



Welcome to Whiteboarding 3.0

A Tour of Uncertainty, Dr Jack Gray

Wednesday 28 March 2018

BROOKVINE

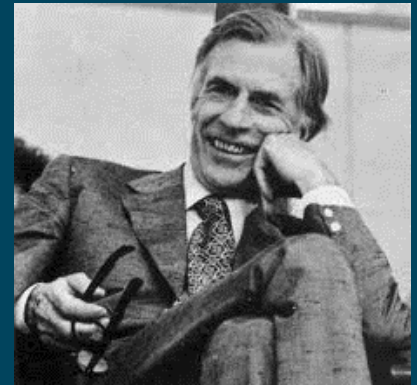
Wasn't it ever such?

“... contrast the great certainties in economic thought in the last century with the great uncertainty we face in our time.

In the last century capitalists were certain of the success of capitalism, socialists of socialism, imperialists of colonialism, and the ruling classes knew they were meant to rule.

Little of this certainty now survives.”

J K Galbraith, *The Age of Uncertainty*, 1977



Investment-relevant 70s unexpected events

Economic, political, environmental, technological, social

Watergate

Oil Shock (×2)

Kerr

End of gold standard

Microchip

Into China

US Price controls

Stagflation

The Pill....

Wars (×6)

Green Revolution

Same thing every time?


“The only real certainty at the moment is that markets are deeply uncertain ... this confusion betrays a deeper problem: All of us are desperately trying to prise out some *over-arching narrative that makes sense of things* when there may not be one. There are certainly lots of different themes ... and cycles playing out at the moment. It’s just that they may not add up to anything in particular.”


David Stevenson, FT, 5 January 2018


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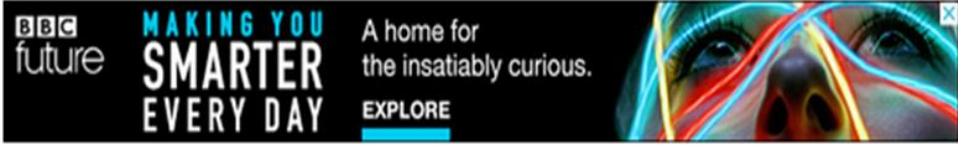
**CAPITAL ACCOUNT**
A Decade After Bear's Collapse, the Seeds of Instability...

**Elderly in U.S. Are Projected to Outnumber Children for First Time**

**Thousands of Investors Got Big Tax Breaks for Land-Rights Donations...**

**Updated IRS Tool Will Help With Paycheck Withholdings**

**WSJ ECONOMIC SURVEY**
Economists Predict Trade War Will Hurt U.S. Growth



ECONOMY | CAPITAL ACCOUNT


A Decade After Bear's Collapse, the Seeds of Instability Are Germinating Again

A big financial-firm collapse in near future is exceedingly unlikely, but another crisis isn't

By Greg Ip
March 14, 2018 9:46 a.m. ET

Since the bailout of Bear Stearns Cos. a decade ago this week and the failure of Lehman Brothers six months later, regulators have made it their mission to prevent a repeat.

Yet even though a big financial-firm collapse in the near future is exceedingly unlikely, another crisis isn't. Bear and Lehman were the manifestation of deeper economic forces that since the 1970s have produced crises roughly every decade. They are still at work today: ample flows of capital across borders, mounting debts owed by governments, corporations...



A premium from political uncertainty?

Why investors are ignoring war, terror and turmoil



By Gideon Rachman

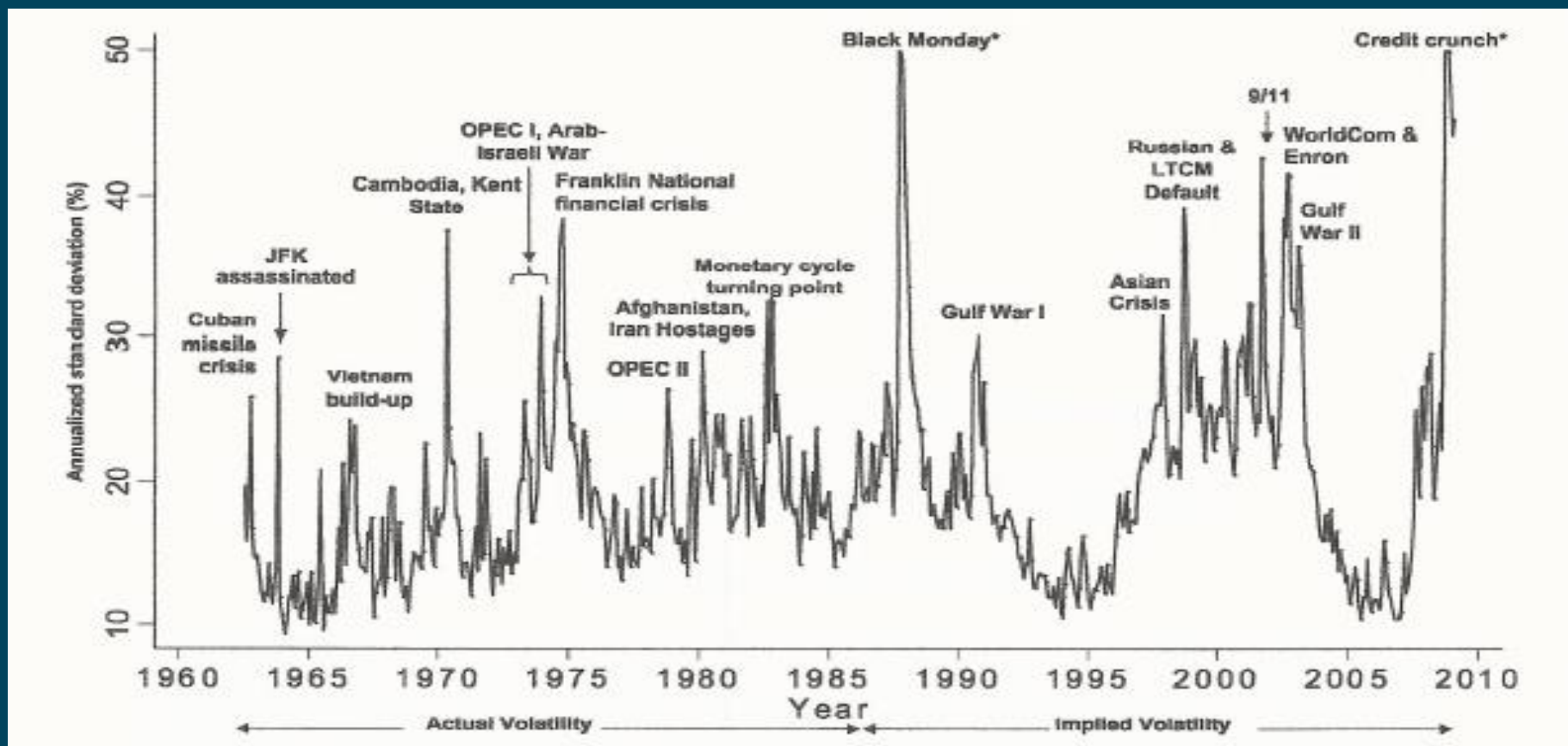
Global political change has done more to create opportunities than to destroy them



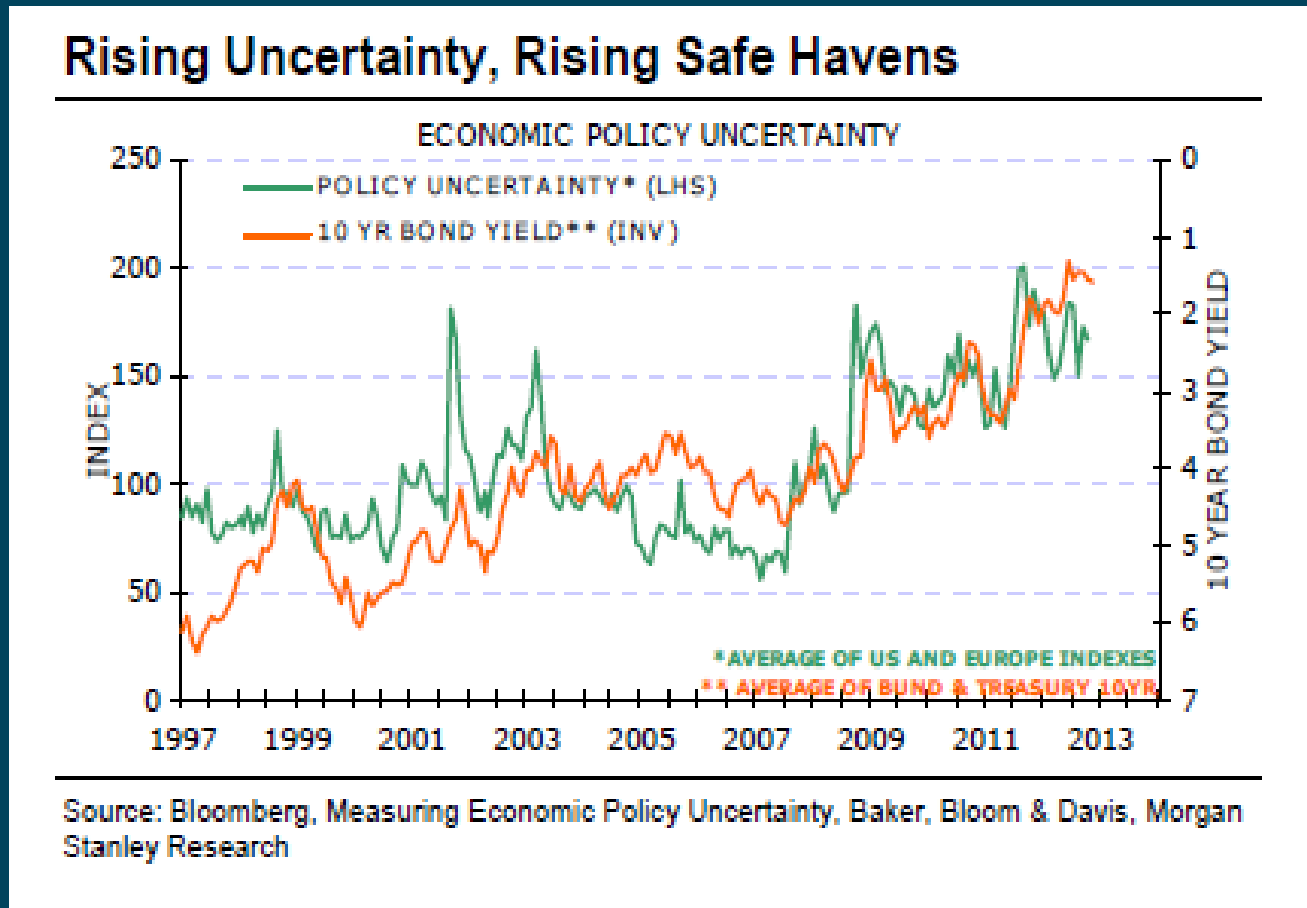
“Political shocks command a risk premium despite being unrelated to economic shocks.”

Pastor, Political uncertainty and risk premia, 2013

Uncertainty arising



Investors hate** & respond to uncertainty



** Not entrepreneurs

January 6, 2014

Pionline.com \$16

Pensions & Investments

THE INTERNATIONAL NEWSPAPER OF MONEY MANAGEMENT

Investing

Uncertainty dogging institutions

Fed tapering, asset allocation decisions make execs nervous

By RICK BAERT

Uncertainties about what to do in rebalancing and the uncharted waters of central bank accommodation are among the things that'll bring sleepless nights to investment executives and money managers in the coming year.

"The scary thing is the thing you don't expect," said James Keohane, president and CEO of

of Ontario Pension Plan, Toronto. "It's hard to know what there is in store."

"Everything keeps me up at night," said David Cooper, chief investment officer of the \$28.3 billion Indiana Public Retirement System, Indianapolis.

"Asset allocations are probably out of whack right now," generally overweight stocks and underweight fixed income, added Tim Barron, CIO of investment consultant

OUTLOOK2014

What's ahead in the new year for:

- The economy, hedge funds and private equity: **Page 3**
- Defined contribution: **Page 6**
- Real estate and regulation: pionline.com/outlook2014

in Darien, Conn. But given the 2013 jump in stock prices and the ongoing concern over core fixed income, he added, "how do you feel about selling stock and buying fixed income? That's a struggle."

What's expected is the continued tapering of the Federal Reserve's quantitative easing strategy, and that equities will continue to see growth, but not at a breakneck pace

SEE UNCERTAIN ON PAGE 23

Two centuries of insights

“People are so hungry for certainty that they readily subordinate consciousness and conscience to it.”

Frederick Hegel, c.1800

“We know for certain only when we know little. With knowledge doubt increases.”

Wolfgang Goethe, 1810

Two centuries of insights

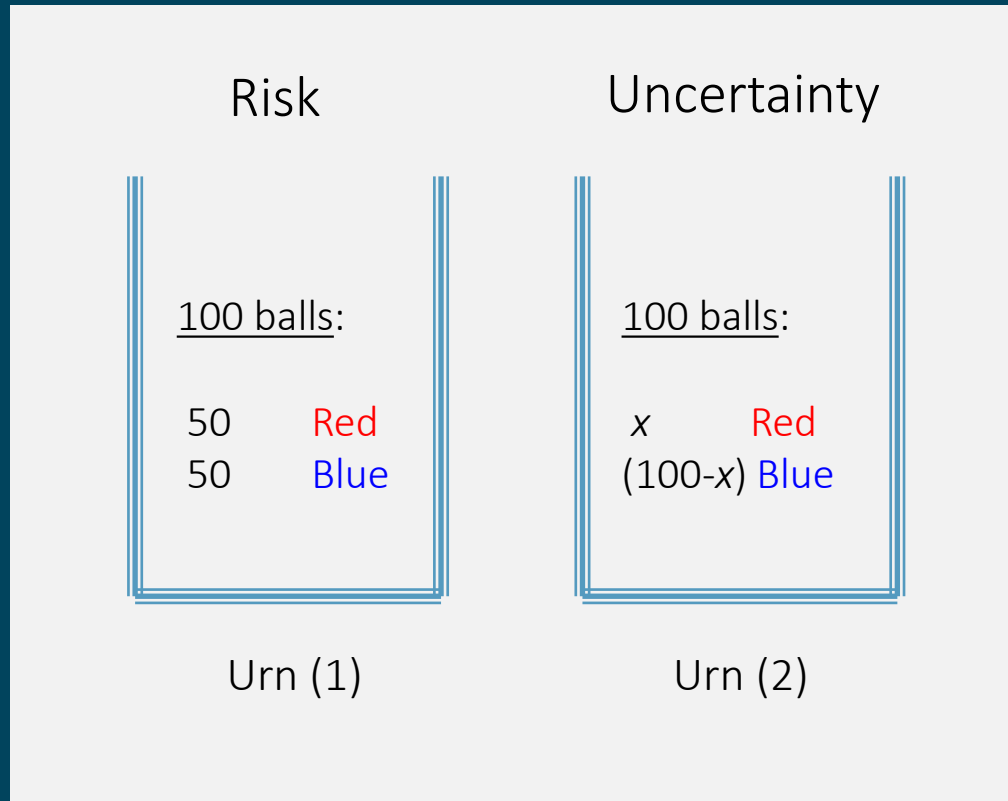
“Today’s obsession with risk management focuses too intently on the measurement of risk. All too often, reason cannot answer ... what matters is the quality of our decisions in the face of uncertainty.”

Peter Bernstein, 2006

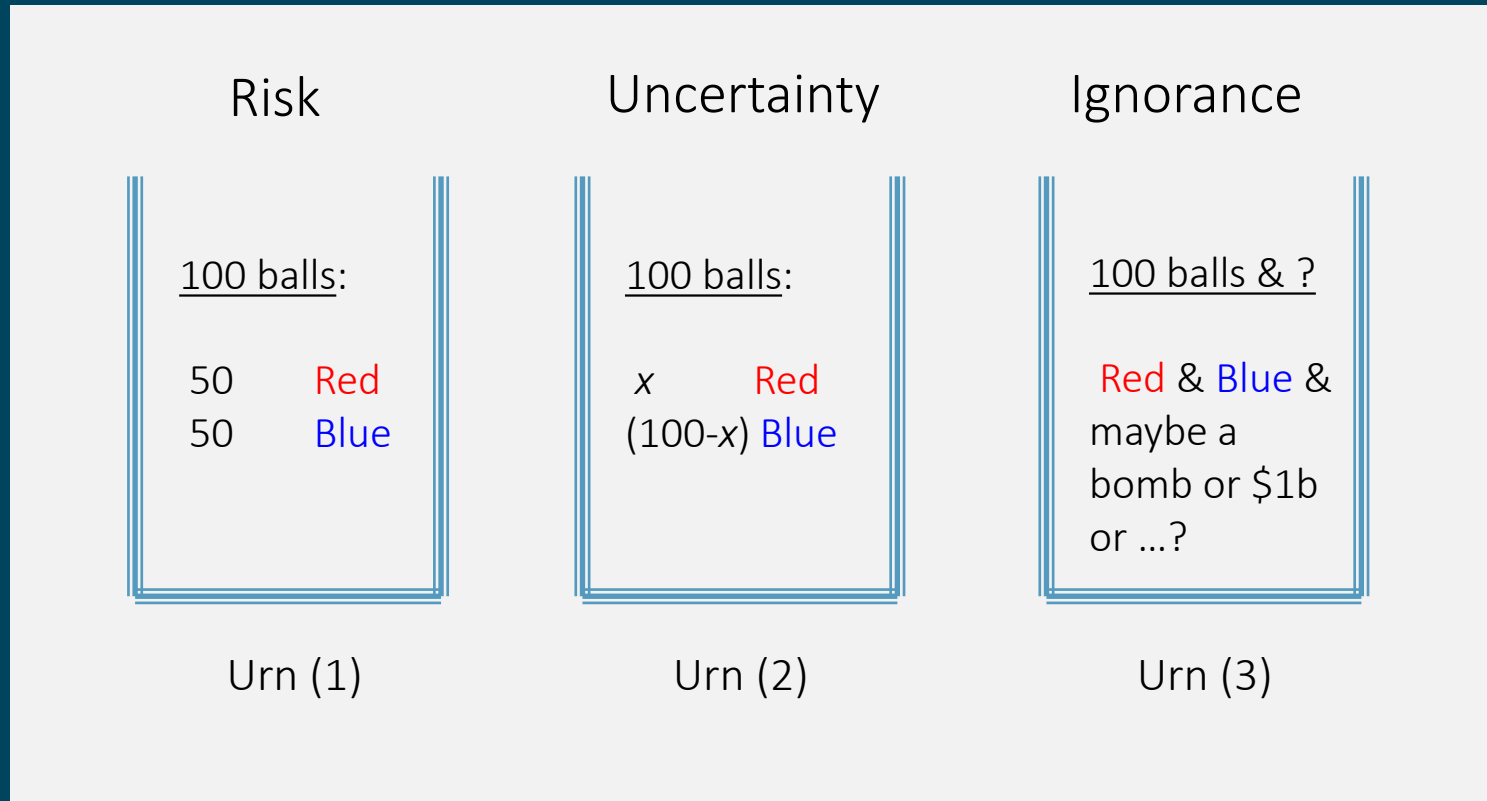
“The major fortunes in finance ... have been made by people who are effective in dealing with Radical Uncertainty (Unknown Unknowable aka Ignorance.) This will probably be truer still in the future.”

Richard Zeckhauser, 2006

Ellsberg's Paradox, c.1970



Ellsberg's Paradox....extended



Decision-making report card

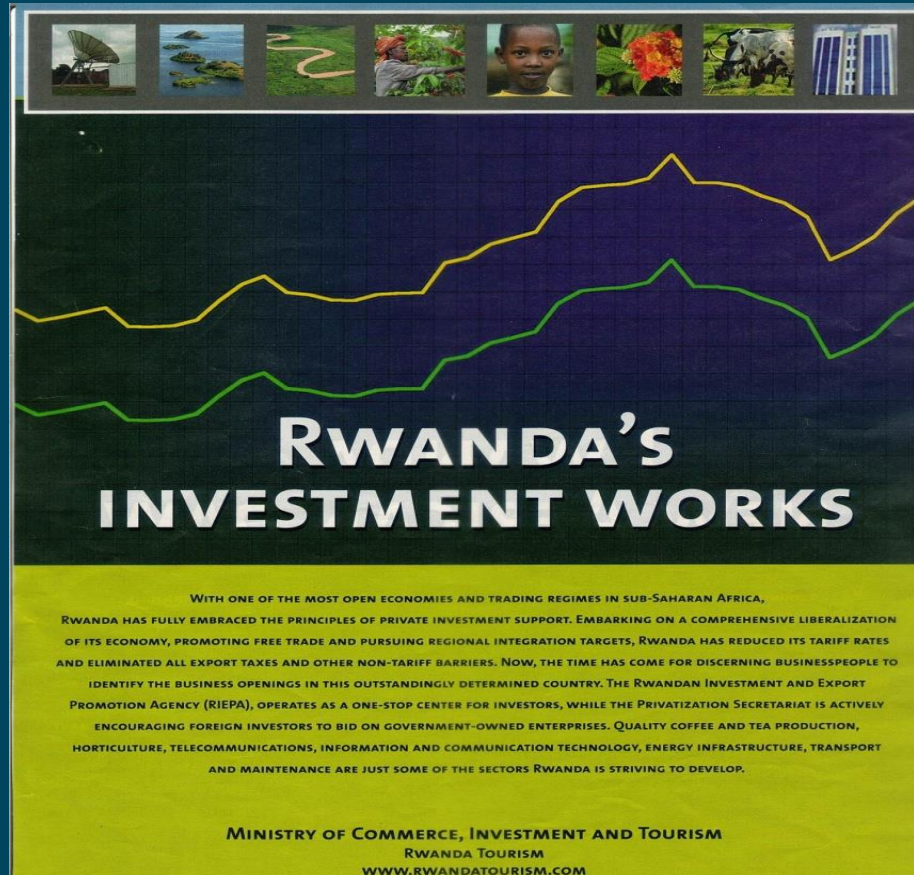
	Risk	Uncertainty	Ignorance
Examples	Public equity	Private equity	Start-ups
States of the World	Known **	Known **	Unknown
Probability Distribution	Known **	Many	Unknowable
Decision-Making Quality	B -	C	F

** Common assumption (or pretence or fantasy?)

Start-up opportunity...1909



Start-up opportunity...2018



The poster features a header with eight small images: a satellite dish, a lake with rocks, a winding road, a person holding a basket of fruit, a young boy's face, a red flower, a person on a horse, and a modern building. Below this is a dark purple background with a yellow and green line graph showing an upward trend. The title 'RWANDA'S INVESTMENT WORKS' is prominently displayed in white. The bottom section is yellow and contains text about Rwanda's investment opportunities, followed by the Ministry of Commerce, Investment and Tourism contact information.

**RWANDA'S
INVESTMENT WORKS**

WITH ONE OF THE MOST OPEN ECONOMIES AND TRADING REGIMES IN SUB-SAHARAN AFRICA, RWANDA HAS FULLY EMBRACED THE PRINCIPLES OF PRIVATE INVESTMENT SUPPORT. EMBARKING ON A COMPREHENSIVE LIBERALIZATION OF ITS ECONOMY, PROMOTING FREE TRADE AND PURSUING REGIONAL INTEGRATION TARGETS, RWANDA HAS REDUCED ITS TARIFF RATES AND ELIMINATED ALL EXPORT TAXES AND OTHER NON-TARIFF BARRIERS. NOW, THE TIME HAS COME FOR DISCERNING BUSINESSPEOPLE TO IDENTIFY THE BUSINESS OPENINGS IN THIS OUTSTANDINGLY DETERMINED COUNTRY. THE RWANDAN INVESTMENT AND EXPORT PROMOTION AGENCY (RIEPA), OPERATES AS A ONE-STOP CENTER FOR INVESTORS, WHILE THE PRIVATIZATION SECRETARIAT IS ACTIVELY ENCOURAGING FOREIGN INVESTORS TO BID ON GOVERNMENT-OWNED ENTERPRISES. QUALITY COFFEE AND TEA PRODUCTION, HORTICULTURE, TELECOMMUNICATIONS, INFORMATION AND COMMUNICATION TECHNOLOGY, ENERGY INFRASTRUCTURE, TRANSPORT AND MAINTENANCE ARE JUST SOME OF THE SECTORS RWANDA IS STRIVING TO DEVELOP.

MINISTRY OF COMMERCE, INVESTMENT AND TOURISM
RWANDA TOURISM
WWW.RWANDATOURISM.COM

Ignorance opportunities...

- (i) Avoided by process/regulatory-driven investors
- (ii) Typically can't be scaled
 - ➡ inappropriate for large or institutional funds

Requirements ...

- A partner with complementary skills/information
- Ensure *genuine* partnerships (they *are* possible)
- Make trust explicit, *eg*, Co-investment, VC, FoF
- Be aware of *Caveat Emptor* and *Caveat Venditor*

Trust is (almost) all we have

All transactions, relationships and *society* depend on trust especially so in an environment of ignorance.

In investing

Intangibles + Informational asymmetry + Noise

➡ Quality can't be tested

➡ Trust is (almost) *all* we have ... **but** ...

Trust increases vulnerability

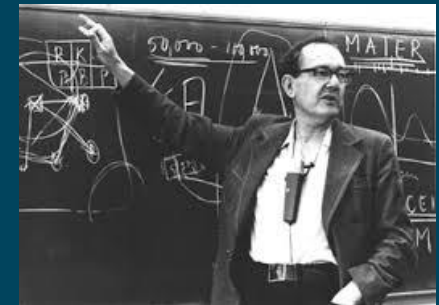
- Affinity crimes
- Prisoner's Dilemma



DMUU: Behold Herbert Simon

“(We) construct a simplified model of the real situation in order to deal with it; ... (we) behave rationally with respect to this model. But such *behaviour is not even approximately rational* with respect to the real world [uncertainty].”

Nobel 1959



- We are *boundedly* rational ... neither rational nor irrational
- We can/should *satisfice* ... not optimize

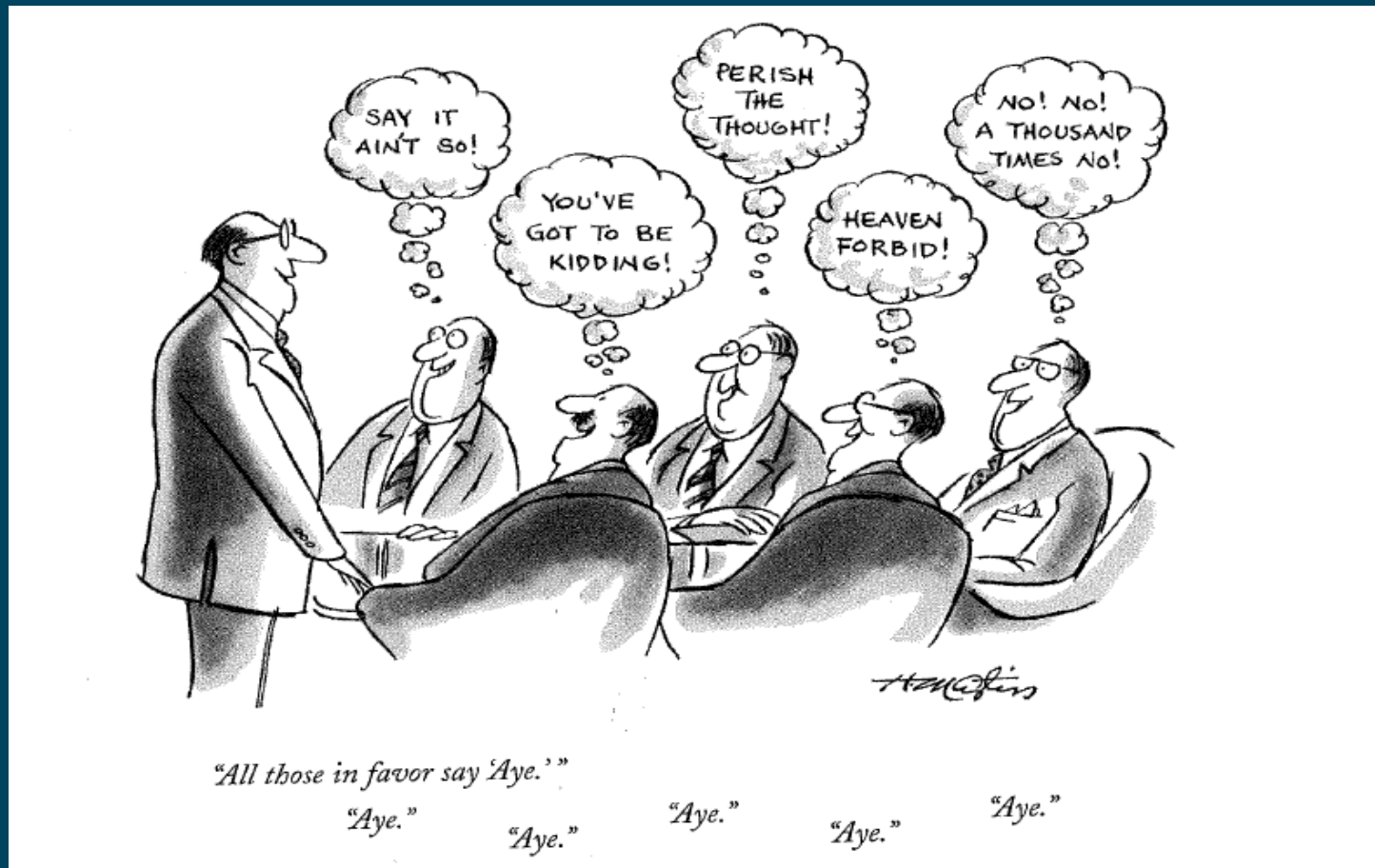
10 flawed heuristics/techniques for DMUU

	Approach	Comments
1	MaxMin payoff	Pessimistic bias
2	MaxMax payoff	Optimistic bias
3	MaxMin regret	Hedge career risk
4	Maximise average payoff	Hard to assess
5	Delay (or avoid)	Opportunity cost vs Immediacy cost
6	Incrementally adapt	Hedge career risk; Reduces Opp cost
7	Partner with complementary skills	Access to new information & Opps
8	Amplify weak signals	Capture diverse views
9	Seek control	Can reduce uncertainty
10	Increase margin of safety	Beyond margin for risk

5 flawed criteria for DMUU

	Criteria	Comments
1	'Right' temperament	Patient; Ambiguity & career risk tolerant
2	'Right' org culture	Open; Strategic; Encourage <i>dissent</i>

The Abilene Paradox



5 flawed criteria for DMUU

	Criteria	Comments
1	'Right' temperament	Patient; Ambiguity & career risk tolerant
2	'Right' org culture	Open; Strategic; Encourage <i>dissent</i>
3	Scenario <i>playing</i>	Not planning
4	Bias to satisficing	Know when not to optimise
5	Diverse learning	DM in Politics, War, Medicine,

Thank you