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Behavioural Finance for Actuaries

Kathy Byrne and Paul Cook

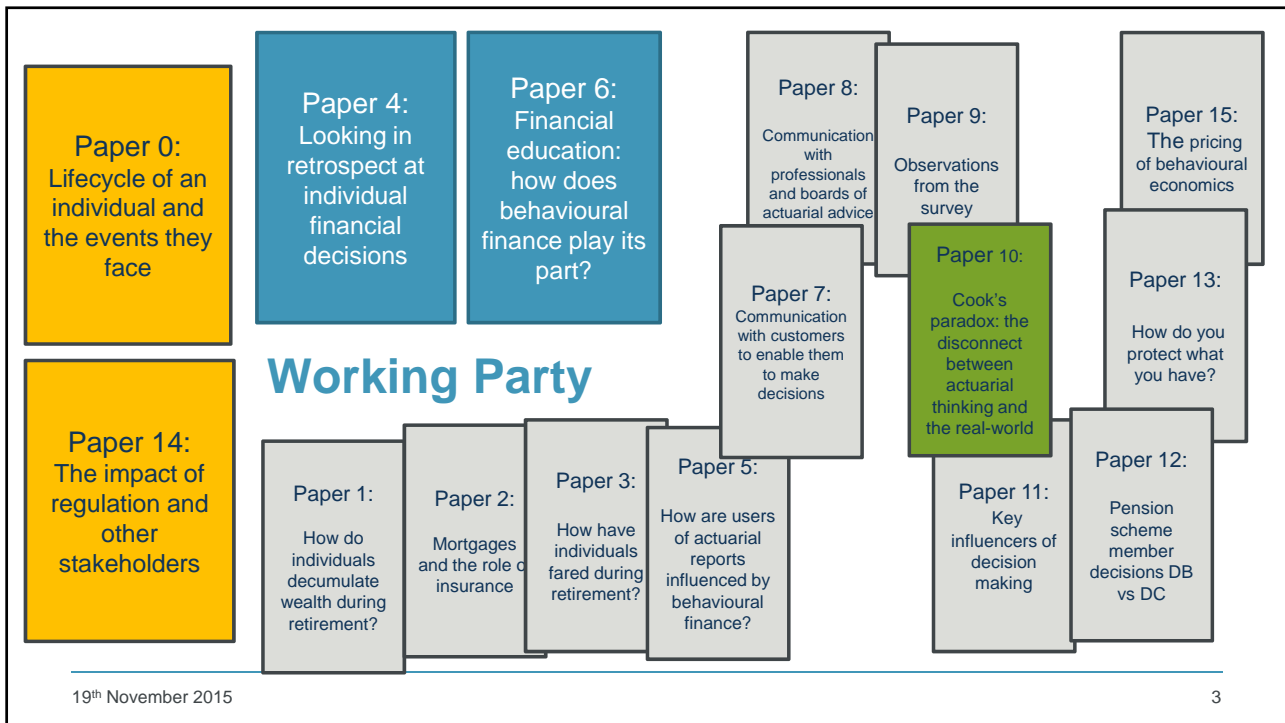
Members of the Behavioural Finance for Actuaries Working Party

19th November 2015

Agenda

- Behavioural Finance for Actuaries Working Party
- What is Behavioural Finance?
- Heuristics and Biases
- Cook's Paradox
- Behavioural Finance and Regulation

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What is Behavioural Finance

A method of economic analysis that applies psychological insights into human behaviour to explain economic decision-making

Oxford English Dictionary

The field of behavioural finance looks at how a variety of mental biases and decision making errors affect financial decisions. It relates to the psychology that underlies and drives financial decision making behaviour.

ST5 Examiners report Q3 October 2012



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Heuristics and Bias

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The Actuaries Code

3. Impartiality: members will not allow **bias**, conflicts of interest, or the undue influence of others to override their professional judgement

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Framing - Avian Flu Programmes

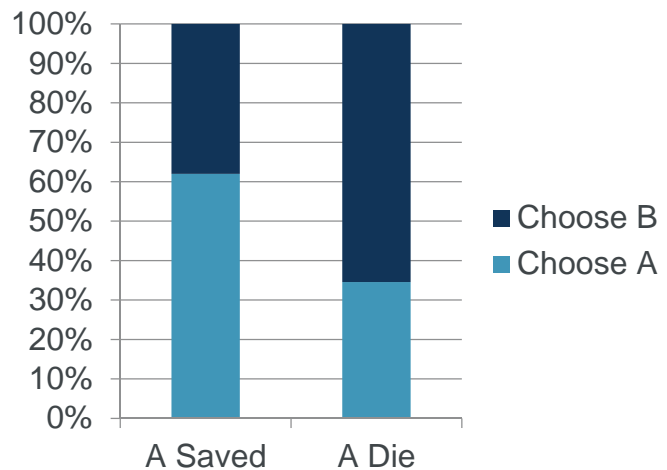
The UK is preparing for an outbreak of avian flu which is expected to kill 600 people. Two alternative programmes to combat the disease have been proposed.

Programme A

200 Saved / 400 Die

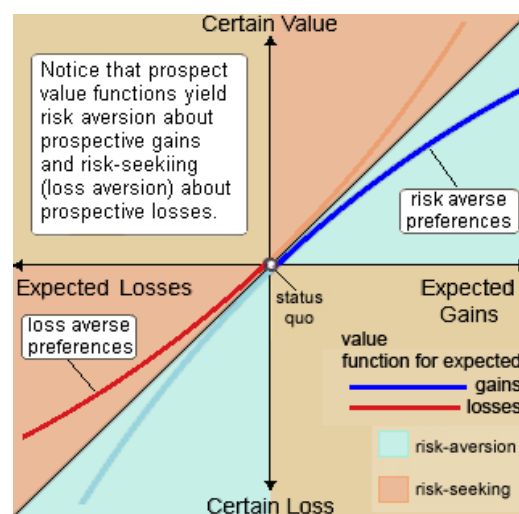
or

Programme B



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Prospect Theory and Loss Aversion

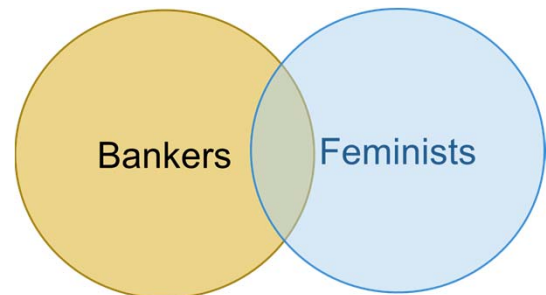


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Representativeness

Linda is 31 years old, single, outspoken, and very bright. She majored in philosophy. As a student, she was deeply concerned with issues of discrimination and social justice, and also participated in anti-nuclear demonstrations. Which is more probable?

- A Linda works in a bank.
- B Linda works in a bank and is active in the feminist movement.



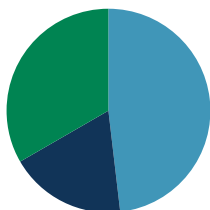
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Availability

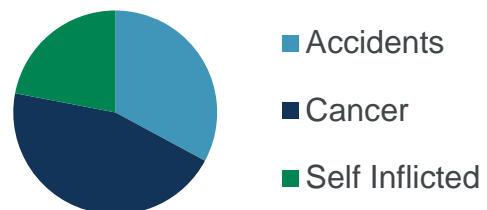
Which causes more deaths in the UK amongst women aged 20 to 29?

- A Accidents
- B Cancer
- C Self inflicted injuries

Insurance professionals said:



Actual causes of death 2010

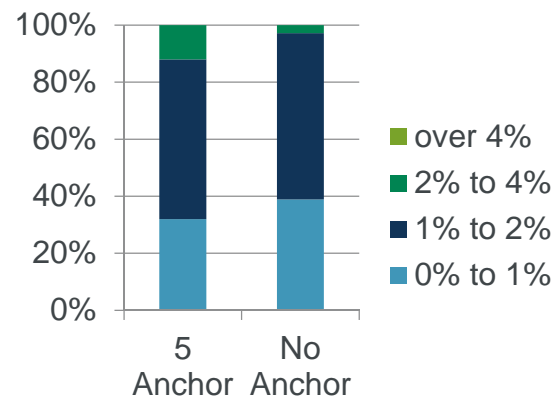


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Anchoring

What do you think the rate you earn on your cash savings will be over the next year?

- A Less than 1%
- B 1% to 2%
- C 2% to 4%
- D over 4%

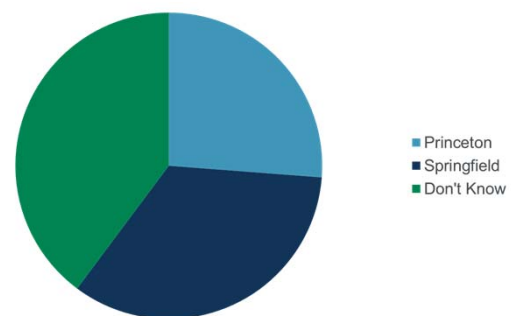


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Overconfidence

What is the capital of Kentucky State in the USA?

- A Princeton
- B Springfield
- C Don't Know



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Status Quo Bias

Personal Current Accounts

- 3% switched current account to a different bank in last year
- 2% switched accounts within the bank in last year
- 57% with same bank for more than 10 years
- 37% with same bank for more than 20 years

Competition and Markets Authority October 2015

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Hindsight Bias

Surely, Pinnacle should have known that 24/11/99 the FTSE was at its peak, also that world terrorism was prominent at that time, and obviously going to have an impact on world stock markets, should there be a 10/11 situation. PINNACLE SHOULD HAVE PREDISPOSED

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Cook's Paradox

A real life problem of using standard actuarial techniques

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The (simple) problem

- A trust is established with two beneficiaries with capital of £1m
- Beneficiary 1 (and descendants) receive the income from the trust for the next 100 years
- Beneficiary 2 (and descendants) receives the capital in 100 years time
- The capital is invested in short dated gilts and cash
- How much is each beneficiaries share of the £1m worth?

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The (simple) solution

- Assuming a discount rate of about 3% over 100 years ($1.03^{100} = 19.2$) gives:

PV(@3%) of £1m = £50,000 (approx)

Therefore:

- Beneficiary 2's share is worth approximately £50,000
- Beneficiary 1's share is worth approximately £950,000
- But who would rather have £950,000 than £30,000 a year?
- And who would rather have £50,000 than £1,000,000 in 100 years time?

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Some thoughts on the problem

- Although Prospect Theory/personal discount rates/hyperbolic discounting can help adjust the present value calculations for Beneficiaries 1 and 2, there is still the problem of adding to £1m
- This type of problem is analogous to other actuarial problems eg pension commutation, and are we applying the best tools to solve these problems?
- Intuitively there is some form of "PV loss" which could be exploited, and this is where regulation plays a part.

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Paper 14: Regulation

FCA Actions

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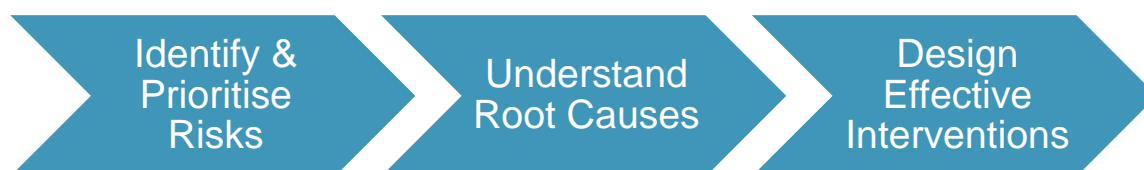
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Evidence of FCA Activity

The screenshot shows the FCA website's search results page. The FCA logo is at the top left. A navigation bar includes links for 'About us', 'Consumers', 'Firms', 'News', 'Events', and 'Your FCA'. A search bar at the top right contains the text 'P'. Below the navigation bar, the search results are displayed. The first result is 'FCA Occasional Paper No. 1: Applying behavioural economics' with a link to the PDF. The second result is 'Occasional Paper No. 1 - Applying behavioural economics at the Financial Conduct Authority, April 2013'. The third result is 'Occasional Paper No. 9: Two plus two makes five? Survey'. The fourth result is 'Making competition king - the rise of behavioural economics'. The fifth result is 'A Behavioural Economics Perspective'. A 'GABRIEL reporting' box is visible on the right side of the search results.

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Application of Behavioural Economics by FCA



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Identify & Prioritise Risks



Financial Conduct Authority



FCA Risk Outlook

2014

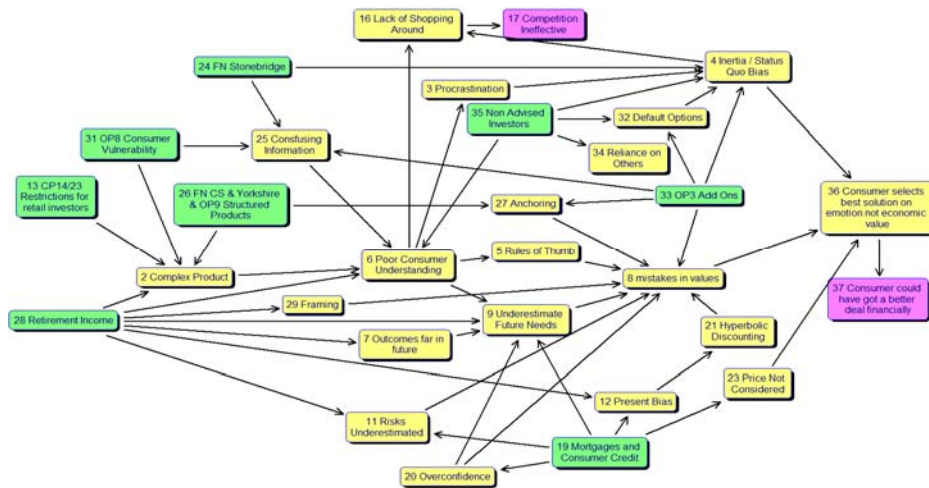


Financial Conduct Authority

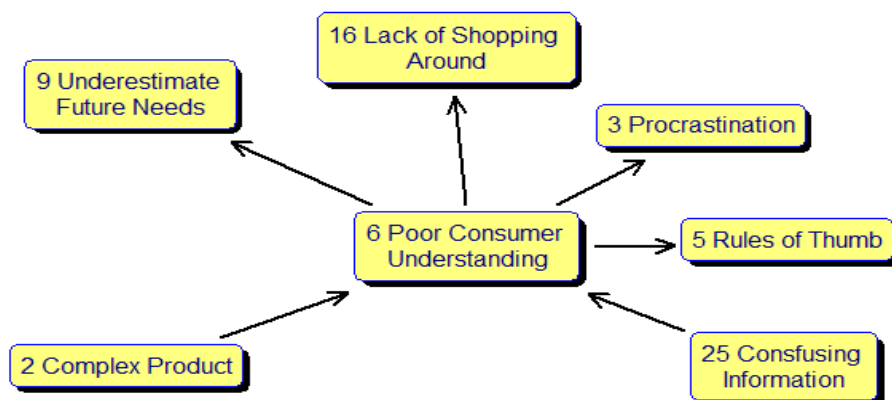


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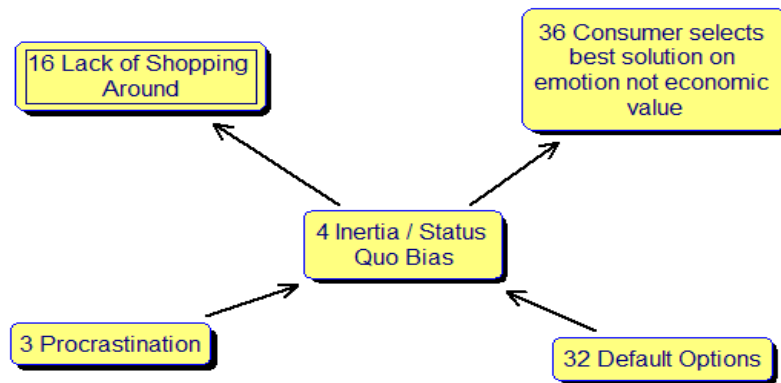
Understand Root Causes

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Consumer Understanding

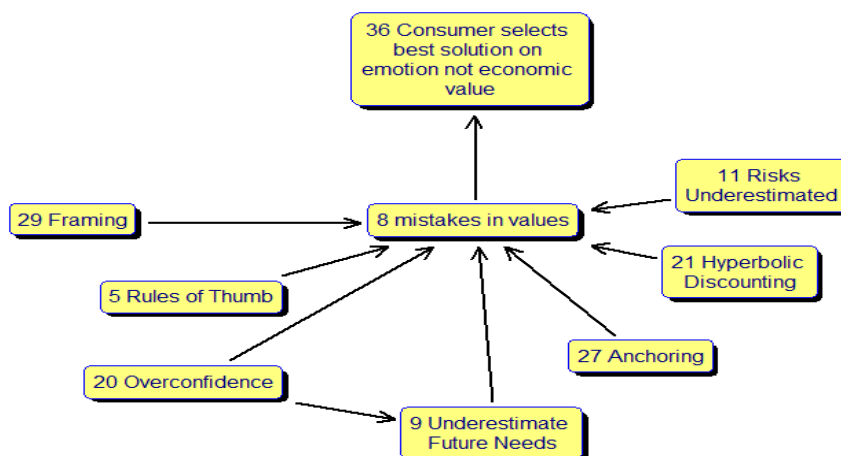
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Inertia



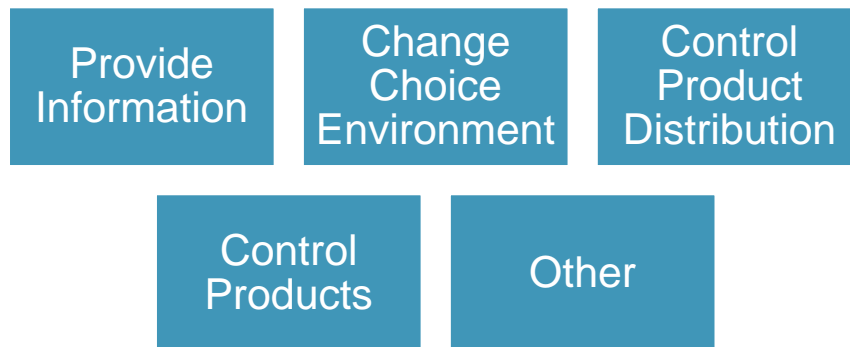
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Mistakes in comparing values



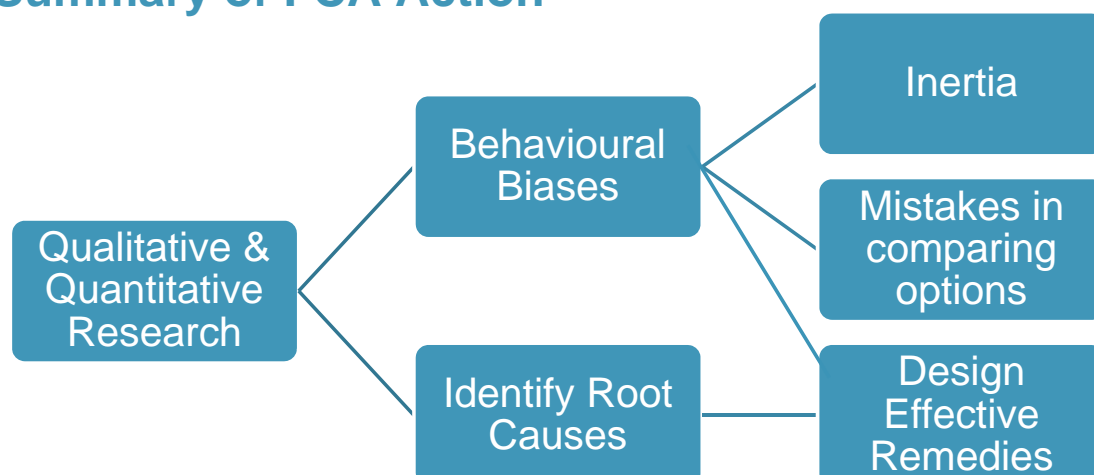
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Design Effective Interventions



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Summary of FCA Action



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Conclusions

- Behavioural finance is topical and relevant to the work of actuaries
- An opportunity for the profession to inform the debate and help solve real world problems
- Regulatory interest is unlikely to subside

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Questions

Comments

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