FINANCIAL MARKETS AND INSTITUTIONS

FINANCIAL CRISES

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DEAMS
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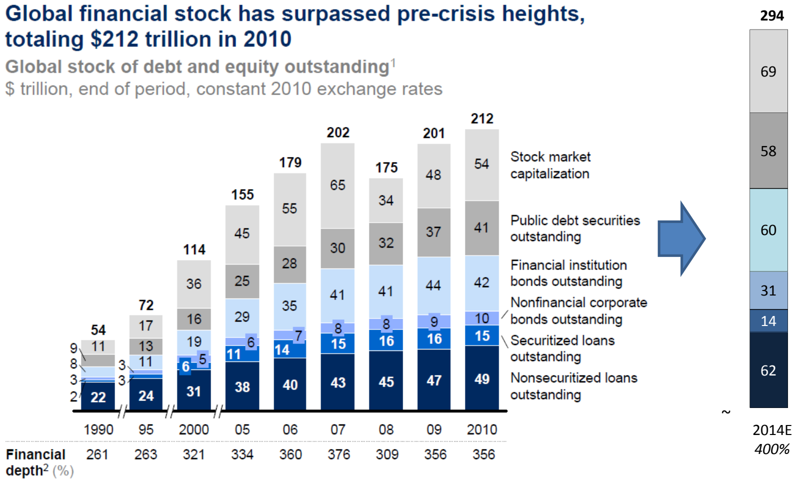
AGENDA

- Recap on the role of financial institutions
- Why are there financial crises? Are they similar? Are they avoidable?
- Key stories:
  - the Great Depression
  - the 2007-09 financial crises
- Crises in emerging markets

WHY FINANCIAL INSTITUTIONS?



1 Based on a sample of 79 countries.
2 Calculated as global debt and equity outstanding divided by global GDP.
NOTE: Numbers may not sum due to rounding.

WHY FINANCIAL INSTITUTIONS?

<u>Transaction costs</u>

- Fees to enter markets can be substantial, especially for small operators
- Small amounts exclude markets requiring high volumes and prevent diversification
- Taking financial decisions requires expertise and skills
- Solutions: **economies of scale/scope and liquidity services**

<u>Asymmetric information</u>

- One party in a transaction knows less about the other:
  - **adverse selection,**
  - **moral hazard**
- Solutions: **specialisation** (with **free-riding/conflicts of interest**), **regulation**, **collateral**

WHY FINANCIAL INSTITUTIONS?

Why financial intermediaries do it better?

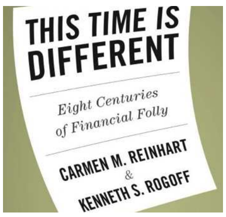
- Build/sell private information outside markets
- Provide a "guarantee" (risk of own default) to borrowers and lenders
- The bigger asymmetric information, the greater related needs are

However, at the cost of conflicts of interest, market failures, frauds, …

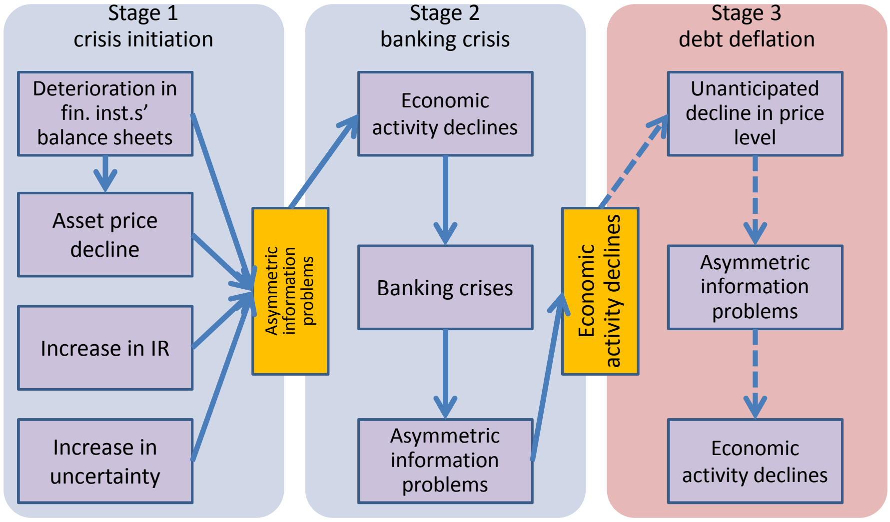
WHY FINANCIAL CRISES?

- A shock triggers a mounting imbalance
- Asymmetric information problems increase
- Inefficient capital allocation: financial crises
- Credit crunch reinforces the economic recession: from asset bubbles to market crashes, bank runs and countries' defaults
- Different explanations/solutions with limited consensus, while, crises keep running in numbers

Are there patterns?



PATHS OF FINANCIAL CRISES



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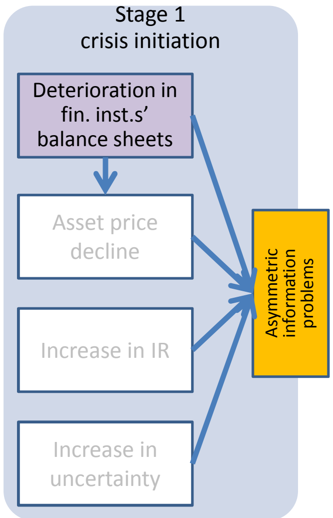


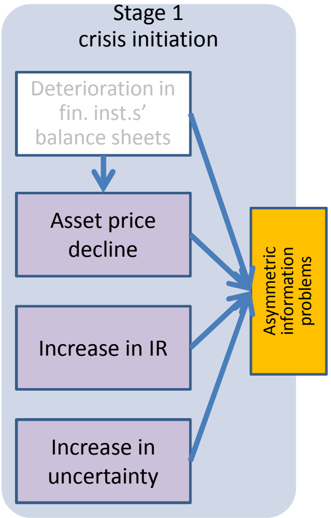
<u>Stage 1 – initiation</u>

Different triggers combined, similar consequences:

- Mismanagement of innovation:
    - **Regulations waived** or useless for innovation
    - Incentives to **credit booms:** less monitoring
    - **safety nets** increase moral hazard
    - losses arise, assets lose value, banks' net worth decreases: less lending (**deleveraging**), **uncertainty**, fund outflows, … credit crash
    - **No substitutes** of financial intermediaries, firms lose access to funds for investments, less growth

(cont.)

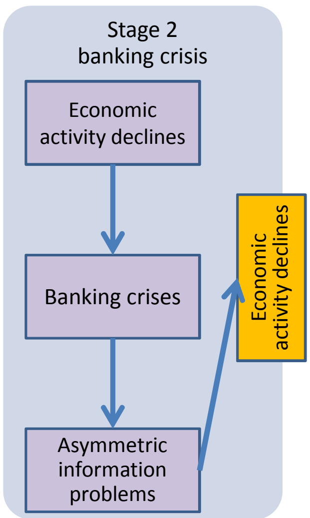
PATHS OF FINANCIAL CRISES



Stage 1 – initiation (cont.)

- **Asset bubbles**:
  - Often nursed by credit booms
  - Net worth of involved companies **shrinks**
  - Financial institutions **decrease lending**
- **Increase of IR:** only riskier borrowers are around, causing economic decline (by inflating debt liabilities) through a credit crash
- Generalised increase in **uncertainty**:
  - Also as a consequence of previous events
  - **Adverse future expectations** (f.i. failure of a financial institution)
  - More asymmetric information, leading to credit crashes

PATHS OF FINANCIAL CRISES



Stage 2 – banking crisis

Worsening economic perspectives:

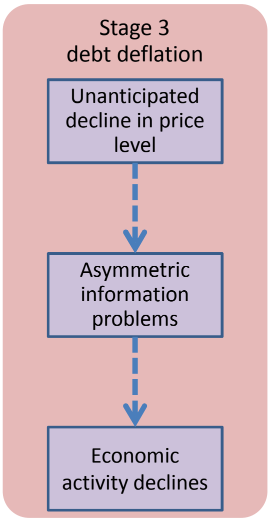
- Uncertain banks' safety: **bank runs / defaults**
- Fewer banks: more asymmetric information issues
- Credit crashes and economic disruption

Usually, at this stage:

- Governments bailout troubled entities and reestablishing stricter regulation
- Uncertainty is reduced
- Future expectations improve, markets recover
- Asymmetric information reduced, recovery

However, if intervention lags, debt deflation starts

PATHS OF FINANCIAL CRISES



Stage 3 – debt deflation

- Substantial unanticipated decline in price levels for both consumers and producers: expectations worsen
- Debtors experience greater trouble due to increase in debt's costs: in real terms, liabilities increase due to reduced inflation
- Lending drops: risk of lending too high compared to current expectations (IR and inflation)
- Economic activity falls: the credit market does not work properly
- Long economic depression

THE GREAT DEPRESSION: KEY ASPECTS

Longest (1929-39), largest (first really global) and deepest (millions unemployed, half of banking system collapsed) recession:

- farming crisis: drought, falling food prices, debt/bank defaults
- **stock market crash (1929)**: less consumption, accumulation of unsold goods while stock prices kept rising beyond expectations on earnings (Black Thursday/Tuesday: mass selling of stocks)
- **easy credit**: several "margin" investors, adding to the +100% of stock prices in <2y (ruined also by increase in IR due to CB)
- **spiral**: less investments/failures, unemployment/wage reduction, less consumption
- **monetary role**: gold standard (fixed regime) & contagion
- however, the stock market halved its losses by mid-1930

THE GREAT DEPRESSION: KEY ASPECTS

- **1930-31:** 5 mln jobless in US only (+ homeless), production -50%
- **bank runs/defaults** due to questionable solvency: thousands by 1933 with now 13-15 million unemployed (20% rate)
- **Hoover**: loans to banks, hoping these reached businesses promoting employment – yet the Treasury lacked funds
- **Roosevelt ("New Deal")**:
  - bank/industrial/agricultural stabilization reforms (including deposit insurance and stock market regulation),
  - public spending in infrastructures and job creation, including unemployment insurance and social security since 1935
- strong **recovery** since 1933 (+9% real GDP), but new recession in 1937 partly due to increased Fed reserve requirements
- meanwhile Europe prepares for **WWII…**

THE GREAT DEPRESSION 2.0

A recipe for the perfect financial disaster:

1. **Low IR** make credit easy, **high IR** promote riskier lending: timing!
2. **House bubble** (peak in 2004):
   - fueled by / fuels **easy credit** due to large foreign capital inflows
   - **financial innovation**: MBS, CDO, CDS and other products provide artificial liquidity, opening a secluded segment to capital markets
   - revisits business models: **originate-to-distribute**
3. Boosted by **deregulation** and **lax lending** standards, decreased transparency and fragility of **shadow banking**
4. **Burst**: capital flows stop, losses arise, foreclosures explode
5. **Banks hit** from all sides: as investors, creditors of households and firms, …
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 and recovery lags: **deleveraging**

The Great Depression 2.0

Main indicted felons

Subprime mortgages:

- Lots of lenders, few good borrowers, high competition, revenues available relaxing underwriting: risky loans
- Still, a small percentage (20% tops) of a small market
- Some attribute to government-sponsored institutions (Fannie Mae/Freddie Mac) the conflict of interest between affordable housing and profitability
- House values grow: refinancing at lower IR on appreciation
- Demand for higher and “safe” returns: investment banks’ fees to ease access to mortgage lending with good credit ratings, predatory lending
- OTD: agency issues and asymmetric information problems

The Great Depression 2.0

Easy credit and predatory lending:

- Low IR, after “dot-com” and 9/11 shocks, promotes easy lending
- US current account deficit, inflow of foreign funds (emerging and oil countries), high borrowing lowers IR
- Fast growing IR until the peak of the crisis lower incentives but late, in the meantime promoting relaxed underwriting standards
- Higher costs or risks than advertised (f.i. ARM with very low initial interest-only payments and negative amortization), forgery of documents to enhance distribution
- Conflicts of interests:
  - in rating agencies also advising new issues of securities
  - in mortgage and CDOs originators
  - in banks lending and servicing securitizations

The Great Depression 2.0

Financial innovation

- New instruments add complexity and generate issues of accountability: ARM, MBS, CDO, CDS, … skyrocketing in few years
- Securitization spread the risk rather than transfer it
- Innovation to circumvent regulation
- Unknown/underestimated risks are not priced
- Commodities had also their own boom: lax monetary policies and funds moving from the housing bubble easily trough investment vehicles

The Great Depression 2.0

Deregulation and leveraging:

- Reduced separation between investment and commercial banks
- Increased deposit insurance: more safety nets, less monitoring
- Lack of regulation on shadow banking
- Weak transparency of derivatives
- Poor accountability of off-balance sheet leveraging
- Over indebtedness involved households and firms too

Shadow banking

- Unregulated entities challenge underwriting of banks and become critical in providing lending opportunities
- Fragile during run to withdraw funds and to cope with securitizations' breakdown

The Great Depression 2.0: brief timeline

- **2007**
  - AUG: panic after pricing difficulties experienced by mortgage/CDO investors: trillions of derivatives unaccounted throughout the global financial system (BNP)
  - SEP: Northern Rock (UK) faces liquidity crisis from securitizations
- **2008**
  - JAN: largest fall in US house selling in 25y announced
  - FEB: Northern Rock nationalised
  - MAR: Bear Stearns bought by JP Morgan to avoid bankruptcy
  - MAY: US Treasury says “the worst is over”
  - SEP: bailout of Freddie Mac / Fannie Mae, bankruptcy of Lehman Brothers, rescue of HBOS by Lloyds TSB, Goldman Sachs and JP Morgan Chase move from investment banks to holding companies, bankruptcy of Washington Mutual and Wachovia (US), Ireland - into recession - promised bailout of whole banking system (not happened)
  - OCT: US government project for “toxic” assets, collapse of Iceland’s 3 biggest banks (and freeze of UK assets), joint cut of IR by BoE/ECB/FED/other 5, bailout of several UK banks (RBoS, Lloyds TBS, HBOS)
  - NOV: 1m unemployment for US +240,000, from “toxic” assets program to cash injections in US banks, G20 summit, Gordon Brown thinks “we saved the world”

The Great Depression 2.0

- **2009**
  - APR: G20 global stimulus package (5trnUSD)
  - OCT: elections in Greece and evidence of hiding the size of public imbalances
- **2010**
  - APR: Greek debt rated as junk
  - MAY: first Greek bailout
  - NOV: Irish bailout
- **2011**
  - MAY: Portuguese bailout
  - JUL: second Greek bailout
  - AUG: downgrade of US debt
- **2012**
  - FEB: new Greek austerity package
  - MAR: highest EU unemployment ever recorded
  - JUN: record Spanish borrowing
  - JUL: “whatever it takes”

The Great Depression 2.0

Main consequences:

- **Real estate bubble** by having lax underwriting standards, when asset prices fall borrowers have nothing to lose and default
- **Deterioration of financial institutions**: write down of several mortgage-linked assets, lower net-worth, deleveraging, credit crunch, more asymmetric information issues
- **Run on shadow-banking system**: by raising collateral requirements in lending operations leading to a spiral (more collateral, more defaults, less value, more collateral, …)
- **Bubble extends to stocks and bonds also outside the financial sector**: less lending, more uncertainty, more asymmetric information issues, increased risk premiums, less investing, less growth
- **Liquidity injections are insufficient and contagion make this crisis global**
- **Defaults involve major institutions** (Bear Stearns, Lehman Brothers, Fannie Mae, Freddie Mac, AIG, …) and weaken the TBTF paradigm
- End of **investment bank paradigm**
- **Recession, unemployment**

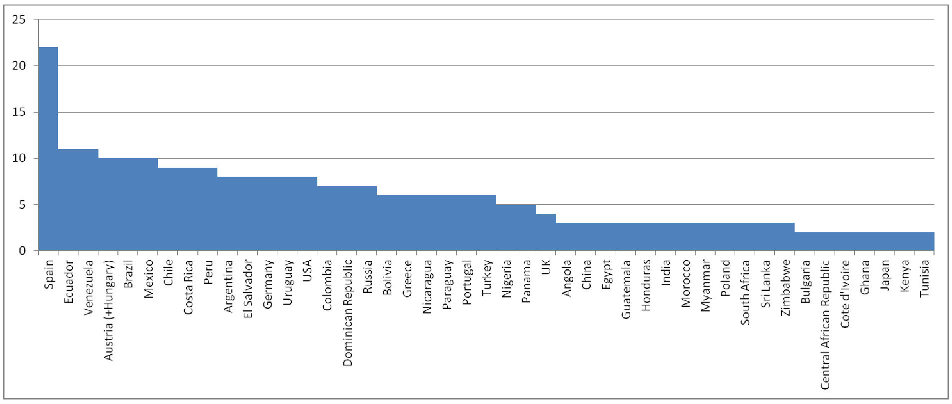
Crises in Emerging Markets

Similar steps, although with some differentiations:

- **Regulation/supervision weaker** and globalisation incentives **risky lending**, with the typical consequences
- **Fiscal imbalances** of government budgets lead to **requiring banks to acquire public debt**, weakening their balance sheets
- **Less collateral** is available, hence increasing asymmetric information problems
- **Foreign monetary policies can increase dependent countries' IR**
- **Instability of political systems**
- Usually a **currency crises** occurs also due to international speculation, increasing **inflation**
- To attract capitals **IR are increased**, leading to **issues for highly leveraged institutions** (banks, but also other borrowers)
- Banks and debtors **defaults**
- If recovery does not take place, usually **whole countries default** or call for debt restructuring (f.i. Argentina, Indonesia, …)

EXAMPLES

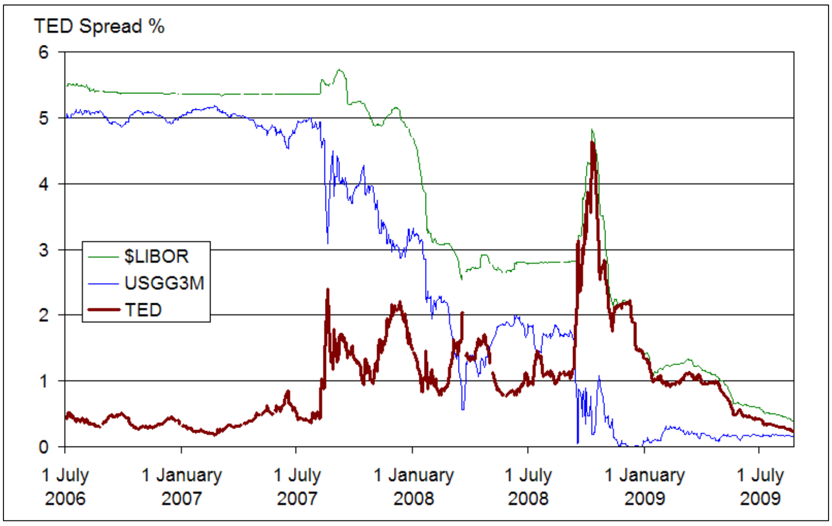
Country defaults since 1500 (most since mid-1800):



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

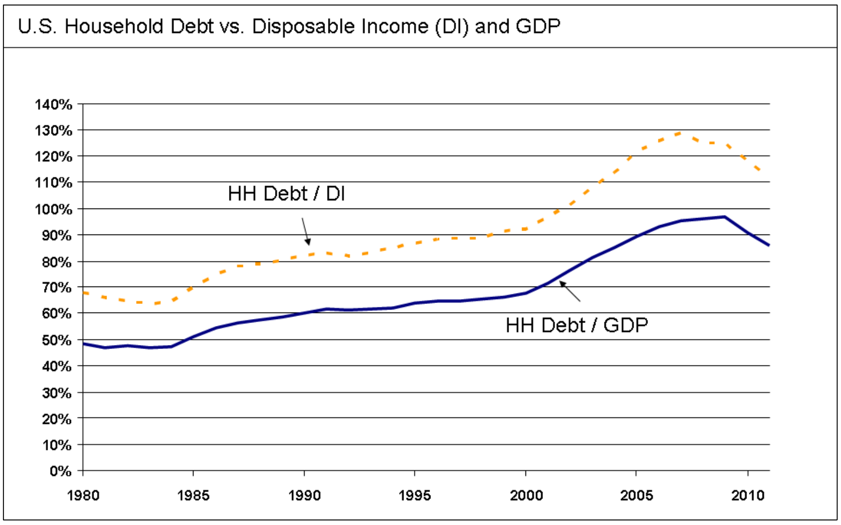
EXAMPLES

Panic in adjusting to increased credit risk perception



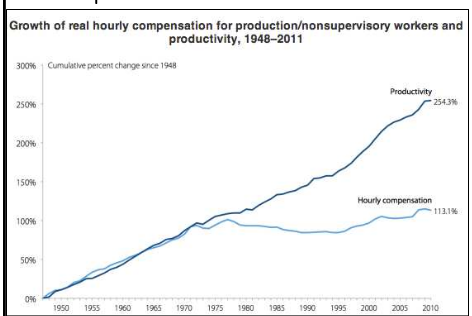
EXAMPLES

Bubbles always fare beyond fundamentals



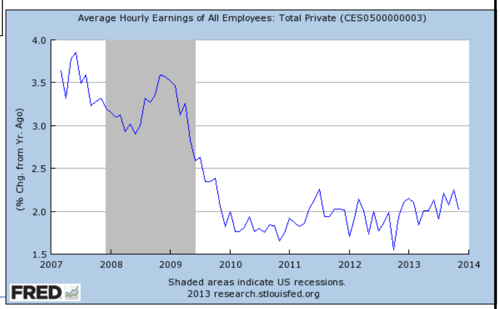
EXAMPLES

Other points of view



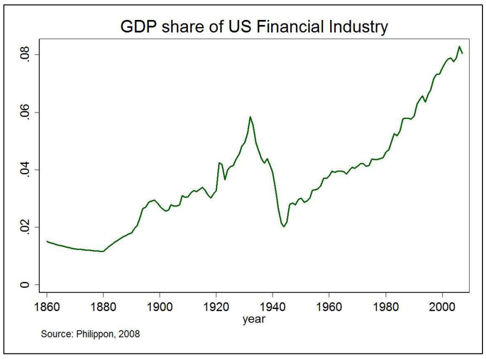
Salaries detached from productivity: one's consumption is another's income…

… but as a result of crisis, unemployment pushes wages down



EXAMPLES

Other points of view



Inequality: does it matter?

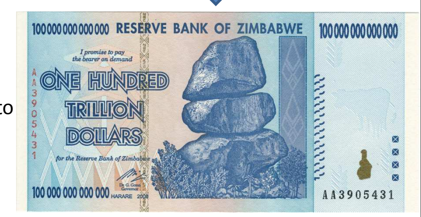
Too much finance?

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})