FINANCIAL MARKETS AND INSTITUTIONS

FINANCIAL CRISES

A.Y. 2020/2021

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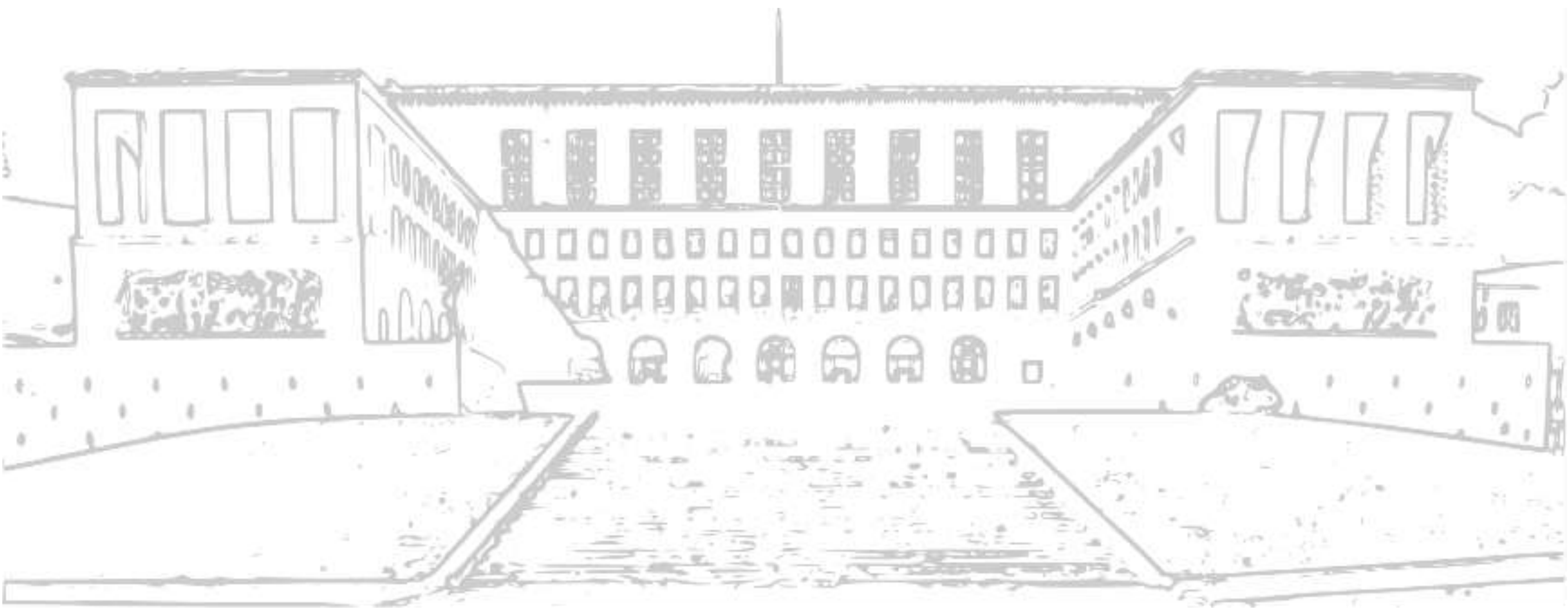
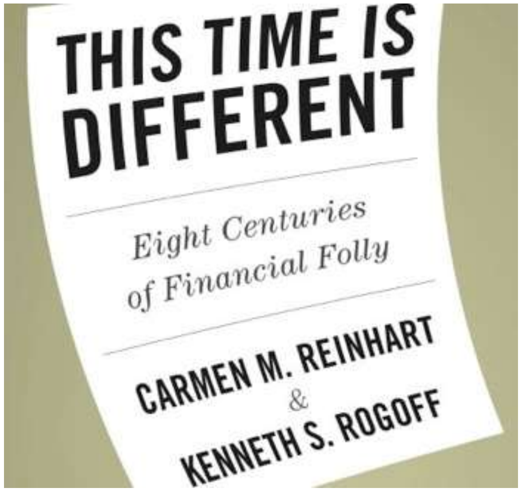


DEAMS
University
of Trieste

AGENDA

- Why financial crises? Are they similar? Are they avoidable?
- Key stories:
  - the Great Depression
  - the 2007-09 financial crises
  - what happens in emerging markets?

WHY FINANCIAL CRISES?

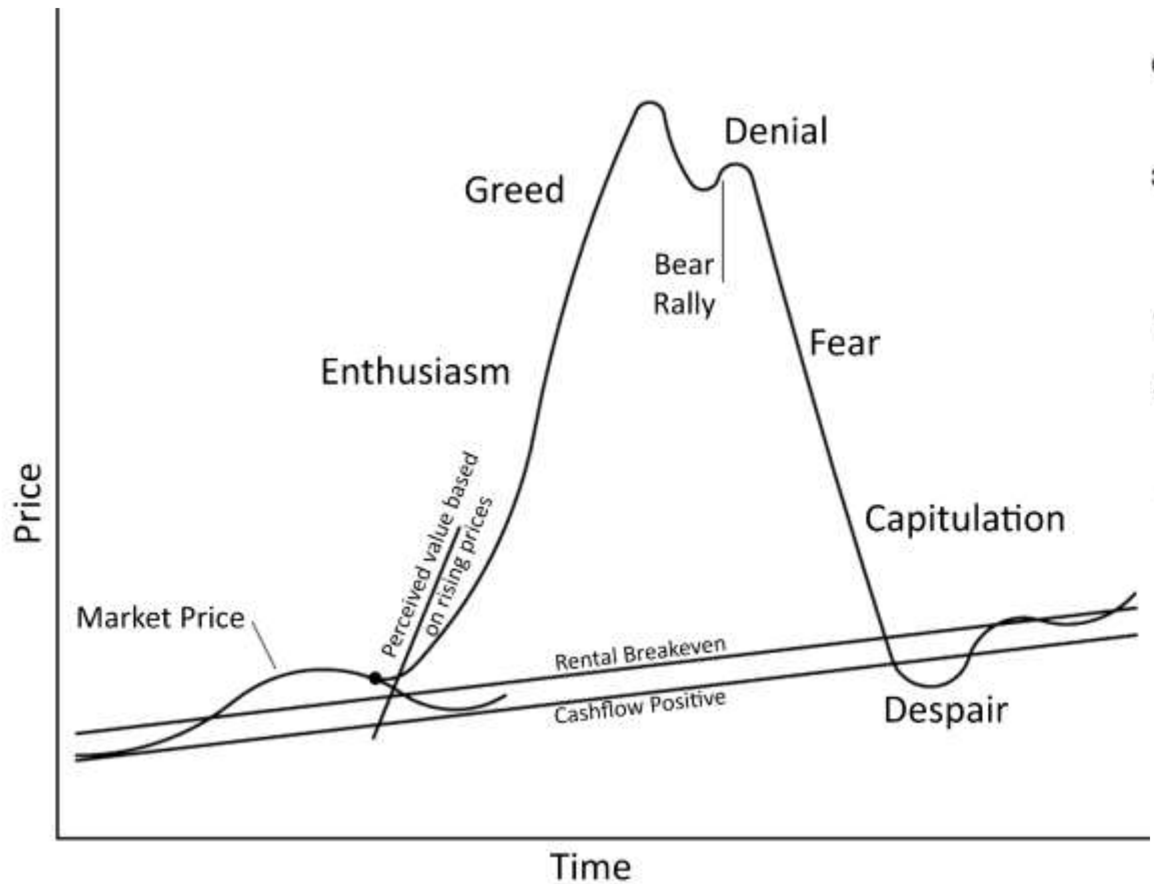


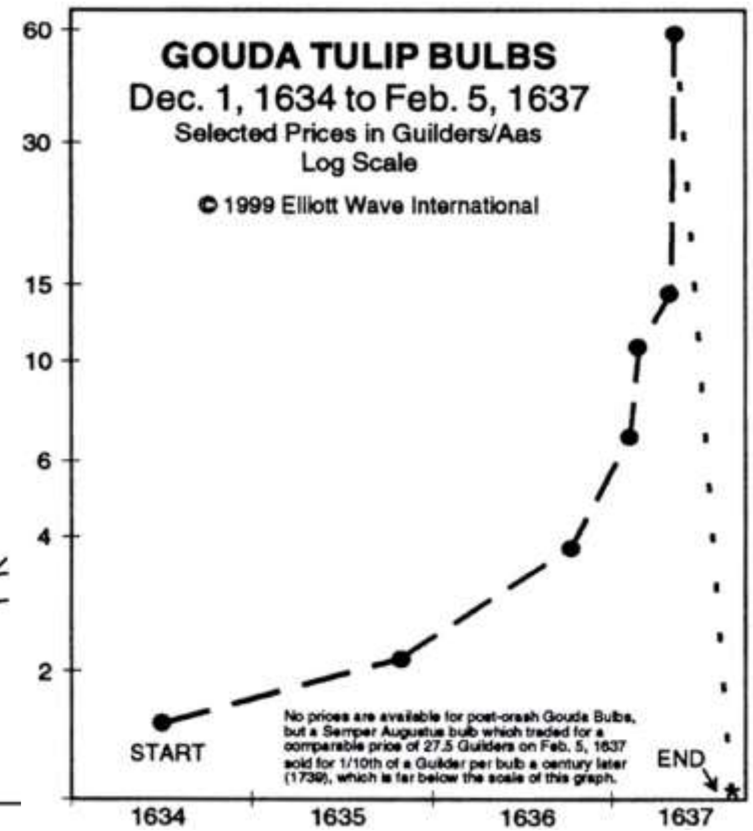
- Mounting **imbalances**
- **Shock**
- **Asset bubbles**
- **Asymmetric information**
- **Inefficient capital allocation**
- **Market crash, credit crunch, bank runs**
- **Default of firms**
- **Recession**
- **Default of countries**

"Throughout history, rich and poor countries alike have been lending, borrowing, crashing -- and recovering -- their way through an extraordinary range of financial crises. Each time, the experts have chimed, 'this time is different', claiming that the old rules of valuation no longer apply and that the new situation bears little similarity to past disasters."

An Example out of Fantasy

- Imagine a **new luxury asset** is invented, that requires time to be produced
- Trading goes 20 times the average annual salary
- Demand is strong: purchased before production or during planning
- What happens when someone notes the imbalance between supply and demand?

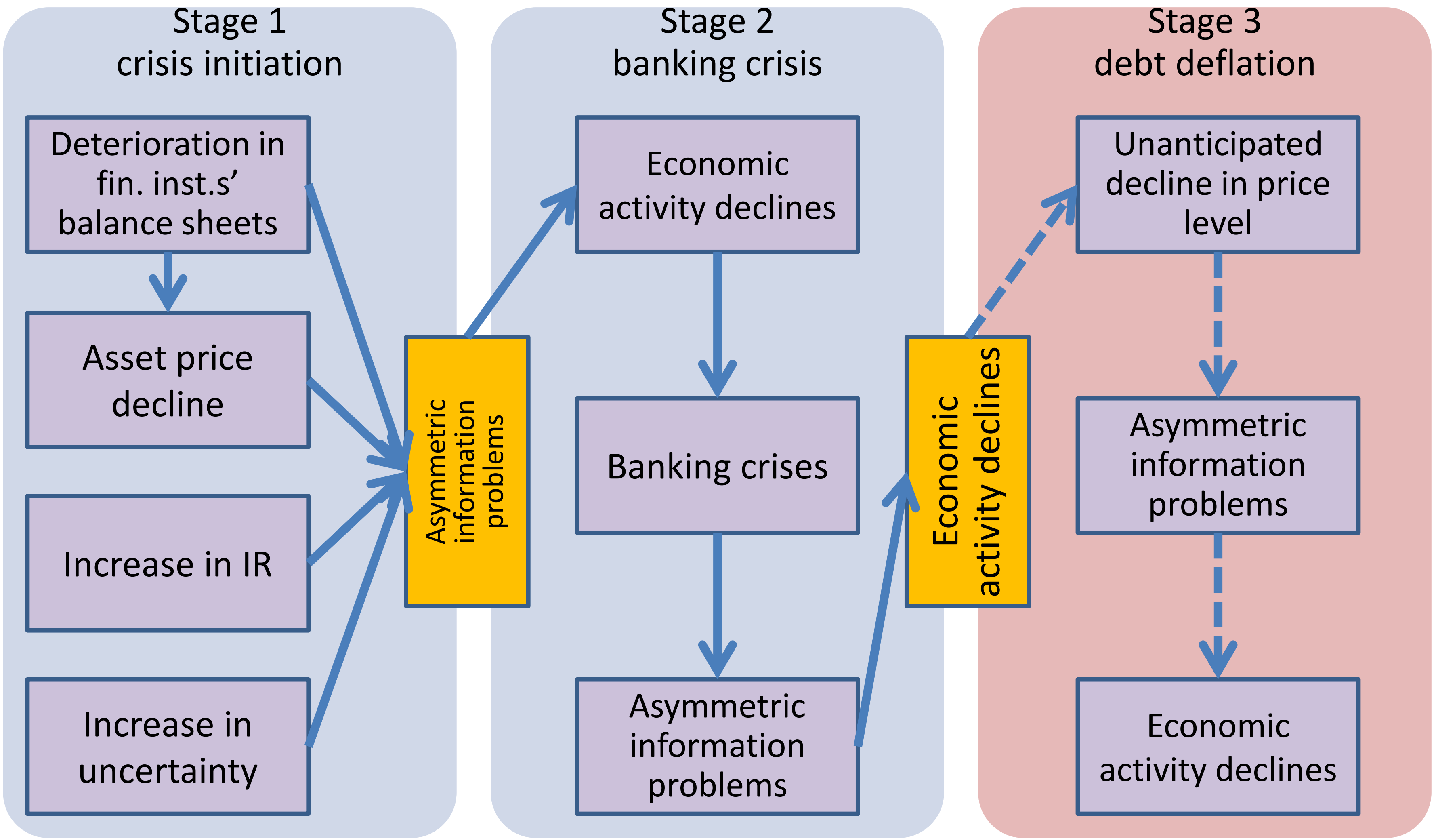




AN EXAMPLE OUT OF FANTASY

An Example out of Fantasy

Paths of Financial Crises



THE GREAT DEPRESSION: KEY ASPECTS

Longest (1929-39), largest (global) and deepest (MLNs unemployed, 50% of banks collapsed) recession:

- it follows the “Roaring Twenties”: coincidence?
- **stock prices doubled in <2y**
- farming crisis (drought, falling food prices), limited debt/bank defaults, mild recession
- **stock market crash (1929)**: accumulation of unsold goods while stock prices kept rising through credit beyond earnings (Black Thursday/Tuesday: fire sales)
- the CB **raises IR** and accelerates a **spiral**: less investments, failures, unemployment, less consumption
- gold standard (fixed regime)
- **the stock market halved its losses** by mid-1930

DJIA vs NASDAQ

THE GREAT DEPRESSION: KEY ASPECTS

- **1930-31:** 5 mln jobless in US only, production -50%
- **bank runs/defaults**: thousands by 1933 with now 13-15 million unemployed (20% rate)
- **Hoover**: loans to banks with thin Treasury funds
- **Roosevelt ("New Deal")**:
  - bank/industrial/agricultural stabilization reforms (including deposit insurance, stock market regulation),
  - public spending in infrastructures and job creation, including unemployment insurance and social security
- strong **recovery** since 1933 (+9% real GDP),
- new recession in 1937 (+ FED reserves)
- 1/9/1939 - 7/12/1941


York Times.

STOCKS COLLAPSE IN 16,410,030-SHARE DAY, BUT RALLY AT CLOSE CHEERS BROKERS; BANKERS OPTIMISTIC, TO CONTINUE AID

THE GREAT DEPRESSION 2.0

A recipe for the perfect storm:

1. **Low IR** make credit easy, **growing IR** promote riskier lending…
2. **House bubble** (peak in 2004):
   - **easy credit** from foreign capital inflows
   - **financial innovation**: MBS, CDO, … open a secluded segment
   - **originate-to-distribute**

3. **Deregulation** and **lax lending** standards, opaque and fragile **shadow banking**
4. **Burst**: capital flows stop, losses arise, foreclosures explode
5. **Banks hit** from all sides (assets, liabilities, equity)
6. **Intervention of CBs** (facilitating lending and improving access to credit) **and governments** (bailing out troubled institutions and spending beyond tax inflows) transform private into **public debt issues**
7. Future expectations do not improve, recovery lags: **deleveraging**

THE GREAT DEPRESSION 2.0: SOME ANECDOTES

- **2007**
  - SEP: Northern Rock (UK) faces liquidity crisis from securitizations

- **2008**
  - MAR: Bear Stearns bought by JP Morgan to avoid bankruptcy
  - **MAY: US Treasury says "the worst is over"**
  - SEP: bailouts/distress involves Freddie Mac, Fannie Mae, Lehman Brothers, HBOS, Washington Mutual, Wachovia, Ireland promises bailout of whole banking system
  - OCT: US government project for "toxic" assets, collapse of Iceland's 3 biggest banks, joint cut of IR by BoE/ECB/FED/other 5, bailouts continue in the UK (RBoS, Lloyds TBS, HBOS)
  - NOV: 1m unemployment for US +240,000, cash injections in US banks, G20 summit, **Gordon Brown: "we saved the world"**

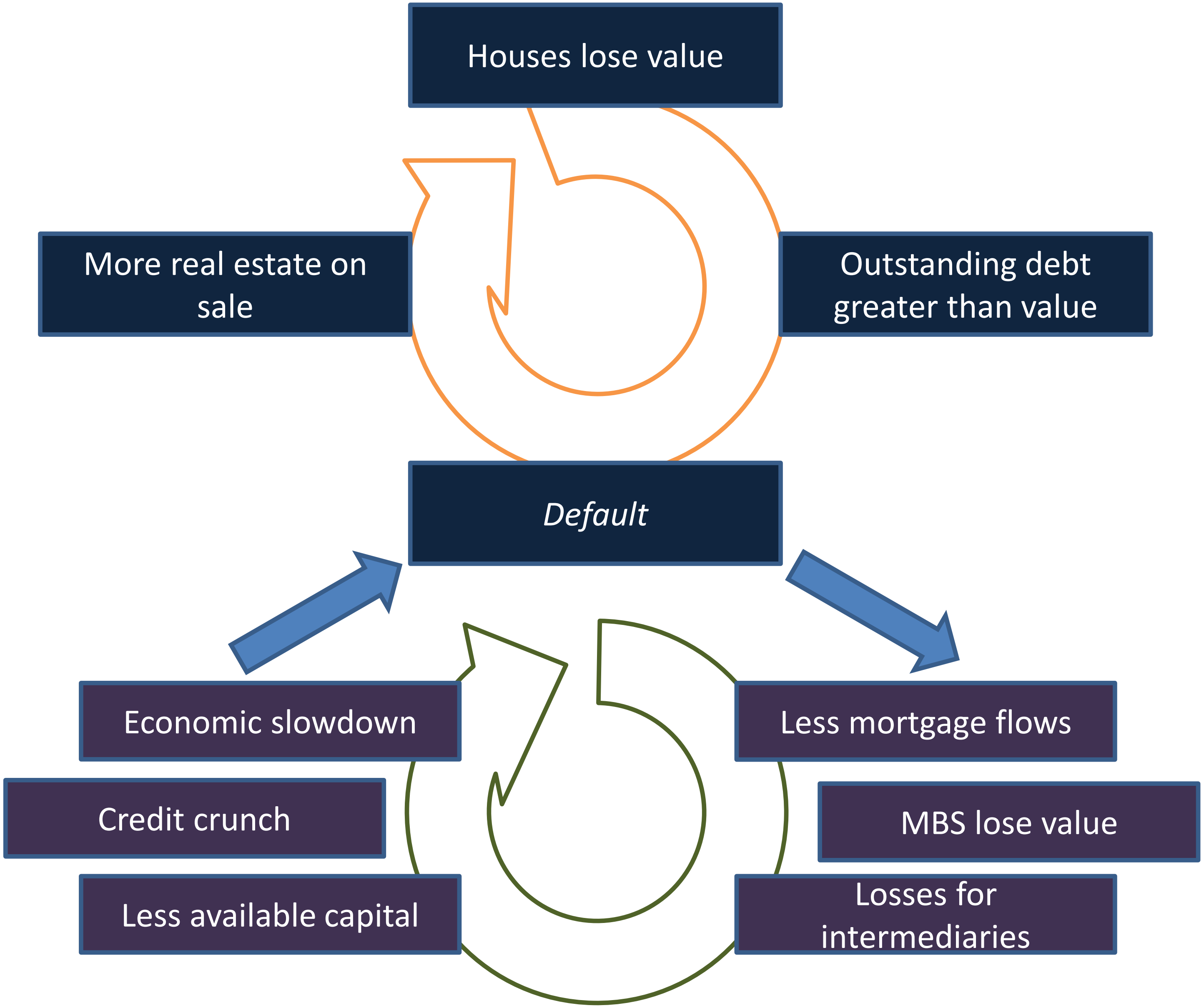
- **2012**
  - **"Within our mandate, the ECB is ready to do whatever it takes to preserve the euro. And believe me, it will be enough."**

THE GREAT DEPRESSION 2.0: CAUSES?

Subprime mortgages:

- Many lenders, few good borrowers: lax standards and risky loans
- A small percentage (20% max) of a small market
- Government-sponsored institutions: conflict of interest
- House values grow: refinancing at lower IR on appreciation
- Demand for higher and “safe” returns: credit ratings conflicts, predatory lending, aggressive tranching, …
- OTD: agency issues and asymmetric information problems

THE HOUSING VICIOUS CYCLE



THE GREAT DEPRESSION 2.0: CAUSES?

Easy credit and predatory lending:

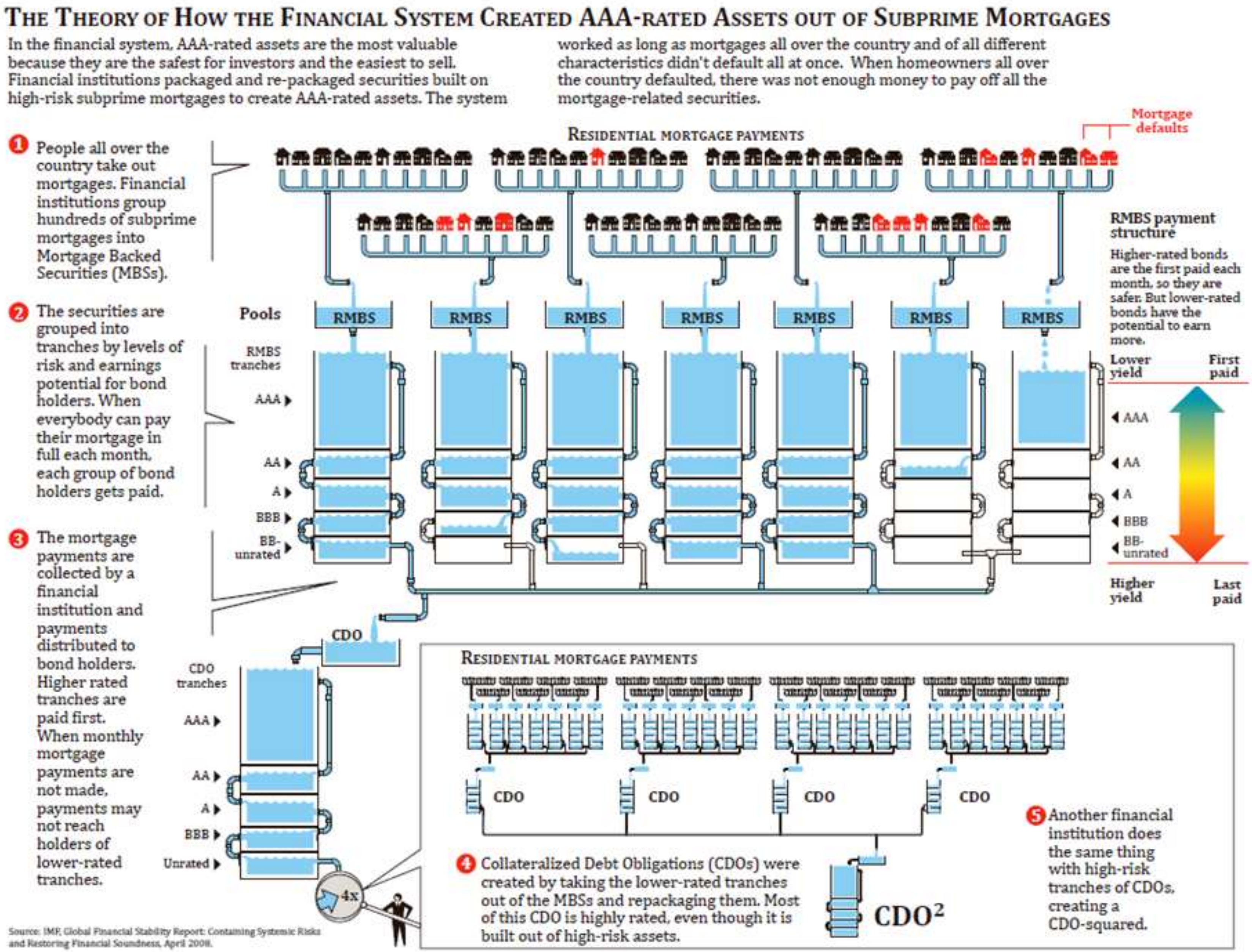
- Low IR, after “dot-com” and 9/11 shocks
- US current account deficit, inflow of foreign funds (emerging and oil)
- Fast growing IR until the peak of the crisis: more risk-taking / denial
- Higher costs/risks than advertised (f.i. ARM with very low initial interest-only payments and negative amortization), forgery of documents
- Conflicts of interests: in rating agencies, in originators, in servicing securitizations

The Great Depression 2.0: Causes?

Financial innovation

- Complexity damages accountability: ARM, MBS, CDO, CDS, …
- Securitization spreads and accumulates risks
- Multiple layers add to concentration again
- Innovation frequently circumvents regulation
- Unknown/underestimated risks are not priced

CDOs?


THE THEORY OF HOW THE FINANCIAL SYSTEM CREATED AAA-RATED ASSETS OUT OF SUBPRIME MORTGAGES
In the financial system, AAA-rated assets are the most valuable because they are the safest for investors and the easiest to sell. Financial institutions packaged and re-packaged securities built on high-risk subprime mortgages to create AAA-rated assets. The system worked as long as mortgages all over the country and of all different characteristics didn't default all at once. When homeowners all over the country defaulted, there was not enough money to pay off all the mortgage-related securities.
RESIDENTIAL MORTGAGE PAYMENTS
Mortgage defaults
1 People all over the country take out mortgages. Financial institutions group hundreds of subprime mortgages into Mortgage Backed Securities (MBSs).
2 The securities are grouped into tranches by levels of risk and earnings potential for bond holders. When everybody can pay their mortgage in full each month, each group of bond holders gets paid.
3 The mortgage payments are collected by a financial institution and payments distributed to bond holders. Higher rated tranches are paid first. When monthly mortgage payments are not made, payments may not reach holders of lower-rated tranches.
Pools
RMBS
RMBS tranches
AAA
AA
A
BBB
BB-unrated
RMBS payment structure
Higher-rated bonds are the first paid each month, so they are safer. But lower-rated bonds have the potential to earn more.
Lower yield
First paid
Higher yield
Last paid
CDO
CDO tranches
Unrated
4x
RESIDENTIAL MORTGAGE PAYMENTS
CDO
4 Collateralized Debt Obligations (CDOs) were created by taking the lower-rated tranches out of the MBSs and repackaging them. Most of this CDO is highly rated, even though it is built out of high-risk assets.
CDO²
5 Another financial institution does the same thing with high-risk tranches of CDOs, creating a CDO-squared.
Source: IMF, Global Financial Stability Report: Containing Systemic Risks and Restoring Financial Soundness, April 2008.

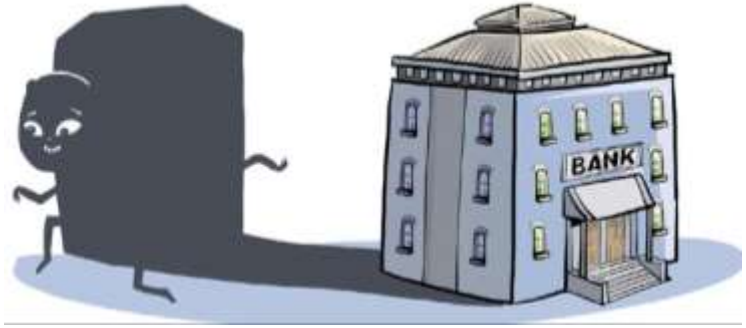
THE GREAT DEPRESSION 2.0: CAUSES?

Deregulation and leveraging:

- Waived separation between investment/commercial banks
- Increased deposit insurance: less monitoring
- Weak transparency of derivatives
- Poor accountability of under-the-line leveraging
- Excess leverage of households and firms

Shadow banking

- Unregulated (legal) entities compete with banks in providing lending opportunities
- Fragile during run to withdraw funds and to cope with securitizations' breakdown

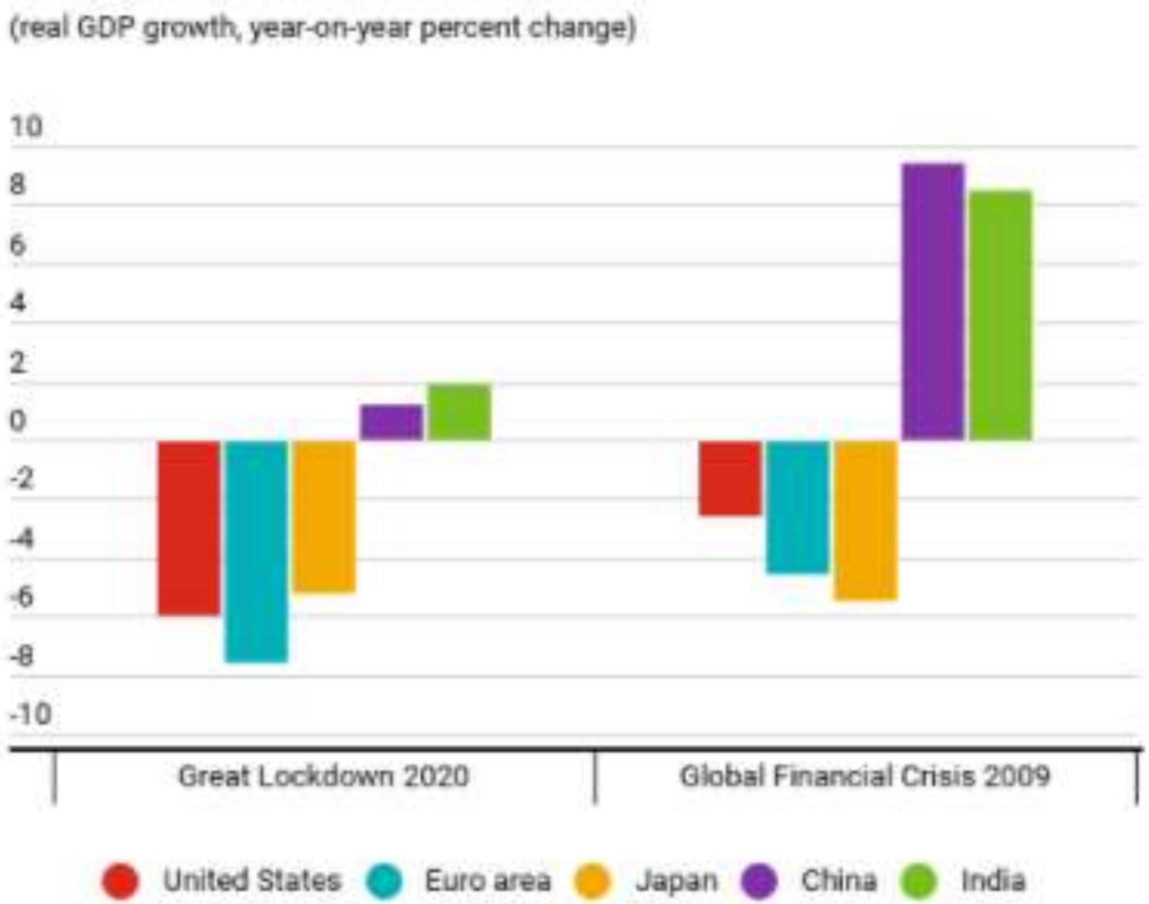


THE GREAT DEPRESSION 2.0: AFTERMATH

Main consequences:

- **Real estate bubble**
- **Deterioration of financial institutions**
- **Run on shadow-banking system**
- **Bubble extends to stocks and bonds outside the financial sector**
- **Liquidity injections are insufficient**
- **Contagion goes global involving countries**
- **Recession, unemployment**
- **2 innovations:**
    - **TBTF paradigm** under scrutiny
    - end of **investment bank paradigm**

THE GREAT DEPRESSION 3.0?



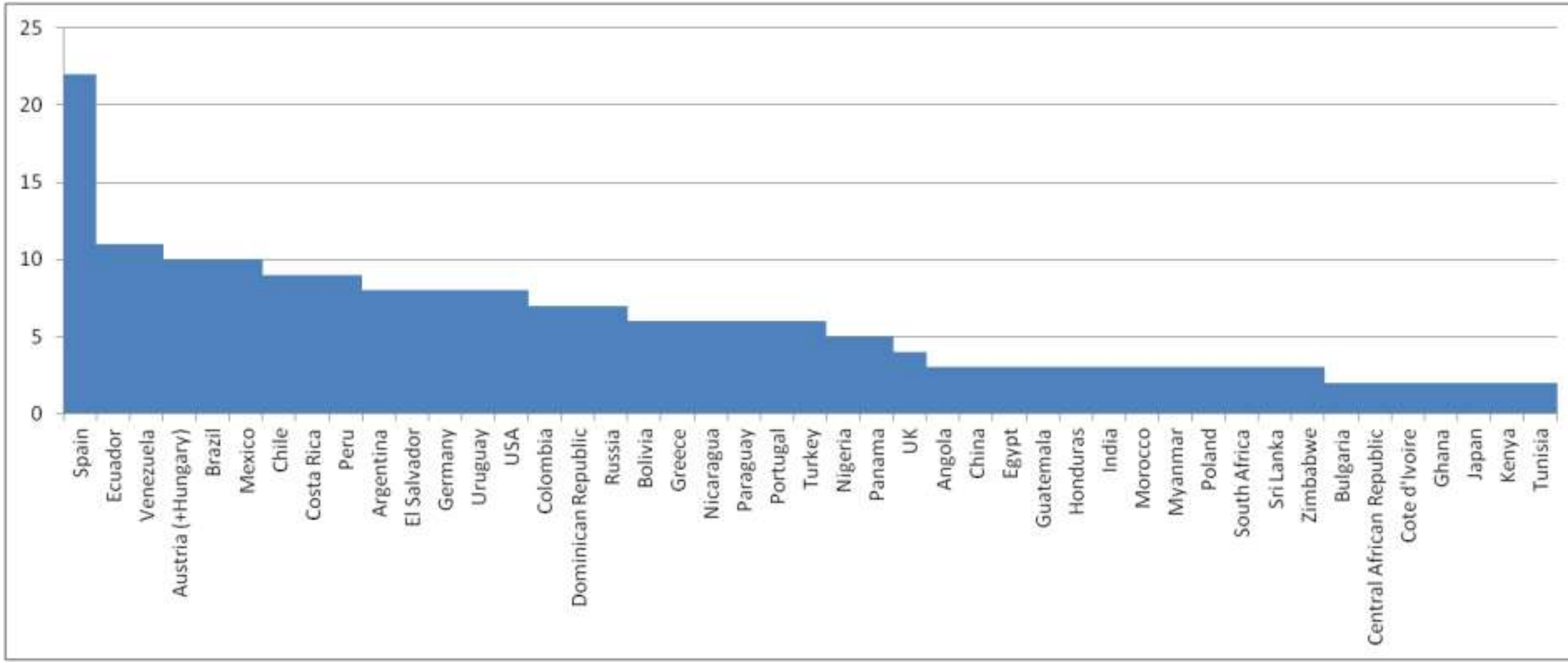
AND EMERGING MARKETS?

Similar steps, although with some differentiations:

- **Regulation/supervision weaker, riskier lending**
- **Fiscal imbalances** of government budgets, central banks not independent
- **Less collateral** available
- **Foreign monetary policies can increase dependent countries' IR**
- **Instability of political systems**
- Usually a **currency crises** is involved, increasing **inflation**
- To attract capitals **IR are increased**, leading to **issues for highly leveraged institutions**
- Banks and debtors **default**
- Frequently **whole countries default** or call for debt restructuring (f.i. Argentina, Indonesia, Russia, …)

EXAMPLES

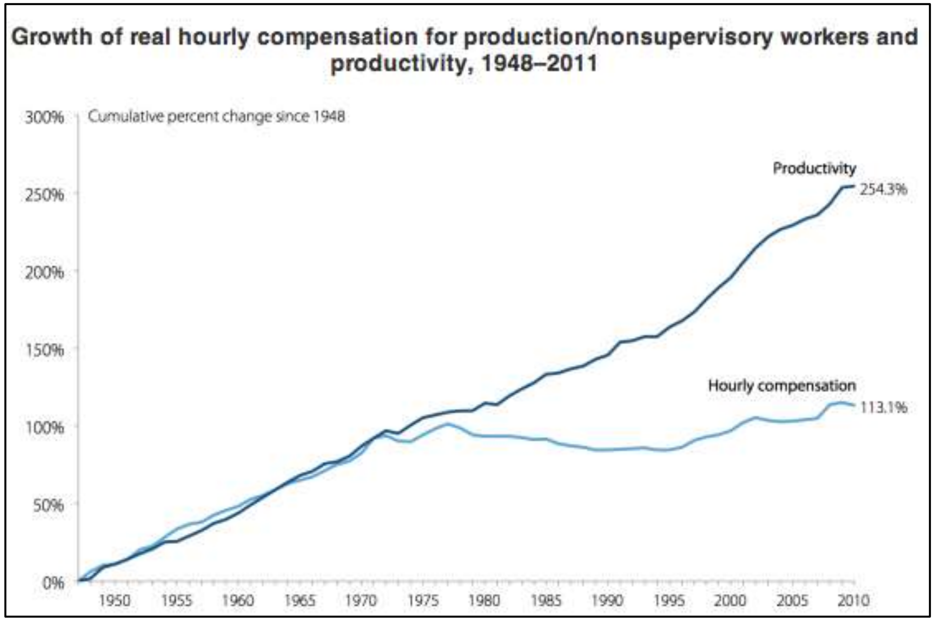
Country defaults since 1500 (most since mid-1800):



Other 37 countries with at least one default (incl. FRA, SWE, DEN, CRO)

EXAMPLES

Other points of view on G.D.2.0

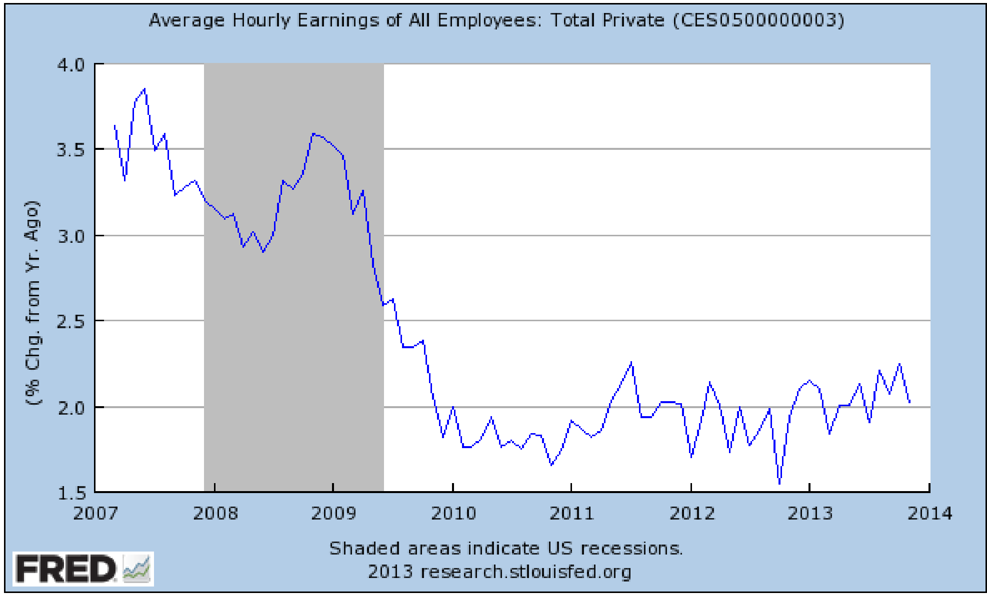


Salaries detached from productivity: one's consumption is another's income…

(hint: are we measuring productivity the right way?

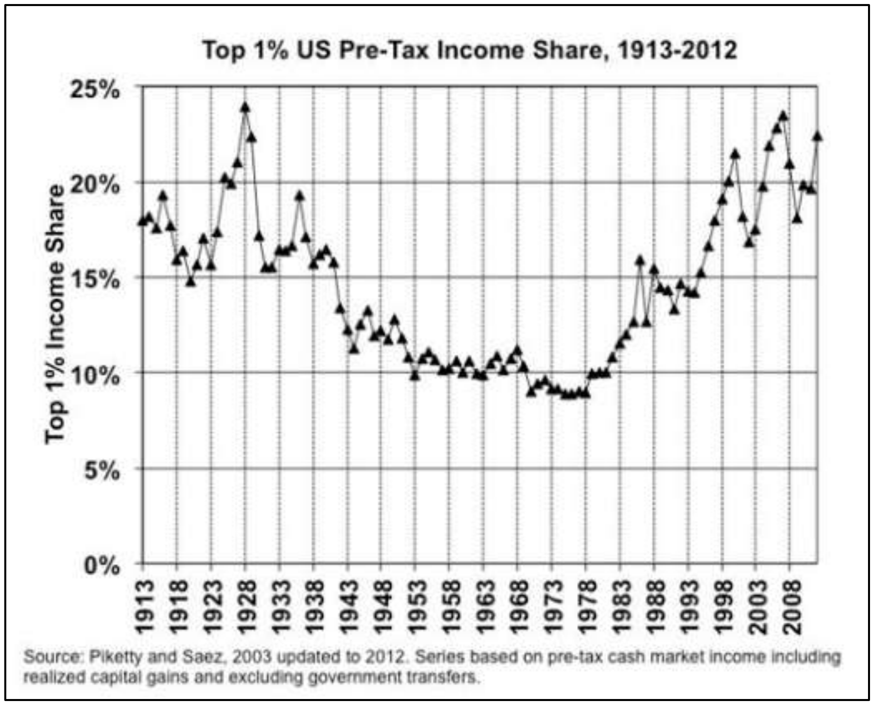
… as a result of crisis, unemployment pushes wages down

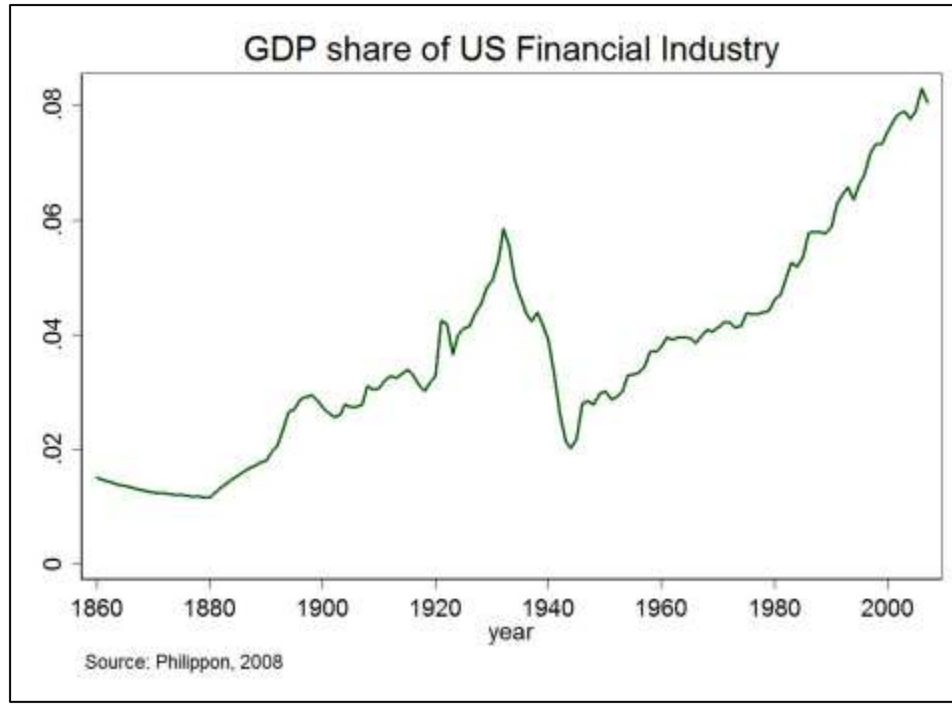
(hint: why should it behave differently than a D&S framework?)



EXAMPLES

Other points of view on G.D.2.0





Inequality: does it matter?

(hint: maybe, if just we measured it right…)

Too much finance?

(hint: what are we actually comparing?)

EXAMPLES

The case of Zimbabwe:

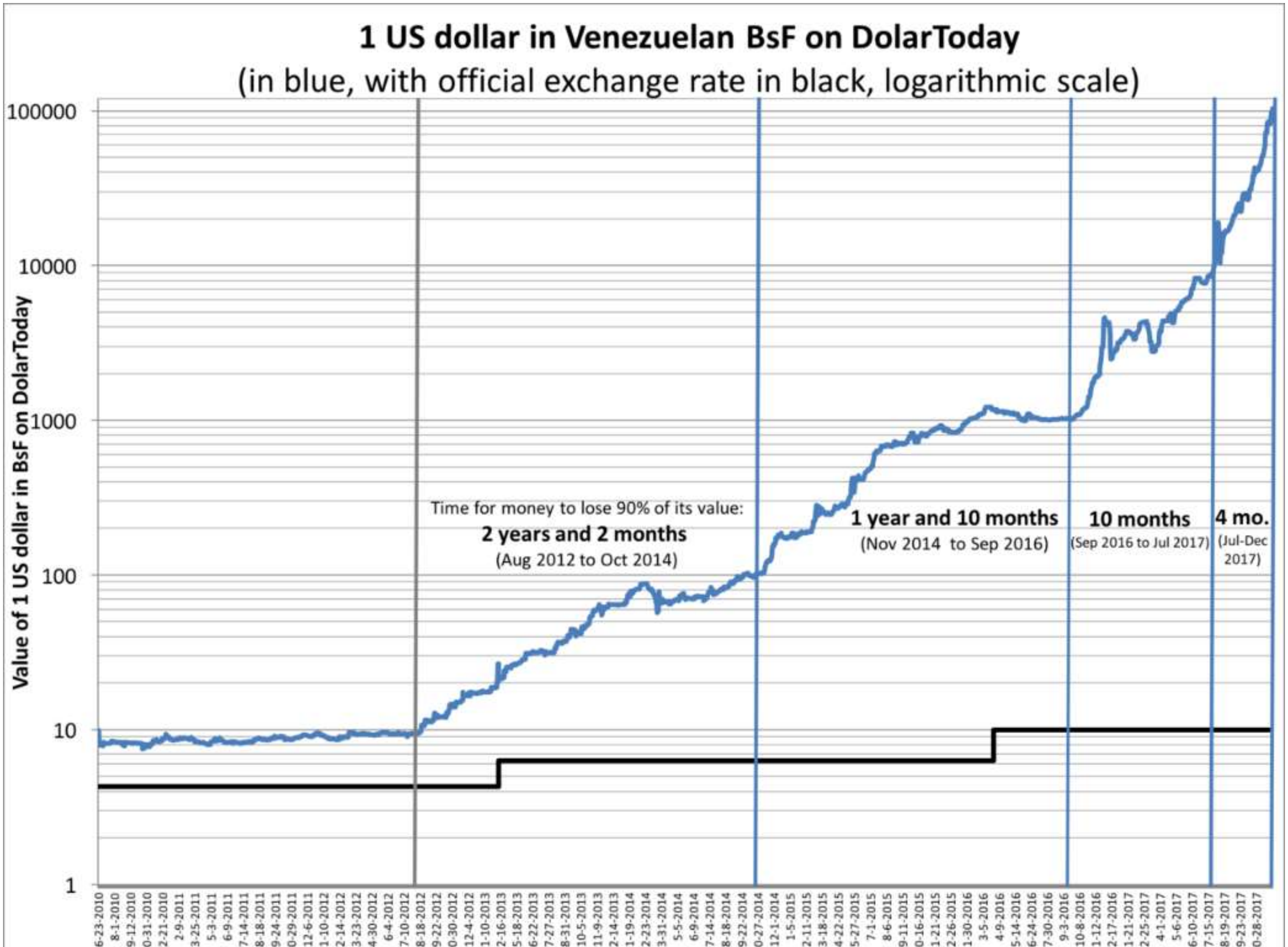
- 1980: independence and strong growth
- Disastrous economic reforms in 1990s (also with IMF/WB): weak protection of property and lack of entrepreneurial skills
- High corruption rates, involvement in Congo wars, misreporting, heavy repression of internal opposition,
- Wide printing of ZWD, lack of trust on future
- 2000s: economic/banking collapse (unemployment: 80%)
- Hyperinflation: 7-20% from 1980-1990, 20%-60% from 1991-2000, 100-1,200% from 2001-2006, … up to 80,000,000,000% *per month* in 2008 (luckily the government declared in 2007 inflation "illegal"…): prices adjusted several times *a day*
- Increasing role of foreign currencies, even if restrictions to use only ZWD were present (and just fueled a black market)
- In 2009 the ZWD was abandoned, in 2015 the switch to USD will be completed

In 1980, 0.68 ZBD per USD…

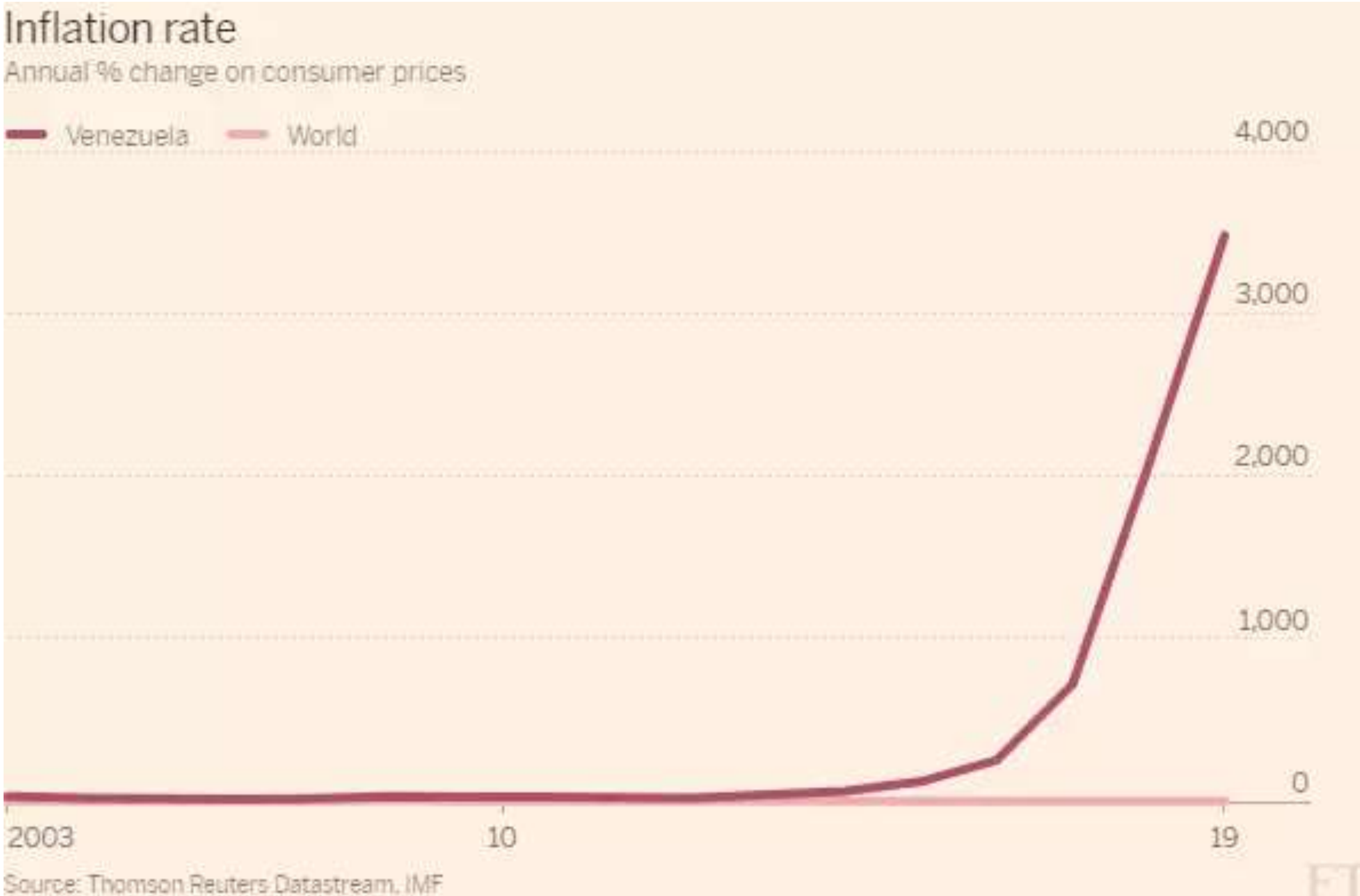
In 2009, 10^{32} ZBD per USD…

(atoms in human body are around 10^{28})

EXAMPLES


1 US dollar in Venezuelan BsF on DolarToday
(in blue, with official exchange rate in black, logarithmic scale)
Value of 1 US dollar in BsF on DolarToday
100000
10000
1000
100
10
1
Time for money to lose 90% of its value:
2 years and 2 months
(Aug 2012 to Oct 2014)
1 year and 10 months
(Nov 2014 to Sep 2016)
10 months
(Sep 2016 to Jul 2017)
4 mo.
(Jul-Dec 2017)

EXAMPLES



IMF VENEZUELA

IMF predicts 10,000,000 percent inflation for Venezuela in 2019

EXAMPLES

Turkey's lira plunges after Erdogan fires central bank head

By Jill Disis, Isil Sariyuce and Hanna Ziady, CNN Business

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