The banking crisis: Causes, consequences and remedies

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Causes

- Basics of banking
  - Banks borrow short and lend long
  - This creates inherent fragility
  - No problem in normal times, i.e. when people have confidence
  - Problem when confidence disappears
  - Confidence disappears when one or more banks experience solvency problem (e.g. bad loans)

Causes

- Then bank run is possible : liquidity crisis
- involving other, sound banks (innocent bystanders)
- A devilish interaction between liquidity crisis and solvency crisis arises: sound banks have to sell assets to confront deposit withdrawals
- Fire sales lead to asset price declines
- reducing value of banks' assets
- leading to solvency problem
- and further liquidity crisis

Causes

- The bank collapse of the 1930s and the ensuing Great Depression had introduced some institutional changes aimed at making banking system less fragile
- These are
  - Central bank as lender of last resort
  - Deposit insurance
  - Separation of commercial banking and investment banking (Glass-Seagall Act 1933)

- Most economists thought that this would be sufficient to produce safety and
- to prevent large scale banking crisis
- It was not
- Why?
- In order to answer question we first have to discuss “Moral Hazard”

Moral Hazard

- General insight: agents who are insured will tend to make fewer precautions to avoid the risk they are insured against
- The insurance provided by central bank and governments (LoLR and deposit insurance) has given bankers strong incentives to take more risks
- To counter this, authorities have to supervise and regulate
- They did this for most of the post-war period but then something remarkable happened.

The new paradigm of efficient markets

- The efficient market paradigm became very popular also outside academia
- Main ingredients
  - Financial markets efficiently allocate savings towards the most promising investment projects thereby maximizing welfare
  - Prices reflect underlying fundamentals; therefore bubbles cannot occur
  - Financial markets can regulate themselves thereby making regulation by authorities unnecessary
  - Greenspan: “authorities should not interfere with pollinating bees of Wall Street”. Regulation is inefficient

Efficient markets paradigm captured by bankers

- Efficient markets paradigm was very influential
- It was captured by bankers to lobby for deregulation
- Bankers achieved their objective
- Banks were progressively deregulated in US and in Europe
- Culmination was the repeal of the Glass-Seagall act in 1999 (Clinton-Rubin)

- This allowed commercial banks to take on all the activities investment banks had been taking
  - Underwriting and holding of securities and derivatives
- Thus banks were allowed to take on all risky activities that the Great Depression had thought us could lead to problems
- Lessons of history were forgotten

Other factors: financial innovations

- Process of deregulation of financial markets coincided with
- process of financial innovation
- and was also pushed by the latter
- Financial innovation allowed to design new financial products.
- These made it possible to repackage assets into different risk classes and to price these risks differently
- And to sell these: “securitisation”

Other factors: financial innovations

- It was thought that these complex products would lead to a better spreading of the risk over many more people
- thereby reducing systemic risk
- and reducing the need to supervise and regulate financial markets
- A new era of free and unencumbered progress would be set in motion

Note on securitisation

- Securitisation allowed banks to sell repackaged loans (e.g. mortgages) in the form of asset backed securities (ABS)
- They then obtained liquidity that could be used to extend new loans
- that later on would be securitized again
- Thus credit multiplier increased outside the control of the central bank
- This undermined control of central bank on total credit

Are financial markets efficient?

- Promise of deregulation was predicated on theory of efficient markets
- But are financial markets efficient?
- Bubbles and crashes are endemic

Are financial markets efficient?

- Let’s look at the stock markets first;
- Take US stock market (DJI, S&P500)
- (same story can be told in other stock markets)
- and exchange markets
- and housing markets

Dow Jones and S&P500

US stock market 2006-08

- What happened between July 2006 and July 2007 to warrant an increase of 30%?
- Put differently:
  - In July 2006 US stock market capitalization was $11.5 trillion
  - One year later it was $15 trillion
- What happened to US economy so that $3.5 trillion was added to the value of US corporations in just one year?
- While GDP increased by only 5% ($650 billion)

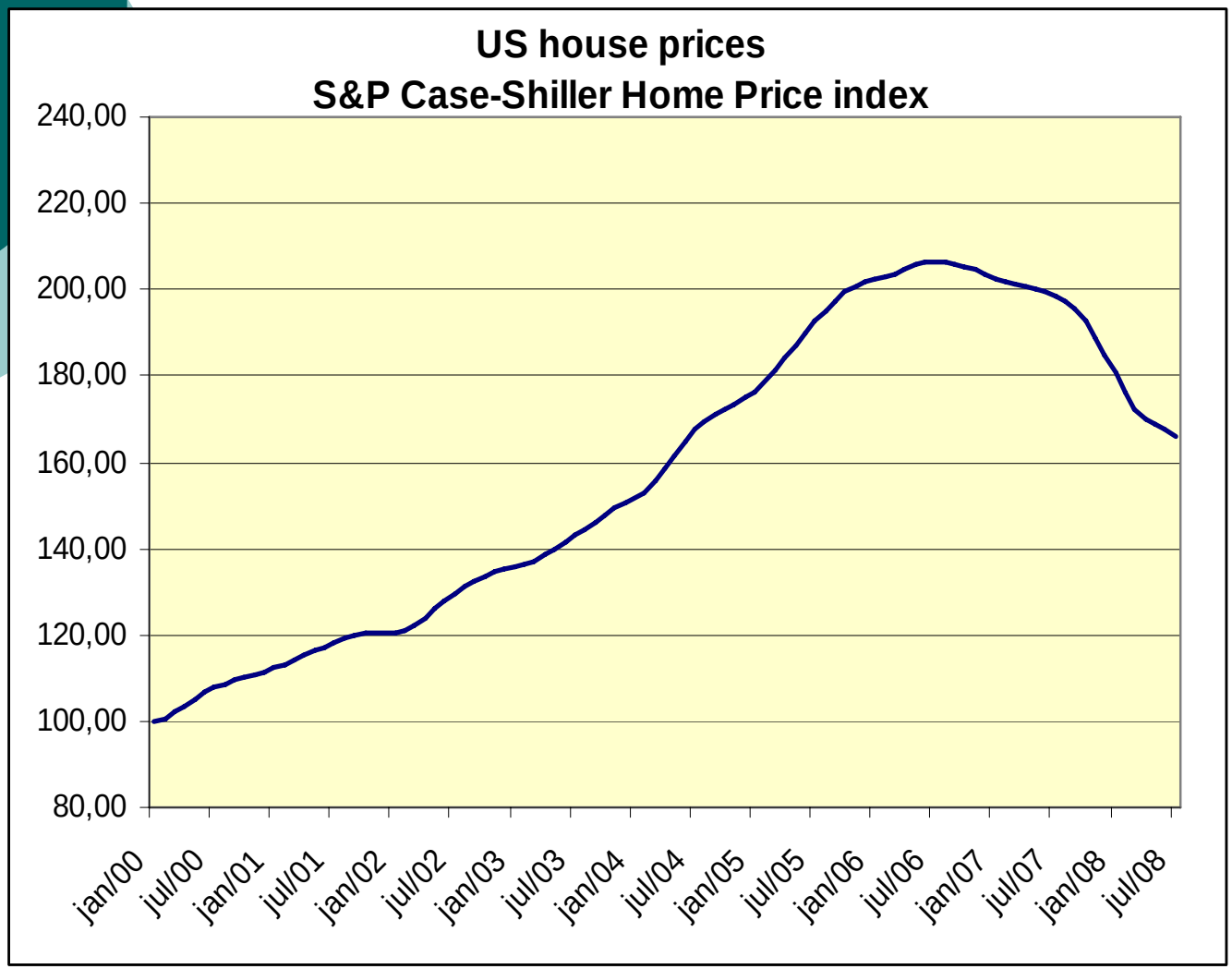
- The answer is: almost nothing
  - Fundamentals like productivity growth increased at their normal rate
- The only reasonable answer is: excessive optimism
  - Investors were caught by a wave of collective madness
  - that made them believe that the US was on a new and permanent growth path for the indefinite future

- Then came the downturn with the credit crisis
- In one year time stock prices drop 30%
  - destroying $35 trillion of value
- What happened?
- Investors finally realized that there had been excessive optimism
- The wave turned into one of excessive pessimism

- The FED stood by and cheered during the upswing
- And is now shedding tears and throws away the theory
- Unfortunately …too late

Nasdaq :similar story

Similar story in housing market



Nothing happened with economic fundamentals in US

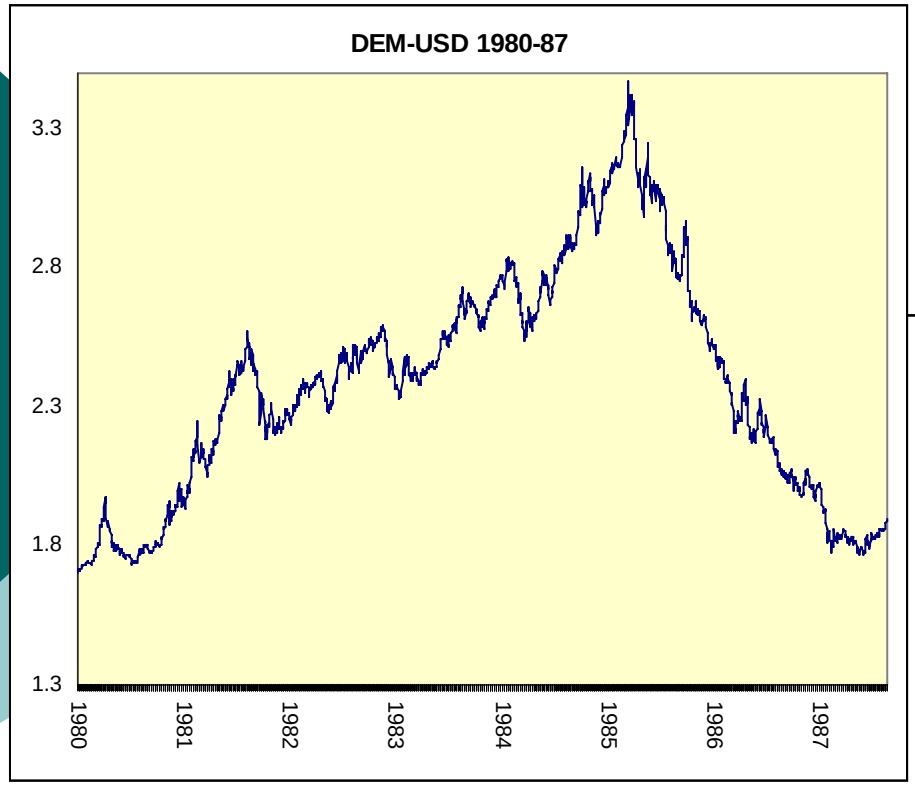
Warranting a doubling of house prices in six years

Prices increased because they were expected to increase

Also fuelled by credit

Which itself was the result of the bubble

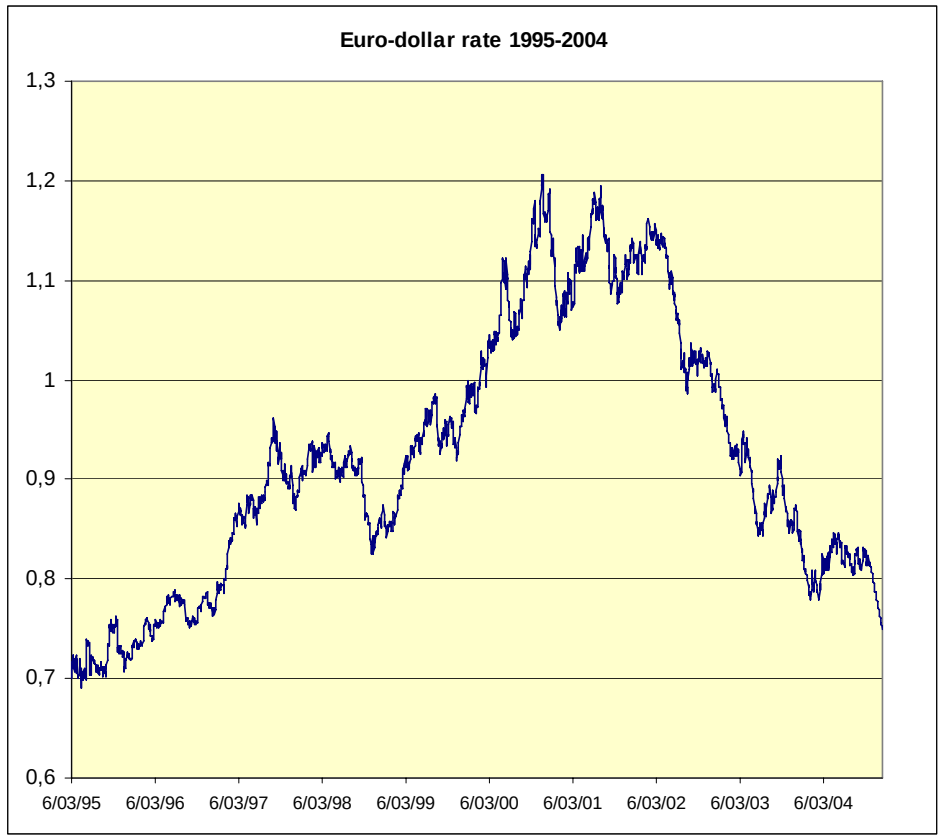
Similar story in foreign exchange market



Since 1980 dollar has been involved in bubble and crash scenarios more than half of the time

While very little happened with underlying fundamentals

Market was driven by periods of excessive optimism and then pessimism about the dollar



Bubbles and crashes are here to stay

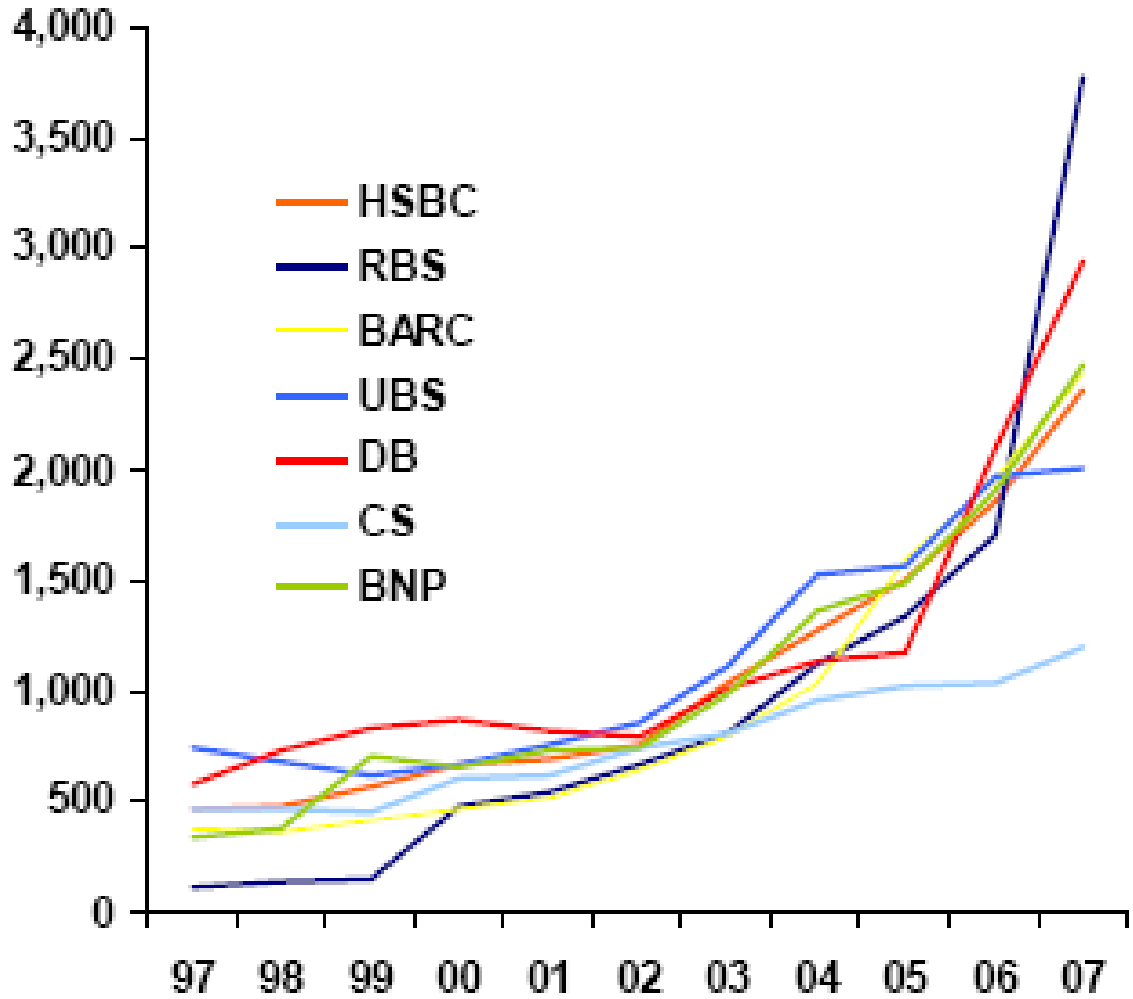
- Bubbles and crashes are endemic in capitalist systems
- They are the result of uncertainty
- and herding behaviour
- Kindleberger, Manias, Panics and Crashes: bubbles and crashes have existed since capitalism exists
- And will continue to exist

Banks ride on bubbles

- Because of deregulation banks became fully exposed to the endemic occurrence of bubbles and crashes in asset markets
- They could now hold the full panoply of assets that regularly are gripped by bubbles and crashes
- Their balance sheets became extremely sensitive to these bubbles (hi-tech bubble, housing bubble, general stock market bubble)
- that inflated their balance sheets

European Financials' Balance Sheets

Total Assets, $ bn



Source: Bloomberg.

- The reverse is also true
- Banks' balance sheets became extremely vulnerable to crashes
- The downward trigger was the crash in the US housing market
- But this was only a trigger
- The crisis was waiting to happen

Other part of efficient market theory was also wrong

- Financial markets are unable to regulate themselves
- Rating agencies were supposed to take a central role in auto-regulation
- How?
  - They rate the quality of banks and their products
  - They have to protect their reputation
  - That's why they will take neutral and objective stance

- They did not
- There was massive conflict of interest
  - Rating agencies both advised financial institutions on how to create new financial products
  - that they would then later on give a favourable rating

mark-to-market rules

- The other piece in the belief that markets would regulate themselves was the idea of mark-to-market
  - If financial institutions used mark to market rules the discipline of the market would force them to price their product right
  - However, if markets are inefficient and create bubbles and crashes mark to market rules exacerbate these movements

Mark to market in a world of market inefficiency

- Thus during the bubble this rule told accountants that the massive asset price increases corresponded to real profits that should be recorded in the books.
- These profits, however, did not correspond to something that had happened in the real economy
- They were the result of a bubble that led to prices unrelated to underlying fundamentals

- As a result mark to market rules exacerbated the sense of euphoria
- and intensified the bubble
- Now the reverse is happening
- Mark to market rules force massive writedowns correcting for the massive overvaluations introduced just a year earlier
- intensifying the sense of gloom
- and the economic downturn

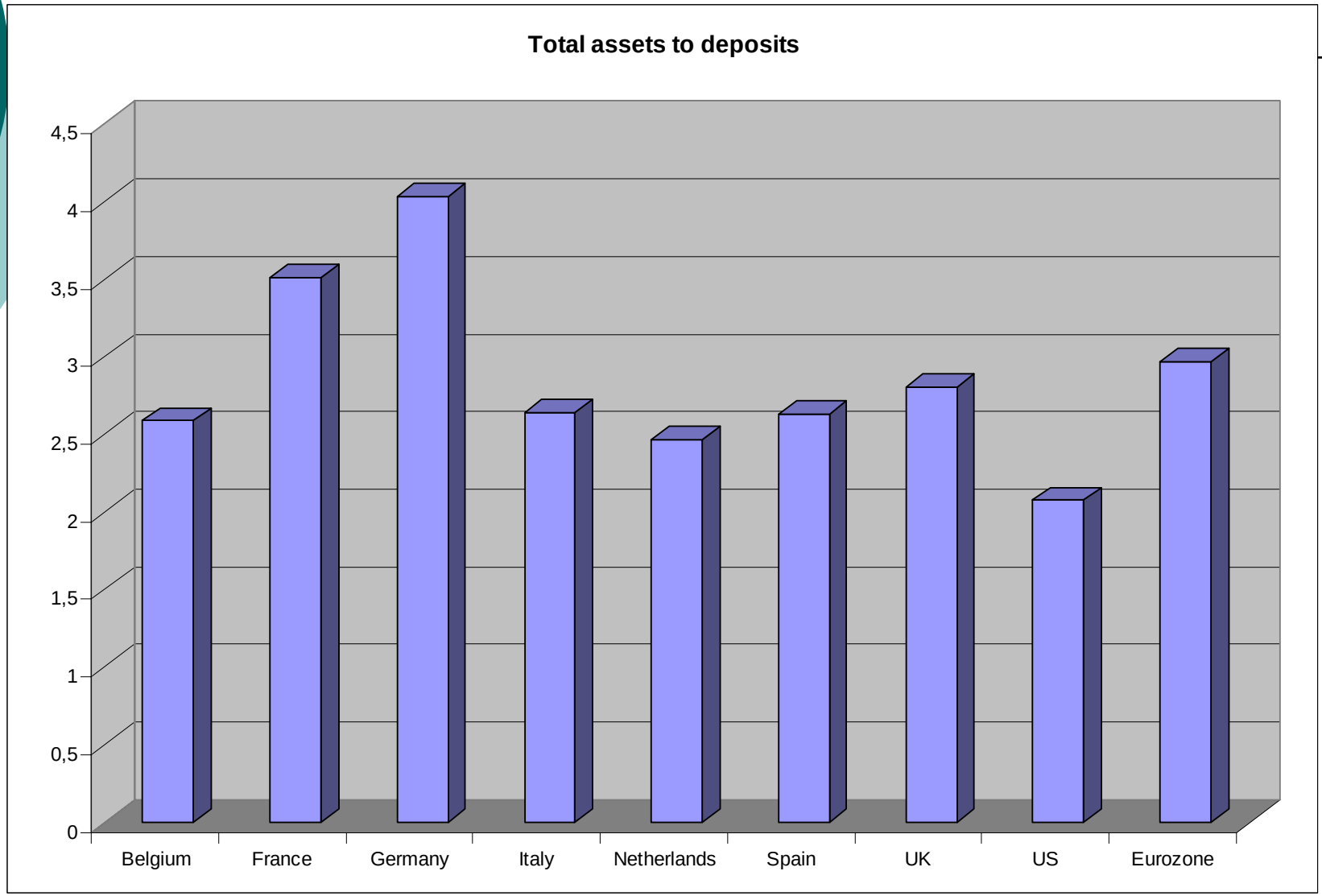
Additional developments: regulatory arbitrage

- Basle I was an attempt to impose similar capital ratios in all developed countries' banks
- It was based on a classification of assets according to risk
- and to force banks to set capital aside against these assets based on the risk

Regulatory arbitrage: case 1

Basle I put a low risk weight on loans by banks to other financial institutions

- This gave incentives to bank to transfer risky assets (e.g. structured products) with high risk weight off their balance sheets
- in special conduits to which they extended short-term credit
- Banks were doing favour to each other
- As a result increasingly banks obtained their funding through the interbank (wholesale) market
- which is not insured by government


Total assets to deposits
4,5
4
3,5
3
2,5
2
1,5
1
0,5
0
Belgium
France
Germany
Italy
Netherlands
Spain
UK
US
Eurozone

Regulatory arbitrage: case 2

- Basle I made it possible for banks to treat assets that are insured as government securities, i.e. zero risk weight
- This led to explosion of CDS (credit default swaps)
- Created the illusion in banking system that the assets on their balance sheets had low risk
- This turned out to be wrong. Why?

Private insurance does not insure against tail risk

- Financial models used to price CDS based on normal distribution of returns
- There is one general feature in all financial markets: returns are not normally distributed
- Returns have fat tails (bubbles and crashes)
- Implication: models based on normal distribution dramatically underestimate probability of large shocks

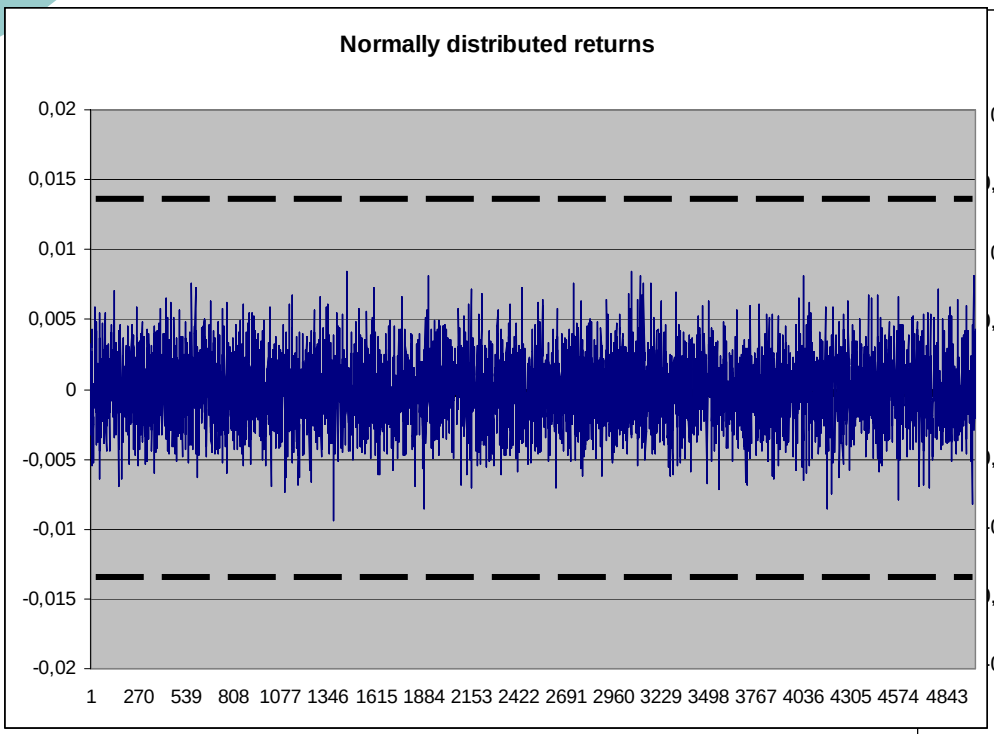
Example: foreign exchange market

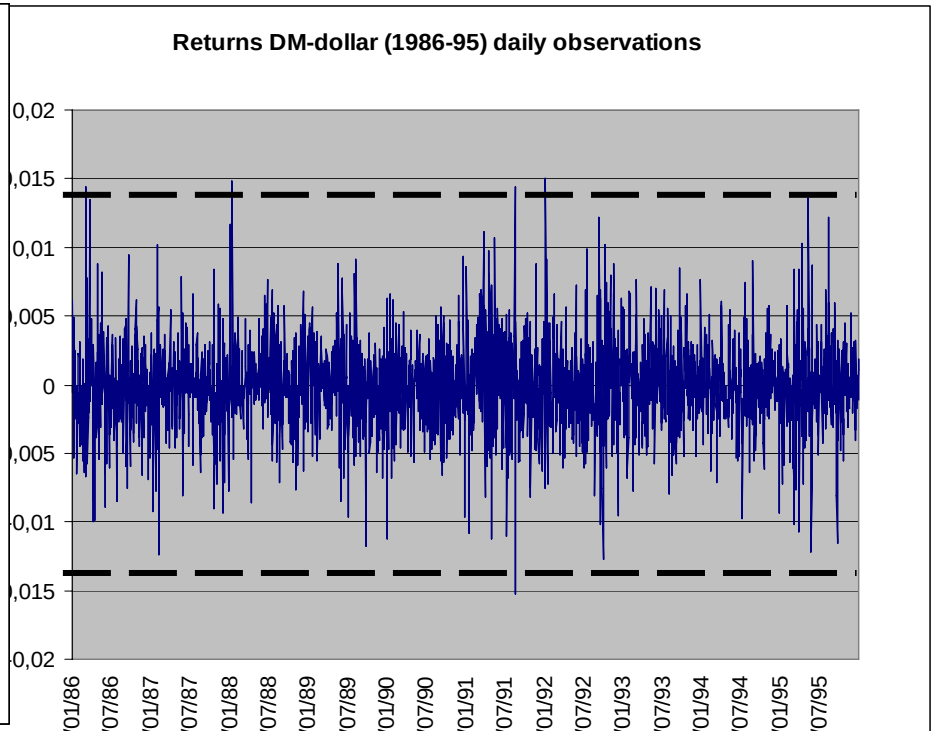
Sharp spikes and

Clustering of volatility

There are five spikes that exceed 5 standard deviations (std=0.0025)

One such spike should be observed only once in 7000 years if exchange rate changes are normally distributed.





- As a result, there is systematic underpricing of risk (tail risk)
- In addition, there were no incentives to price this tail risk because there was implicit expectation that if something very bad would happen, e.g. a liquidity crisis (a typical tail risk)
- central banks would provide the liquidities
- This created the perception in banks that liquidity risk was not something to worry about.

Wrapping things up

- Deregulation,
- absence of adequate supervision
- and application of wrong theory
- Financial innovation (securitisation)
- Moral hazard
- Led banks to take significantly more risky assets on their balance sheets
- and tightly linked the banks' balance sheets

- to bubbles (IT-bubble, stock market bubble, housing bubble, commodities bubbles) that are endemic in financial markets
- but that efficient market ideologues told us could not arise
- As a result banks' balance sheets exploded

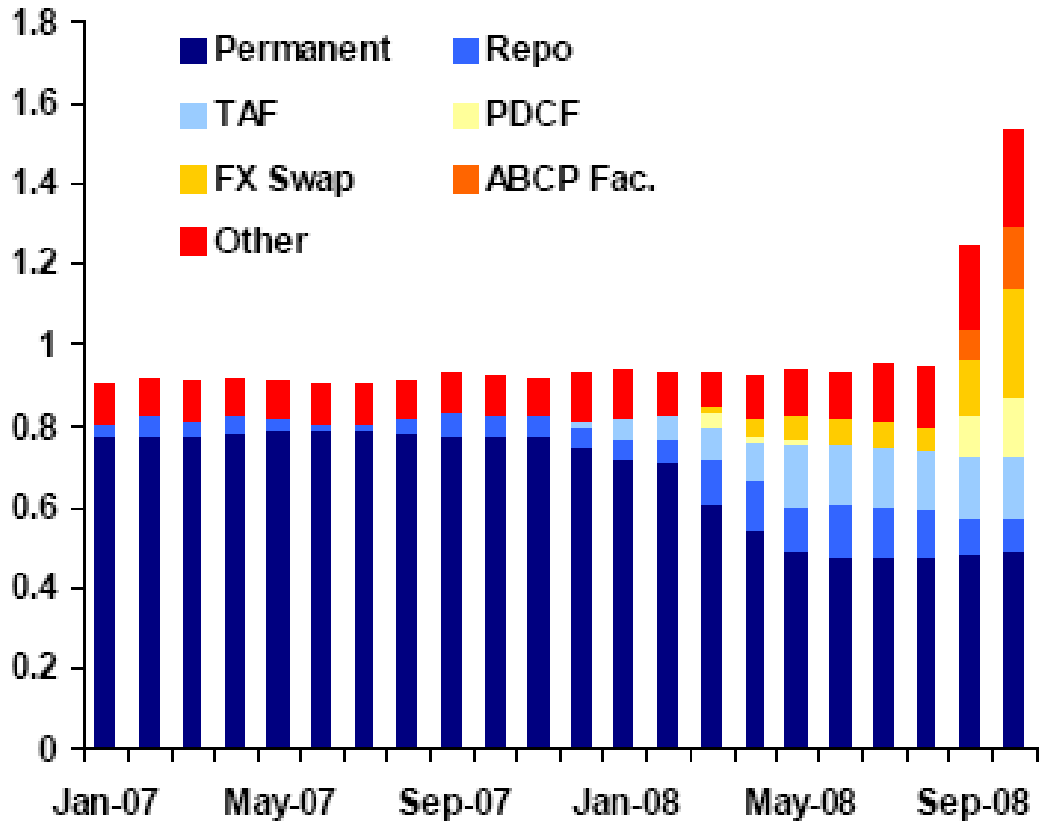
- until they crashed in 2008
- threatening to bring down the whole financial system

The reaction of the authorities: central banks

- Learning by doing:
- Massive liquidity provision by central banks,
  - Provided the necessary liquidity and prevented liquidity crisis from bringing down the whole system
  - But they also stretched balance sheets of central banks

Federal Reserve Balance Sheet

Assets, $ bn

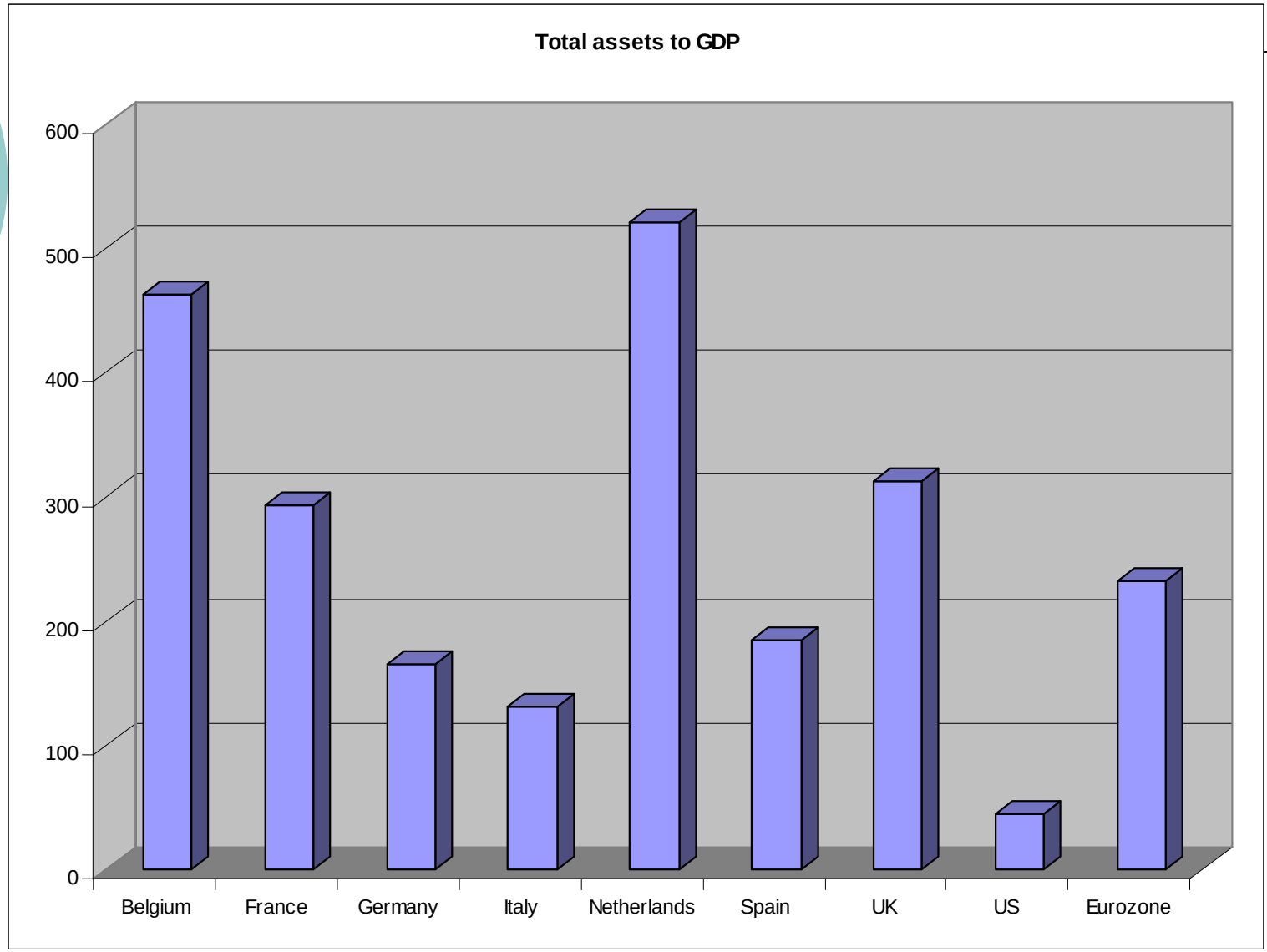


Source: IMF Financial Stability Report.

The reaction of the authorities: governments

- Government guarantees on interbank deposits were essential in preventing freezing of interbank market from leading to large scale liquidity crisis
- But are they credible?

But are they credible?



The reaction of the authorities: governments

- Recapitalization of banks
- Will these be sufficient?

Recapitalizations have been smaller than writedowns

Largest Bank Writedowns & Capital Raising,
$ bn, Data as of 13 October 2008

	Writedown	Capital Raising
Wachovia	96.7	11.0
Citi	61.0	49.0
Merrill Lynch	52.2	29.9
Washington Mutual	45.6	12.1
UBS	44.2	27.1
HSBC	27.4	5.1
Bank of America	27.4	30.7
JPMorgan Chase	18.8	19.7
Morgan Stanley	15.7	14.6
IKB	14.0	11.5
Lehman	13.8	13.9
RBS	13.3	22.0
Credit Suisse	10.0	3.0
Wells Fargo	10.0	5.8
Deutsche Bank	9.8	5.9
Fortis	8.8	21.5
Credit Agricole	8.2	7.9
Other	158.4	129.0
Total	635.3	419.7

Source: Bloomberg.

- Interventions have been massive
- but it is unclear whether they will be sufficient
- Fundamental reason is that devilish interaction between liquidity and solvency crisis
- has not yet put a floor on value of bank assets
- Recapitalization throws money in a black hole

Period of massive deleveraging ahead

- Inflated banks' balance sheets will have to shrink
- My guess is that they will have to shrink to about half their present size
- reflecting the massive decline in asset prices
- This will drag the banks down

- giving them strong incentives not to extend new loans
- thereby dragging down the real economy
- How far and how long this will go
- nobody knows
- It is not inconceivable that this leads to a Great Depression

What can be done: short run

- There is serious possibility that governments will have to take over the whole banking system
  - to stop solvency problems from leading to liquidity crises and back to solvency problem;
  - to force banks to lend.
- Governments will be forced to sustain demand in the face of dwindling tax revenue
- Thus massive budget deficits are likely and desirable

What can be done: short run

- Together with massive increases in government debt
- that increasingly takes the place of private debt that nobody wants to hold anymore
- What a paradox for those who believed in the efficient market.

What can be done: short run

- Governments and central banks will also have to support asset prices, in particular stock prices
- by buying assets
- Recapitalizing banks is clearly insufficient to stop the liquidity-solvency spiral.

Long-term reform
Back to narrow banking

- We have to go back to Glass-Steagall world
  - Strict separation of commercial and investment banking
  - Fundamental reason is that we have to radically de-link the banks' balance sheets from the vagaries (bubbles and crashes) that are inherent in asset markets
  - in order to protect the banks' balance sheets from wild swings in value.

How?

- Financial institutions have to choose between the status of a commercial bank and that of investment bank.
  - Only commercial banks can attract deposits from the public and from other commercial banks
  - Commercial banks can only hold plain vanilla loans held to maturity
  - Thus no securitization possible because the links of the securitized loan with originating bank cannot be completely cut
  - CBs benefit from the lender of last resort facility and deposit insurance, and are subject to the normal bank supervision and regulation.

- Investment banks can do all the sophisticated asset creation and management
- but must fund these through the capital market with liabilities of same maturity.
- No short-term funding possible
- No funding through commercial banks

Alternative: Basle approach
It does not work

- Basle approach is attempt to apply scientific methods to risk evaluation
- which are then used to calculate minimum capital ratios.
- The approach assumes that banks continue to be universal banks
- Exposing themselves to bubbles and crashes in financial markets
- It has not worked and will not work

- because we are unable to quantify tail risks
- These are the risks that matter in banking
- Bubbles and crashes (producing tail risks) will not go away.
- They are endemic in capitalist systems

- Strict separation between commercial banking and investment banking is essential
- to protect banks’ balance sheets from booms and busts in financial markets
- Banking will become much less profitable
- but less risky