

MANAGING EXTREMES

Willis Re

RISK ATTITUDES AND ERM

Dave Ingram / Alice Underwood

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Introduction

- Willis Re analytics research revealed some basic ideas about risk attitudes (preferences) and risk strategies
 - Many of you already use these ideas every day
 - This session will offer some structure and terminology
- We will discuss applications of these ideas to
 - Risk management strategy
 - Managing through the insurance cycle
 - Enterprise risk management

TODAY'S AGENDA

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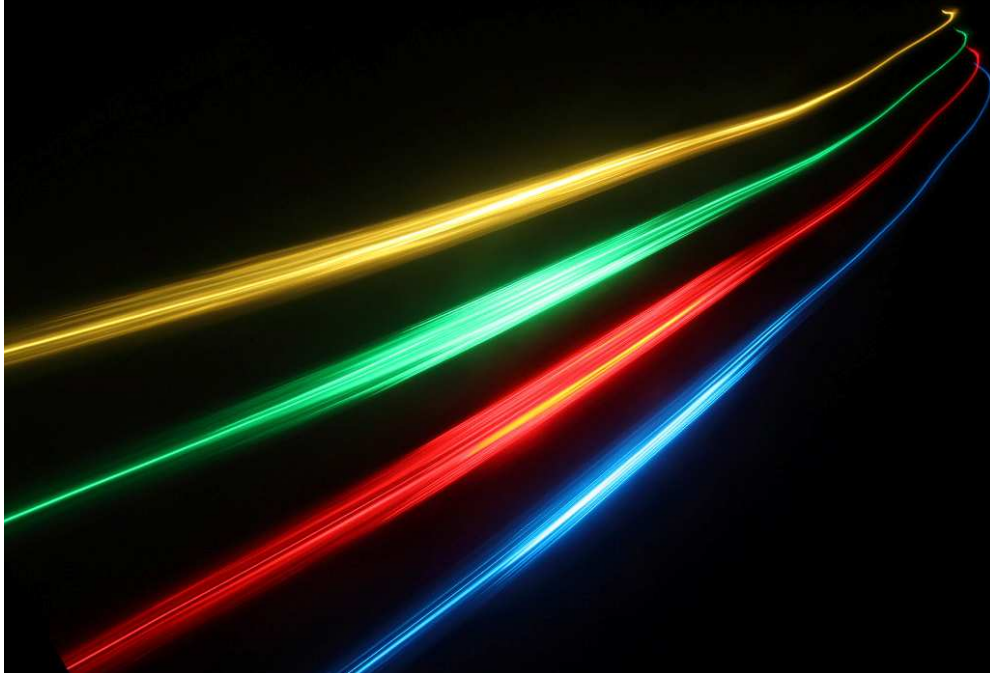
Introduction

The theory of plural rationalities

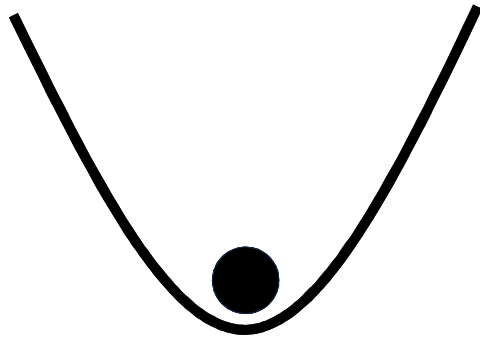
Risk attitudes and risk strategies

Seasons of risk & the insurance cycle

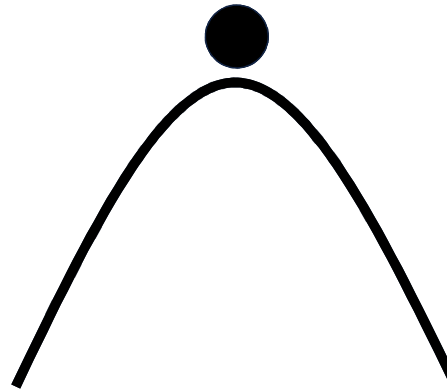
Risk attitudes & ERM



Four views of risk



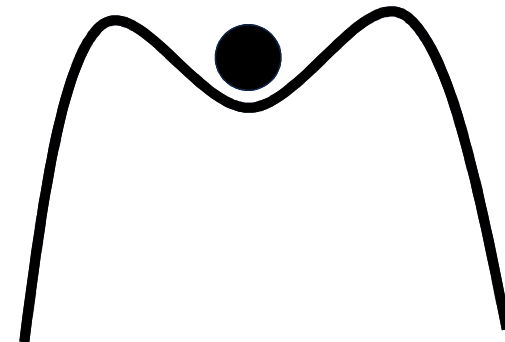
Maximizers



Conservators



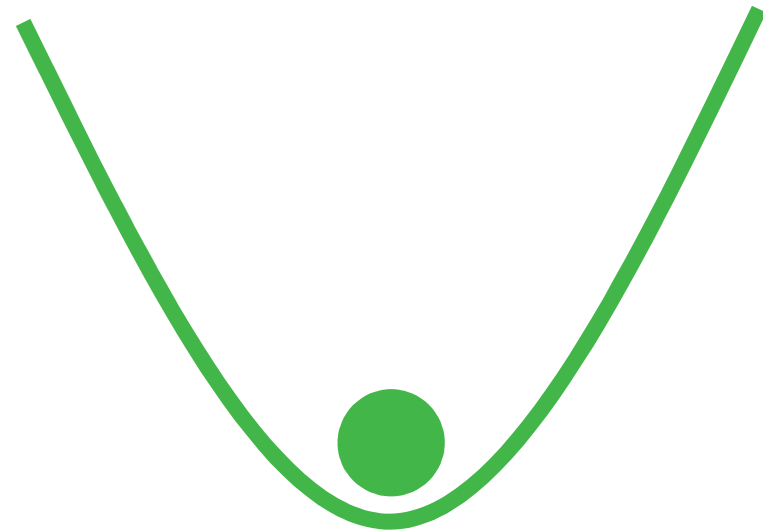
Pragmatists



Managers

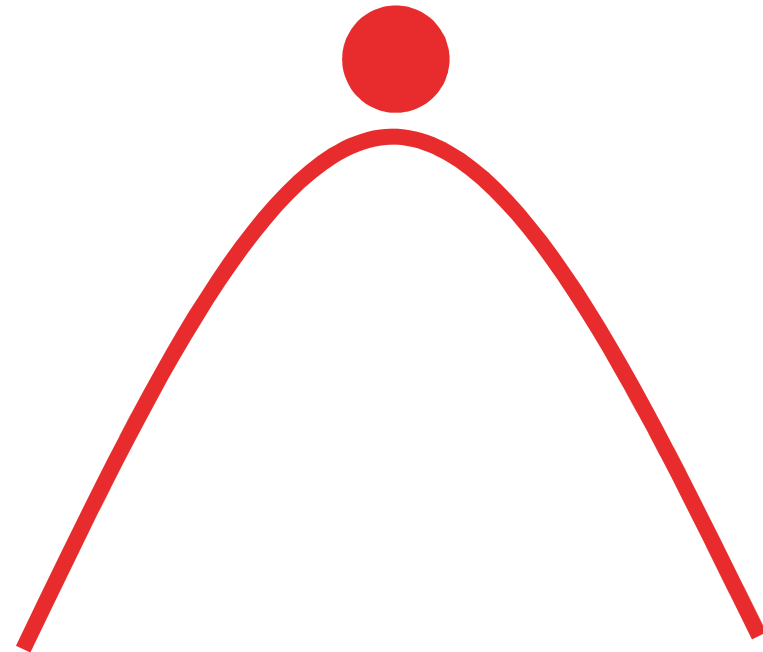
Maximizers' view

- Risk is not very important – **profits** are important
- It's fine to accept large risks, as long as the price is right
- Risk is mean reverting:
 - Gains will always follow losses
 - The best companies will have larger gains and smaller losses over time



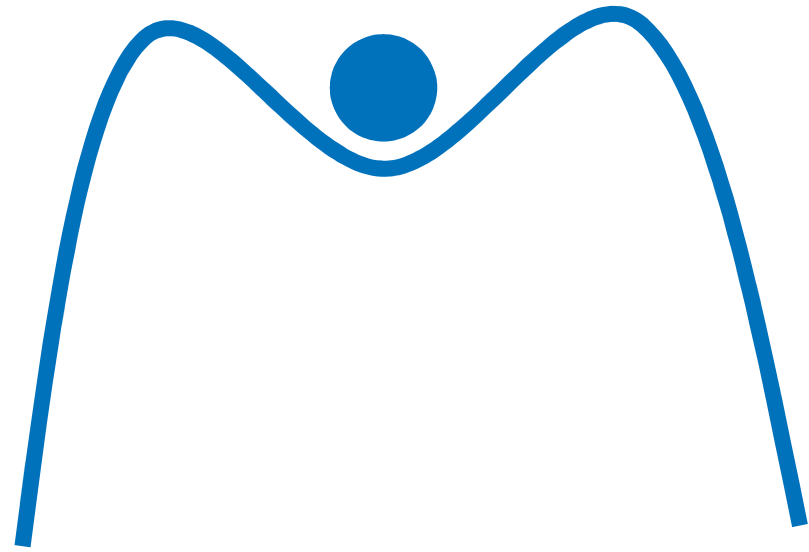
Conservators' view

- Increasing profit is not as important as avoiding loss
- Need to **tightly limit** risks
- The world is in a delicate balance
 - Any major change could send things into ruin



Managers' view

- Risk is measurable and controllable
- Risk and reward should be **carefully balanced**
- Experts are best suited to
 - Help find risks offering the best rewards
 - Manage these risks to keep firm safe



Pragmatists' view

- The future is totally unpredictable
- You can't control risk so there is no point in trying
- It is usually best to
 - Avoid major commitments
 - Keep options open
 - Seek **freedom to react** to changing conditions



Observations I

	1	0	0	0
	2	1	0	0
	3	0	0	0
	4	0	0	0
	5	0	0	1
	6	0	1	0
	7	0	0	0
	8	0	0	0
	9	0	0	0
	10	1	0	0
	11	1	1	0
	12	0	0	0
	13	0	0	0
	14	0	0	0
	15	0	0	0
	16	0	0	0
	17	0	0	0
	18	0	0	0
	19	0	0	0
	20	0	0	0
total		3	2	1
Average		0.15	0.10	0.05
Std Dev		0.37	0.31	0.22

Observations II

	1	0	0	0
	2	0	0	0
	3	0	0	0
	4	0	0	0
	5	0	0	1
	6	0	0	0
	7	0	0	0
	8	0	0	0
	9	0	0	0
	10	0	0	0
	11	0	0	0
	12	0	0	0
	13	0	0	0
	14	0	0	0
	15	0	0	0
	16	0	0	0
	17	0	0	0
	18	0	0	0
	19	0	0	0
	20	0	0	0
total		0	0	1
Average		-	-	0.05
Std Dev		-	-	0.22

Stock market total returns: loss > 20%

	1990 - 2009	1970 - 1989	1950 - 1969	1930 - 1949	1910 - 1929	
	0	0	0	1	0	
	0	0	0	1	0	
	0	0	0	0	0	
	0	0	0	0	0	
	0	1	0	0	0	
	0	0	0	0	0	
	0	0	0	0	0	
	0	0	0	0	0	
	0	0	0	1	0	
	0	0	0	0	0	
	0	0	0	0	0	
	0	0	0	0	0	
	0	0	0	0	0	
	0	0	0	0	0	
	0	0	0	0	0	
	0	0	0	0	0	
	1	0	0	0	0	
	0	0	0	0	0	
	0	0	0	0	0	
	0	0	0	0	0	
	0	0	0	0	0	
	0	0	0	0	0	
	1	0	0	0	0	
	1	0	0	0	0	
Total	3	1	0	3	0	

What stock market model would you believe?

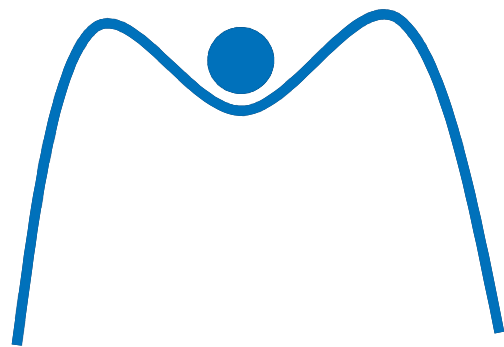
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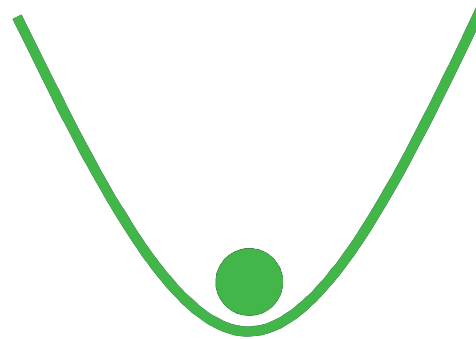
- In the next 20 years,
 - Risk is **high**
 - Chance of loss $> 20\%$ is 10% or more
 - Risk is **moderate**
 - Chance of loss $> 20\%$ is about 5%
 - Risk is **low**
 - Chance of loss $> 20\%$ is much less than 5%
 - **Do not believe we can know** the risk level

Poll question

- Would you say that your own risk attitude is:



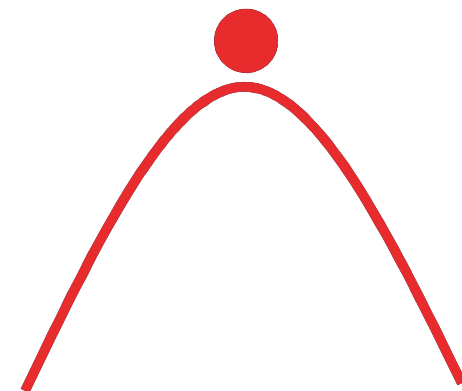
Manager



Maximizer



Pragmatist



Conservator

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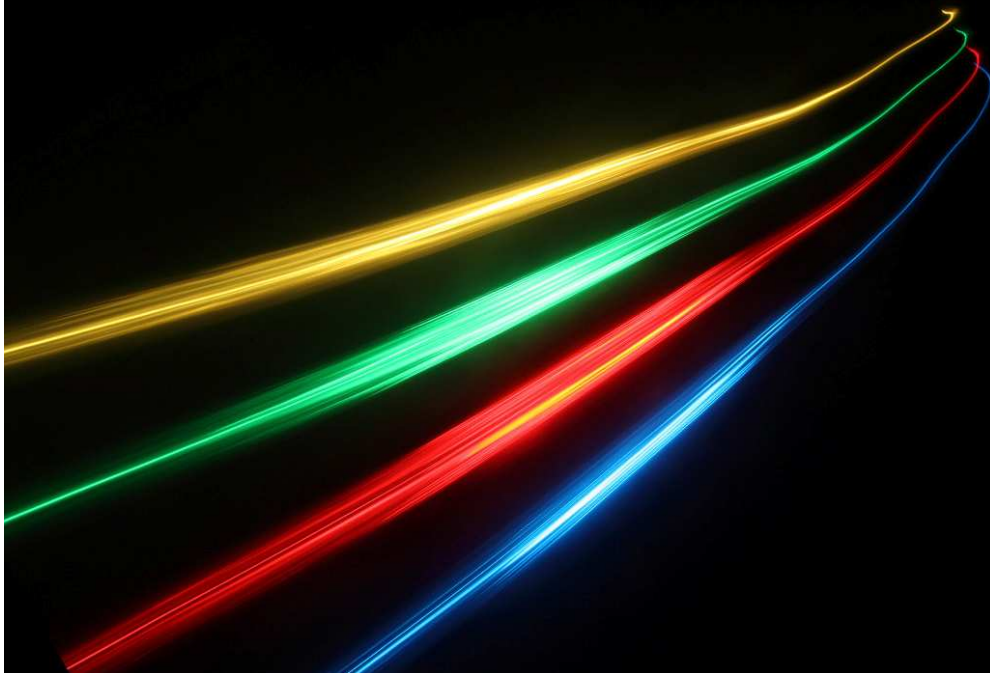
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Risk attitudes & ERM



Risk strategies

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- Diversification
- Loss controlling
- Risk trading
- Risk steering

Diversification

- Oldest type of risk strategy
 - Spread exposures across different classes of risks
 - Avoid large risk concentrations
- Formal diversification programs set targets for the spread of risk
 - Maximums and minimums for various classes of risk
- Even growth

Loss controlling

- Most traditional form of risk strategy
 - Identify and mitigate the most significant risks
- Commonly practiced by non-financial firms
 - Also applies to financial risk
 - Careful underwriting of loans / insurance policies
 - Claims management & credit workout
- Low growth

Risk trading

- Newer risk strategy
 - Arose from trading desks and the insurance industry
- Focus on getting the price of risk correct
 - Requires complicated models of risk, reward, and economic capital
- Can be applied on a transaction-by-transaction or other “siloed” basis
 - If these firms use Economic Capital, they allocate it to the case level
- Seek high growth

Risk steering

- Applies the ideas of risk trading at a macro level to the major strategic decisions of the firm
 - Seeks the optimal risk / reward balance
 - Tries to steer the firm in that ideal direction
- Fundamentally an enterprise-wide approach
- Almost always tied to Economic Capital Model
- Some seem to think that only risk steering is “real” ERM
- Moderate growth – grow with market

Favorite risk strategies



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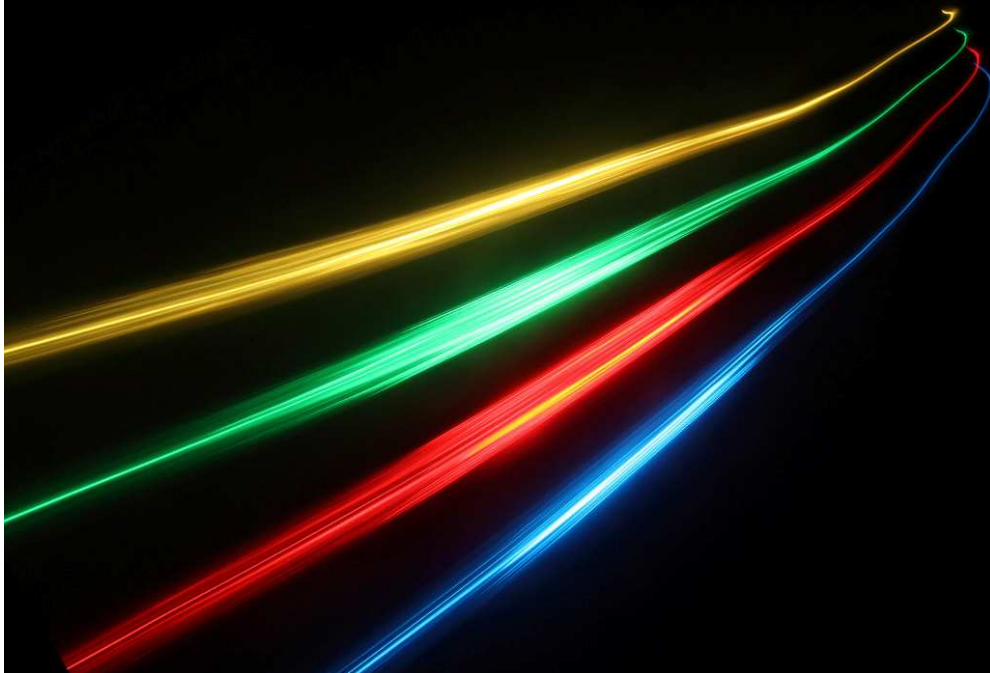
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Why do these four risk attitudes exist?

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- 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

Risk environment impacts risk attitude

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During the **BOOM**

Attitudes shift towards
Maximizer

During the **BUST**

Attitudes shift towards
Conservator

In **UNCERTAIN** times

Attitudes shift towards
Pragmatist

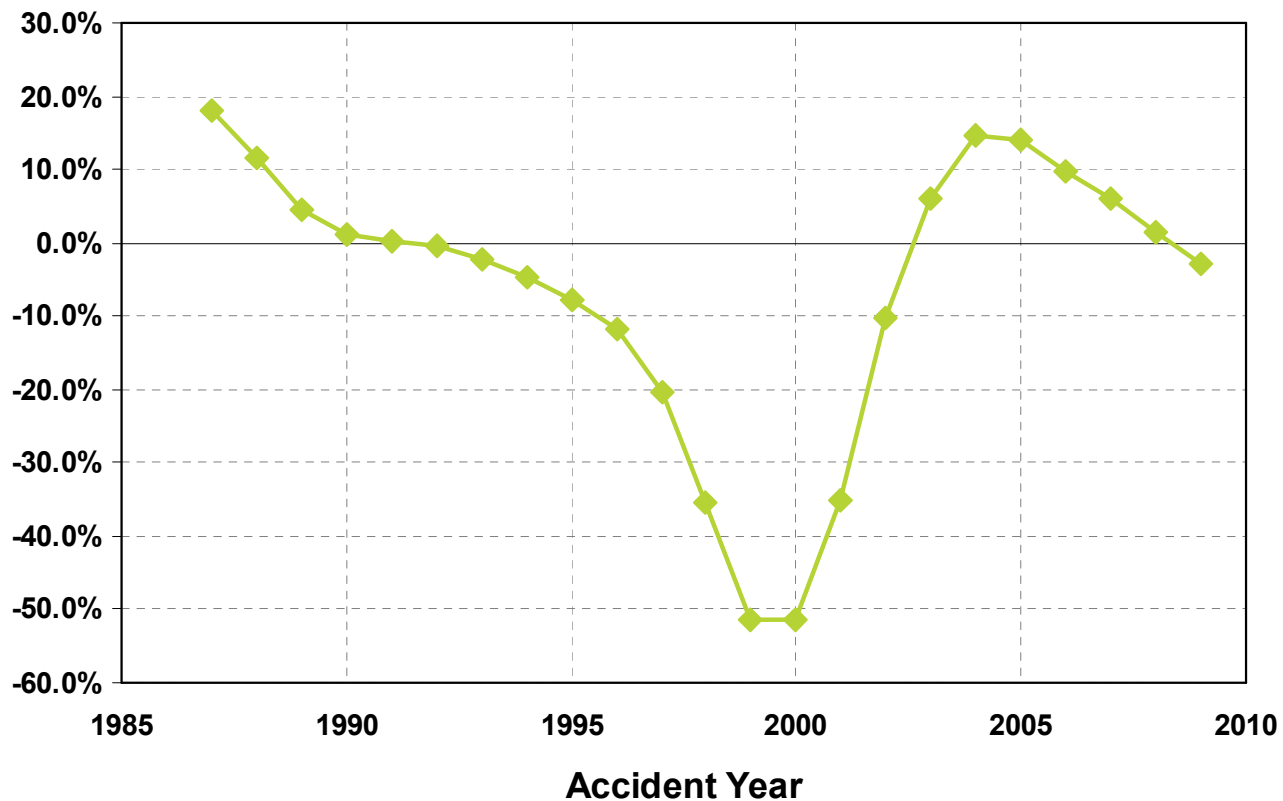
In **MODERATE** times

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

Four seasons of risk

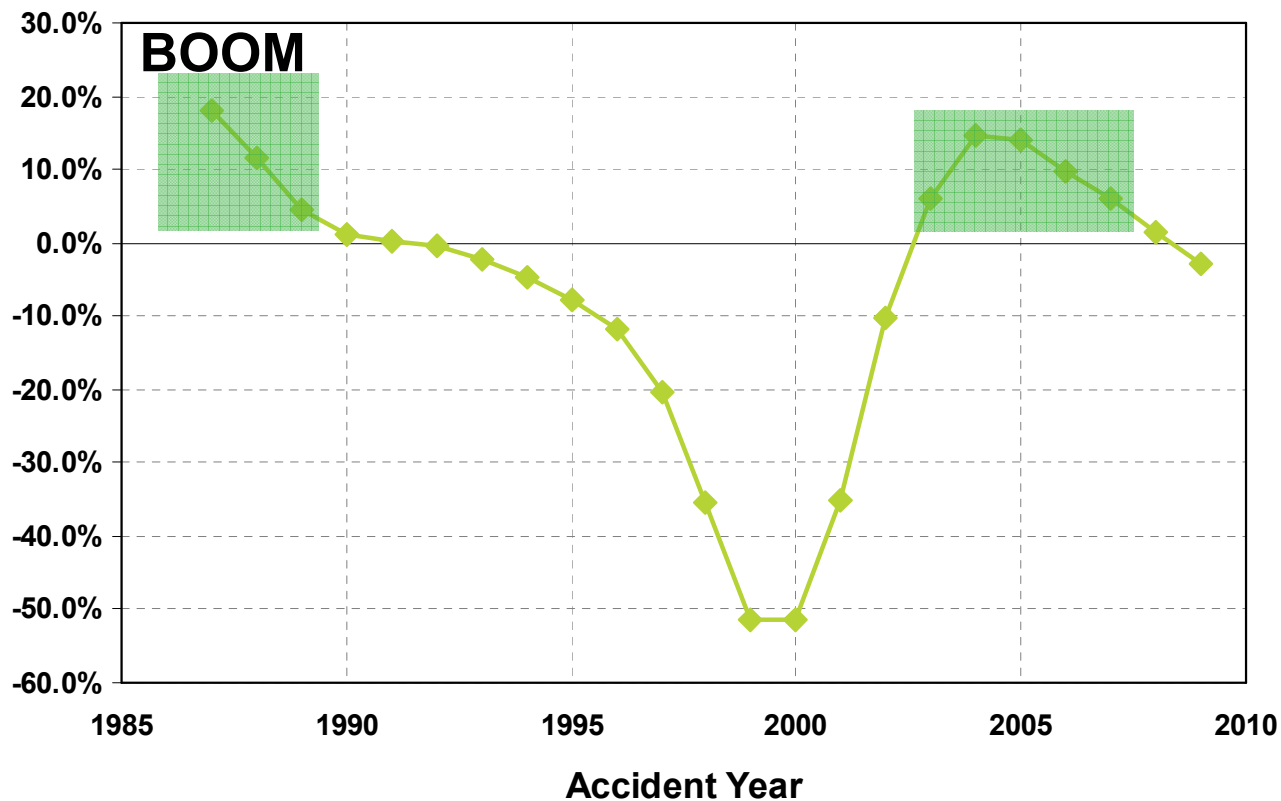
Approximate Industry Gross UW Margin
Other Liability Occurrence



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

Four seasons of risk

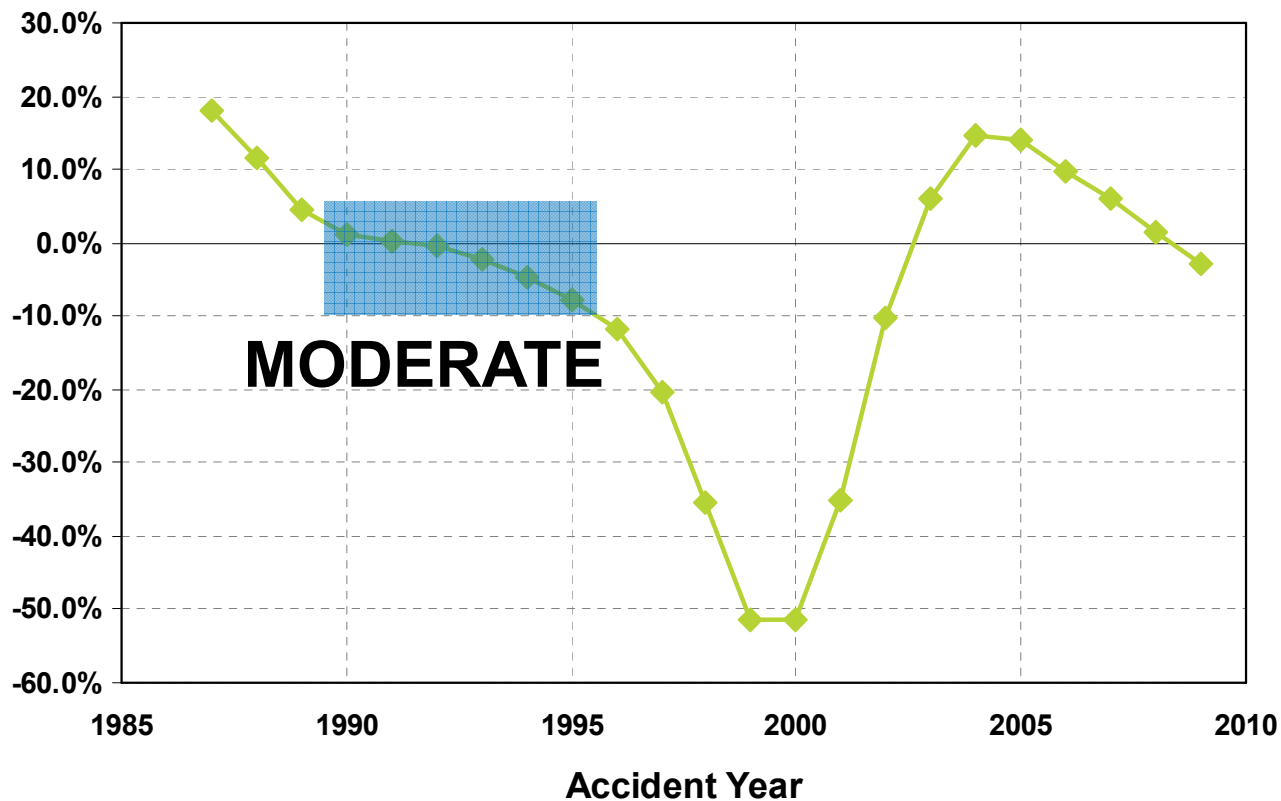
Approximate Industry Gross UW Margin
Other Liability Occurrence



- Risky decisions pay off handsomely
- Unhedged positions beat out carefully hedged positions

Four seasons of risk

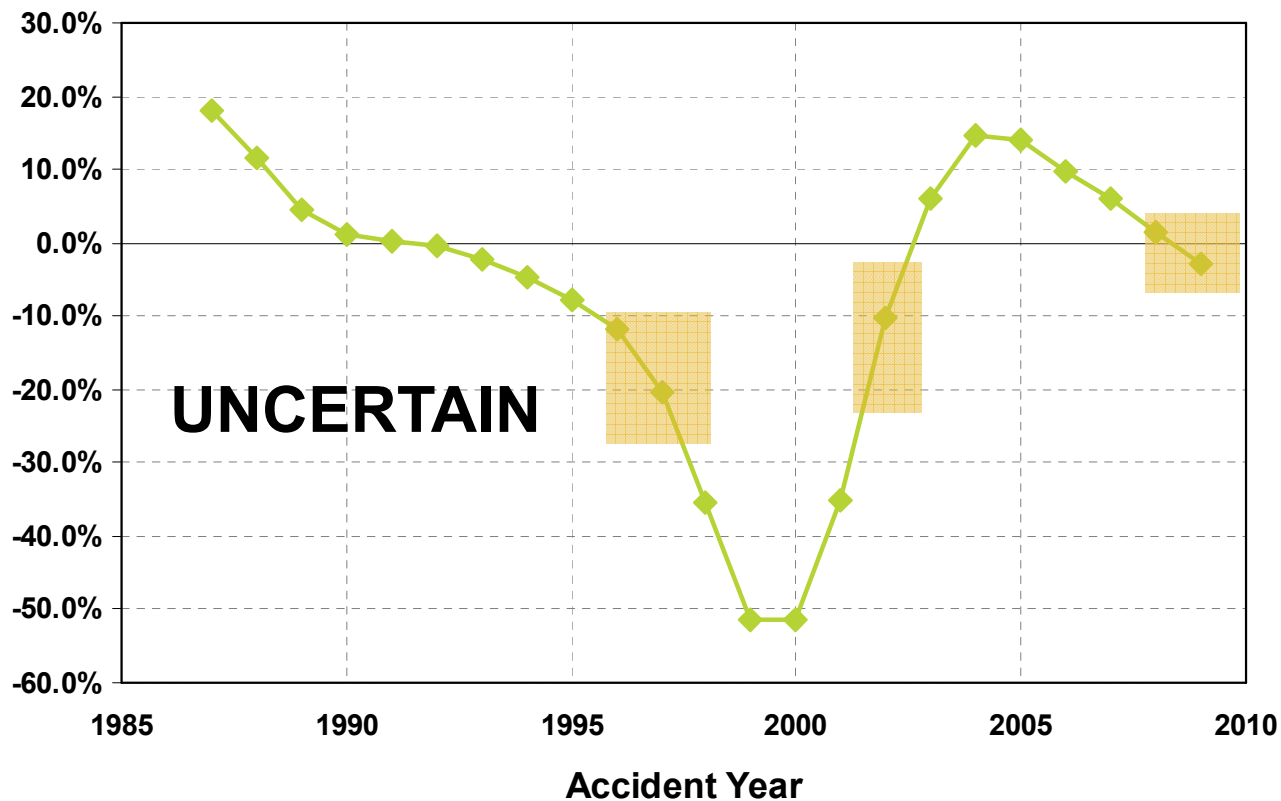
Approximate Industry Gross UW Margin
Other Liability Occurrence



- Long term averages seem to hold up well
- Hedging has the expected impact

Four seasons of risk

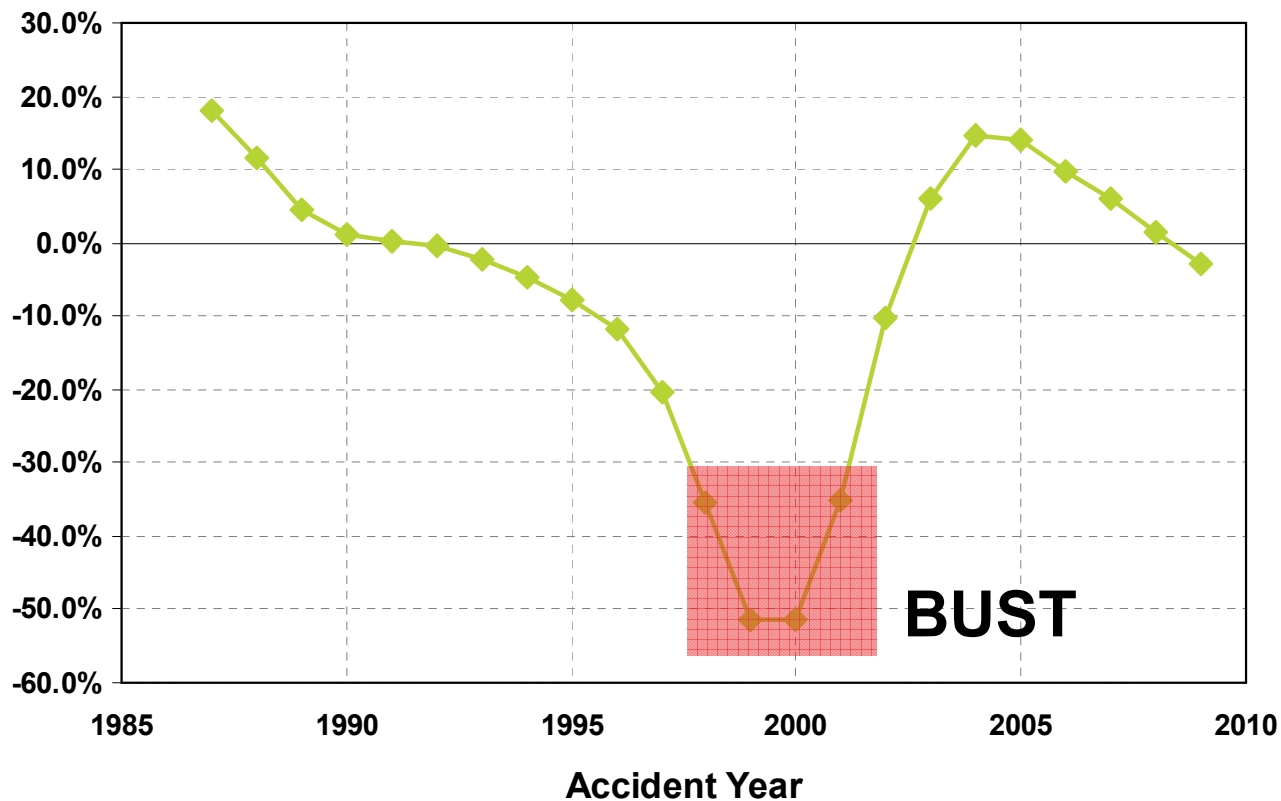
Approximate Industry Gross UW Margin
Other Liability Occurrence



- Unclear where the market is headed
- Some folks say grow, others say whoa

Four seasons of risk

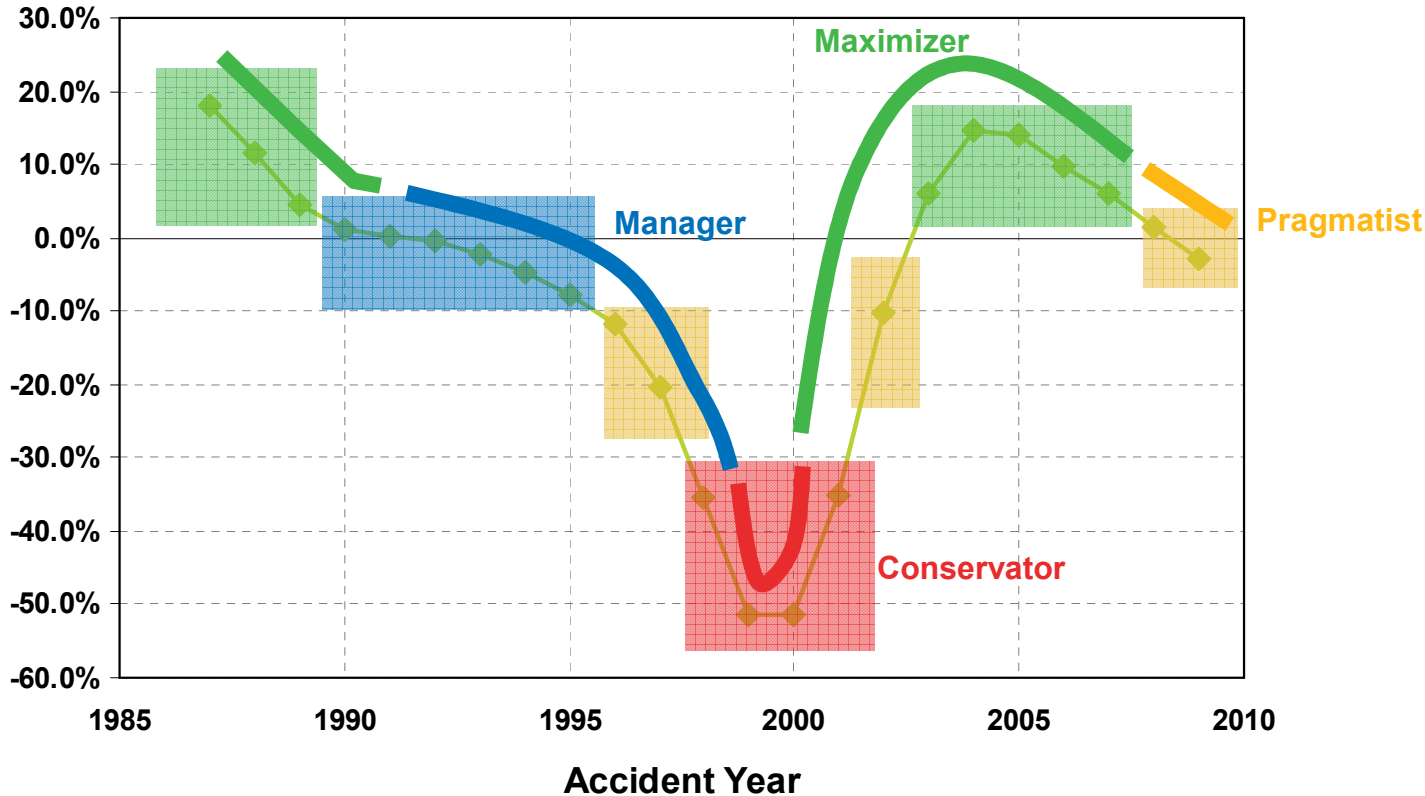
Approximate Industry Gross UW Margin
Other Liability Occurrence



- Many risks have turned into LOSSES
- Risk management focuses on survival

Insurance cycle and risk attitudes

Approximate Industry Gross UW Margin
Other Liability Occurrence



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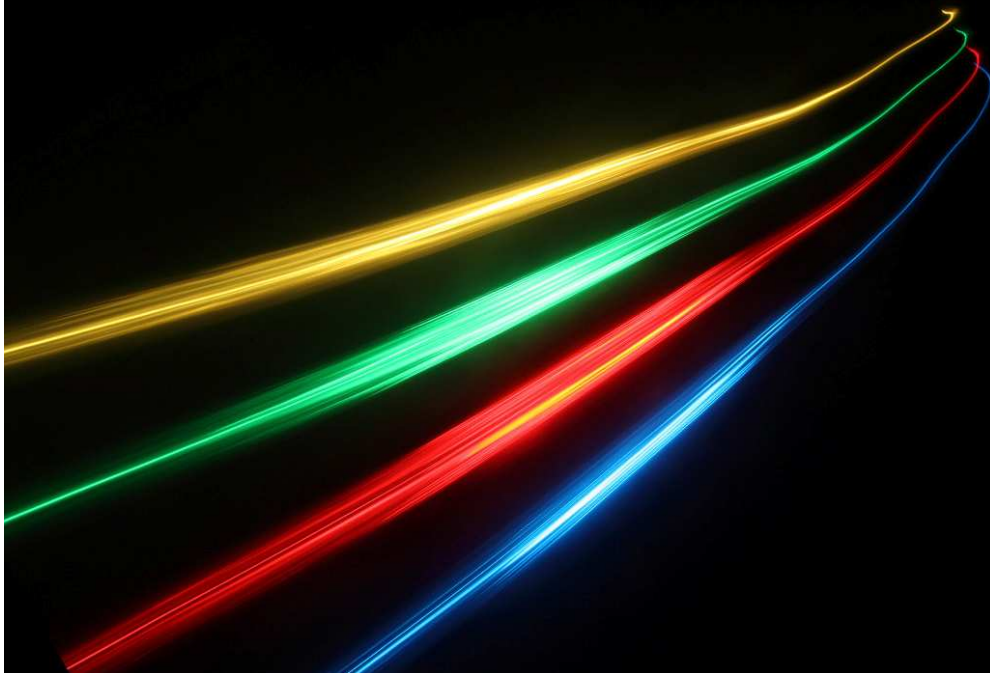
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Risk attitudes and ERM

- Risk Attitudes can be used to enhance ERM program design and development
 - When first creating an ERM program
 - Align ERM program to predominant risk attitude
 - Instead of using a textbook version of ERM that does not fit with risk attitude
 - Usually rejected as irrelevant or even dangerous
 - When enhancing an existing ERM program
 - To recognize and support multiple risk attitudes

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

Harmonization

- Practical alternative to Rational Adaptability “perfection”
 - An inelegant 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

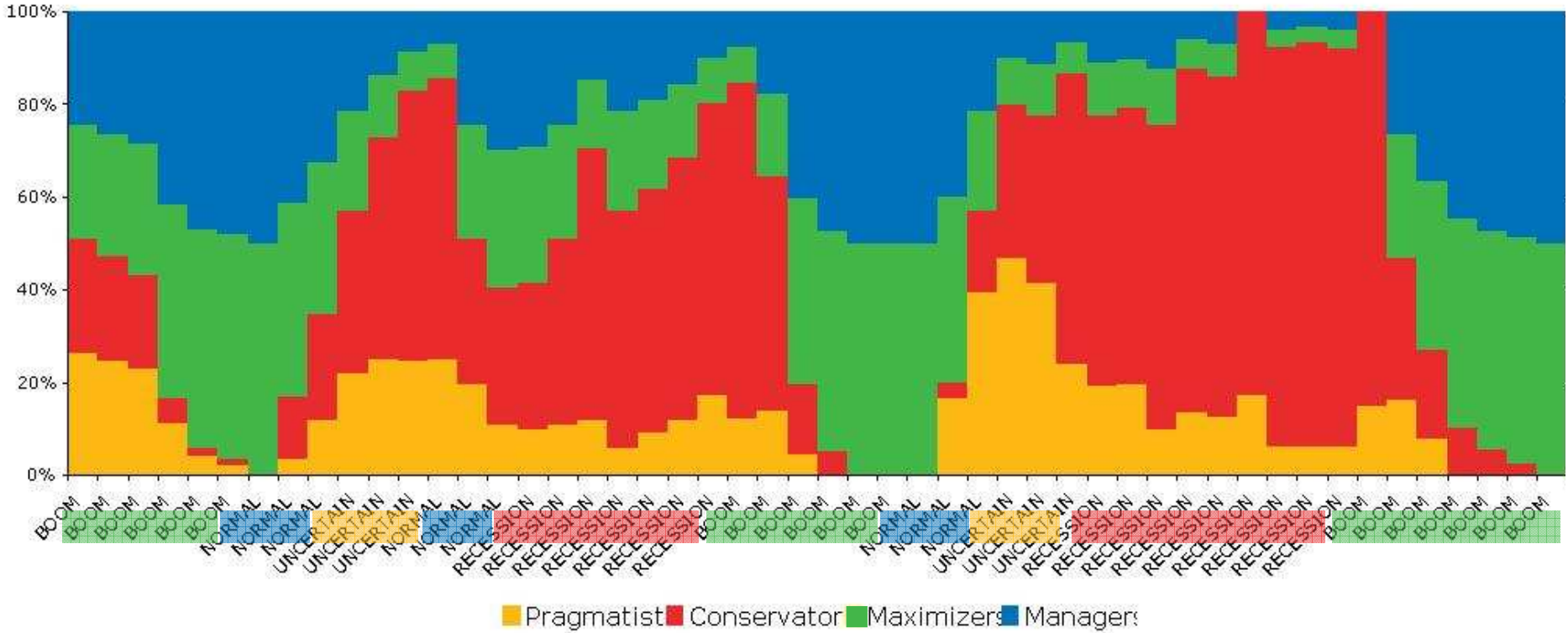
The Surprise Game: a demonstration of Plural Rationalities

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- Agent-based model of a closed economy with 30 participants
- 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

Surprise Game: sample outcome



Surprise Game rules (excerpts)

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- Investment rate

- Maximizers 30%
- Managers 15%
- Pragmatists 5%
- Conservators 0%

- Triggers for changing *risk attitudes*

- Return < -10% (all)
- Top 5 firms returns >20% (all but Max.)
- Return < 20% (Maximizers)
- Return < 0% (Managers)
- 3+ periods w. returns the same sign (Prag.)
- Return > 10% (Conservators)

- Expected returns

- Boom 30%
- Moderate 15%
- Uncertain -10% or 10%
- Bust -5%

- Triggers for changing *environment*

- Cash in bank > cash in companies
- Profits > cash in system (once)
- Profits > cash in system (repeatedly)
- Too many bankruptcies

Surprise Game: preliminary findings

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Stay the Course

Attitude	Average Return	Std Dev Return	Failure Rate
Pragmatists	0	15.3	10.61%
Conservators	0	5.39	0.01%
Maximizers	4.28	32.08	26.96%
Managers	2.88	17.96	12.90%

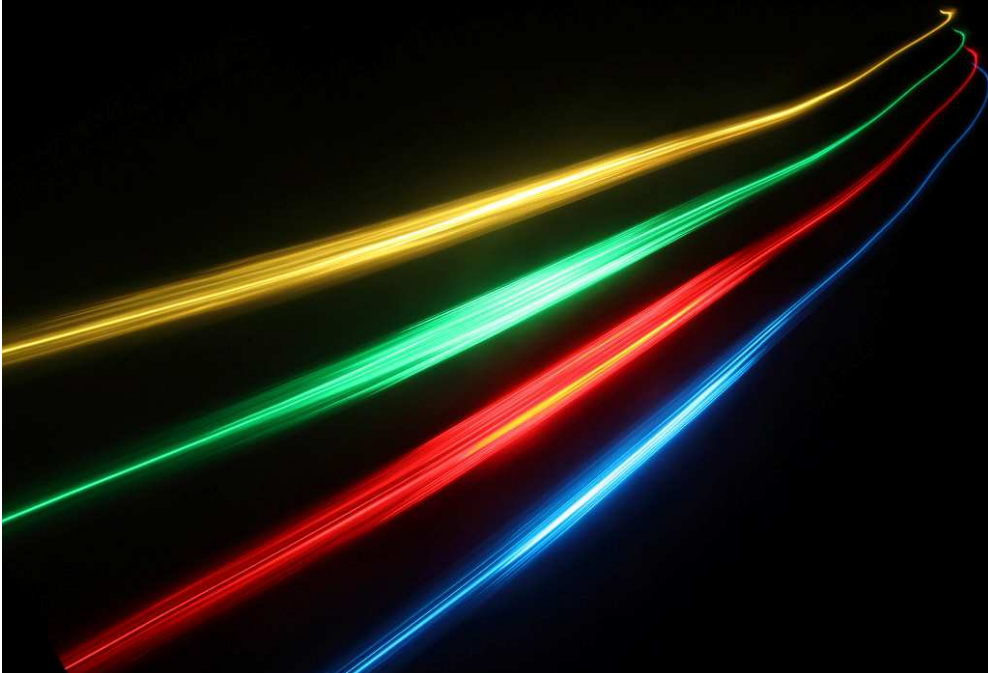
Adaptation

Adaptability	Average Return	Std Dev Return	Failure Rate
0%	-1.69	19.35	19.97%
25%	1.94	20.12	16.09%
50%	5.56	20.21	12.19%
75%	9.19	19.64	8.32%
100%	12.81	18.46	4.76%

ANY
QUESTIONS?

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Thank you!

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- David Ingram
 - dave.ingram@willis.com
 - +1 212 915 8039

- Alice Underwood
 - alice.underwood@willis.com
 - +1 212 915 8439

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