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WHAT ARE WE LEARNING FROM THE CURRENT CRISIS?

December 2008

Today, the world as a whole is facing the deepest, worldwide depression since 1930.

Everywhere, governments are devising “Keynesian” remedies.

They hope to cushion the depression and to speed up the recovery

The extent and dynamics of the depression are unusual and largely unexpected.

Also, the consensus on new policies raises few exceptions.

This too is surprising.


Focus of this lecture is a diagnosis of the crisis.

(Remedies without diagnosis may boost our egos, not our knowledge)

The diagnosis however is complicated since the origin of the depression is entirely financial.

In this lecture, I only focus on the financial origins of the depressions

This lecture will address:

- I.** How did we get here? (A: Early History, *p. 4*; B: 20th Century, *p.13*)
 - II.** How did the crisis originate? *p. 19*
 - III.** How has the crisis continued? *p. 34*
 - IV.** How will it evolve? *p. 38*
 - V.** What are we learning? *p. 47*
- 

I. How did we get here?

As we all know, the crisis developed within the sphere of finance.

Most people blame speculation.

Or deregulation. Or both.

This is correct, but too generic.

A lot of speculation and a lot of deregulation did not, and will not lead to a crisis.

To learn something useful & go beyond fashionable buzzwords,

we need to go a bit deeper:

- Which kind of speculation is to blame?
- Which kind of deregulation made it possible and so widespread?

These questions require some attention and abstraction.

So please forget for a moment about the current crisis

(we shall return there in a little while) and *follow me ...*

How did finance become so important? ... A brief universal history of finance

I.A Early History

In early history, we account for the existence of three groups of entities:

- Deposits, Loans and Commercial banks
- Borrowers (Companies & Governments)
- Financial markets and market intermediaries (Investment and merchant banks)

Briefly, let us take a look at the early history of each.

Deposits, Loans, and Commercial Banks in five steps

1. Deposits (Babylon: 2000 bc)
 - Deposit transfers: Letters of Credit
2. Loans: First un-collateralized: Usury
 - Pawn brokers: Babylon, 18th C bc; China (1000 bc); Deuteronomy (late 7th C. bc).
 - “Monti di pietà”: sometimes purely benevolent (France, 1198)
 - Spread of Lombard bankers in Europe, esp. after 1474 authorization by Pope Leo X
3. Credit: Bills of exchange
 - “Money lent on maritime loans can bear interest at any rate because it is at the risk of the lender as long as the voyage lasts” (1st C., *Paulus*)ⁱ
 - Arab merchants: 7th C.; Lombard merchants: 13th C.
 - Japan, 1730: Commodity futures (rice)
4. Banknotes
 - China: 9th C.; Genoa, Casa di S.Giorgio: 1407; Bank of Stockholm: 1656
 - Discount banking: Banker buys IOUs
 - Banks’ *unsaid* money creation (Amsterdam, Wisselbank: 1802)
5. ... and finally bank runs!
 - Stabilization of runs: Acceptance of “Inside” money
 - Systemic runsⁱⁱ → Need for a “Lender of Last Resort”

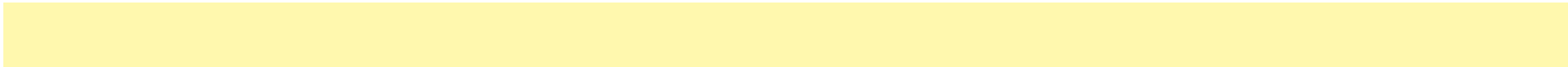
Borrowers: Companies	Borrowers: Governments
<ul style="list-style-type: none"> ➤ England, 15th C.: courts establish "limited liability" ➤ Joint stock companies:ⁱⁱⁱ <ul style="list-style-type: none"> • Dutch East India Co., 1602: 1st multinational corp. & 1st to issue stock. • Virginia Co., 1606 	<ul style="list-style-type: none"> ➤ ...always need to borrow ➤ Italy, early 16thC.: progressive substitution of issued bonds for forced loans ^{iv} ➤ "Funded" debt ➤ England, 1688: King commits to servicing debt: demand soared ^v <i>(see Douglass North)</i>

Markets & Mkt. Intermediaries

- Rome, early empire: Integrated loan market: similar rate of interest between agricultural mortgages and monetary loans ^{vi}
- Merchant Banking & Private equity
 - Cato (234-149 bc): better to buy "a small share of many ships instead of owning one or more ships by himself", in order to reduce risks (*Plutarch*)
 - Lombardy: merchant bankers finance agricultural trade
- France, 11th C.: "*courtiers de change*" (brokers) managed debts of agricultural communities
- "Bruges Bourse", 1309: institutionalized commodities trading
- Venice, Pisa, Verona, Genoa, Florence, 14th C.: Trade in govt. securities
- Dutch Rep, 1602: Mkt. for private securities
 - *Id*, 1672: Mkts. for public bonds
- England, 1688: Stock trading at LSE.
 - 18th C.(1st half): Mkt. for govt. debt
 - ... Govt. bonds used as loan collateral: secure store of wealth could be turned into instant cash.
- New York, 18th C (end): Wall St.: Trade in govt. bonds.
 - 1817: S.E. organized

... and so at the end of the 19th Century the basics of financial markets were already well established in the (then) industrialized world. Derivative markets where the main addition of the 20th Century:

Deposits	Commercial banks		Central Bank
Loans			
Corporate Debt	Comm. paper, Bond markets, Derivative markets	Brokers, Dealers, Investment banks	Interbank & Liquidity Markets
Govt. Debt			
Equities	Stock markets, Derivative markets		
	Merchant banks (Investment banks)		



Basic principle of mkt integration

- **Arbitrage:** Buy cheap, sell dear (*Xenophon, 430-355 bc*)

Traded risks & Risk transformation

- Liquidity risk / Maturity risk
 - Bank runs → Lending of last resort
- Price risk
 - Futures mkts
- Credit risk (counter-party or insolvency risk)
- Risk transfer (insurance)

Markets trade and price on fundamental factors.

But soon the importance of so-called non-fundamental factors was also to become apparent:

NON-FUNDAMENTAL BEHAVIOR

- ▶ **Rational:** Bank runs (*XIXth century*)
- ▶ **Irrational:** Bubbles (*33: Rome; 1720: South Sea Bubble ...*)

➤ **How to deal with bank runs? Walter Bagehot's principle** (1866-1873):

- Separate illiquidity from insolvency.
- CB must lend "*quickly, freely and readily*", at a *penalty rate* of interest, to any bank that can offer "*good securities*" as collateral.

(will come back to this)

➤ **How to deal with bubbles?**

- See Robert Shiller's "Irrational Exuberance"(2000): not much can be done to prevent them – but at least they should not be made too easy!

REGULATION (*mostly for Commercial Banks*):

- **Capital ratios** (USA, 1863: Banking Act; 1913: FR Act; 1933: Banking Act)
 - 1988: Basel I
 - 2004-2008: Basel II (*also for Investment Banks*)
- **Deposit insurance** (USA, 1934: FDIC)
 - Now almost **universal**
- **Prudential portfolio restrictions** vs. Universal banks
 - Separation **bank** vs. **industry**: restrictions on equity portfolios
 - Italy, 1936: Banking Law.
 - **Repealed**: 1992, Testo unico bancario
 - Separation of “**commercial**” vs. “**investment**” banking industries
 - USA, 1933: Glass-Steagall Act: Bank Holding Co. cannot hold, underwrite, buy, sell shares of other companies.
 - **Repealed**: Gramm-Leach-Bliley Act, 1999

Prudence of investors, reasonable regulations, and stability-motivated financial regulators and central banks kept financial systems reasonably stable.

- Crises were dealt with rather smoothly
- Crises were local and marginal
 - ... but not because of lack of greed!

GREED: *is it at the root of the problem?*

- Greed did not enter into finance with Gordon Gekko (1987: *Wall Street*)
- Not because of prescience, it came to be listed in the Old Testament together with the other capital sins.
- *Read* Shakespeare (1596: Merchant of Venice)
- *Read* Adam Smith on how the East India Company contributed to famine in Bengal ([IV.5.45](#)) and acted against the interest of both the colonies and England ^{vii}

Greed has always been with us. *Thus the question is:*

- ***Why*** were we unable to prevent greed's **perverse systemic effects?**

To answer we must leave the early history, and enter into the 20th Century ...

II.B. 20th Century

Two new facts: a sequence that changed the world of finance:

(i) 1961: first computer based on integrated circuits

Which in turn required many prerequisites:

- Electricity
- Telephone
- Vacuum tubes
- Integrated circuits ... *and many other devices and techniques*

→ Information can be communicated instantly almost everywhere

→ Computations can be performed instantly almost everywhere,
also on large amounts of data^{viii}

→ **Securitization** *became feasible:*

(ii) 1970: Ginnie Mae (Government National Mortgage Association) sold the first securities backed by a portfolio of mortgage loans.

What is securitization?

- A “repackaging” of pre-existent financial assets.

All assets can be securitized so long as they are associated with a cash flow.

At the outcome of securitization process we obtain **asset-backed securities** (ABS).

Securitized assets outstanding (2008, 2nd quarter)

- \$10.24 trillion in the US (US GDP 2007: \$13,81 trillion)
- \$2.25 trillion in Europe (EU GDP 2007: \$16,91 trillion)

Securitized assets issued (2007)

- \$3,455 billion in the US (25% of GDP)
- \$ 652 billion in Europe (3.9% of GDP)

<http://en.wikipedia.org/wiki/Securitization>

Some implications of securitization:

Is it still feasible to “**keep separate**” **marketable from non-marketable assets**?

- No, it is not: loans can easily be turned into bonds!

Then, is it still feasible to **separate the banking from the securities industry**?

- No, it is not!

Hence: Repeal of G-S Act was **technologically unavoidable**

Is this all?

- No, it is not!

... and here comes in the theory of finance:

Brokers and mathematicians had realized (early in 20th C. ^{ix}) that financial instruments (with differently structured cash flows) are **not fundamentally different** from each other.

This fact was rediscovered after 1969 ...

... and computers now allowed to implement strategies on a large scale:

→ **Hedging** & Portfolio restructuring could become hard disciplines.

Option theory shows the link between instruments:

- A buyer of a (European) call option pays a price C for the right to buy a Stock at a given future date at a fixed exercise price K . He will do it if $S > K$.
- A buyer of a put option pays a price P for the right to sell a Stock at a given future date at a fixed exercise price K . He will do it if $K > S$.
- A put-call parity relation exists, and is given by: **$C + \text{pres.value}(K) = S + P$**

A basic implication: buy buying or selling an appropriate amount of calls and puts, a portfolio of stocks becomes equivalent to a portfolio of simple bonds.

In practice, this equivalence can be implemented if we have thick markets & fast computers & large portfolios.

Derivative markets (for options and related instruments) developed and quickly became as large as the markets for the “underlying” assets.

They allowed to implement rather cheaply all sort of large-scale portfolio restructurings.

Hence, the fundamental separation between financial instruments vanishes:

- A **bank loan** can be turned into an instrument that behaves like a **stock**
- A **stock** can be turned into an instrument that behaves like a **bond**

Summing up:

The **distinction** between financial instruments:

- **Marketable / Non-marketable**
- **Bond-like / Equity-like**

became very much undefined.

In turn, this weakened and made difficult to implement the regulatory distinctions between:

- classes of financial **instruments**
- types of financial **functions**
- different financial **institutions**
(especially **banking** vs. **investment banking** vs. **insurance**)

Financial technology has made these distinctions vanish

... and global integration of financial markets spreads these new features everywhere

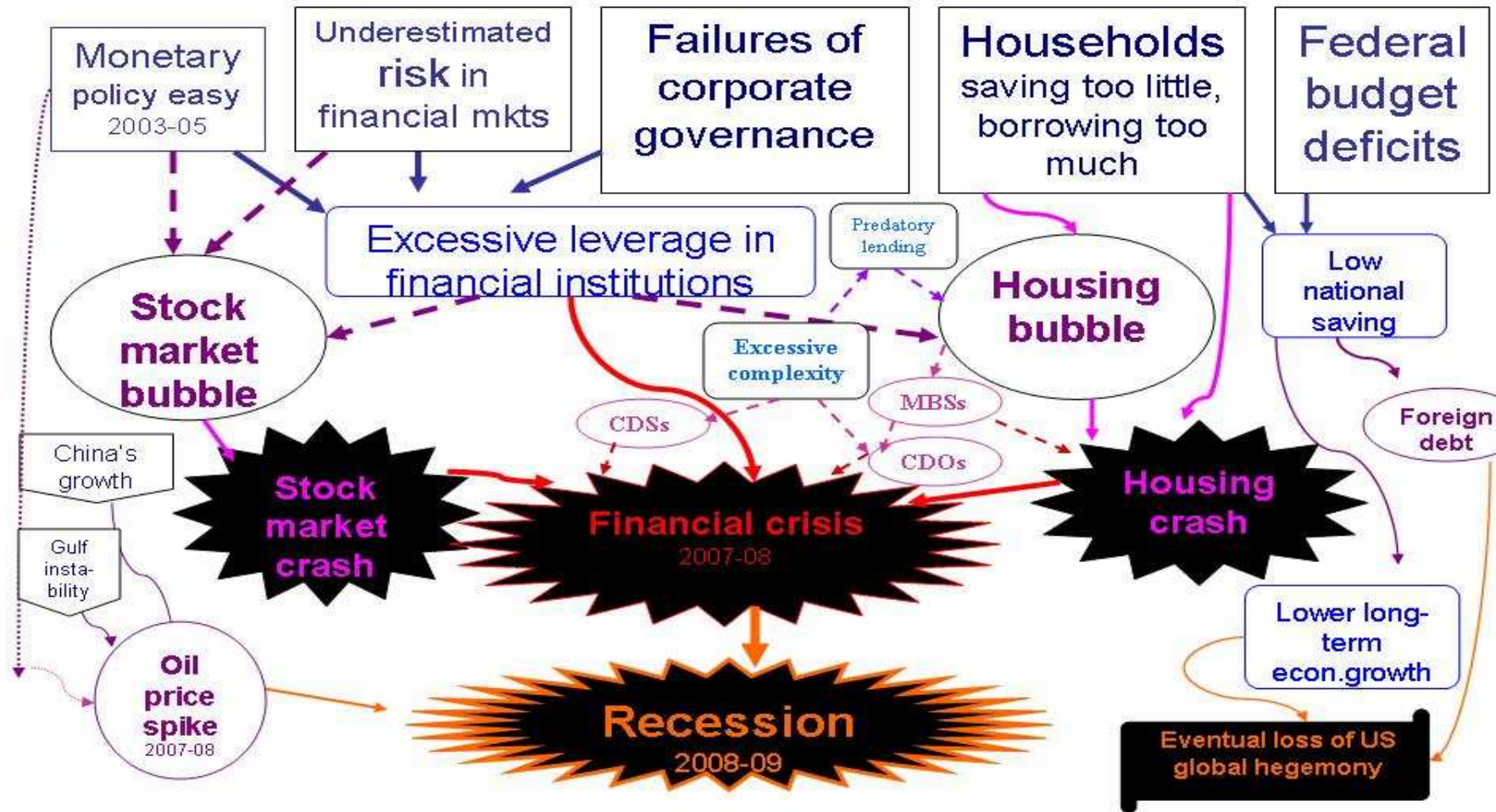
Functional de-regulation becomes unavoidable!

II. How did the crisis originate?

Now, this is the easy part.

***Just look at the following slide,
posted on Dec. 5th, 2008
on the blog of Professor Jeff Frankel of Harvard University...***

Origins of the financial/economic crises



Ok, not so easy, but still impressive!

Perhaps it is better to take one step at a time:

Step 0 “*Quasi la calma prima della tempesta*”

Developed economies were in the middle of a supply shock:

Name of the shock was: How **China** runs the world economy

- Low manufacturing prices → Low inflation
- Strong commodity demand and rising prices
- High Current Account surplus & Demand for US Gov.Bonds as reserve assets
 - Lots of liquidity creation with stable prices
 - Low interest rates in the US and everywhere
 - The “**Great Moderation**”

Step 1 *"The explosion"*

Low interest rates prompted an explosion of demand from borrowers

... and of lower risk aversion in lenders

- o Cheap mortgages
- o Stock market rally

Step 2 *"Forgetfulness"*

Mortgages were risky!

Risk is costly for banks, which originate mortgages

... unless they transfer to others. How?

→ **Securitization**

With securitization, originators of risk can sell it to others, save capital,
and forget ...

How?

Step 3 *“Nothing get lost”*

Mortgages were re-packaged, by originators as **CDO:**

Collateralized Debt Obligations - a type of ABS, sold *“over the counter”*

[**OTC:** *“Over the counter”*= in a bilateral transaction; not through a regulated SE]

And most important: a substantial part of mortgages were **“subprime”**,

That is, issued to borrowers (homeowners) who:

- Had paid only a very low initial down payment
- Had very low credit rating or credit capacity

Think: how can a sub-prime borrower re-pay his mortgage?

It is a Ponzi-game based on the expectations of ever increasing house prices

Nevertheless:

Sub-prime mortgages became a **substantial part** of the **CDO collateral**.

Now we know that CDO may be risky assets. But we would like to know:

- **Where do the risks go?** Well, nobody keeps track, since mkt is OTC

But those who buy them, they know what they are buying. Hence, of course:

- They **take precautions**

Well, this is reassuring. And how do they do it?

- They buy insurance, in the form of **CDS (Credit Default Swaps)**

Summing up:

- Sub-prime **mortgages** are very risky
- Originators package them into **CDO**
- **CDO** are then sold to other banks or financial institutions

Who in turn insure themselves by buying **CDS**,

And sometimes also use insured CDO assets as **collateral**,

To obtain other, short-term **loans** in the repo market

- Originators then have freed up their capital, and can originate more mortgages
- Individual risk positions (of banks & insurers) are unknown since market is OTC.

How much did this market amount to?

Value of Mortgage-related CDO: about \$1300 bn (2007)

Value of all CDO: more than \$2000 bn (2007, USA)

- ▶ CDO were purchased also by hedge funds (e.g. by those run by Bear Sterns)
- ▶ And sometimes used as “safe collateral” (since they were insured) for other loans.

The name of the game thus was:

- ***USE EVER LESS CAPITAL TO GENERATE EVER MORE CREDIT***

This lead to what we now call OVER-LEVERAGING

Leverage is the ratio between assets (possibly risk-weighted) and capital liabilities

- **Commercial banks** maximum leverage is defined by their required capital ratio (in risk weighted terms, 8%)
- **Investment banks** are much less regulated: some estimates suggest that many were leveraged by a ratio of 30 to 1
- Mortgage giants **FreddieMac** & **FannieMae** were leveraged closer to 100 to 1 (thanks to implicit Govt guarantee)
- Also **home-buyers** were over leveraged!

Leverage is great when (asset) prices rise!

... but it becomes **disastrous**, when they fall (*see example*):

Liabilities		Assets
Equity:	K = 10	A = 100
Loan:	L = 90	

$$\text{Leverage ratio} = \text{Assets} / \text{Equity} = 100 / 10 = 10$$

- If asset value increases by 10%, Return on Equity is:

$$\text{Roe} = \Delta A / K = 100\%$$

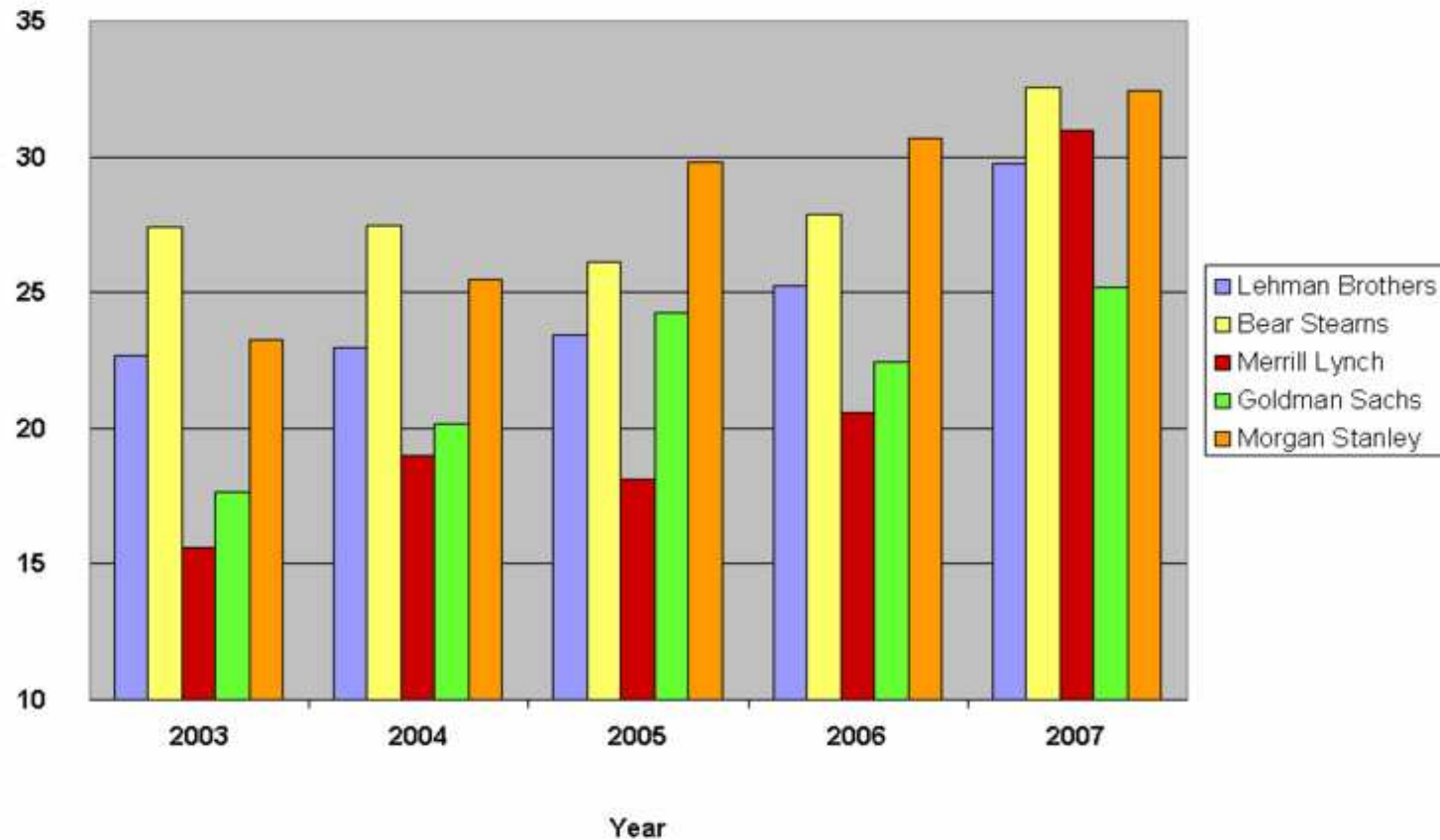
- If asset value decreases by 10%, Equity is destroyed:

$$K = 0$$

AH, SE L'AVESSIMO SAPUTO PRIMA !

Leverage Ratios For Major Investment Banks

The leverage ratio is a measure of the risk taken by a firm; a higher ratio indicates more risk. It is calculated as total debt divided by stockholders equity. Each firm's ratio increased between 2003-2007.



Source Data: Company Annual Reports (SEC Form 10K)

http://en.wikipedia.org/wiki/Image:Leverage_Ratios.png

Now, all ingredients are in place:

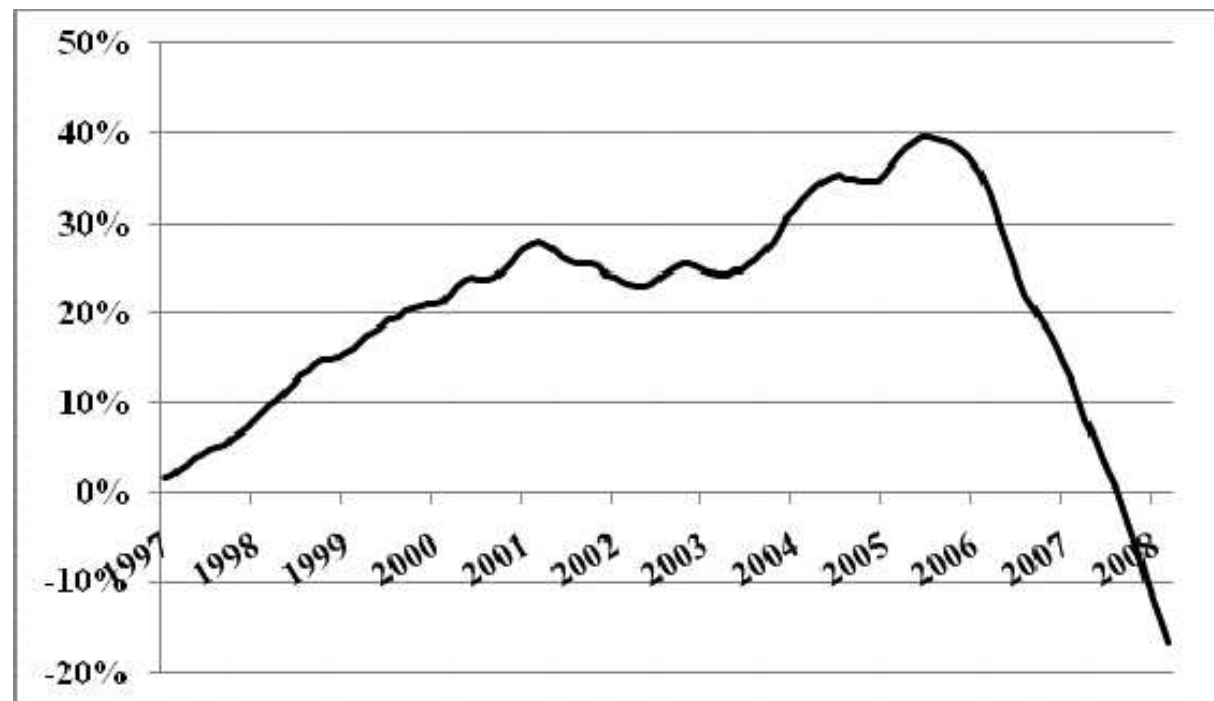
- THERE ARE **TWO BUBBLES** (HOUSING, STOCK MARKET), PROPELLED BY LOW INTEREST RATES, ABUNDANT LIQUIDITY, OVER-LEVERAGED LENDING
 - **LIQUIDITY** IS STILL ABUNDANT
 - **LEVERAGE** IS STILL UNPRECEDENTLY HIGH
- AND **CDO** ARE EVERYWHERE, BUT WE DO NOT REALLY KNOW WHERE

Who started it?

Let us follow Gary Gorton's reconstruction ^x

- From March 1998 to March 2007, every rolling two year period:
 - double digit house price appreciation.
- Between 2001 and 2005
 - average increase of 54.4 % in US house values
- This ended in August 2007. In September, depreciation begun

Lagging Two-Year House Price Appreciation (%)



For sub-prime borrowers, houses must appreciate continuously,
for them to be able to refinance their mortgages

In 2006, a new index begun trading, the ABX. This is an index of the aggregate risk in the sub-prime market, which previously was unavailable.

Gary Gorton:

"It is not clear whether the housing price bubble was burst by the ability to short the subprime housing market [by selling the ABX index short] or whether house prices were going down and the implications of this were aggregated and revealed by the ABX indices. It seems that the indices played a central informational role."

The problem seems to be: everyone became **aware of the aggregate** risk, but **unaware of the details** of risk allocation.

And this sent the repo market down to zero. The repo market is a market for short-term, CDO-collateralised loans. It amounted to almost 90% of US GDP.

Knowing that *some* collateral was unsafe, the **market stopped lending**.

- **Jul. 18, 2007:** “Bear Stearns Tells Fund Investors ‘**No Value Left**’” after ‘unprecedented declines’ in the value of AAA rated securities used to bet on subprime mortgages.
- **Oct. 24, 2007:** Merrill Lynch 3rd q. earnings report: **\$7.9 bn of losses** on CDO.
- **Nov. 4, 2007:** Chuck Prince, Chairman and CEO of Citigroup, resigned citing “the rating agencies have recently **downgraded significantly certain CDOs** and the mortgage securities contained in CDOs. As a result of these downgrades, valuations for these instruments have dropped sharply. This will have a significant impact on our fourth quarter financial results.”
- ... *and so on* ...

(Notice: this begun in the 2nd half of 2007 – just when the appreciation of house prices was coming to an end. So really the crash begun at the very first sign that the bubble was about to implode!)

"I would say that the current credit crisis is essentially **a banking panic.**

Like the classic panics of the 19th and early 20th centuries in the U.S., holders of short term liabilities (mostly commercial paper, but also repo) **refused to fund "banks" due to rational fears of loss**—in the current case, due to **expected losses on subprime and subprime-related** securities and subprime-linked derivatives.

In the current case, the run started on off-balance sheet vehicles and led to a general sudden **drying up of liquidity in the repo market**, and a scramble for cash, as counterparties called collateral and refused to lend.

As with the earlier panics, the **problem at root is a lack of information"**

Gary B. Gorton, "The Subprime Panic". NBER WP. 14398, October 2008.

III. How has the crisis continued?

MODE A) If you are a **homeowner**: you bankrupt your mortgage.

(**Notice** that the house price no longer covers the value of the debt, so the originator will in any case sustain a loss).

(**Notice** that originators will try to to sell the house in any case, which depresses prices further).

MODE B) If you **originated mortgages**,
and cannot borrow anymore to issue more,
then you go in default:

- July 11, 2008: IndyMac Bank, one of the largest mortgage originators in the US, is bailed out by U.S. Government and transformed into the IndyMac Federal Bank
http://en.wikipedia.org/wiki/IndyMac_Bank
- Sept. 7, 2008: Fannie Mae and Freddie Mac, the largest mortgage lenders, both government sponsored, are taken into government conservatorship.

MODE C) If you **purchased risky assets** (CDO),
and you bought CDS to insure them,
Then when CDO default, you ask the insurer.
He will pay you back ... that is, until he can

➤ Sept. 16, 2008: **AIG** [in 2007 the largest insurer and 6th largest company in the world^{xi}] suffered a liquidity crisis ...The London unit [had] ... sold Credit default swaps (CDS) on collateralized debt obligations (CDOs) that had declined in value... The Federal Reserve announced the creation of a ... credit facility of up to US\$85 billion, secured by the assets of AIG subsidiaries, in exchange for warrants for a 79.9% equity stake ...

<http://en.wikipedia.org/wiki/AIG>

Mode D) If you borrowed to purchase assets.

And your borrowing dries up

Then you must **deleverage** (= sell the assets)

But if, as probable, the price of assets has fallen:

- (i) you lose your own capital
- (ii) you cause the price of assets to fall further
- (iii)...thus inducing further losses onto others ...

- ▶ February 2008: Northern Rock (a small bank, purchaser of CDO) taken in the public hands by the British Government
- ▶ March 2008: Bear Stearns (an IB engaged in mortgage securitization) is acquired by JP Morgan Chase through the deliberate assistance from the US government
- ▶ Sept. 15, 2008: Lehman Brothers files for bankruptcy
- ▶ Sept. 15, 2008: Merrill Lynch forced to merge with Bank of America

- ▶ Sept. 17, 2008. The Reserve, a mayor mutual fund specialized in Money Market Mutual Funds, begins to devalue and to liquidate several of its funds. On Sept. 19, the FR offers temporary liquidity insurance to MMMFs
- ▶ Sept.21, 2008: Goldman Sachs and Morgan Stanley, the two last remaining IB, convert into Bank Holding Companies, thus subjecting themselves to more regulation, but also to readier access to capital
- ▶ Week of Sept. 28, 2008: crisis spreads to Belgium, UK, Germany, Spain, Ireland and, in the following week, Iceland
- ▶ Nov.24, 2008: Citicorp is bailed out by the U.S. government - largest bailout ever in history.

http://en.wikipedia.org/wiki/Global_financial_crisis_of_2008

http://en.wikipedia.org/wiki/Citicorp#Federal_bailout_2008

IV. How will the crisis evolve?

A. Symptoms

Stock markets have crashed. <http://www.djindexes.com/mdsidx/index.cfm?event=indexHistory>

- **DJIA**, from 14164.53 (Oct.9,2007) to 7552,29 (Nov.20,2008): **-46,7%**

Banks are starved for capital

And scared of lending

Since any borrower is now regarded as a high risk

- Credit crunch
- Interbank market crashed

Central banks have slashed interest rates

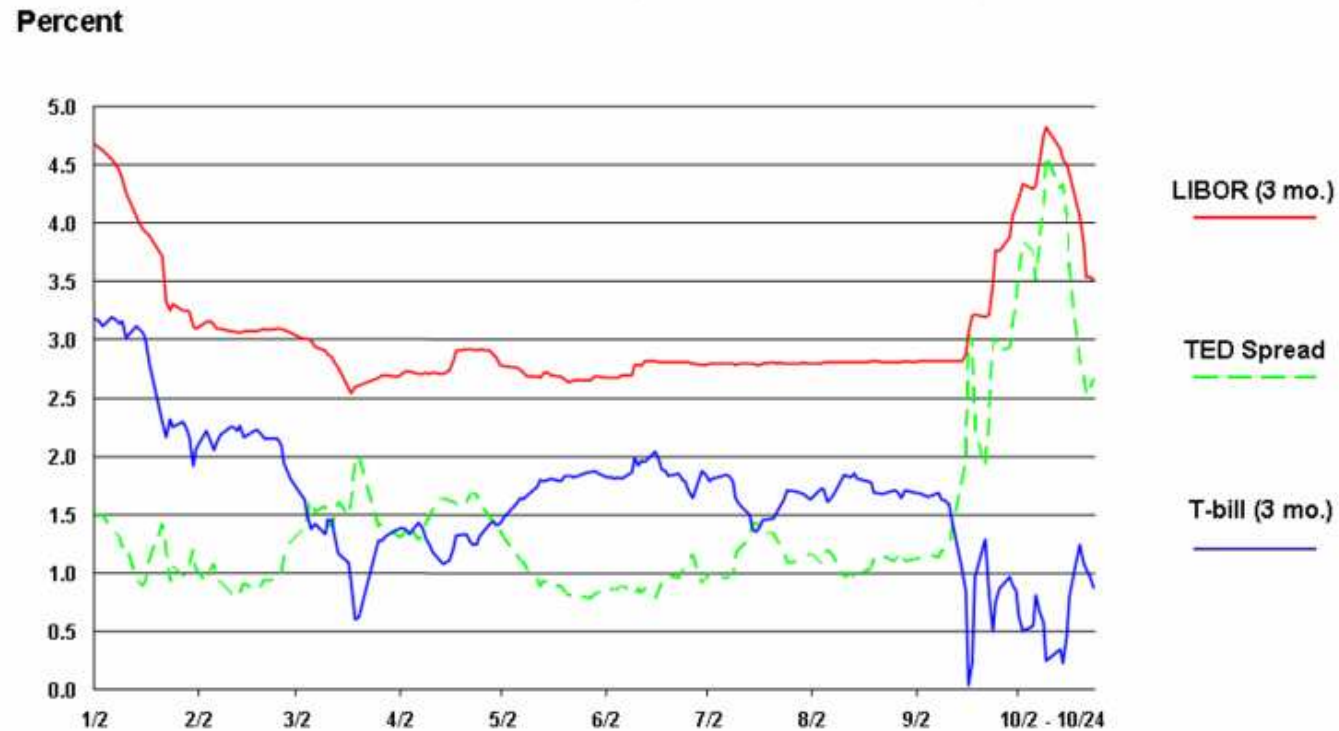
And are “pushing” the supply of liquidity (*more on this*)

Government bond yields are at historic lows

But availability of credit for private borrowers is scarce, and spreads are high

TED Spread & Components - 2008

The "TED Spread" is a measure of credit risk for inter-bank lending. It is the difference between: 1) the three-month U.S. treasury bill rate; and 2) the three-month LIBOR rate, which represents the rate at which banks typically lend to each other. A higher spread indicates banks perceive each other as riskier counterparties.



http://en.wikipedia.org/wiki/Image:TED_Spread_Chart_-_Data_to_9_26_08.png#file

Money Market interest rates, Euro area (period average)

	EONIA	1-mo. EURIBOR	3-mo. EURIBOR
2005	2.09	2.14	2.18
2006	2.83	2.94	3.08
2007	3.87	4.08	4.28
2007.Q3	4.05	4.28	4.49
2007.Q4	3.95	4.37	4.72
2008.Q1	4.05	4.23	4.48
2008.Q2	4.00	4.41	4.86
2008.Q3	4.25	4.54	4.98

<http://www.ecb.int/pub/pdf/mobu/mb200811en.pdf>

(Notice how the 3-mo.Euribor/Eonia spread was down to 9 bp in 2005, and up to 86 bp in 2008.Q2)

A **DEPRESSION** has spread to all countries

According to NBER, the last expansion peaked in the US in Dec. 2007.

- **Unemployment** has been increasing since then
- **Consumers** are spending less, and saving more

What is causing & spreading the recession?

- Lower value of housing wealth
- Higher cost of mortgages and of consumer credit
- (Probably, at the beginning, also) High price of oil and other commodities
- The credit crunch?
- A negative export multiplier

B. Diagnosis *(I borrowed this from a speech by Olivier Blanchard)*

Proximate causes:

- Subprime crisis after explosion of housing bubble
- Opaque asset side of Fin. Int.: Hidden risks

Deeper causes:

- Structural faults in regulations: not enough capital, not enough transparency
- Regulatory arbitrage
- Complexity of instruments to trade and redistribute risks
- Low interest rates induced low risk aversion
- Systematic under-appreciation of risks / “Bad” risk rating

Amplification mechanisms:

- Losses generate credit-unworthiness
 - ... that force asset sales (deleveraging)
 - ... that generate “fire sale” prices
- Also, losses wipe out equity values
 - And decrease capital ratios
 - Forcing even faster deleveraging
 - ... and bank runs

Outcomes:

- Low capital ratios increase the expectation of insolvencies
- And increase counterparty risk
 - Contagion spreads across institutions
 - ... and countries
 - Institutional lending “frozen” everywhere

C. Remedies

- **Extend liquidity provisions.**

To all institutions, against all collateral (forget Bagehot)

- **Guarantee** deposits
- Guarantee inter-bank lending ?
- Purchase bad ("toxic") assets - would not work.

TARP abandoned (by Treasury Secretary Hank. Paulson on Nov. 17, 2008)

- **Recapitalize Financial Intermediaries**

Incentive for privates

Use also public funds. Publicly provided K should be initially costly, self-liquidating in the long-run ($ENPV > 0$), conditional on resuming lending

- Allow intermediaries not to "mark to market".

Instead, mark to Expected Net Present Values (ENPV)

- **Discretionary fiscal expansion:**

(US, UK, EU Commission are calling for it)


- Fast, Large (1,5% GDP), Coordinated
- Not purely “Keynesian”: Other constraints are binding (energy, environment)
- Invest in social capital, expect returns
- Reduce those taxes that can be permanently lowered

And esp. those that constrain hiring decisions

- **Financial re-regulation:**

- Increase K-ratios
- Reduce OTC financial transactions
- Reduce relevance of “originate to distribute” motive. Originators must keep track of risk and be partly responsible.
- Keep track of risks.

D. Will it work? Risks and uncertainties related to remedies:

1. Some countries may want to free ride on need for tougher regulation, ... and on need for fiscal stimulus
 2. Public sector ends up “owning” a large part of Fin. System
 3. ... and might be tempted to “politicize” operating criteria
 4. Giving up ownership at a later time might prove difficult
 5. Beneficiaries of public funds might be tempted by moral hazard
 6. Competition rules might be negatively affected for a long time
 7. How to introduce regulations that promote responsible risk-taking?
 8. How can a functioning rating system be promoted?
 9. How to distinguish support from protectionism?
 10. Will the fiscal stimulus work? Why did it not work in Japan?
 11. Will government debt explode, at least in already indebted countries? What should they do now in order to avoid it?
 12. Will inflation explode? Why are long term nominal rate still at a 30-year low?
 13. Are Central Banks buying too many risks? Are they under-capitalized?
- 

V. What are we learning?

... well, quite a lot (and it will take some more time)

- **Crises happen.** And also the “Great moderation” came to the end.
- Socrates was right: “**οἶδα οὐδέν εἰδώς**” (I know that I know nothing).
- What is the use of forecasting, since it does not work?
- **Markets can close down**
- Learning takes time, discovering prices takes time
- **Risk does not always get priced**
- Rating is ex-post assessment
- **Decoupling** did not happen: world is in depression
- **Policy makers can change opinion** fast, not necessarily consistently
 - ✓ Fed / US Treasury / China / ECB / EU governments / EU Commission
- (Some) old textbooks must be thrown away
 - ✓ ... and lots of macroeconomics should be forgotten

- **New experiments with Monetary policy** under a liquidity trap: “*Quantitative easing*”. Will it work?
- CBs have wider responsibilities than price stability, and are taking risks that they were not designed to take on.
- CBs have turned Bagehot upside down: they lend at subsidized rates, against the worst collateral, to non-banks and banks alike, even if they are technically insolvent!
- Most of our hypotheses on financial structures will have to be reformulated
- **Self-regulation has not worked**

Also true, but harder to believe:

- ◆ the **EU** is trying to “coordinate” a fiscal expansion
- ◆ ... **China** will get there sooner
- ◆ ... and the **ECB** President is urging governments to increase spending at a faster rate!

Thanks for your attention!

Endnotes:

- ⁱ *Sent. II, xiv, 3*. Quoted by Temin, Peter (2006) "The Economy of the Early Roman Empire". Journal of Economic Perspectives, 20(1), 133–151.
- ⁱⁱ Laeven L, Valencia F (2008). "[Systemic banking crises: a new database](#)". IMF WP/08/224, www.imf.org .
- ⁱⁱⁱ "By the 15th century, the courts of England had agreed on the principle of "limited liability": *Si quid universitati debetur, singulis non debetur, nec quod debet universitas, singuli debent* ("If something is owed to the group, it is not owed to the individuals nor do the individuals owe what the group owes")"(<http://www.britannica.com/EBchecked/topic/86277/business-organization/21818/History-of-the-limited-liability-company#ref=ref105805>). However, the first corporations to be established as joint stock companies (rather than as state monopoly companies) were those cited in the text. www.helsinki.fi/iehc2006/papers3/Deluca.pdf.
- ^{iv} G.DeLuca "Government Debt and Financial Markets: Pro-Cycle Effects in Northern Italy during the XVIth and the XVII Centuries", 2006.
- ^v Oscar Gelderblom and Joost Jonker, Exploring the market for government bonds in the Dutch Republic (1600-1800), 2006. King was Willem of Orange. As it is well known, North & Weingast (1989) claim that the Glorious Revolution contributed in general to more secure property rights, and this they link to the emergence in England of the Industrial Revolution. But their claim far larger is now less widely believed to be entirely correct. <http://www.econ.tcu.edu/quinn/finhist/readings/foundations/Gelderblom%20and%20Jonker%20Debt.pdf>
- ^{vi} Temin, Peter (2001) "A Market Economy in the Early Roman Empire". Journal of Roman Studies, 91, 169-81. <http://econ-www.mit.edu/files/1238>.

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- vii [V.1.119](#) : "By a perpetual monopoly, all the other subjects of the state are taxed very absurdly in two different ways: first, by the high price of goods, which, in the case of a free trade, they could buy much cheaper; and, secondly, by their total exclusion from a branch of business which it might be both convenient and profitable for many of them to carry on. It is for the most worthless of all purposes, too, that they are taxed in this manner. It is merely to enable the company to support the negligence, profusion, and malversation of their own servants, whose disorderly conduct seldom allows the dividend of the company to exceed the ordinary rate of profit in trades which are altogether free, and very frequently makes it fall even a good deal short of that rate. Without a monopoly, however, a joint stock company, it would appear from experience, cannot long carry on any branch of foreign trade. To buy in one market, in order to sell, with profit, in another, when there are many competitors in both, to watch over, not only the occasional variations in the demand, but the much greater and more frequent variations in the competition, or in the supply which that demand is likely to get from other people, and to suit with dexterity and judgment both the quantity and quality of each assortment of goods to all these circumstances, is a species of warfare of which the operations are continually changing, and which can scarce ever be conducted successfully without such an unremitting exertion of vigilance and attention as cannot long be expected from the directors of a joint stock company. The East India Company, upon the redemption of their funds, and the expiration of their exclusive privilege, have right, by act of parliament, to continue a corporation with a joint stock, and to trade in their corporate capacity to the East Indies in common with the rest of their fellow-subjects. But in this situation, the superior vigilance and attention of private adventurers would, in all probability, soon make them weary of the trade." <http://www.econlib.org/index.html>.
- viii Another consequence of fast, small computers is the spread of mutual funds. At the end of 2007, assets managed within mutual funds where \$26,20 trillion worldwide, equal to 114% of world GDP.
- ix Nelson (1904) "The ABC of Option Arbitrage". Rediscovered, 2000; Vinzenz Bronzin (1908) "Theory of Premium Contracts" (in German). Rediscovered, 2007. Contemporary independent re-discovery begins with: Hans R. Stoll (1969) The Relationship Between Put and Call Option Prices, The Journal of Finance, 24(5) pp. 801-824. <http://www.jstor.org/stable/2325677>.
- x Gary B. Gorton, "The Subprime Panic". Nber WP. 14398, October 2008.
- xi http://en.wikipedia.org/wiki/Forbes_Global_2000#2007_list