types
- Politics – who are the key players, what are their motives
- ...



# How the principles come into play

## High-level principles

1. **Face up to uncertainty**
2. Deconstruct the problem
3. Don't be fooled (un/intentional biases)
4. Models can be helpful, but also dangerous
5. **Think about resilience**
6. **Bring people with you**

Need healthy discussion to achieve this

What happens if this goes ahead and our number turns out to be right!

Thinking about the best strategy to get buy-in to our view



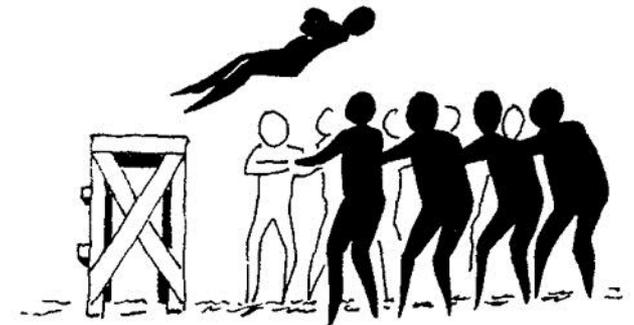
# Bring people with you

- There are often many stakeholders involved in a decision
  - While you, as the expert or decision maker may be enlightened to face up to uncertainty, your efforts will be frustrated if your knowledge and perspectives aren't shared by others
- It is therefore vital to bring others with you by dealing with:
  - Building trust
  - Resistance
  - Strategic Communication



# Building trust

- You may have worked out how to manage uncertainty in a given situation, but will anyone listen to you?
- Effective trust and understanding benefit from longer-term thinking & planning
- Stimulate engagement and encourage ownership
- It is important to engage and influence when presenting technical analysis
- Unless people receive the information they need, they will have to guess it



# Resistance

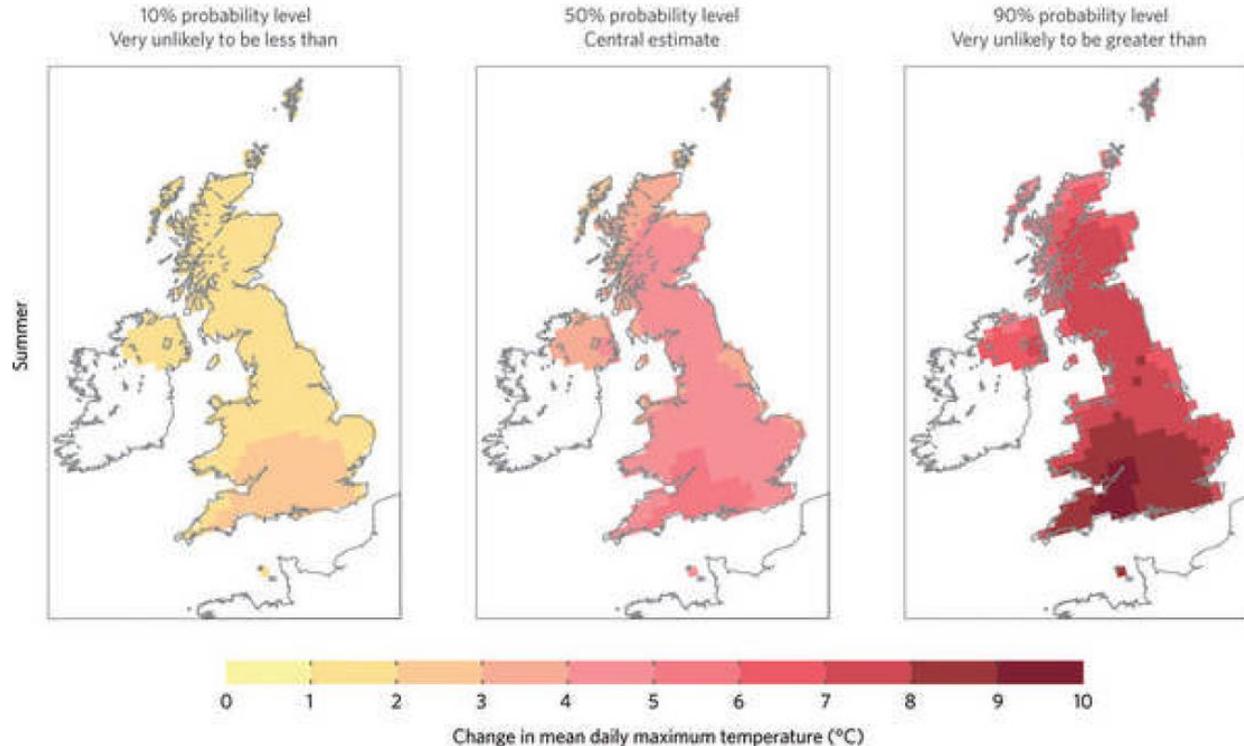
- Resistance is a predictable, natural and necessary part of the learning process
  - Even when we present our ideas clearly and logically, with our stakeholders' best interests at heart, we may be rewarded with resistance
- Resistance is an emotional process taking place within the stakeholder
  - It is not a reflection of your engagement with them on an objective, logical or rational level
- To deal with resistance, we need to:
  - Identify when it is taking place
  - View it as a natural process and a sign that you are on target
  - Support the stakeholder in expressing the resistance directly
  - Not take it personally or as an attack on you or your competence



# Communication Engagement

- Many actuaries struggle with how open to be about a model and its limitations. As the expert, it's tough to admit your model isn't perfect!
- In their 2011 scientific paper\*, Nick Pidgeon & Baruch Fischhoff put forward the concept of **strategic engagement**
- Climate scientists face many uncertainties, but progress by developing greater understanding of those uncertainties, with inquiries that sometimes reveal new sources of uncertainty
- Much effort has gone into understanding the communication of technical issues to the general public in this context
  - Here it is possible to measure the effectiveness of communication by testing the reactions of the general public through polls and the like

# Significant uncertainty on climate change impacts can hinder public and government response ...



# The science of communication ...

Consider the perspective of your audience (e.g. experts, non-experts, decision-makers), listen to their needs and seek feedback

Your familiarity with the issues and model can impede your ability to engage with those outside of your field

The more complex the modelling, the more you may confuse your audience, thus reducing their willingness to act

Unless the logic of the modelling is conveyed, people may discount its conclusions – a 'mental map' of the model can help

As the expert, it's tough to admit your model isn't perfect - try to highlight the uncertainty but favour scenarios, facts and figures over vagueness

Behavioural research shows lay people extract the info they need from clear numeric expressions of uncertainty, but struggle with ambiguity or qualifiers like "unlikely" and "probable"

# Final thoughts

*Face up to uncertainty, and help others to do the same!*

*For further reading, see our paper  
“Managing Uncertainty: Principles for Improved Decision Making”*



# Thanks

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# Q&A



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# Questions

# Comments

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