



CERA Global Risk Conference 2021

from 14 to 17 June 2021

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Voting paradoxes for pension funds: theory and practice

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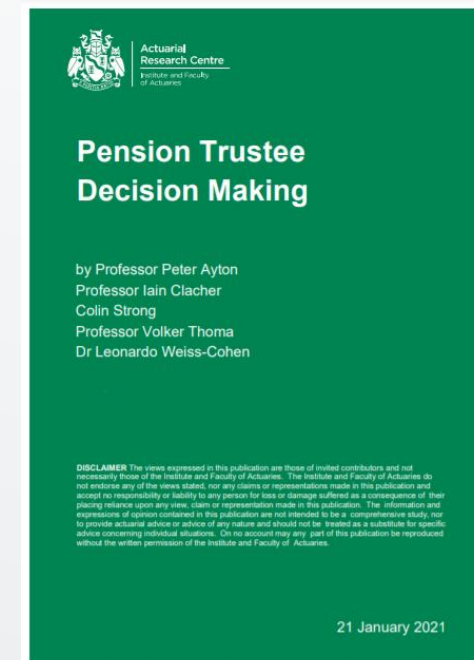
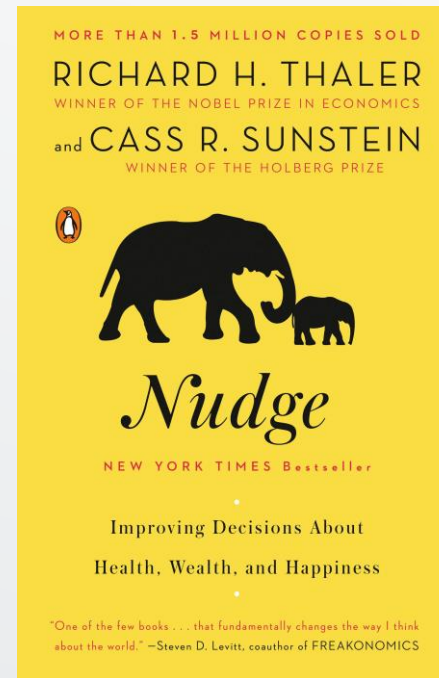
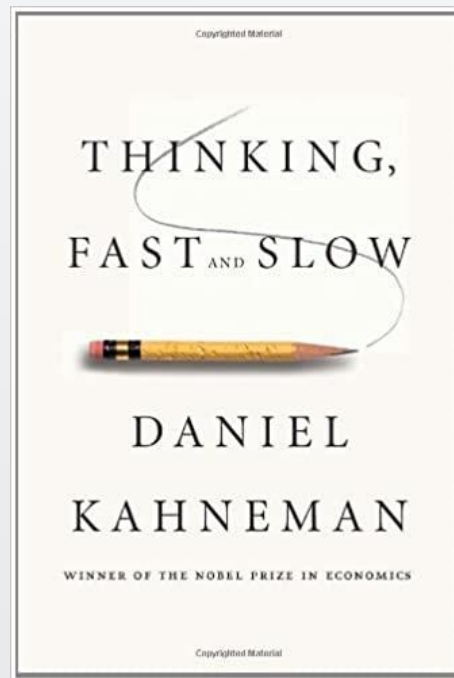
Associate Director, Willis Towers Watson

Agenda

- Pension fund trustees: need for robust voting procedures
- Voting paradoxes: pension fund examples
- Arrow's theorem: danger of a “silo” approach
- Practical solutions: best practices for voting procedures

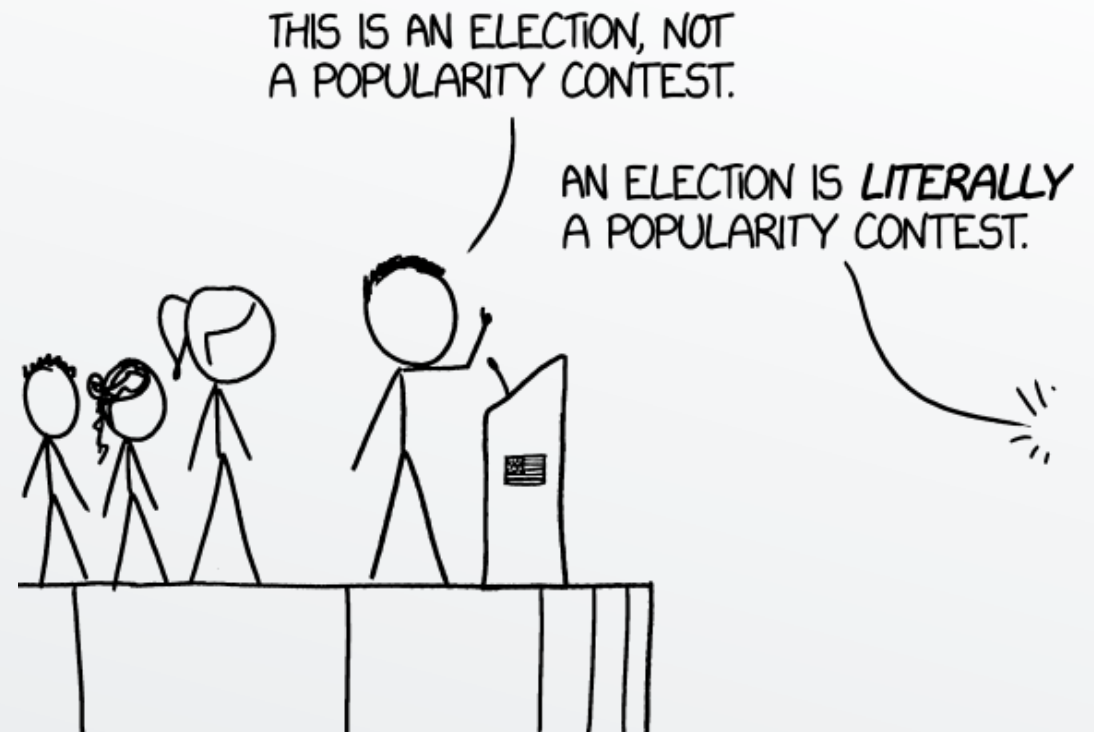
Increased awareness of decision-making biases by pension fund trustees

- Proper trustee decision-making is crucial to pension risk management
- Recent focus on behavioural economics and awareness of cognitive bias



Pension fund trustees also need robust voting procedures to make good decisions

- Numerous methods exist
- Effectiveness of traditional procedures can break down in many contexts
- Influence of voting procedures often not recognised in practice



Discursive dilemma: aggregated beliefs can be inconsistent

- Example: discretionary pension increases should only be given if...
 - (1) adequate financing exists, and
 - (2) inflation is sufficiently high

	Adequate financing?	High inflation?	Pension increase?
2 trustees think...	Yes	Yes	Yes
2 trustees think...	Yes	No	No
2 trustees think...	No	Yes	No
Total votes for...	4 (Yes!)	4 (Yes!)	2 (No!)

Plurality vote: board decides on new asset class, but winner is last choice of most trustees

- Example: trustee board votes for their favourite new asset class
 - **Commodities: 4 votes (winner!)**
 - Mortgages: 3 votes
 - Infrastructure: 3 votes

	1 st choice	2 nd choice	3 rd choice
4 trustees prefer...	Commodities	Infrastructure	Mortgages
3 trustees prefer...	Infrastructure	Mortgages	Commodities
3 trustees prefer...	Mortgages	Infrastructure	Commodities

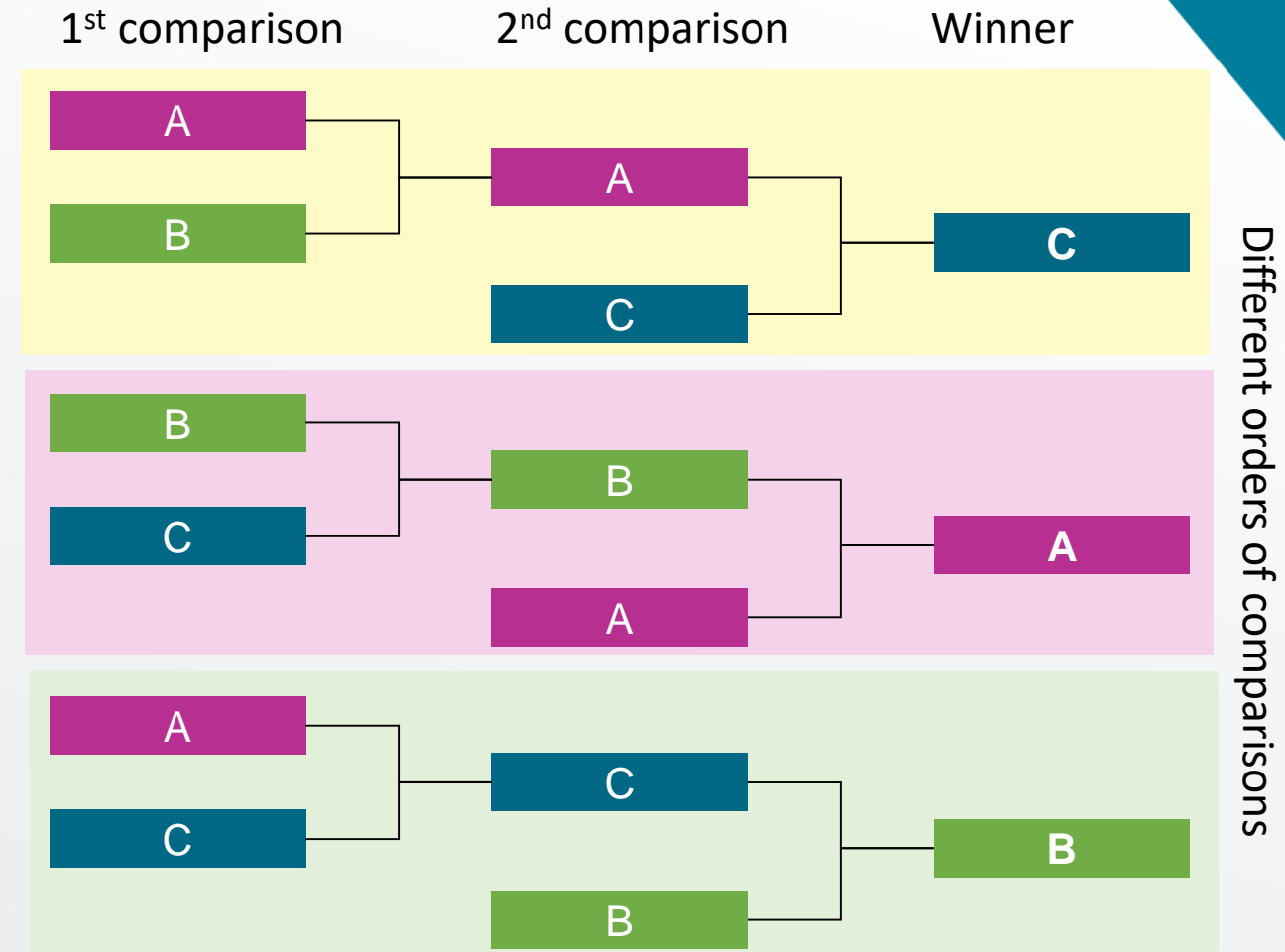
- But 6 out of 10 trustees would prefer either of the other possible outcomes

Anything goes: the problem of hidden cyclic group preferences

- Example: the trustees need to choose advisor A, B, or C
- A variety of opinions:

	1 st choice	2 nd choice	3 rd choice
2 prefer...	A	B	C
2 prefer...	B	C	A
2 prefer...	C	A	B

- Decision outcome depends on order of comparisons!



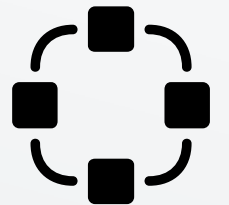
Arrow's Theorem: an impossibility result from economic theory

- If there are three or more options, no group ranking procedure can fulfil all of the following basic, intuitive conditions (Arrow, 1963):
 - Unique, complete ranking for group
 - Unanimity
 - Non-dictatorship
 - **Independence of irrelevant alternatives**
- Key message: voting procedures can break down in many contexts



Using voting procedures with a “silo” approach leads to lost information (and worse decisions!)

- Independence of irrelevant alternatives is the key problematic condition (Saari, 2008)
- When individual pairs of options are ranked as separate “silos” (A vs. B, B vs. C, A vs. C) and then the parts are brought together, information about their underlying connections is lost
- Key message: aggregation procedures should not ignore structure of individual preferences (holistic approach is needed)



Best practices

- Get more information about underlying preferences
- Choose a voting procedure that uses all information
 - Borda count: 1st place → 5 points, 2nd place → 4 points, ...
 - Condorcet winner: wins two-candidate vote against every other candidate
- Make use of technology for voting
- Be aware of problems; know when is additional discussion needed

References

Arrow, Kenneth, 1963 (2nd ed.), *Social Choice and Individual Values*, Wiley, New York.

Saari, Donald, 2008, *Disposing Dictators, Demystifying Voting Paradoxes: Social Choice Analysis*, Cambridge University Press, New York.