The Complex Roots of Economic Liberalism: The Great Illusion

Alan Kirman
CAMS, EHESS and Aix Marseille University

The motivation for this talk

- There has been increasing dissatisfaction on the part of policy makers and shared by a number of economists, with a certain number of aspects of modern economic theory.
- I claim that we need to abandon the central, unjustified, tenet of economic theory which is that the economy will self organise into a state which is "optimal" or "efficient".
- This tenet is often referred to as "The Invisible Hand Theorem" but we have never been able to prove such a theorem.

The Great Illusion

- Treating the economy as an evolving complex adaptive system and using computational models allows us to build models which generate large sudden endogenous changes
- But this undermines the faith in the stable self-organisation of our economies.
- Focusing our attention on the results of the interaction between economic agents rather than on the "optimising" behaviour of the individuals would represent a paradigm shift in economics.

Where does the difficulty in economics come from?

- The economy is a complex system made up of individuals who interact directly.
- Such systems do not have aggregate behaviour which can be characterised as the average behaviour of the individuals
- The Gap between individuals and the aggregate is real!

MIND THE GAP

A Different View: Bob Shiller

- « Of course, the problem with economics is that there are often as many interpretations of any crisis as there are economists. An economy is a remarkably complex structure. As he says,
- The analogy between the brain and the computer is familiar but one can make the same analogy between the computer and the economy.
- a network of people who communicate with each other via electronic and other connections.
- Using our better understanding of the brain and the computer may help us to better understand the economy. »

A shift in approach in other disciplines

- There has been a shift away from what Bob May called the comfortable consensus in ecology for example.
- The standard view was that large systems in nature were intrinsically stable if man did not interfere with them
- Furthermore the state of these systems was the result of a long evolution towards optimality.
- Both of these views have been successfully challenged.

Lessons for economists

- We are faced with a complex adaptive system over which we have very limited control.
- The way in which the system self organises creates its own dynamics and incentives.
- Crises are an intrinsic feature of our economies but not of our models so we cannot justify, with theory, any idea of stable self organisation.
- The problem of fundamental instability has become central in a number of disciplines but paradoxically not in economics.

Two basic approaches

The standard approach

- Our models must be built on sound microfoundations
- Lucas, one should only make assumptions about individual characteristics
- Individuals should satisfy economists' axioms of rationality
- They should optimise in isolation
- They understand the economy they function in.
- Aggregate behaviour is like that of a rational « representative agent »
- The focus is on efficient outcomes.

The economy as a complex system

- Individuals follow simple rules
- They adapt to their environment.
- They are not irrational and do not act against their own interest
- They have limited and largely local information
- Aggregate behaviour emerges from the interaction between individuals.
- Coordination not efficiency is the main problem

An Important point

- Optimisation at both the individual and collective level is illusory, what should concern us is not so much efficiency but rather coordination.

- We develop mechanisms to achieve efficient outcomes but they can have:

- UNINTENDED CONSEQUENCES

Efficiency: The case of auctions

But why?

- I wish to suggest that with the growing acceptance of social and political liberalism, economic theory has tried to accomodate itself to that position but, in so doing, has led us to a view that is at odds with what has been happening in many other disciplines.
- I blame, for this, the relentless insistence on the idea, that if individuals are left, insofar as possible. to their own devices, the economy will self organise into a state which has satisfactory welfare properties.
- This claim is backed neither by empirical evidence nor by theory. It has become an assumption.

Three Aspects

- The Myth of the Invisible Hand: What theory has to say about the real economy and the financial sector.
- Inequality. « As the tide rises all the boats rise with it ».
- Incentives. The reality and limits of economic incentives

How did we get here?

- Adam Smith's « Invisible Hand » is regularly cited as the first justification for economic liberalism or « laissez faire ».
- Examination of what he actually said and his « Theory of Moral Sentiments » leads one to doubt this.
- But the progress of the free trade argument and the pieces of legislation associated with it and the power of the arguments of Mill and others and the political and moral positions of liberals such as Gladstone reinforced this interpretation.

The Invisible Hand

The Historical Basis

- From Adam Smith onwards we have perpetrated the myth that the economic system will self organise into an efficient state.
- This belief characterises the very essence of modern economic policy. It is used to recommend « structural reforms »

A Fundamental Misunderstanding

- « In particular, a competitive market economy is efficient » (in the Pareto sense) *Dani Rodrick*
- « The First Fundamental Theorem is a big deal because it actually *proves* the Invisible Hand Hypothesis » *Dani Rodrick*
- Even Mas-Colell et al. refer to the First Fundamental Theorem as the Invisible Hand Theorem.

Basu

- *The Invisible Hand Theorem*
- « If we have a competitive economy where all individuals choose freely according to their respective rational self interest then (given a few technical conditions), the equilibrium that will arise will be Pareto optimal. »

Our Achilles Heel

- But this is simply false.
- All that we can say is that if an economy or market is in equilibrium then that state is efficient
- But it cannot be repeated enough that even in the perfectly competitive market we have never been able to show that it will get to an equilibrium
- From Jordan to Saari and Simon

Japanese Wisdom

« If economists successfully devise a correct general equilibrium model, even if it can be proved to possess an equilibrium solution, should it lack the institutional backing to realize an equilibrium solution, then the equilibrium solution will amount to no more than a utopian state of affairs which bear no relation whatsoever to the real economy."

[*Morishima (1984, pp. 68–69)*]

How do we get around this?

- When structural reforms are recommended which have as their goal to get the economy as near as possible to the perfectly competitive model we should be suspicious. (market failures…)
- Furthermore, we should be worried that in the standard models, supposedly based on the GE model, all crises are due to exogenous shocks.
- Major crises are thought to be rare and presumably due to major shocks

Black Swan

Crises as Rare Events

- *"*With notably rare exceptions (2008, for example), the global "invisible hand" has created relatively stable exchange rates, interest rates, prices and wage rates.*"*
- *Alan Greenspan, Former Chairman of the Federal Reserve Bank*

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- "With notably rare exceptions, Germany remained largely at peace with its neighbours during the 20th century."
- "With notably rare exceptions, Alan Greenspan has been right about everything."
- *Comments on the blog Crooked Timber*

Notably Rare Exceptions

- It's like "a defense lawyer arguing that while his client may have committed a few murders on one particular day, his conduct on all the other days of his life had been exemplary. »
- Floyd Norris *The New York Times*

Confidence in our theory

The "central problem of depression-prevention has been solved," , Robert Lucas 2003 presidential address to the American Economic Association.

Ben Bernanke on the « Great Moderation »

Our models functioned well during this period but would not any model have done so?

We need models to help us understand and deal with crises

The Economic Theory Ship is Unsinkable


The Economist
Britain agonises about Afghanistan
The rot in Japan's governing party
Europe's energy insecurity
Goldman Sachs's record profits
Summer camp for atheists
JULY 18TH-24TH 2009
Economist.com
MODERN ECONOMIC THEORY
Where it went wrong–and how the crisis is changing it

The Ex Governor of the European Central Bank

- When the crisis came, the serious limitations of existing economic and financial models immediately became apparent. Judgement and experience inevitably played a key role.   Trichet (2010)

The view of those responsible in the U.K

- « But there is also a strong belief, which I share, that bad or rather over-simplistic and overconfident economics helped create the crisis. There was a dominant conventional wisdom that markets were always rational and self-equilibrating, that market completion by itself could ensure economic efficiency and stability, and that financial innovation and increased trading activity were therefore axiomatically beneficial. »

  Adair Turner, Head of the U.K. Financial Services Authority

So in summary your majesty, the failure to foresee the timing, extent and severity of the crisis …was principally the failure of the collective imagination of many bright people to understand the risks to the systems as a whole. *Reply to the queen by the British Academy*

Economists and Models

"The Euro is like a bumblebee, it can't fly (we have models that show that). But it did for a while but now the bumblebee would have to graduate to a real bee. And that's what it's doing".

Speech by Mario Draghi, President of the European Central Bank at the Global Investment Conference in London 26 July 2012


EURO
ARE YOU SURE
YOU WANT TO
KEEP ON
DOING THIS?
BILLINGS

Economists and Models

- We are so wedded to our models that when they do not correspond to empirical reality, we wonder what the problem with the evidence is.
- If we have models saying bumble bees cannot fly then we should modify bumblebees and not our models!!

But the band played on

The Shaky Foundations of Financial Economics

Adam Smith again

- "The directors of (banks and corporations), being the managers rather of other people's money than of their own, it cannot well be expected, that they should watch over it with…anxious vigilance. . . Negligence and profusion, therefore, must always prevail, more or less, in the management of the affairs of such a company". *Adam Smith, The Wealth of Nations, 1776*

Before the Great Depression

- "The goose that lays golden eggs has been considered a most valuable possession. But even more profitable is the privilege of taking the golden eggs laid by somebody else's goose. The investment bankers and their associates now enjoy that privilege. They control the people through the people's own money." *Brandeis: Other People's Money and How the Bankers Use It, 1914*

Brandeis' View

OTHER PEOPLE'S MONEY by Louis D. Brandeis

Cover illustration of Harper's Weekly, November 29, 1913 by James Montgomery Flagg

The problem

- What worried Brandeis was the concentration of so much corporate wealth in the hands of so few bankers.
- Industry and commerce was controlled by a few important business men aided and abetted by investment banks.
- The network of ownership at the time was very dense
- His book was reissued in 1933

An Important Example: Financial Market Models

- Models of financial markets share the same basic building blocks.
- Agents have a way of forecasting the future prices.
- This determines how much the agents' wish to buy and this in turn determines the price of the assets .
- The prices will influence the forecasts.
- But does this process lead to equilibrium prices which reflect the "true value" of the assets?

The Efficient Markets Hypothesis

- This is very simple
- All relevant information is contained in prices therefore there is no need to look anywhere else: paradox
- This basic argument comes from the work of Bachelier but the referee for his thesis said…

A Warning

- « When people interact with each other they do not do so by acting independently on their own information they tend to watch each other and to behave like sheep. »

Henri Poincaré (Referee of Bachelier's thesis) *Science et Méthode* 1904 p.49

Mencken cited by Krugman

- H. L. Mencken: “There is always an easy solution to every human problem — neat, plausible and wrong.”

No Panic!

Where does the efficient markets hypothesis go wrong?

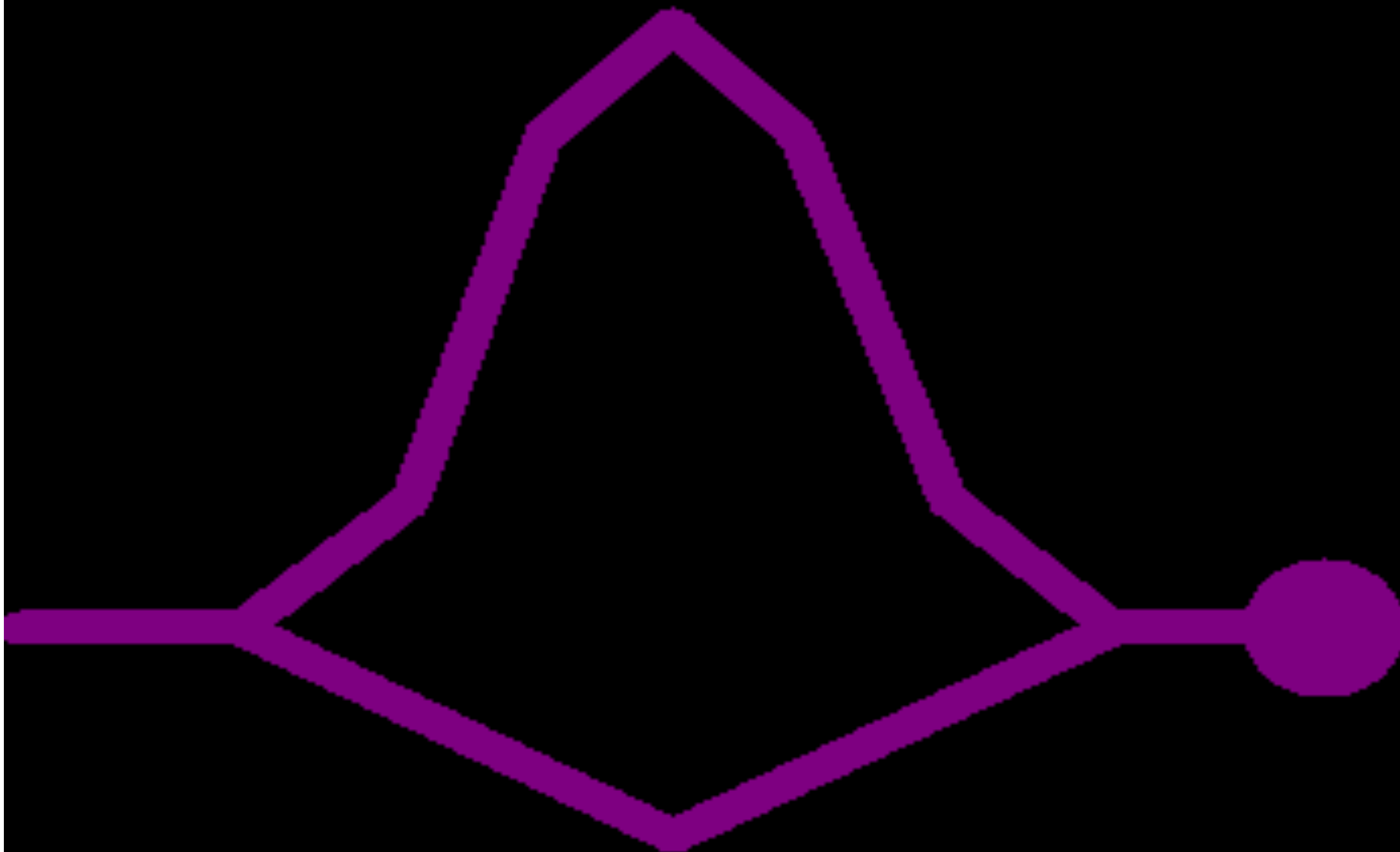
- Remember Poincaré's warning
- Individuals do not only look at their own information they also observe the actions of others and infer information from those actions.

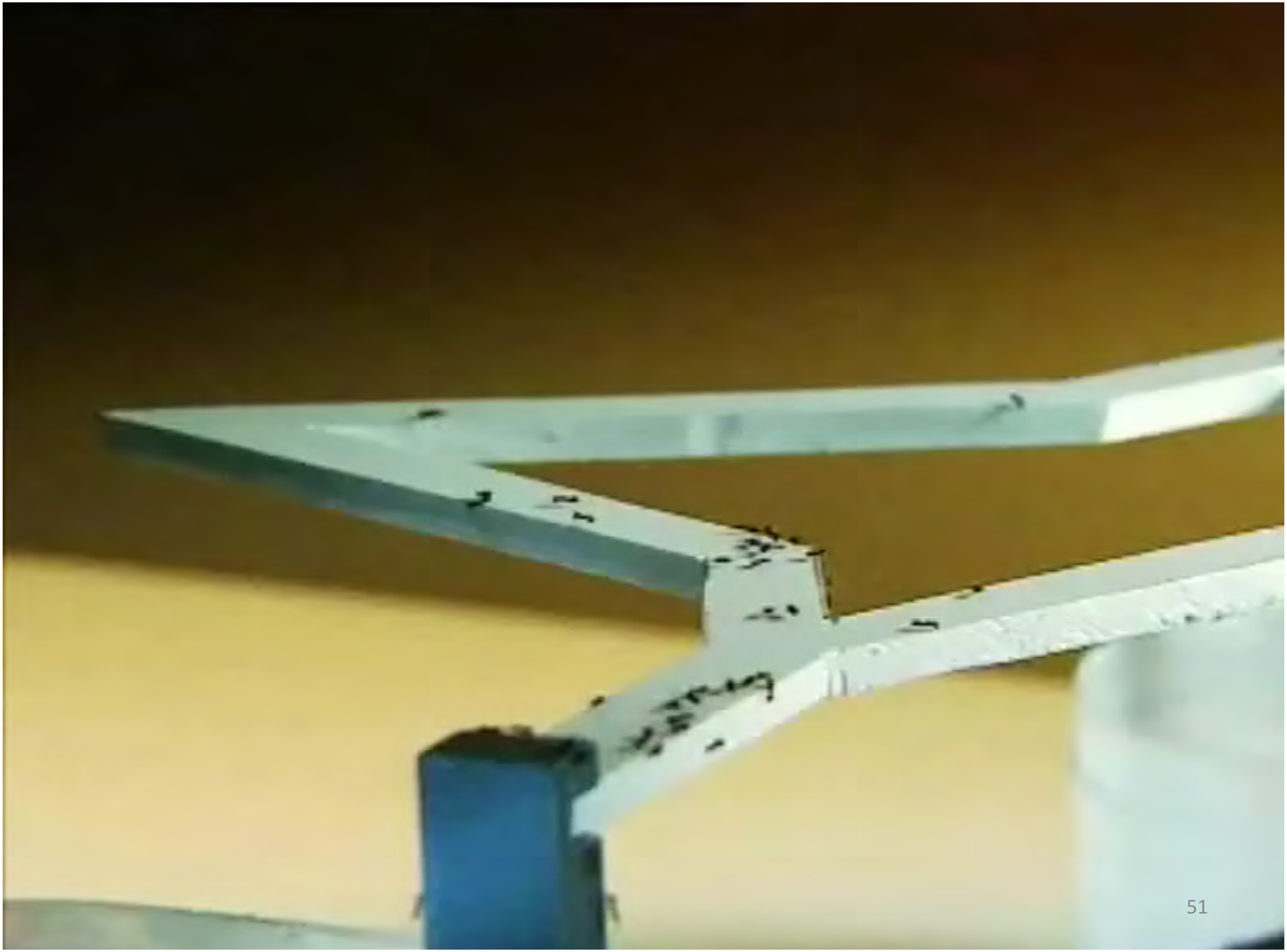
The collective behaviour of simple individuals

- Some lessons from social insects.

Ants

- Ants learn in an environment of which they have only very limited and local knowledge.
- Yet they produce quite sophisticated aggregate behaviour.



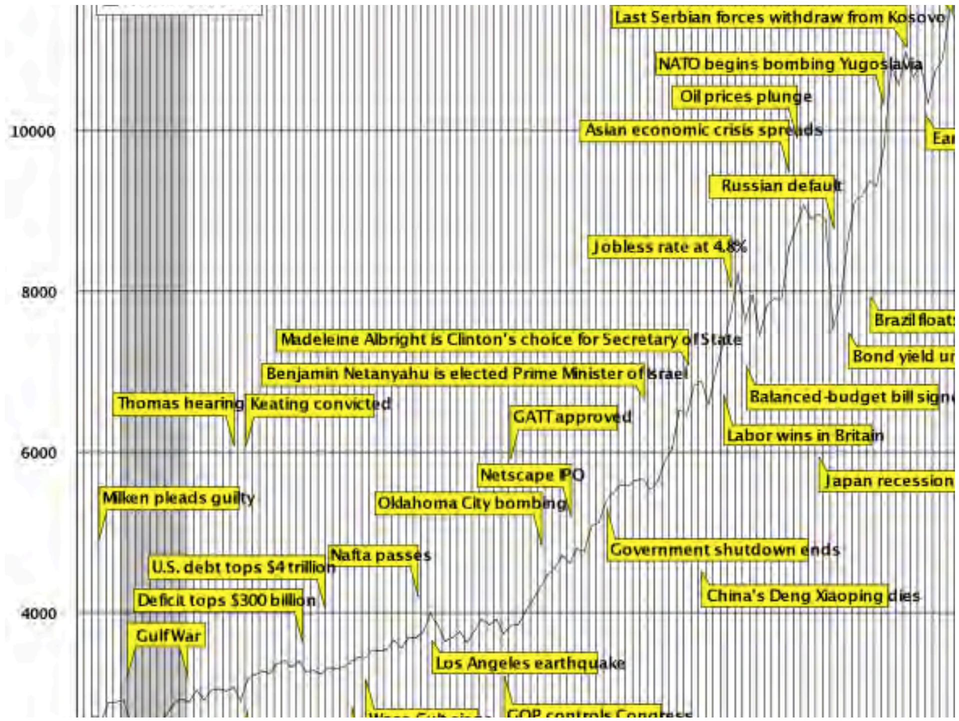


Looking into the sky quickly gets passers-by to follow.

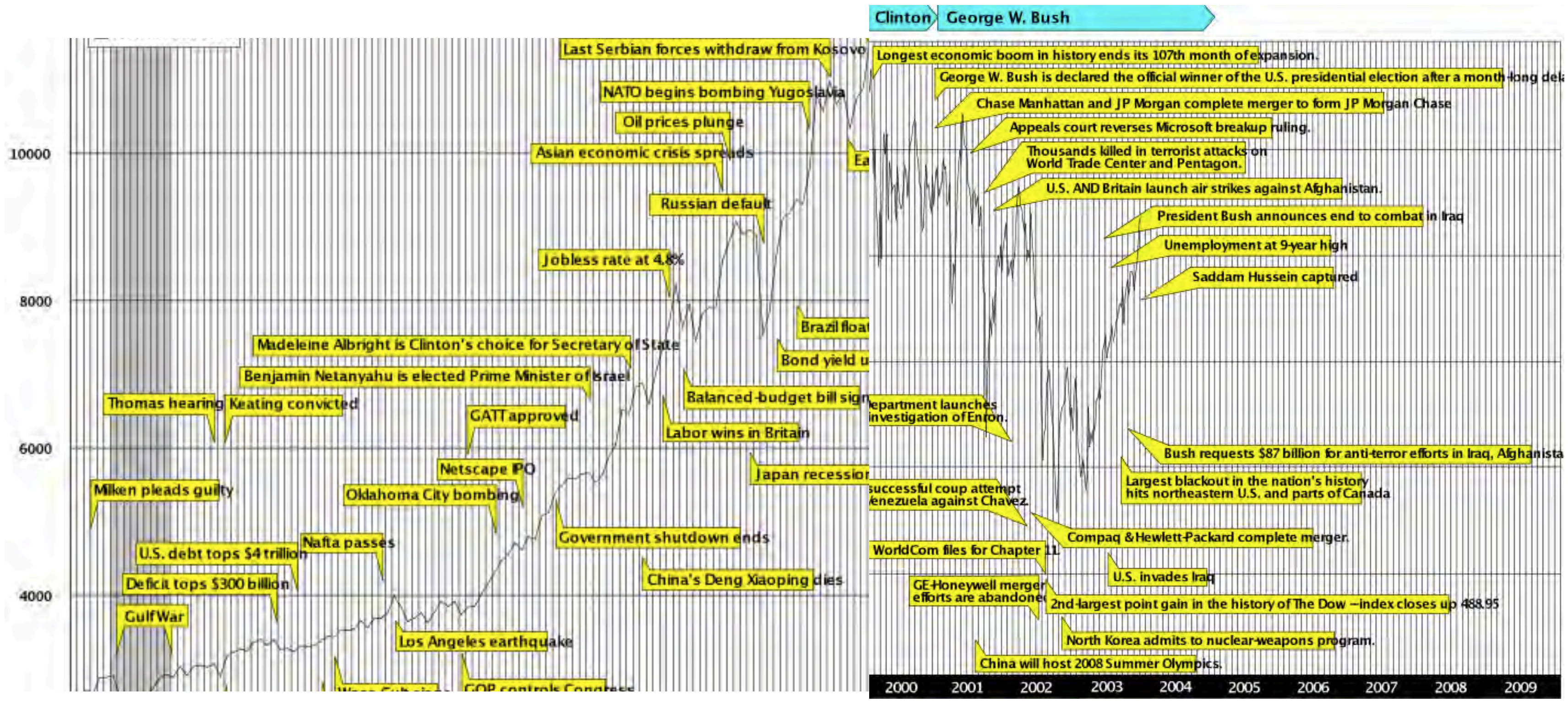

A week on the wild side
I'VE GOT A STOCK HERE THAT COULD REALLY EXCEL
REALLY EXCEL?
EXCEL?
SELL?
SELL?
SELL
SE
SELL!
SELL!
SELL!
SELL!
ELL!
SELL!
THIS IS MADNESS! I CAN'T TAKE ANYMORE
GOOD BYE!
GOOD BYE?
BYE?
Buy?
BUY!
Buy!
BUY!!
Buy!
Bu
BUY!
I'VE GOT A STOCK HERE

What is the problem with the Efficient Markets Hypothesis empirically?

- What we have to explain is sudden large movements without the arrival of an exogenous shock or piece of news.



Dow Jones 1980-1999



Dow Jones 1980-2006

Where did the switch come from?

- Put it down to an exogenous shock, but then you must be able to identify the shock

- Find a simple model of interacting agents which generates this sort of shift

Exogenous Macro Shocks?

- As Wilhem Buiter a former member of the Bank of England's Monetary Policy Committee and now chief economist of Citigroup, says,
- « Those of us who worry about endogenous uncertainty arising from the interactions of boundedly rational market participants cannot but scratch our heads at the insistence of the mainline models that all uncertainty is exogenous and additive » *Buiter (2009).*
- *Don't worry about exogenous shocks we do not need them.*
- *All you need is Positive Feedback.*

Back to Ants

- Think of a stochastic process whereby ants coming from a food source recruit, with high probability, ants leaving the nest, to their source. This is what is referred to as a « positive feedback »

How might we use this idea to model financial markets?

- People , like ants, follow rules which are successful.
- Result they herd on one rule then on another.
- With Hans Foellmer and Ulrich Horst we built models to show this

A Different Idea of Equilibrium

- Prices are continually changing.
- There is no convergence to an « equilibrium price ».

The Distribution of Stock Prices

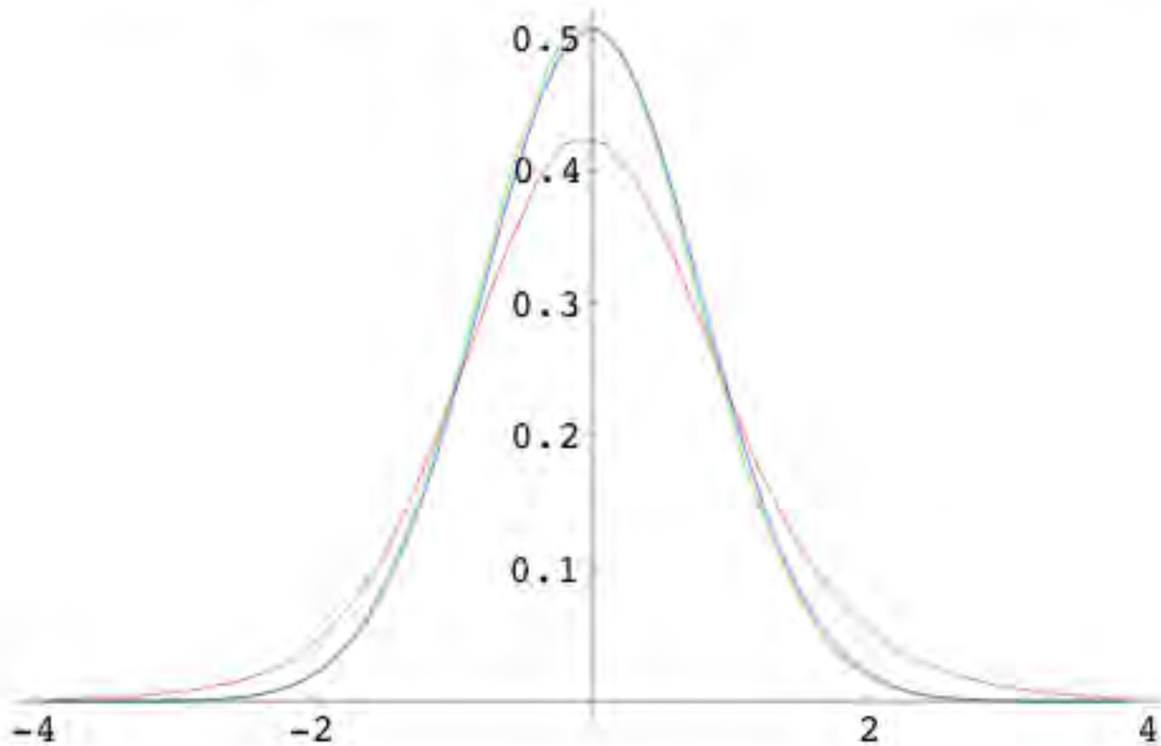


Figure 1: Empirical stationary distribution of asset prices in a model with (red) and without (green) chartists.

Another Very Simple Example: Derivatives

- As Warren Buffett explained, derivatives were vaunted as a way of spreading risk.
- But, in fact, they **diminished** the information available!

Derivatives Warren Buffett

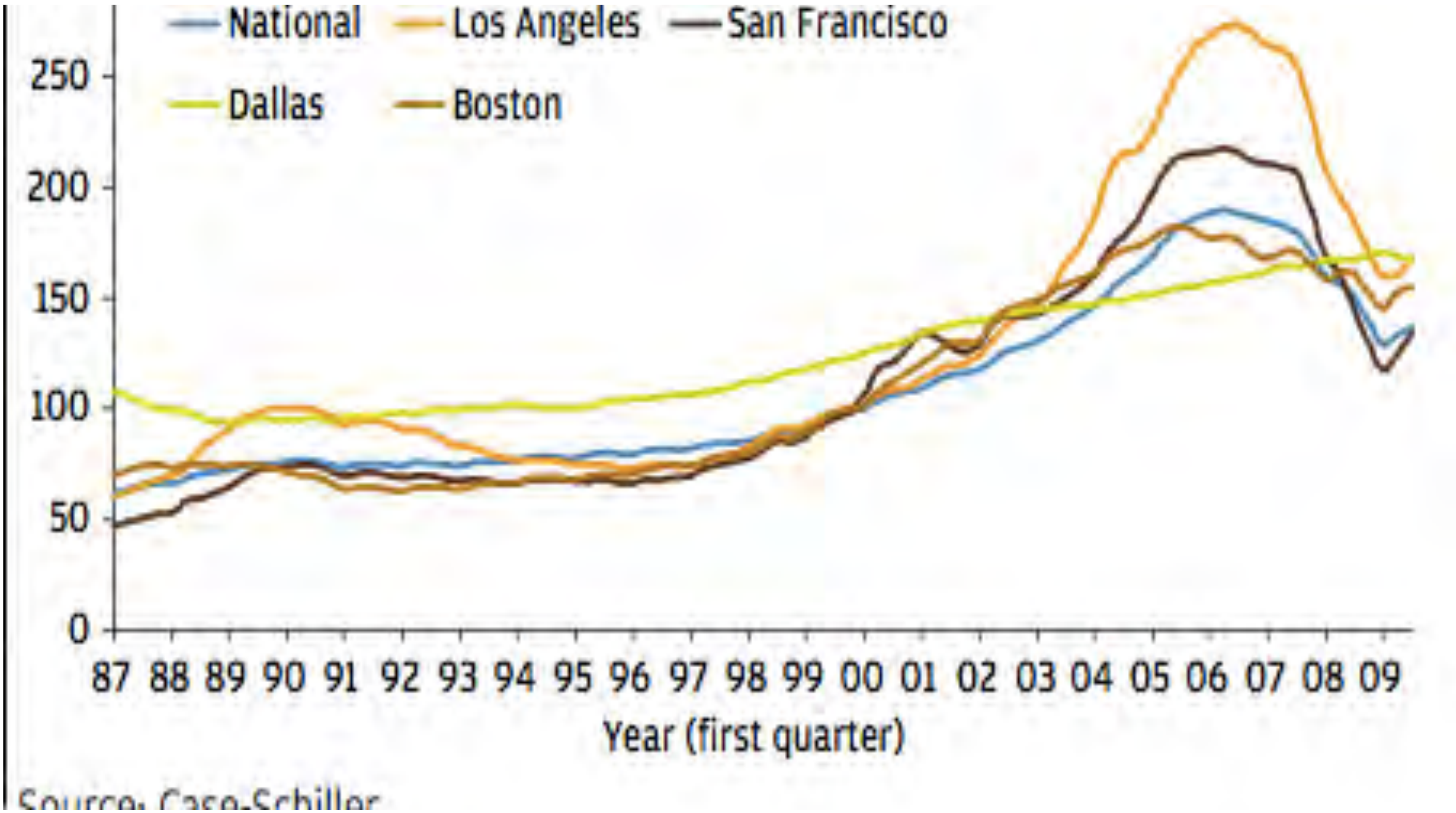
- In my view, derivatives are financial weapons of mass destruction, carrying dangers that, while now latent, are potentially lethal.

- Warren Buffet 2002

Something's Not Quite Right!

"I THOUGHT WE WERE JUST BUYING A HOUSE!"

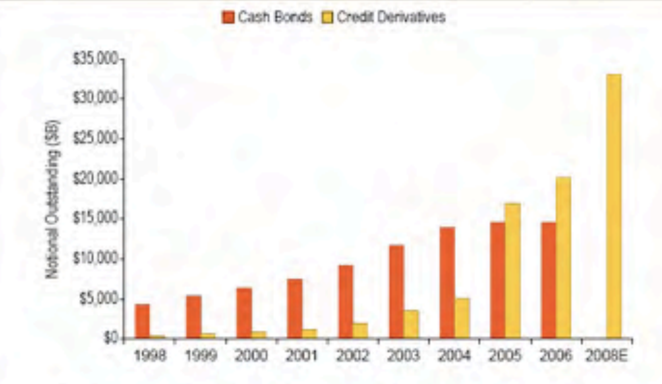
The Information was there: Case Shiller Index



Derivatives

HISTORICAL MOTIVATION

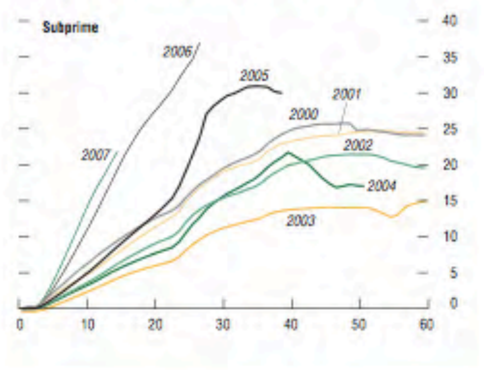
1. trading complex credit derivative products without really understanding what they're worth



Sources: British Bankers' Association Credit Derivatives Report 2006, Bank for International Settlements and ISDA.
Note: Cash bonds through June 2006.

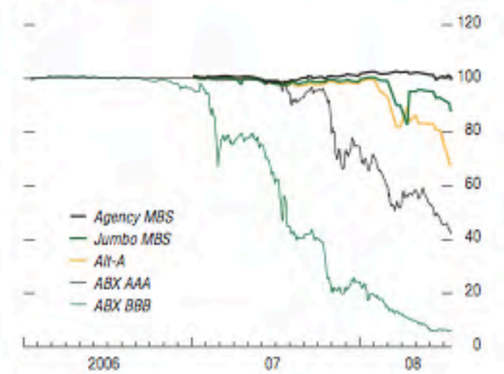
2. ... in the face of bad news accumulating ...

Figure 1.8. U.S. Mortgage Delinquencies by Vintage Year
(60+ day delinquencies, in percent of original balance)



3. Crash!!!

Figure 1.9. Prices of U.S. Mortgage-Related Securities
(In U.S. dollars)

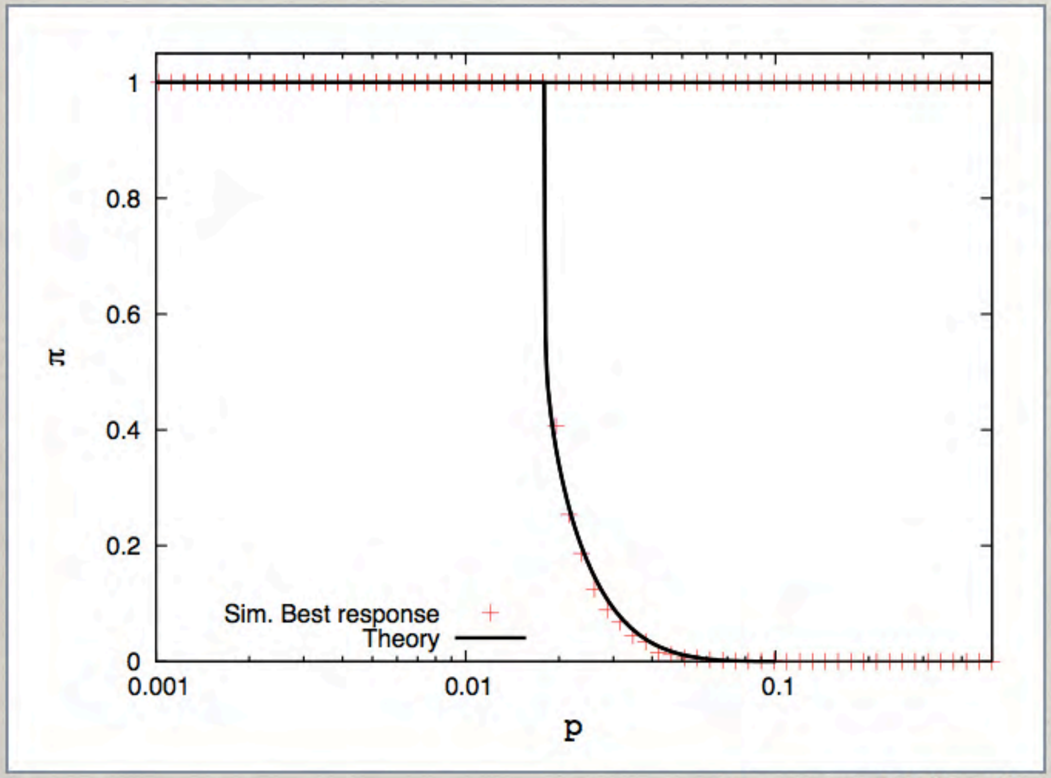


Sources: JPMorgan Chase & Co.; and Lehman Brothers.
Note: ABX = an index of credit default swaps on mortgage-related asset-backed security; MBS = mortgage-backed security.

Why so sharp?

Figures from Global Financial Stability Report Oct. 2008

Coexistence



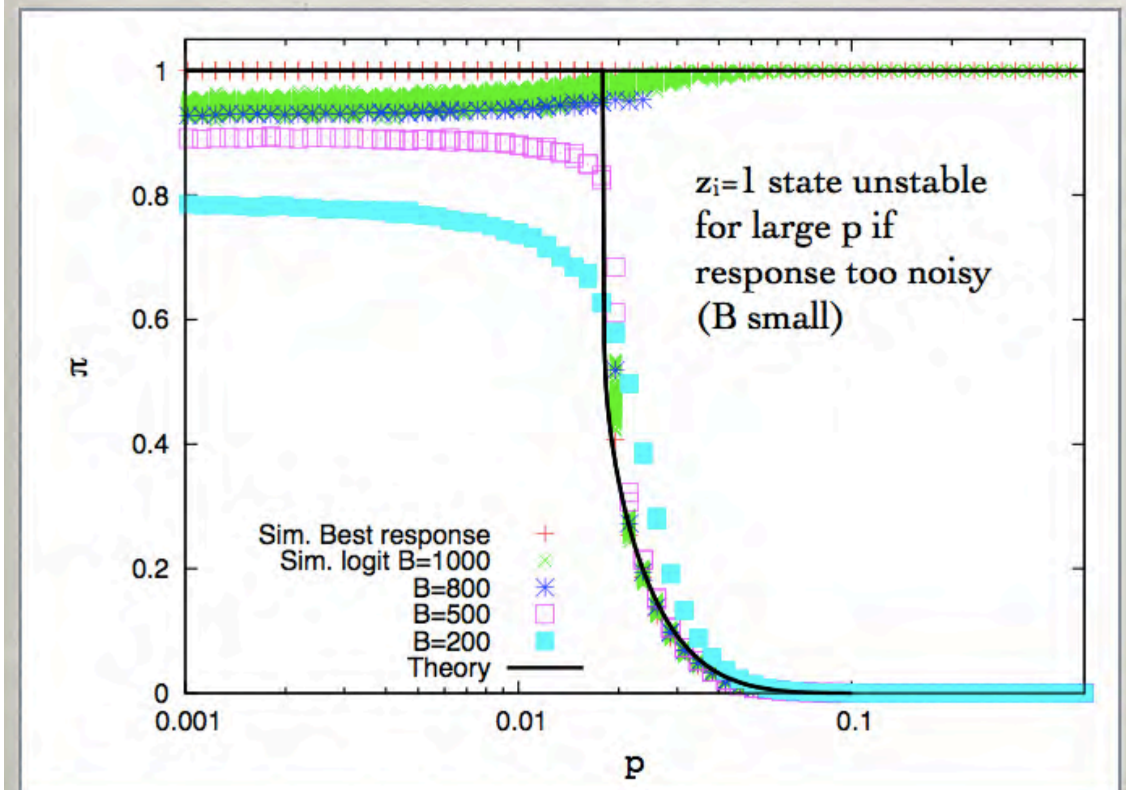
z_i =1 for all agents is always an equilibrium

If p is small enough it is the only equilibrium

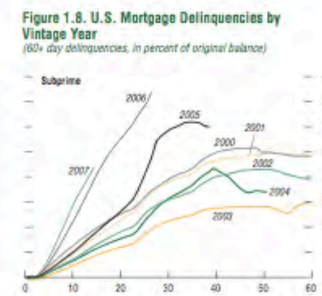
Exponential distribution of χ_i with $E[\chi_i]=0.01$
k=11 neighbors, c=0.9

NOISY BEST RESPONSE

Logit: $P\{z_i = 1\} \propto e^{B[u_i(1) - u_i(0)]}$



Back to ABS story:



increasing p ...

... sharp transition!

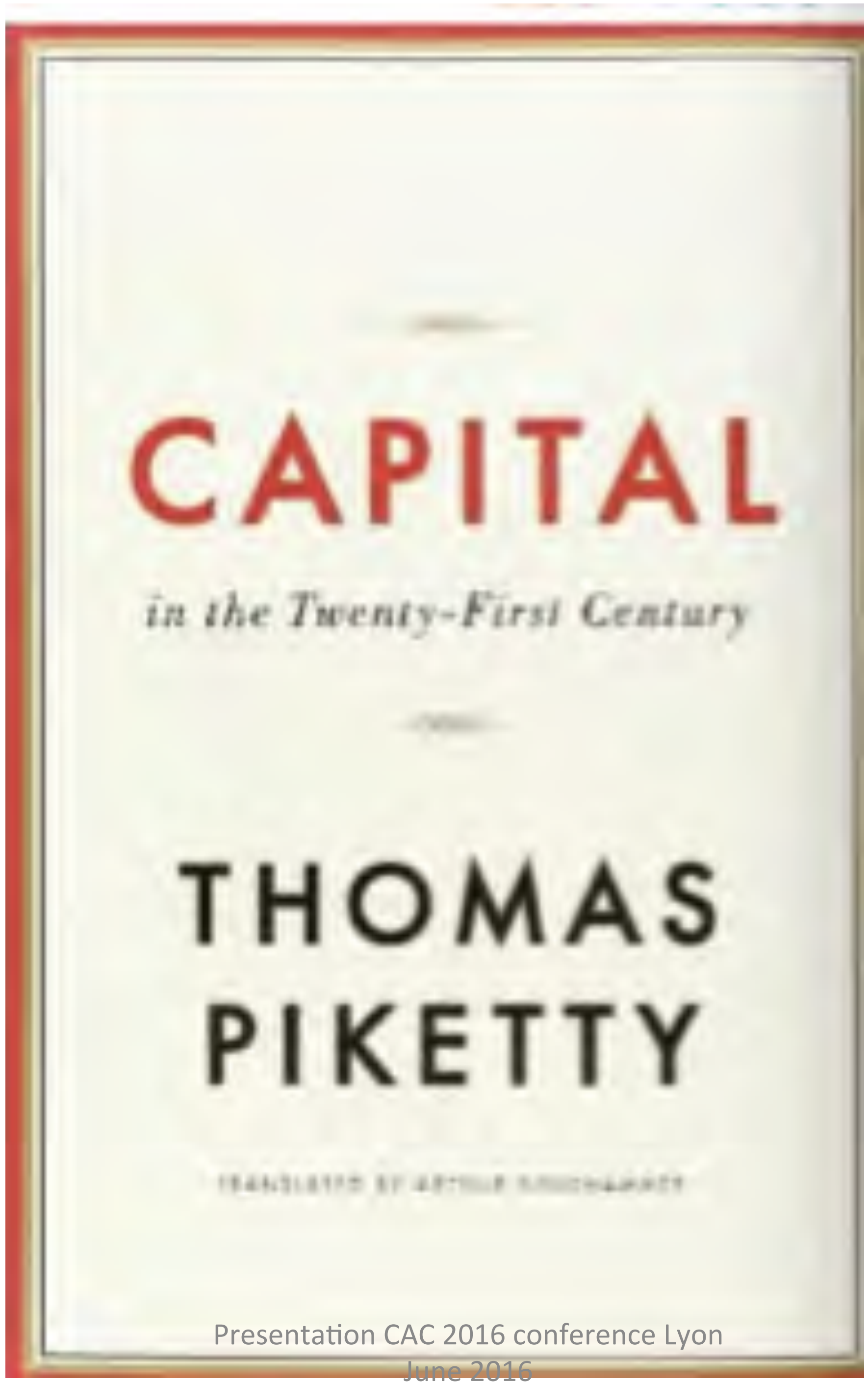
Interdependence

- Why does the S & P drop, when oil which is not such a big part of it, drops? An answer:
- « an energy fund forced to liquidate S&P futures positions after the sharp drop in oil »
- *Financial Times 14/01/2016*

Inequality

Adam Smith again

- "[The rich] consume little more than the poor, and in spite of their natural selfishness and rapacity…they divide with the poor the produce of all their improvements. They are led by an invisible hand to make nearly the same distribution of the necessaries of life, which would have been made, had the earth been divided into equal portions among all its inhabitants, and thus without intending it, without knowing it, advance the interest of the society, and afford means to the multiplication of the species."
- *The Theory Of Moral Sentiments*, Part IV, Chapter I, pp. 184-5, para. 10.


CAPITAL
in the Twenty-First Century
THOMAS
PIKETTY

Why did this book resonate so much?

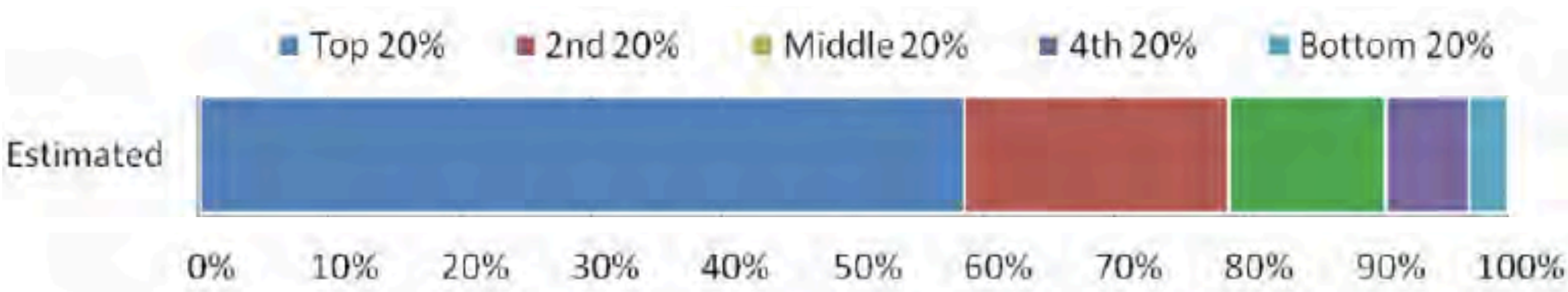

VOUS AVEZ LE DROIT DE GARDER LE SILENCE
ET LAISSER LEUR ARGENT PARLER POUR VOUS
NOUS SOMMES LES 99%
OCCUPY FRANCE


Arrest the Bankers!

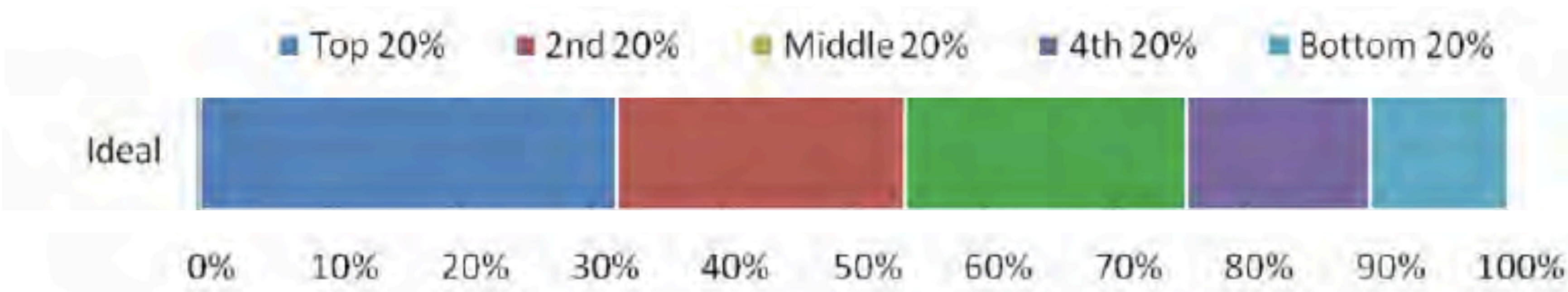
If only they knew!!

- People’s indignation has been spurred by the publicity that inequality both of wealth and of income have received.
- But it is people’s perceptions that count.
- Here is what 5000 people questioned about wealth distribution in the U.S. had to say.

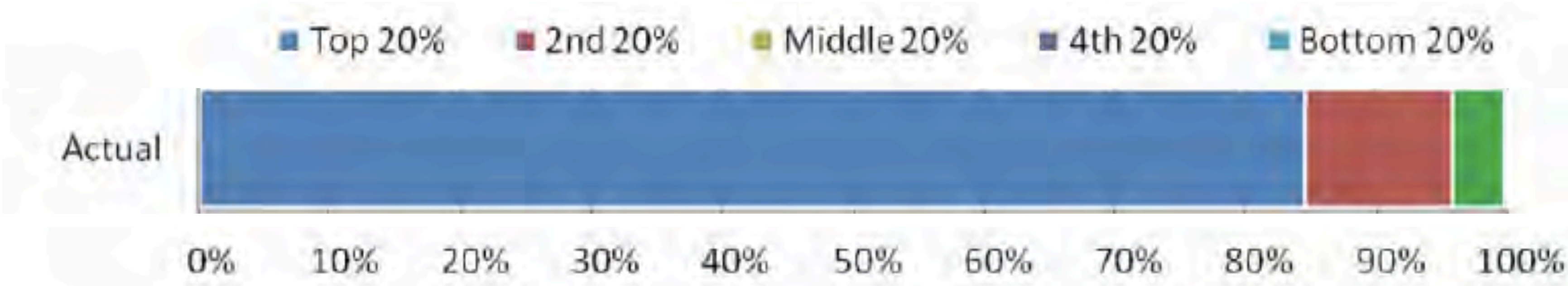
What people think that the distribution of wealth is in the U.S



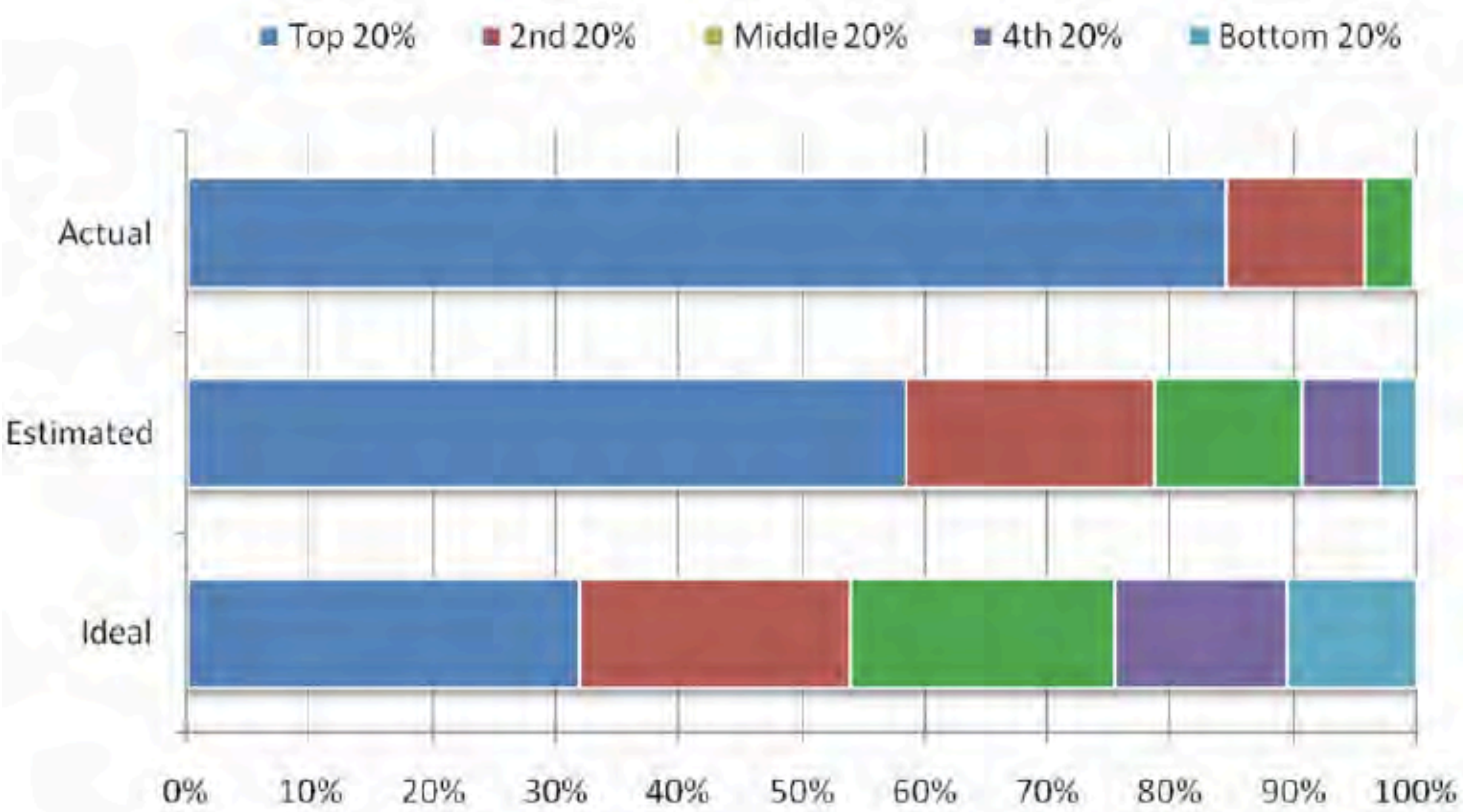
What they would like it to be



What it is in reality



What do people know about the present?

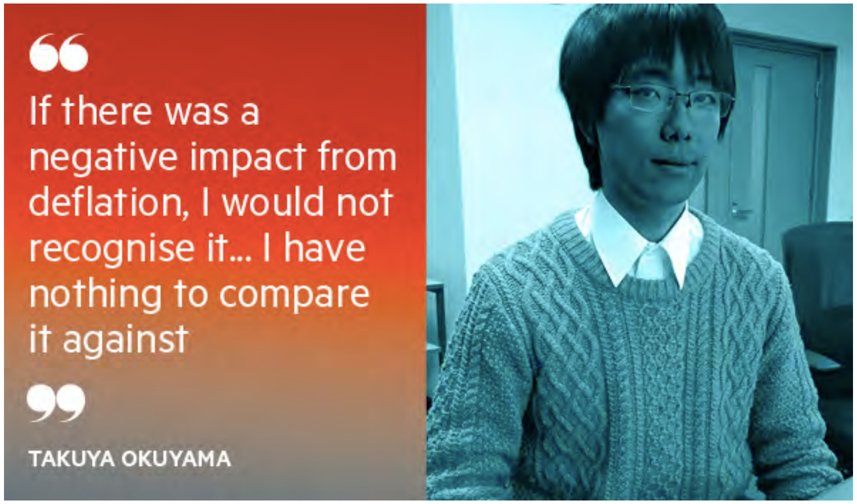


Question

- If people know so little about the current situation why should we believe that they understand the way in which the economy works and how it will evolve in the future?

Rational Expectations: The end of deflation in Japan?

- Prime Minister Shinzo Abe declares that Japan is "no longer in a deflationary period"
- Bank of Japan maintains its target of 2% inflation
  Financial Times Jan 14th 2016
- But are the Japanese convinced?



Markets and Incentives

Incentives

- It has long been argued that an essential feature of the market economy is that prices provide the right information and constraints and hence incentives, to market participants.
- This is one of the main reasons that have been invoked in favour of a market economy.
- Yet there are many famous examples of how simple incentives do not work.

Putting a price on wrongdoing

- The « cobra effect » Rats in Viet Nam
- Most people remember the paradox of blood donation. As soon as a fee was paid the amount diminished. People did not want to be seen as involved in doing something for a monetary reward
- The second story is that of the Haifa creche or kindergarten. When fines were imposed for being late people came later. There was a price to pay
- But what about Banks and other institutions?

Libor Scandal: Financial Times

August 3, 2015 4:24 pm

Tom Hayes conviction a big victory for UK's Serious Fraud Office

Lindsay Fortado and Caroline Binham in London

Share Author alerts Print Clip Gift Article

Agency risked reputation in pursuing Libor case against trader

Tom Hayes, the former trader found guilty over Libor manipulation on Monday, may have been the only man in the dock at Southwark Crown Court but he was never the only one being judged.

Markets and Rules.

FINANCIAL TIMES

Thursday November 13 2014

COMPANIES NEWS

Fines carry strong echo of Libor scandal

Heaviest penalties in history meted out in large part because banks have failed to learn lessons

No end in sight to a rotten culture

Size of fines less stunning than scale of conspiracy

Trio of banks fined $950m by US regulator

FOREX FINES

Forex settlements
Bank of America
$250m
HSBC
$618m
RBS
$634m
UBS
$799m
Citigroup
$1.0bn
JPMorgan
$1.0bn
Source: Regulators
Footnote: Barclays still under investigation

Financial Times November 4, 2015 12:41 am

- **US trader found guilty in landmark 'spoofing' case**

- Spoofing is rapidly placing orders with the intent to cancel them before they trade in order to trick other investors by creating the illusion of demand. While long prohibited by authorities and exchanges, it was explicitly banned under the US Dodd-Frank financial reforms of 2010.

Not Just Banks

- The Volkswagen Scandal

- The IAAF Doping Scandal

What does this suggest?

- Individuals will adapt to whatever rules that are put in place and new norms whether bad or good will emerge.
- Institutions and rules co-evolve
- History is redolent with examples of taxes that have produced perverse results.
- It is very difficult to predict what the consequences of a policy will be as Krugman likes to point out to the Austeriens.
- So we have to think of the economy differently and more modestly.

Morality

- « First, morality matters. As Prof Zingales argues, if those who go into finance are encouraged to believe they are entitled to do whatever they can get away with, trust will break down. It is very costly to police markets riddled with conflicts of interest and asymmetric information. We do not, by and large, police doctors in this way because we trust them. We need to be able to trust financiers in much the same way ».
- *Martin Wolf Financial Times*

The Insurance Contract for the Titanic

Insurance *is wanted by* OCEANIC STEAM NAVIGATION COMPANY LIMITED *for account of*

Whom it may concern.

loss, if any, payable to OCEANIC STEAM NAVIGATION COMPANY, LIMITED.

For $ $100,000. *on* STR. TITANIC

Valued at $5,000,000.

For

and to be insured at and from

the 30 day of March 1912 at 7 P.M.

until

the 30 day of March 1913 at 7 P.M.

This policy is subject to total loss or constructive total loss of the vessel only, and to cover General Average and salvage charges if both charges combined amount to $750,000., which amount is deductible.

Premium at the rate of 2-1/10% per annum, predicated on the rate of 7½¢ for each trip, and in the event of the vessel being detained in port for any cause, the premium returned for such detention to be based on the number of trips. But in the event of the total loss of the Steamer during the period covered by this policy, the full annual premium of 2 1/10% to be paid by the Assured.

To include the trip from Belfast to Southampton Sailing on or after March 30th 1912 at 7 PM and the risk of trials on said trip if any.

Binding ... *President.*

Oceanic Steam Navigation Co. *Applicant.*
pr. [illegible]

The signatures

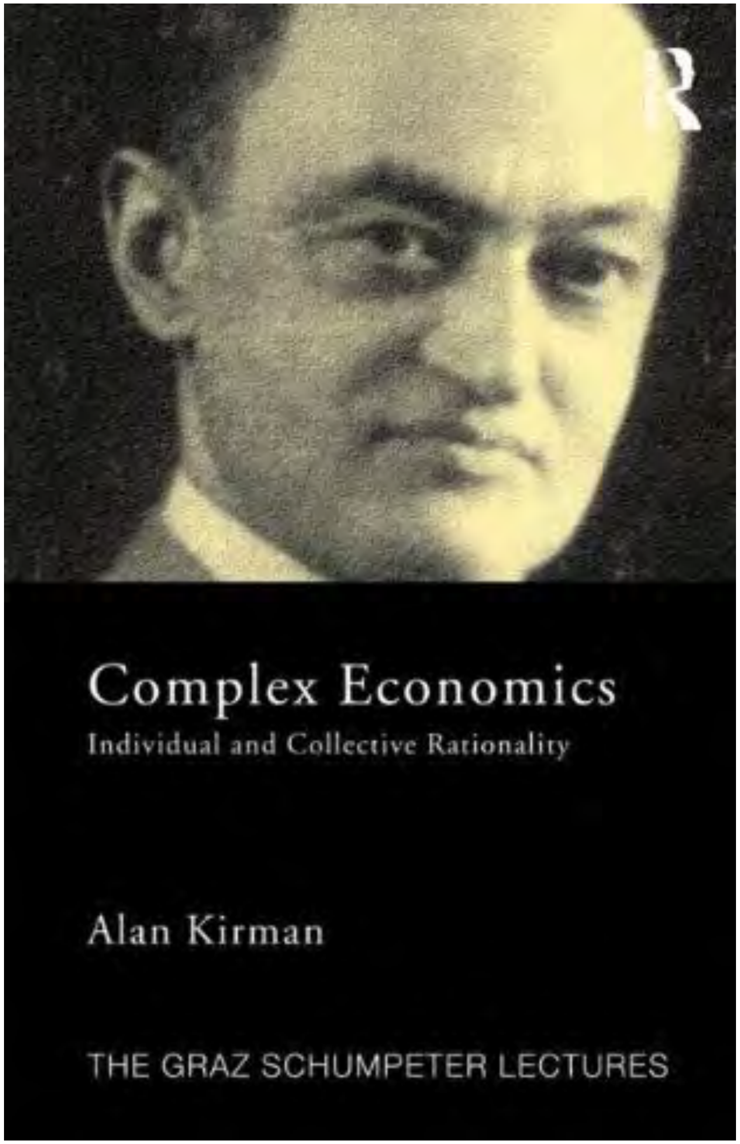
Overall Conclusions

- We have developed over more than two centuries an increasingly sophisticated but less and less realistic, model of the economy.
- Economies do not naturally self-organise into a socially satisfactory state.
- Economies are not basically in equilibrium, they are constantly evolving and spontaneously generate periodic crises.
- Economies are evolving complex adaptive systems which coordinate on outcomes which may be far from optimal.
- Such systems are much less predictable than our current economic models claim.

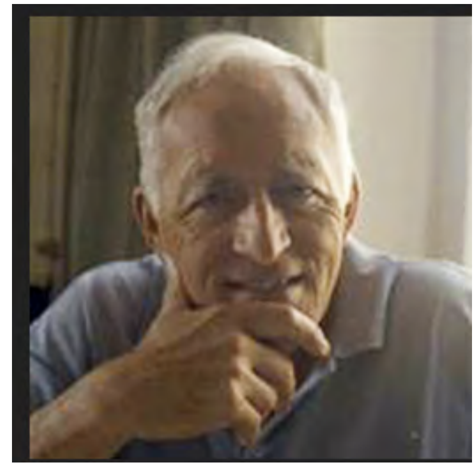
The last words should be left to Mervyn King (Former Governor of the Bank of England)

- "The message from Hayek is that we should avoid the hubris of thinking that we understand how the economy works, Just as we should avoid the hubris of thinking that leaving markets to their own devices will lead to nirvana." *Mervyn King April 2013*

For those who wish to know more



New Book



- D.S.Wilson and A. Kirman, eds 2016 *Complexity and Economics: Towards a New Synthesis for Economics* Strungmann Forum Reports vol.19, J Lupp Series Editor, Cambridge MA, MIT press in press.

How long will it take?

« A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it »

Max Planck, A Scientific Autobiography (1949).

"You want to keep an open mind but you don't want to open it so far that your brain falls out."

Buz Brock