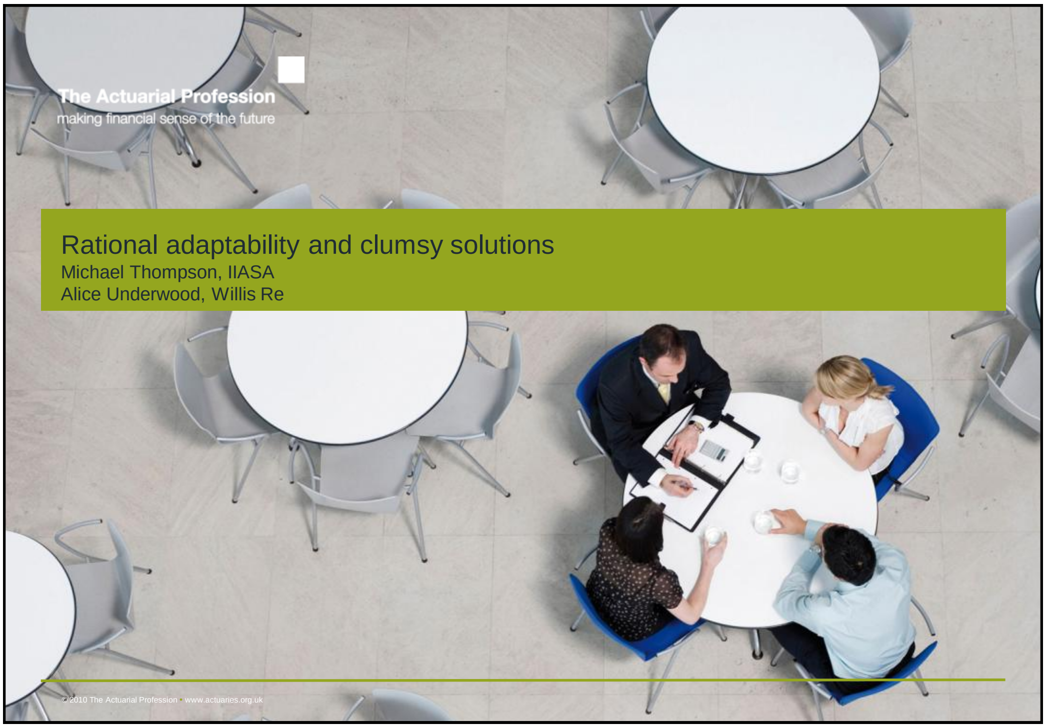


Four Risk Attitudes

1

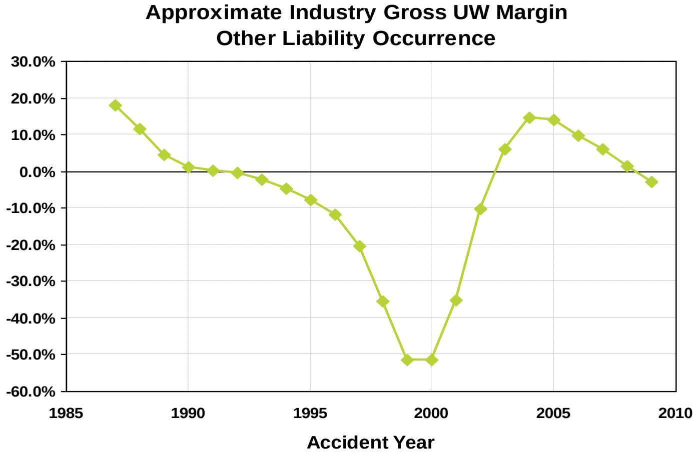
Why do these four risk attitudes exist?

- Four contradictory views of the world
  - But the world doesn't hold still

- No one view is right all of the time…
- But each of the views is right some of the time

2

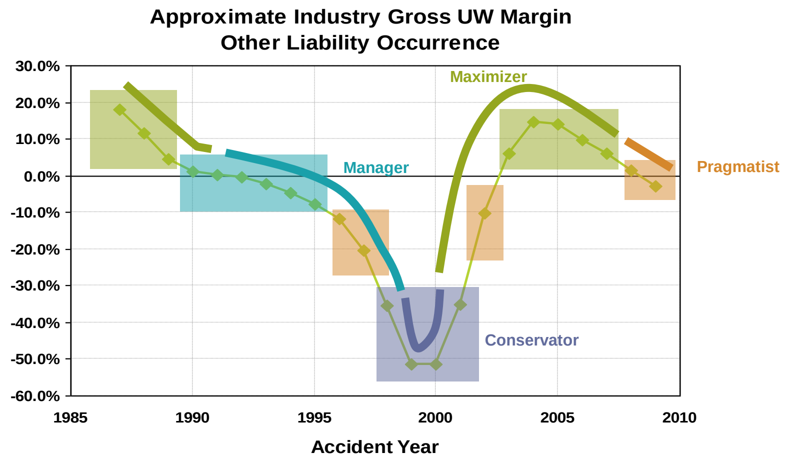
Four seasons of risk



Approximate UW margin defined as 100% - loss ratio – 30% expenses

3

Insurance cycle and risk attitudes



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Risk environment affects risk attitude

During the **BOOM** Attitudes shift towards **Maximizer**	During the **BUST** Attitudes shift towards **Conservator**
In **UNCERTAIN** times Attitudes shift towards **Pragmatist**	In **MODERATE** times Attitudes shift towards **Manager**

- In the insurance industry, this shifting can be delayed due to the time it takes to recognize losses – especially for long-tailed lines

5

The Surprise Game

- Agent-based model of a closed economy
- Rules come from Plural Rationalities
- Dynamic world and dynamic players
  - Players' risk attitudes are set at the start and then vary over time according to experiences
  - The overall risk environment is set at the start and varies based upon performance of the economy

- Developed by Michael Thompson & Paul Tayler, 1985
  - Adapted by David Ingram, 2010

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A typology of surprises

Stipulated world \ Actual world	Uncertain	Bust	Boom	Moderate
Pragmatist		Expected windfalls don't materialize	Unexpected runs of good luck	Unexpected runs of good and bad luck
Conservator	Caution does not work		Others prosper	Others prosper
Maximizer	Skill is not rewarded	Total collapse		Profit lower than expected
Manager	Unpredictability	Total collapse	Competition	

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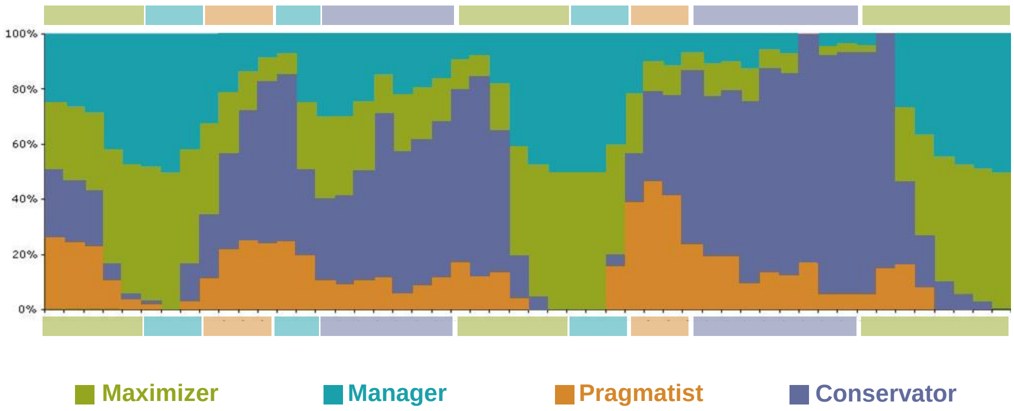
Surprise Game: sample outcome



Surprise Game rules (excerpts)

- Portion of cash balance to new investment
  - Maximizers 30%
  - Managers 15%
  - Pragmatists 5%
  - Conservators 0%
- Range of market return
  - Boom 5% to 30%
  - Moderate -20% to 20% (skew positive)
  - Uncertain -20% to 20% (coin toss)
  - Bust -30% to 0%
- Variables affecting company risk attitude in next period include
  - Return < -10% (all)
  - Top 5 firms return >20% (all but Max.)
  - Return (< 20% Max., <0% Mgr., > 10% Cons.)
  - 3+ returns same sign (Prag.)
- Triggers for changing *environment*
  - Cash in bank > cash in co's (→ Boom)
  - Profits > cash in system, once (→ Moderate)
  - Profits > cash in system, repeatedly (→ Uncertain)
  - Too many bankruptcies (→ Bust)

Surprise Game: preliminary findings

Stay the Course			
Attitude	Average Return	Std Dev Return	Failure Rate
Pragmatists	0	15	11%
Conservators	0	5	0%
Maximizers	4	32	27%
Managers	3	18	13%

Adaptation			
Adaptability	Average Return	Std Dev Return	Failure Rate
0%	-2	19	20%
25%	2	20	16%
50%	6	20	12%
75%	9	20	8%
100%	13	18	5%

Implications for actuarial modeling

- Models calibrated to boom, bust, or moderate times will behave reasonably well so long as those conditions prevail
  - But largely useless when the environment shifts
  - Better adaptation to current conditions yields better results
- Actuaries must remain vigilantly aware of, and robustly communicate, model limitations to avoid common pitfalls
  - Failure to confirm / understand assumptions
  - Black-box “faith based” mentality
  - Garbage in, garbage out

The Actuarial Profession
making financial sense of the future

Implications for ERM

Risk management strategies


Diversification


Risk Steering


Risk Trading


Loss Controlling

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Favourite risk strategies

Conservators	favour Loss Controlling
Maximizers	favour Risk Trading
Managers	favour Risk Steering
Pragmatists	favour Diversification

Rational adaptability

Risk Environment	BOOM	BUST	UNCERTAIN	MODERATE
Risk Attitude	Maximizer	Conservator	Pragmatist	Manager
Risk Management Strategy	Risk Trading	Loss Controlling	Diversification	Risk Steering

A perfect ERM program will adapt to the risk environment

Be realistic

- Rational adaptability is an ideal strategy
- Almost impossible to simultaneously
  - Know when the risk environment shifts
  - Do what it takes to
    - Shift the firm's risk attitude
    - Execute the new risk strategy competently

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Harmonization

- Practical alternative to Rational Adaptability “perfection”
  - A clumsy solution
- Keep all four risk attitudes in the discussion
  - Create compromise strategies
- Must be more than superficial
  - Important to truly value all views of risk
  - Really believe that there is no totally wrong view
- Keep your eye on the rational adaptability ideal
  - Operate somewhere between “stay the course” and rational adaptability
  - Over time getting closer and closer to the ideal

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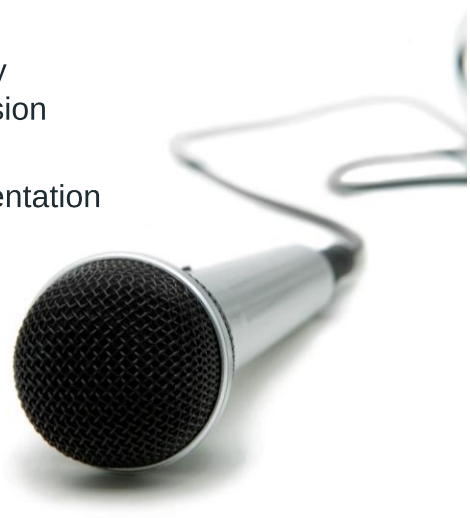
Questions or comments?

Expressions of individual views by members of The Actuarial Profession and its staff are encouraged.

The views expressed in this presentation are those of the presenters.



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