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## Models models everywhere

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## Introduction

- Models are everywhere
- Eliminating all model risk is not possible
- But successfully managing model risk is possible



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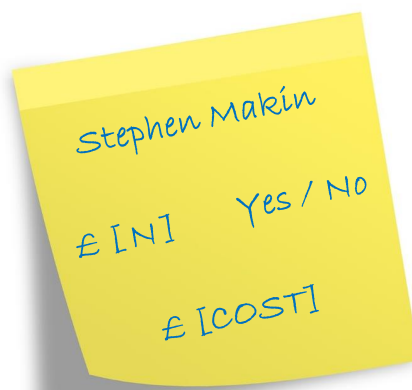
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## Some science...



### Inputs?

- Merlot, 2007, Uruguay
- Yield <1kg per vine
- French oak aged for 12 months
- Contains sulphites



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## What do we mean by model risk?

*the possibility that [ **a model** ]  
causes you to not meet your goal*



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## Familiar model risk events



*Federal Reserve Seeks a Rescue for Long-Term Capital Management*  
- Wall Street Journal

J.P.Morgan

*'London whale' traders charged in US over \$6.2bn loss*  
- BBC



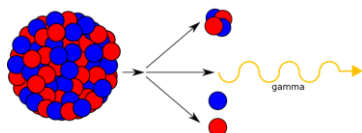
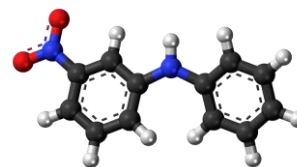
*The error that could subvert George Osborne's austerity programme*  
- The Guardian



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## What is a model?



u	c	t	g	H
d	s	b	$\gamma$	
e	$\mu$	$\tau$	Z	
$\nu_e$	$\nu_\mu$	$\nu_\tau$	W	



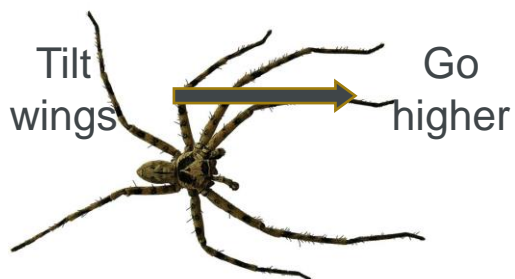
*...a simplified description of reality*



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## Models in nature



Eight legs  
and juicy  
abdomen → Tasty  
dinner



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## Let's watch...

An example of models in the animal kingdom...



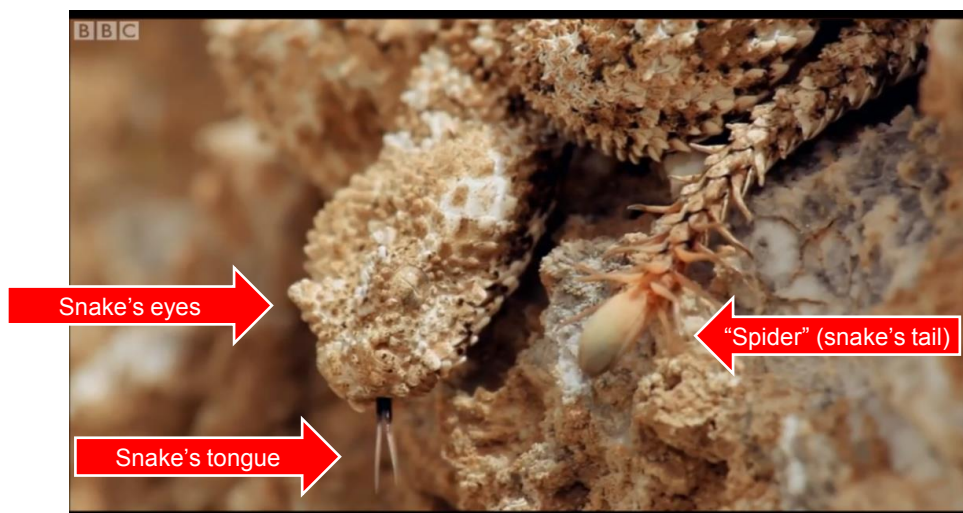
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## Model risk revealed



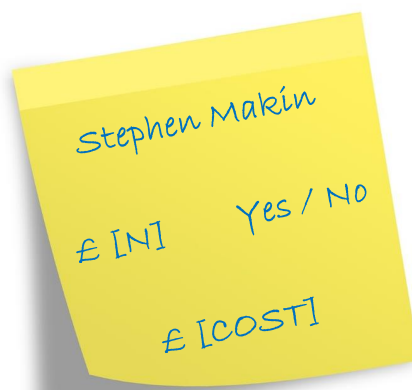
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## Back to our experiment...

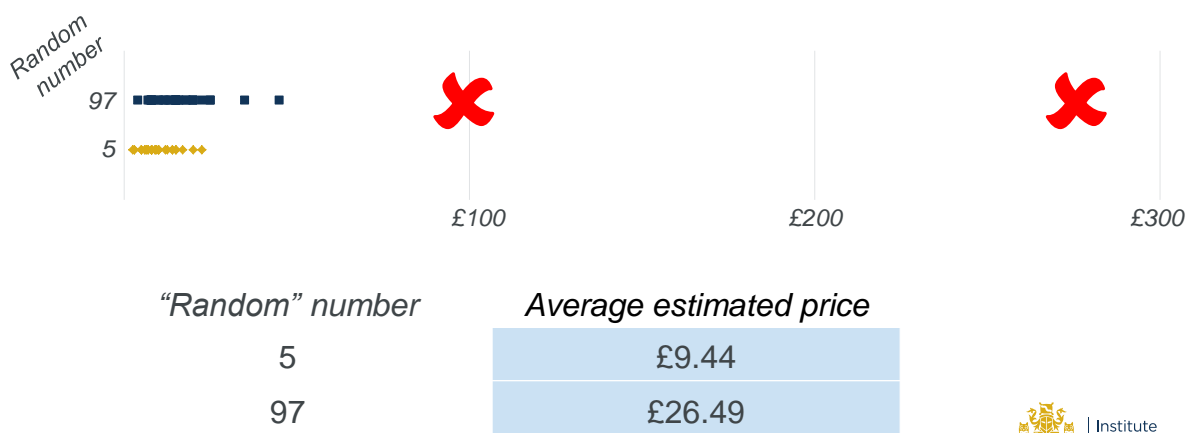


### Inputs?

- Merlot, 2007, Uruguay
- Yield <1kg per vine
- French oak aged for 12 months
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## Anchors influence judgement



## Anchors influence judgement



“Random” number

5

97

Average estimated price

£9.44

~~£20.49~~ £15.86



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## Anchors influence judgement

Random  
number

00 – 19

20 – 39

40 – 59

60 – 79

80 – 99



\$8.64

\$14.45

\$12.55

\$15.45

\$27.91

\$9.55

\$10.64

\$12.45

\$13.27

\$20.64



Source: “Coherent arbitrariness”: stable demand curves without stable preferences; Ariely, et al



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## What else creates model risk?



*confirmation  
bias*



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## What else creates model risk?



*group think*



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## *How can we identify, assess, measure and manage model risk?*



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### Classifying model risk

Implementation



Use



Knowledge



Decision

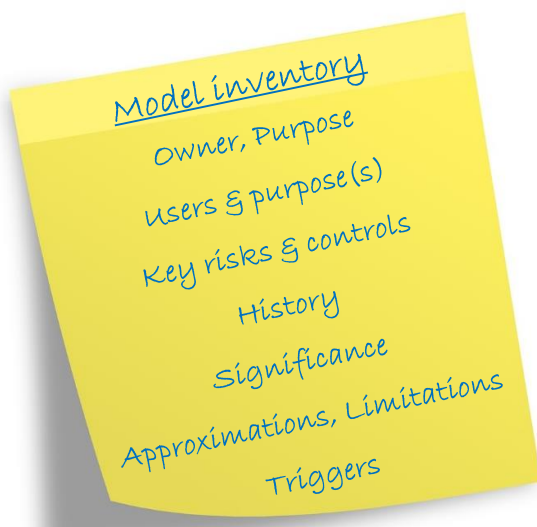


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## Identify and assess model risk

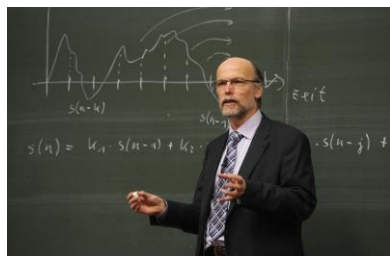


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## Measuring model risk

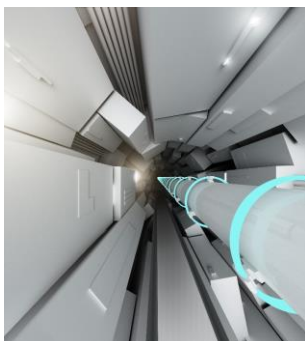


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## Managing model risk

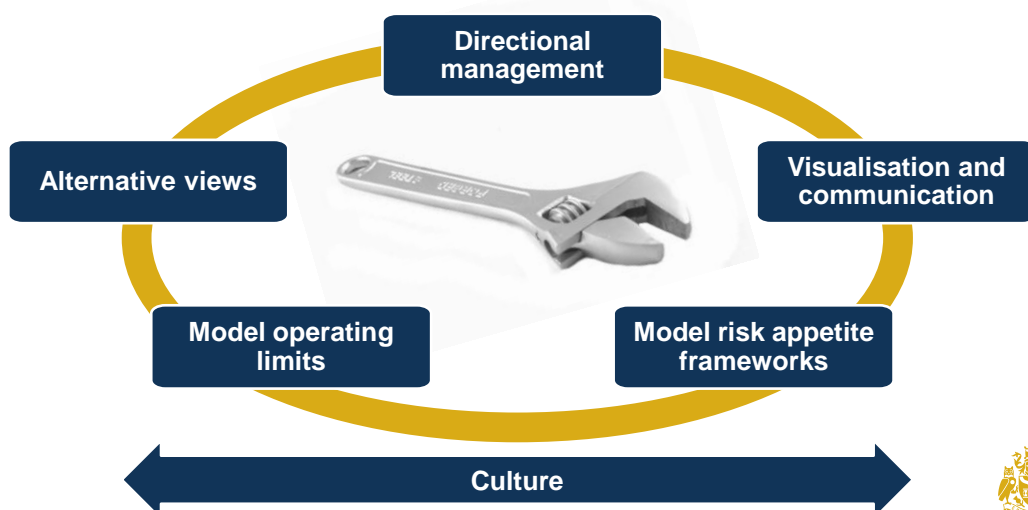


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## Some simple tools to help



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## Directional management



“Better a diamond with a flaw than a pebble without”

*Voltaire*

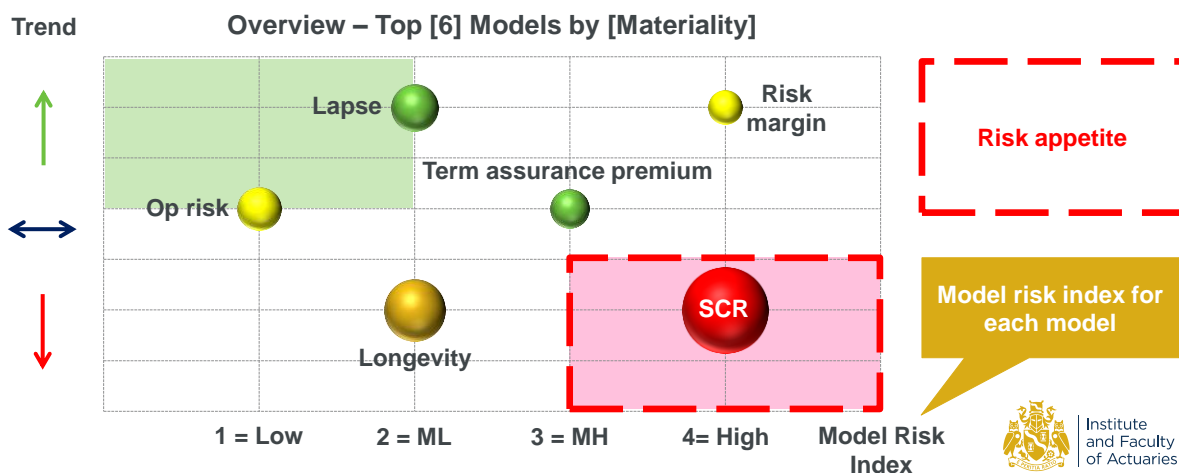


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## Visualisation and communication



## Model operating limits



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## Alternative views



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## Conclusions

- Models are everywhere
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**Questions**

**Comments**

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## What else might influence our judgement in modelling?

