

Ciclos e crises económicas

Aula 23 e 24

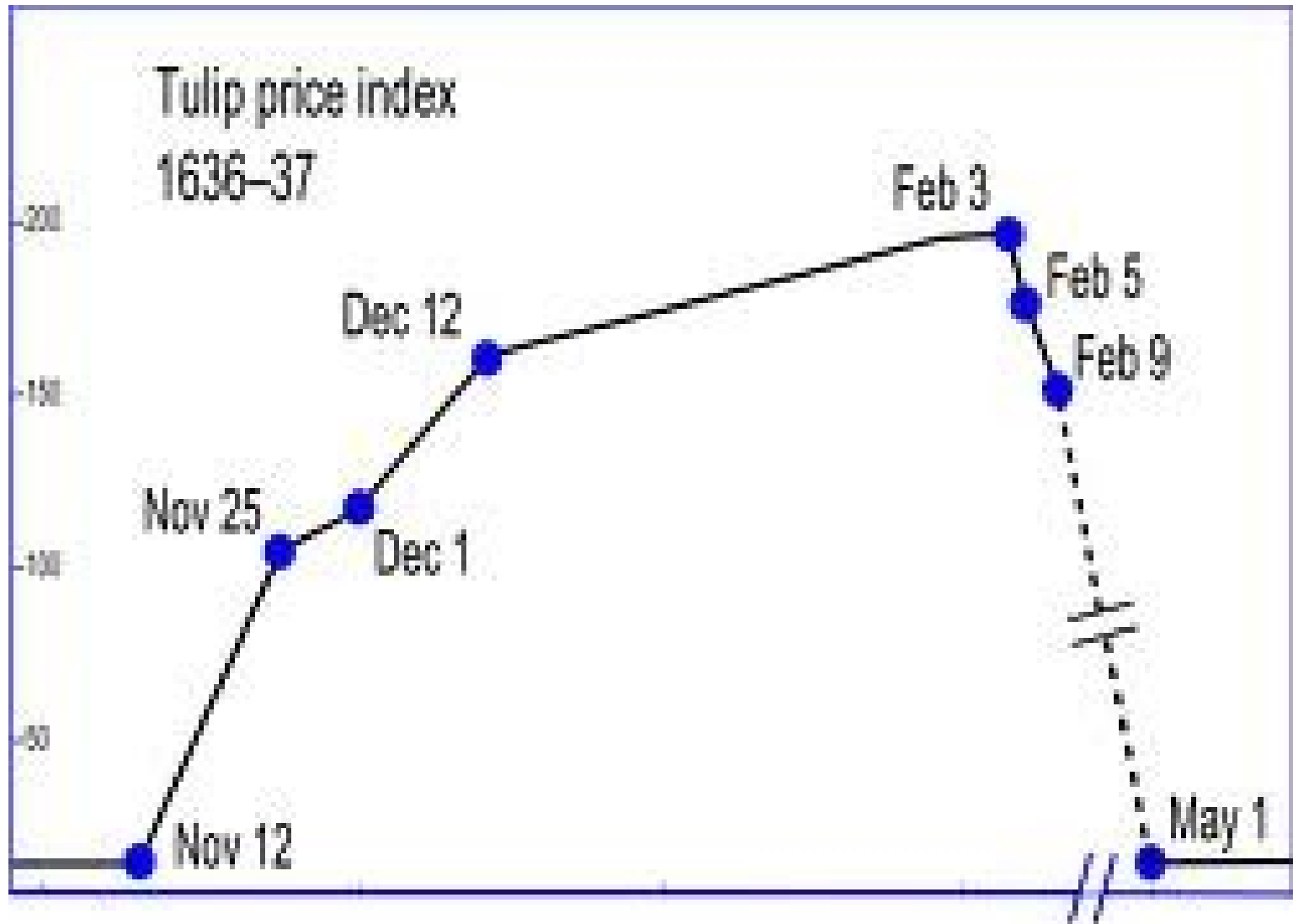
Mercados eficientes,
racionalidade, jogos e
experiências

- Os temas desta aula:
 - Interpretações da incerteza, informação e racionalidade em economia
 - A racionalidade da especulação
 - A teoria do mercado eficiente
 - As críticas à teoria do mercado eficiente

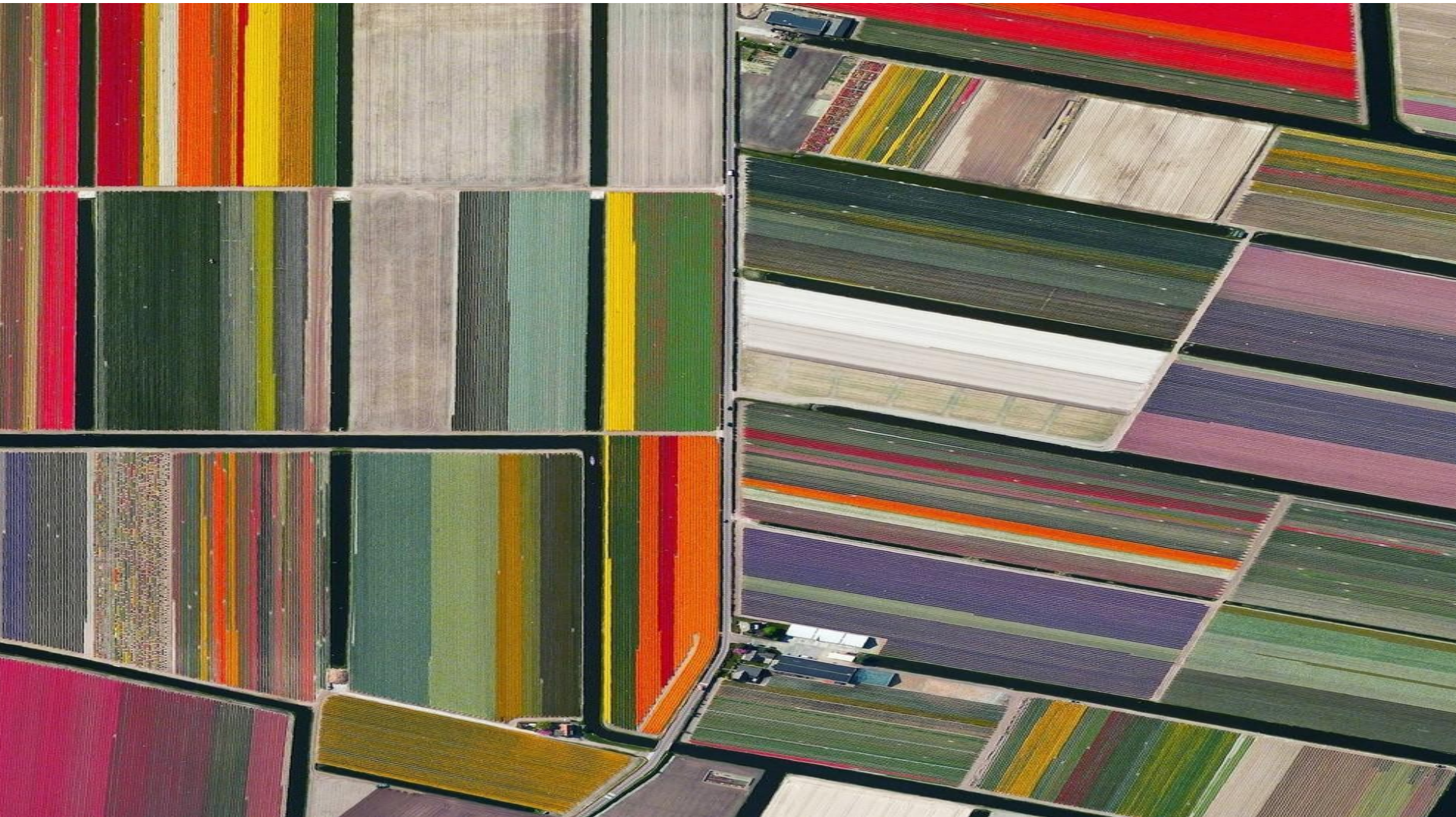
As crises económicas são criadas pelas expectativas?

O exemplo de uma das primeiras crises especulativas detalhadamente registadas, a “tulipmania” do século XVI

Tulip mania



Campo de tulipas, Holanda, 2018



A crise das tulipas (Holanda, século XVI)



Ou as crises são criadas por informações falsas e expectativas incorrectas?

Uma caricatura do *Economist*



Equilibrium and mechanics

- **If we are in equilibrium, there are no crisis:** Leon Walras, Robert Lucas, Eugene Fama and John Cochrane (Chicago), and Gregory Mankiw (Harvard)
- General equilibrium, dissipation of shock
- **Rationality** at the core of the theory: everything depends on the hypotheses of full or sufficient information, computational capacity, maximizing behavior

**How the neoclassical
revolution won the day:**
just reproducing the notions
and equations of physics

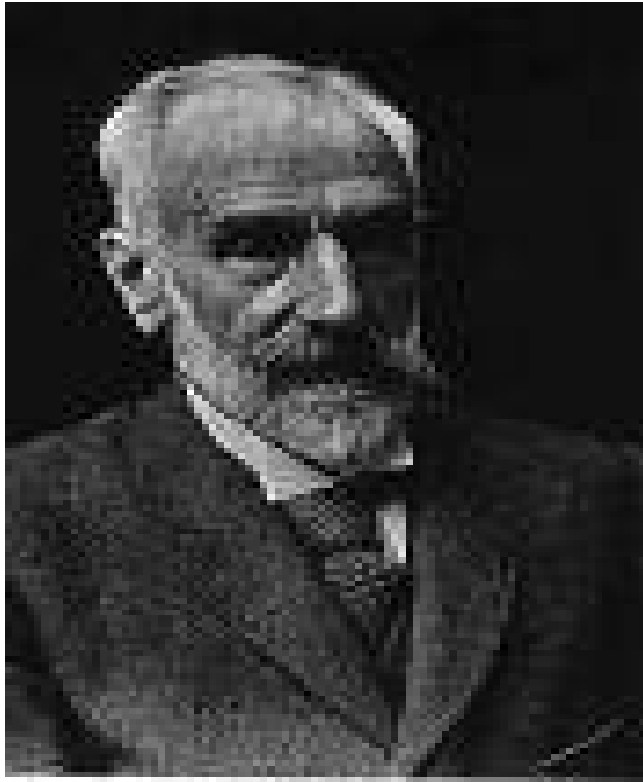
Stanley Jevons (1835-1882)



“The notion of value is to our science what that of energy is to mechanics”

Introduction of the notions of utility, against the classical notions for exchange value

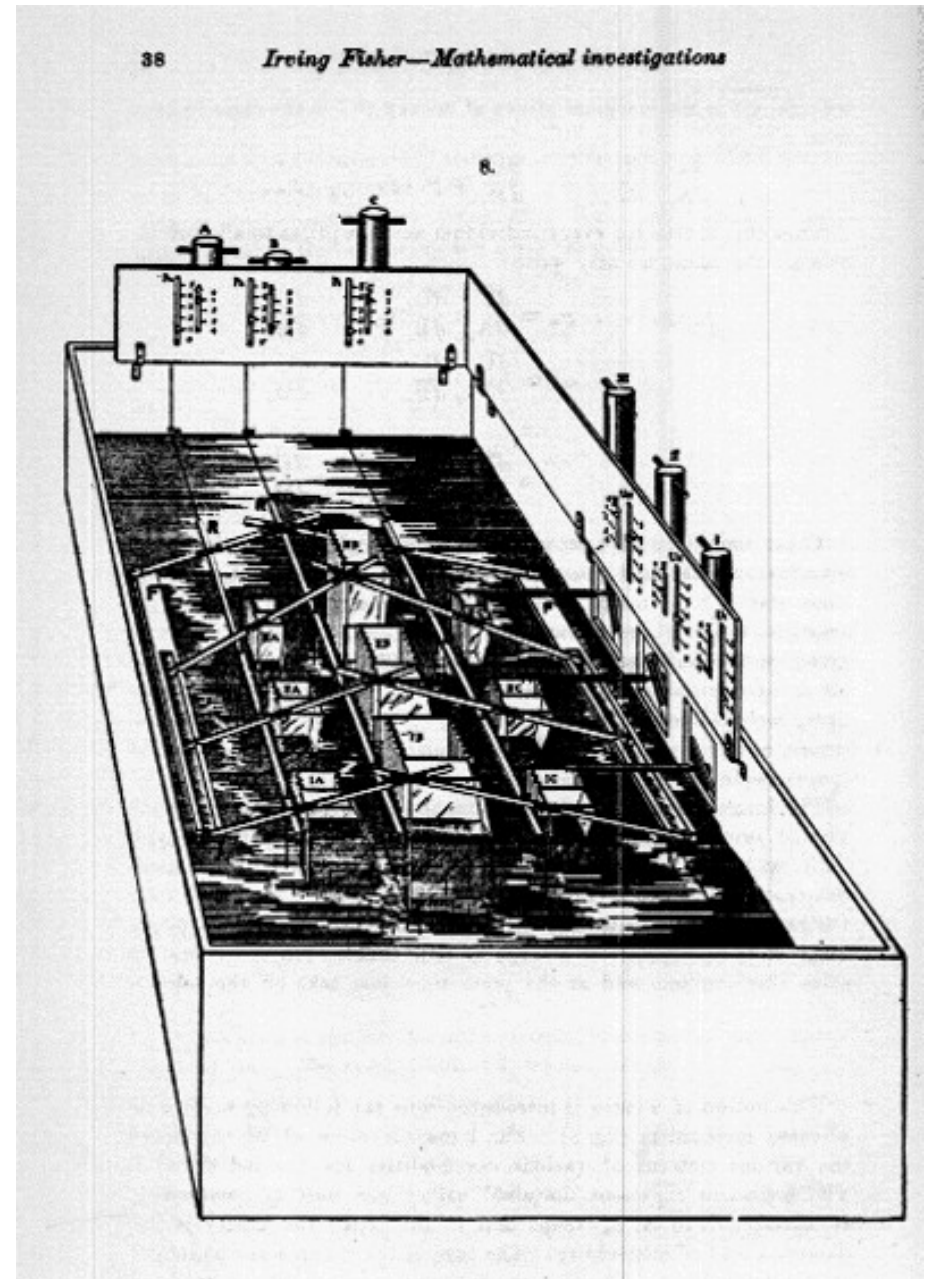
Francis Edgeworth (1845-1926)



Francis Edgeworth (1845-1926)

“An analogy is suggested between the Principles of Greatest Happiness, Utilitarian or Egoistic, which constitutes the first principles of Ethics and Economics, and those **Principles of Maximum Energy**, which are among the highest generalizations of Physics.” (1881)

Irving Fisher (1867-1947)



Irving Fisher: dicionário

Quadro 9.1

<i>Na Mecânica</i>	<i>Na Economia</i>
Uma partícula corresponde a	Um indivíduo
Espaço	Mercadoria
Força	Utilidade ou desutilidade marginal
Trabalho	Desutilidade
Energia	Utilidade
Trabalho ou Energia= força x espaço	Desutilidade ou Utilidade = utilidade marginal x mercadoria
A força é um vector	A utilidade marginal é um vector

Irving Fisher

“Scarcely a writer on economics omits to make some comparison between economics and mechanics. One speaks of a ‘rough correspondence’ between the play of ‘economic forces’ and mechanical equilibrium... In fact, the economist borrows much of his vocabulary from mechanics. Instances are: **equilibrium, stability, elasticity, expansion, inflation, contractions, flow, efflux, force, pressure, resistance, reaction, distribution (prices), levels, movement, friction.**”(Fisher, 1891: 25)

Yet, Alfred Marshall: biology vs. mechanics

“The Mecca of the economist lies in economic **biology** (...). But biological conceptions are more complex than those of **mechanics**: a volume on Foundations must therefore give a relatively large place to mechanical analogies, and frequent use is made of the term **equilibrium** which suggests **something of a static analogy.**”

A. Marshall, introduction to the **Principles**

The principles of standard economics

- **Mechanics**: models of reality
- **Rationality**: the nature of agency and markets, a mode of behavior

Efficient Market Hypothesis

- Stock prices changes follow the same distribution and are independent of each other
- So, the past cannot help to predict the future
- E.g., Brownian motion (particles in a gas or fluid)
- You cannot beat the market
- What is the role of the stock analysts and brokers?



Eugene Fama, 1965

"An 'efficient' market is defined as a market where there are large numbers of **rational, profit-maximizers** actively competing, with each trying to

predict future market values of individual securities, and where **important current information is almost freely available** to all participants.

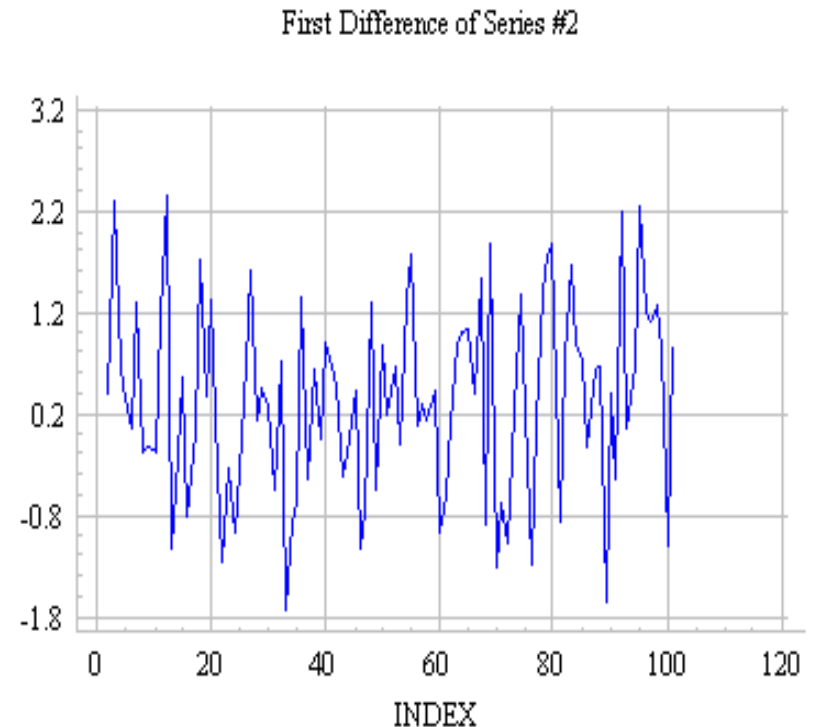
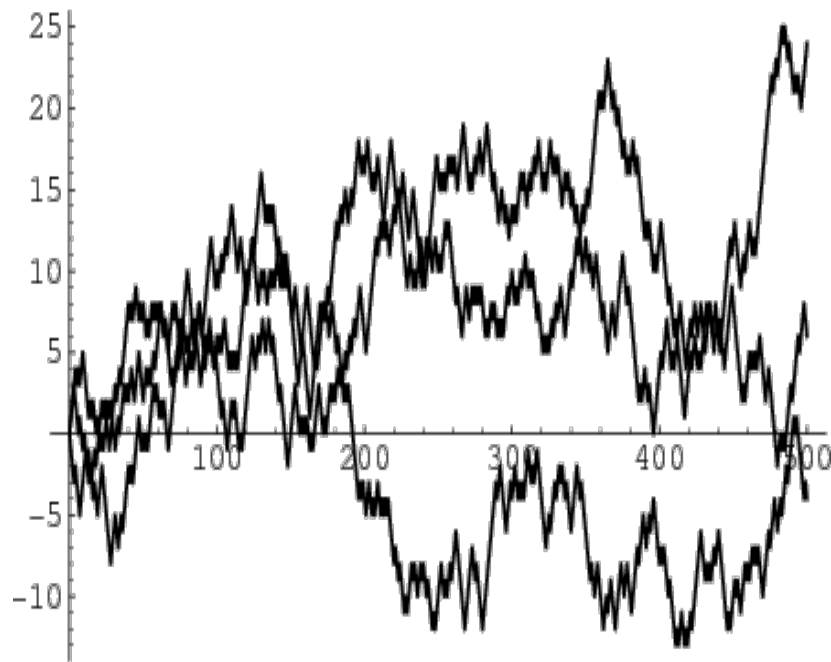
In an efficient market, competition among the many intelligent participants leads to a situation where, at any point in time, actual prices of individual securities already reflect the effects of information based both on events that have already occurred and on events which, as of now, **the market expects to take place in the future.**"

Eugene F. Fama (1965), Random Walks in Stock Market Prices,

Financial Analysts Journal

Random Walk Hypothesis

- Karl Pearson, “The Problem of the Random Walk”, *Nature*, 72:294, 1905: he described the random **walk of a drunk**



Textbook Version Today

As one of the most important ideas in finance:

“Security prices accurately reflect available information, and respond rapidly to new information as soon as it becomes available”

Richard Brealey and Stewart Myers,
Principles of Corporate Finance, 1996

Against the RE Hypothesis: Robert Shiller



The book *Irrational Exuberance*, 2000
Animal Spirits, 2009, with Akerlof

"The Efficient Market Hypothesis is one of the most egregious errors in the history of economic thought."

Examples: the housing bubble before 2007

So, he argues for a return to Keynes ("animal spirits") and for behavioral economics (Kahneman,...)

Shiller on Fama

"It must affect your thinking somehow that they (the Chicago school) really believe in markets. I think that maybe he (Fama) has a cognitive dissonance. His research shows that markets are not efficient. So what do you do if you are living in the University of Chicago? **It's like being a Catholic priest and then discovering that God doesn't exist or something, you can't deal with that, you've got to somehow rationalize it"**

(statement in *The Guardian*, 5 February 2016)

Yet, Fama and Shiller shared the 2013 Nobel Prize (with Lars Hansen)



Another explanation for instability: Joseph Stiglitz (1943-...)



**Externalities of financial pollution
(mortgages)**

**The price of inequality is lack of efficiency
and of fairness**

Liquidity is not enough, a reform is needed:

- **New financial regulation**
- **Change in the structure of demand**
- **Redirect investment for saving resources**
- **Fiscal renewal**

Uma recapitulação

- **Racionalidade:** será a base da teoria económica moderna?
- Algumas refutações poderosas:
 - A) teoria de jogos e dilema do prisioneiro: as estratégias e a aprendizagem contam
 - B) Herbert Simon: Racionalidade limitada e procedimental
 - C) Kenneth Arrow: experiência pessoal do erro de previsões
 - D) A experiência de Bowles sobre o comportamento dos “agentes”

Bowles' experiment

- The **Ultimatum Game** was played in different places and societies (different cultures), see the map next slide, and then check the results

Experiência de Bowles et al.



MAPA 12.1.

AS QUINZE SOCIEDADES ESTUDADAS PELAS EQUIPAS DE SAMUEL BOWLES

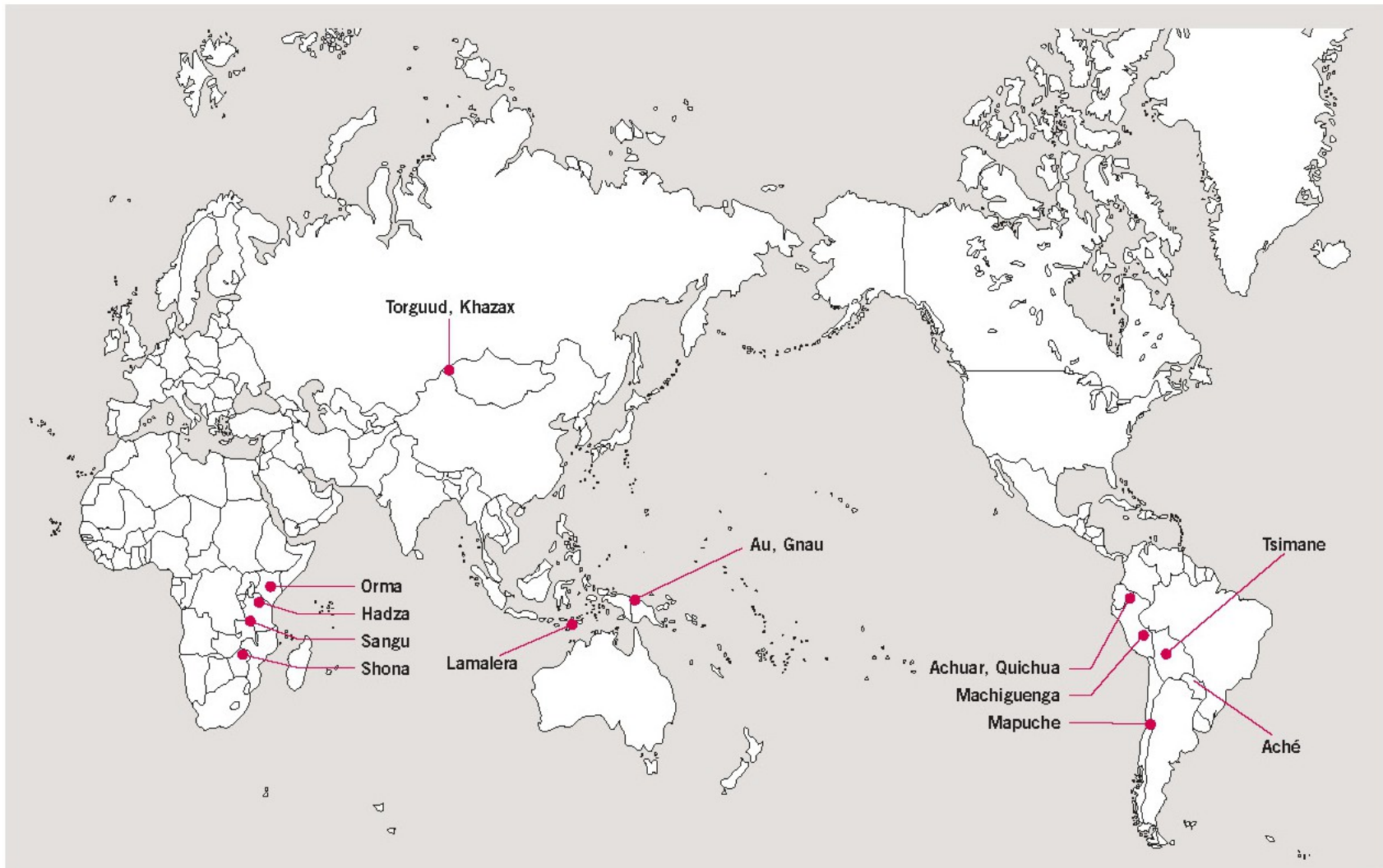
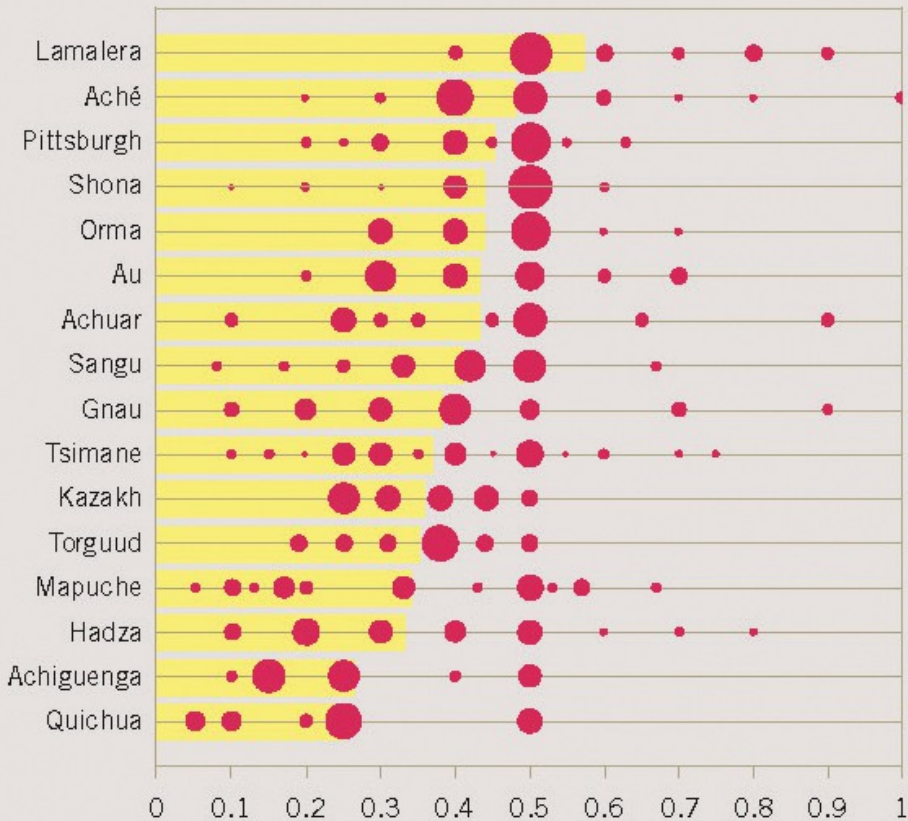




GRÁFICO 12.5.
OFERTAS NO JOGO DO ULTIMATO

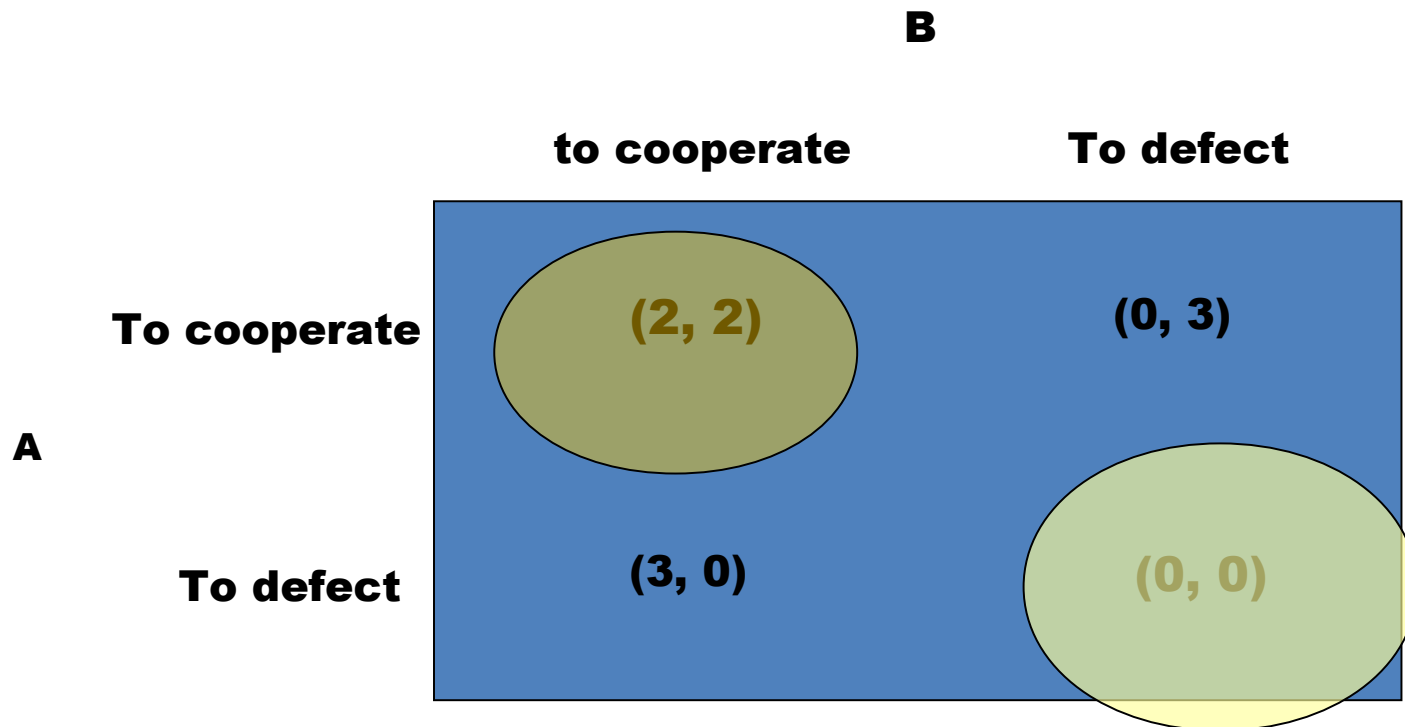


As bolas indicam a distribuição das ofertas do primeiro jogador. A dimensão da bola indica a proporção dos primeiros jogadores que fizeram a oferta indicada em abscissa, e a bola maior é a moda da distribuição. O limite da linha amarela indica a média das ofertas dos primeiros jogadores. Para efeitos de comparação, no mapa dos resultados é incluído o de uma experiência realizada com estudantes da Universidade de Pittsburgh (EUA).

Exemple

The Prisoner's Dilemma (a model of cooperation?)

Exemple: to defect or to cooperate



The prisoners dilemma

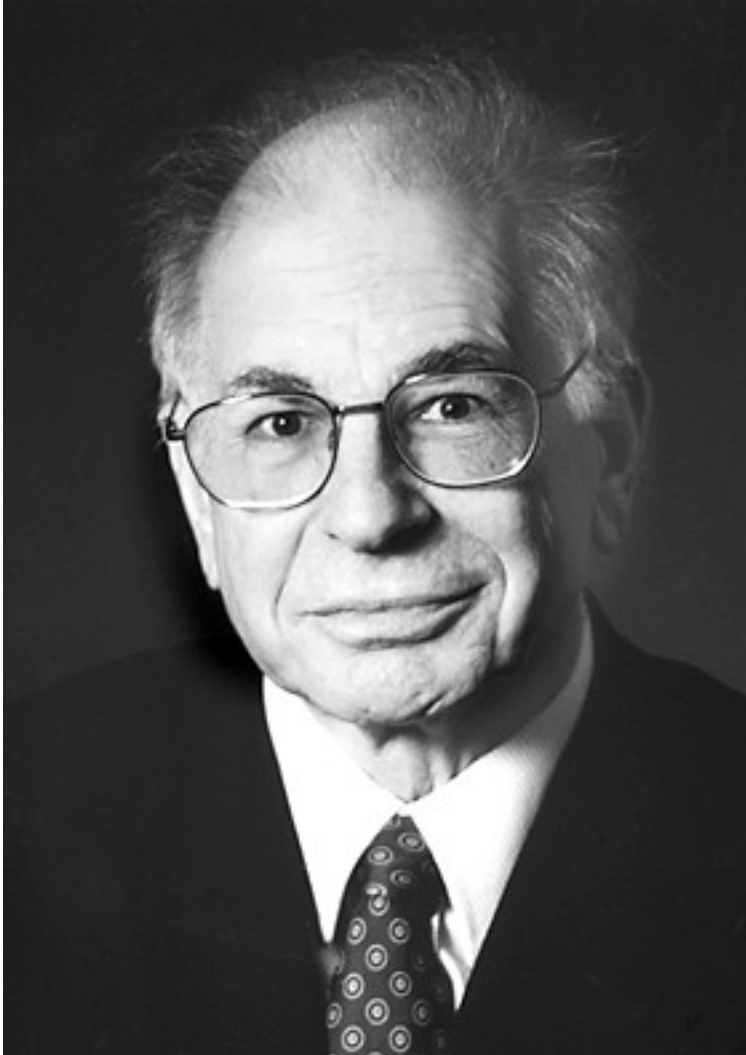
- The PD experience, at Rand Corporation in the 1950s: playing 100 times, between **Merryl Flood** (mathematician) and **Armen Alchian** (neoclassical economist)
- Alchian chose cooperation 68 in 100 and Flood 78/100
- **Flood wrote in his notes: "I am completely confused: which is the information he is passing me?"; "this is how to train a baby to go to the toilet, one needs to be very patient"**
- **John Nash** criticized the experiment, you should not repeat the game, there should be no learning!

You are rational just as you play chess

(you don't know every move, so there is no perfect information)



Daniel Kahneman (1934-...)



Psychological economics:

rationality,
perception,
Information

Nobel 2002

Resumo

- O que deve pensar:
 - Como explicar crises e ciclos em modelos que presumem equilíbrio ou, se houver desequilíbrio, que há convergência?
 - Conceitos de “racionalidade”, formas institucionais de especulação e funcionamento dos mercados em períodos diferentes
- O que deve ler:
 - ***Sombras***, caps 5 e 6
 - ***Economia(s)*, 121-2, 242-50.**
 - Joseph Stiglitz, *O Preço da Desigualdade*, cap 3
 - Kahneman, D. (2003), “A Psychological Perspective on Economics”, *American Economic Review*, 93(2): 162-8