How bad is the 2007-8 financial crisis?

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"*The recent international financial turmoil*"

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Introduction: Is the financial crisis a problem?

Different views:

A. Small	***B. Big***	***C. Super-big***

A. Calomiris' view belongs to category A: "**Not yet a Minsky moment.**" Minsky moment: *"A worsening of credit standards culminates in a moment of recognition and recoil"*

- ✓ Crisis was not a surprise
- ✓ Minor effects on the economy: No negative wealth effects from housing, banks able to raise capital
- ✓ Crisis not as big as in the 1989-92 period

B. Yet most insiders, like George Soros or Alan Greenspan, think it is a big problem:
The largest post-depression financial crisis

C. A view is slowly arising that the financial crisis is **even worse** than previously thought: Fundamentally related to the global inflation shock, with a possible underlying cause for both the global imbalances and the previous low interest rates, which led to the **quest for yield**

Introduction: Causes & consequences

The roots of the crisis … are in the simultaneous development of three factors:

1) *A big increase (bubble) in house prices in the US*
2) *The rapid expansion of subprime mortgages*
3) *The transfer of risk from the banks' balance sheets to third party investors through securitization*

Crisis is problematic because

- ✓ it began **in the US,** which produces 25% of 2007 world GDP
- ✓ it spread in **all of the financial sector and across the world**
- ✓ The financial sector is **highly levered**
- ✓ **The financial sector has the most important influence on the economy than any other sector**

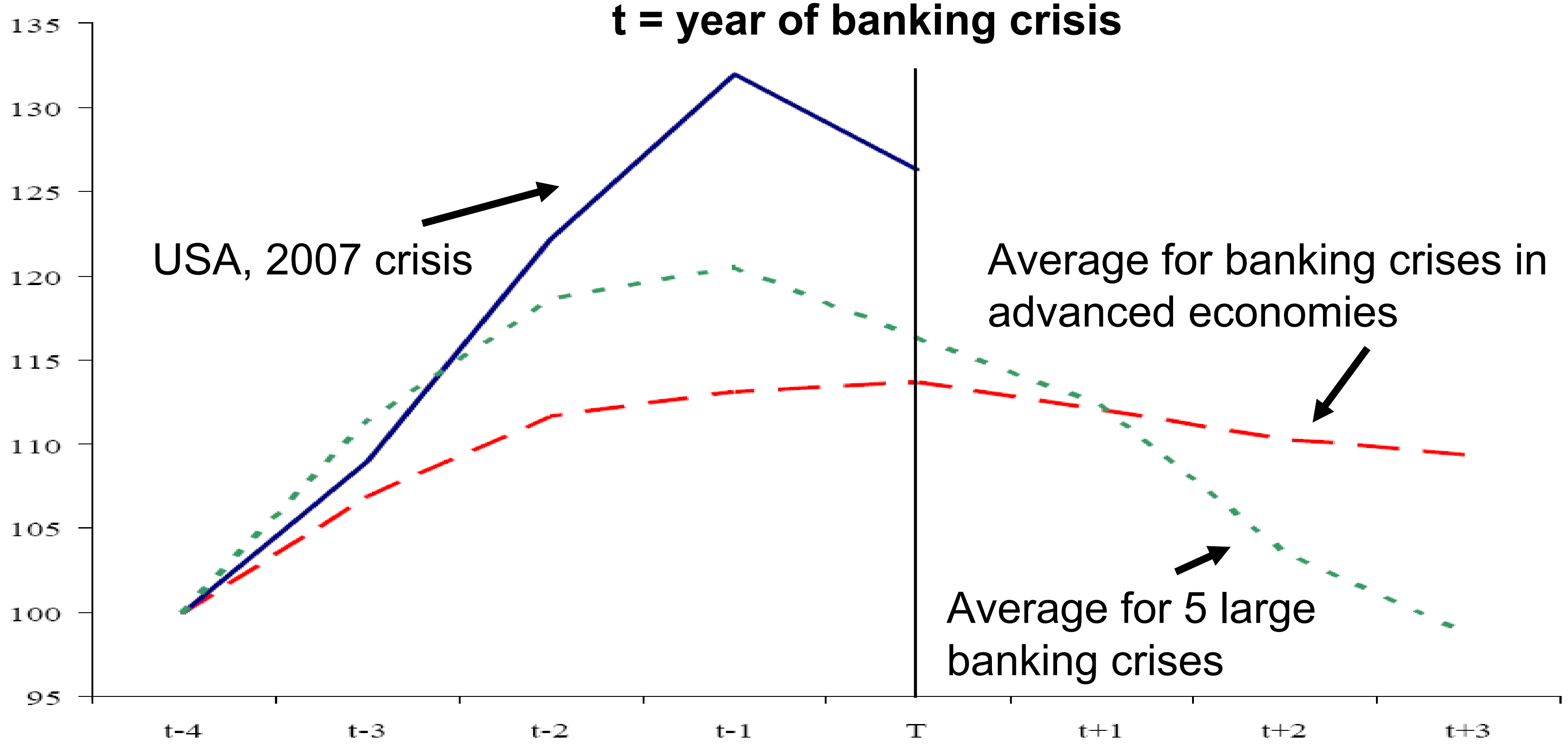
PART I:

CAUSES OF THE FINANCIAL CRISIS

1. **Housing prices**
2. **Subprime mortgages**
3. **Securitization and financial leverage**

I.1 The house price "bubble" was large

Real house prices 4 years before until 3 years after the crisis
t = year of banking crisis



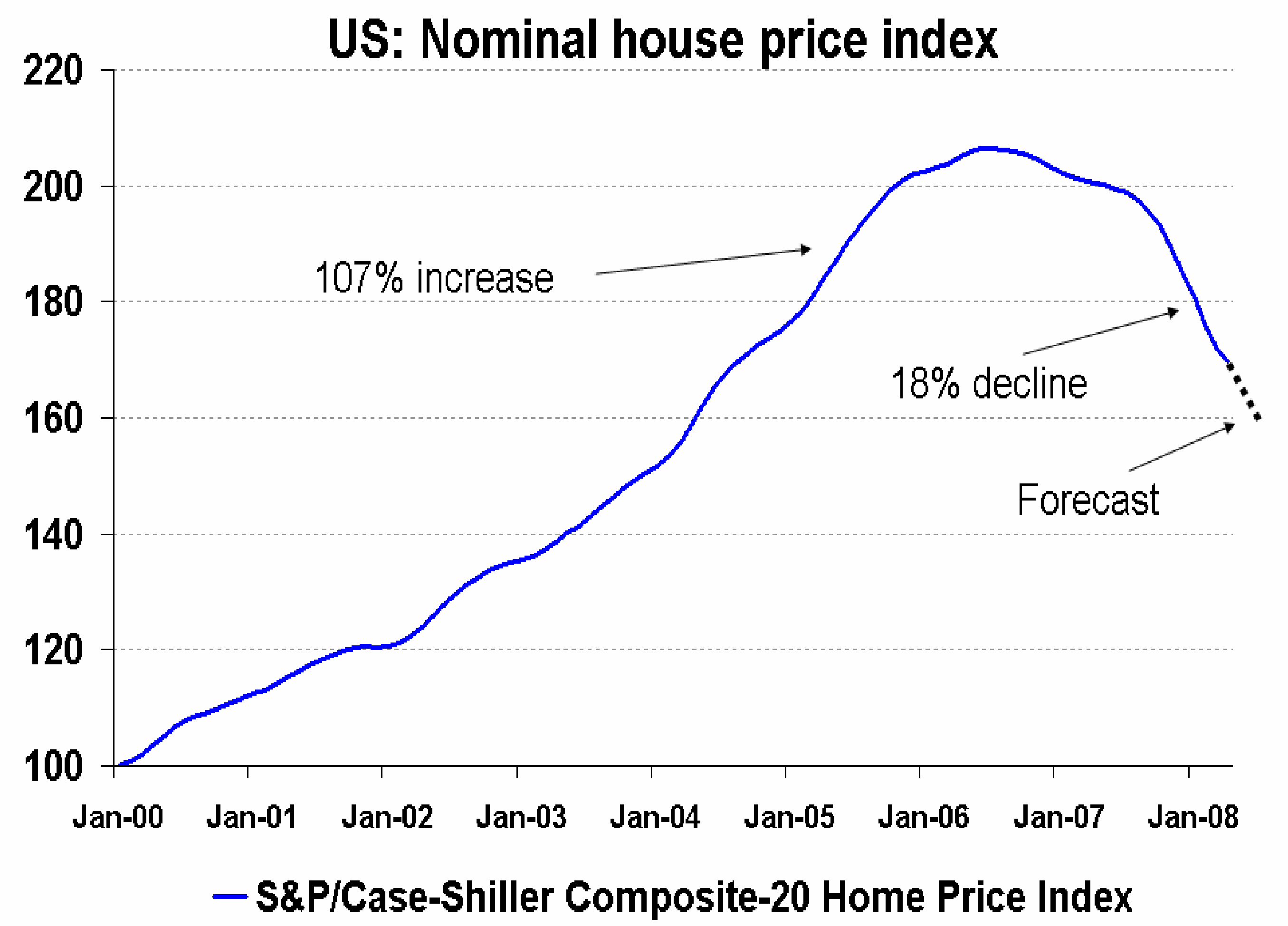
Source: Reinhart & Rogoff (2008)

Categorization of banking crises according to Reinhart-Rogoff:

- 5 «big» banking crises: Spain (1977), Norway (1987), Finland (1991), Sweden (1991), Japan (1992).
- Smaller banking crises in developing economies: Australia (1989), Canada (1983), Denmark (1987), France (1994), Germany (1977), Greece (1991), Iceland (1985), Italy (1990), N. Zealand (1987), Un. Kingdom (1974, 1991, 1995) και USA (1984).

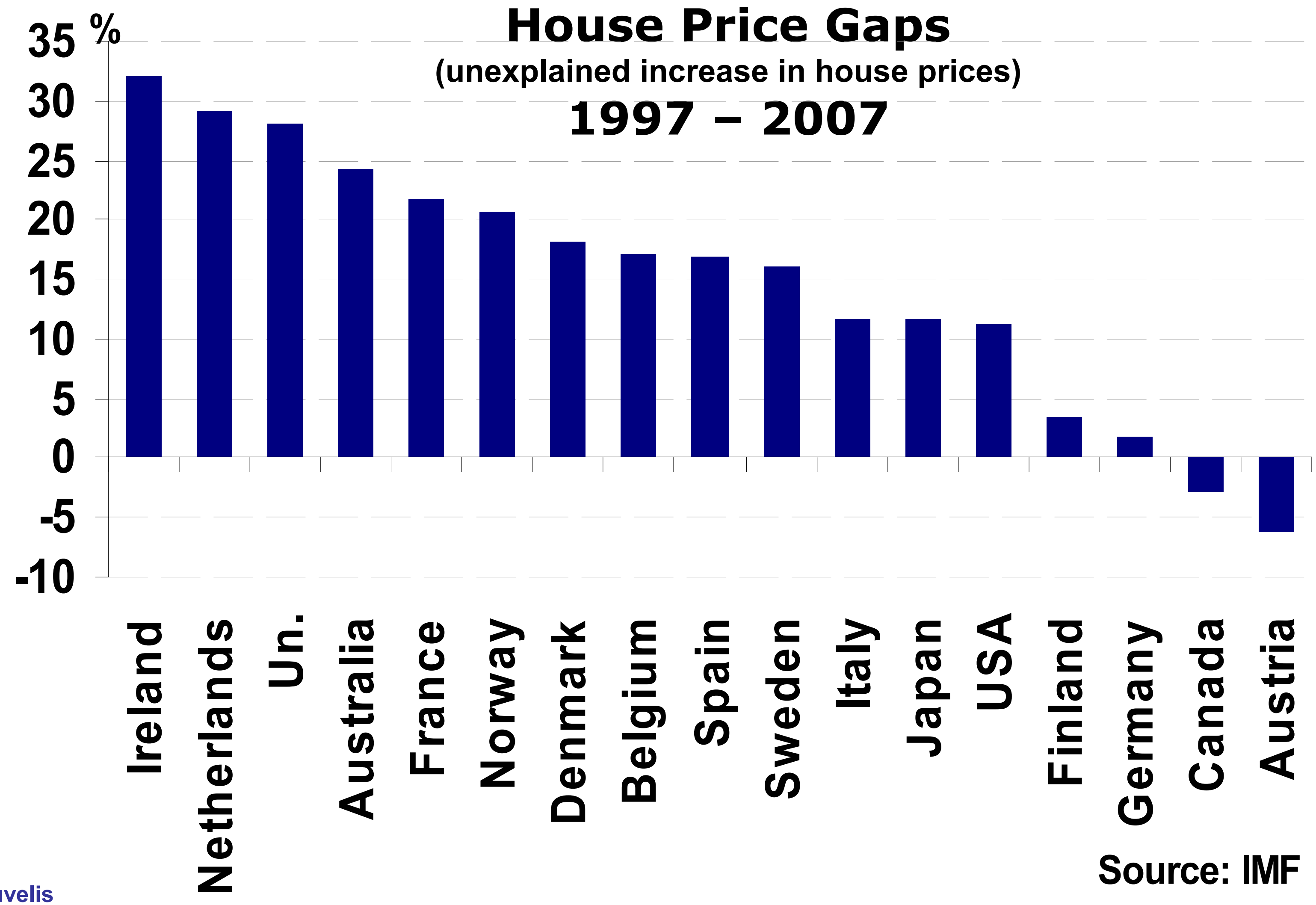
I.1 The fall in home prices continues in the US …

- ✓ The largest fall in the history of the indices, in some areas as large as 40%
- ✓ They are expected to fall for a while in the future



I.1 … and possibly around the globe

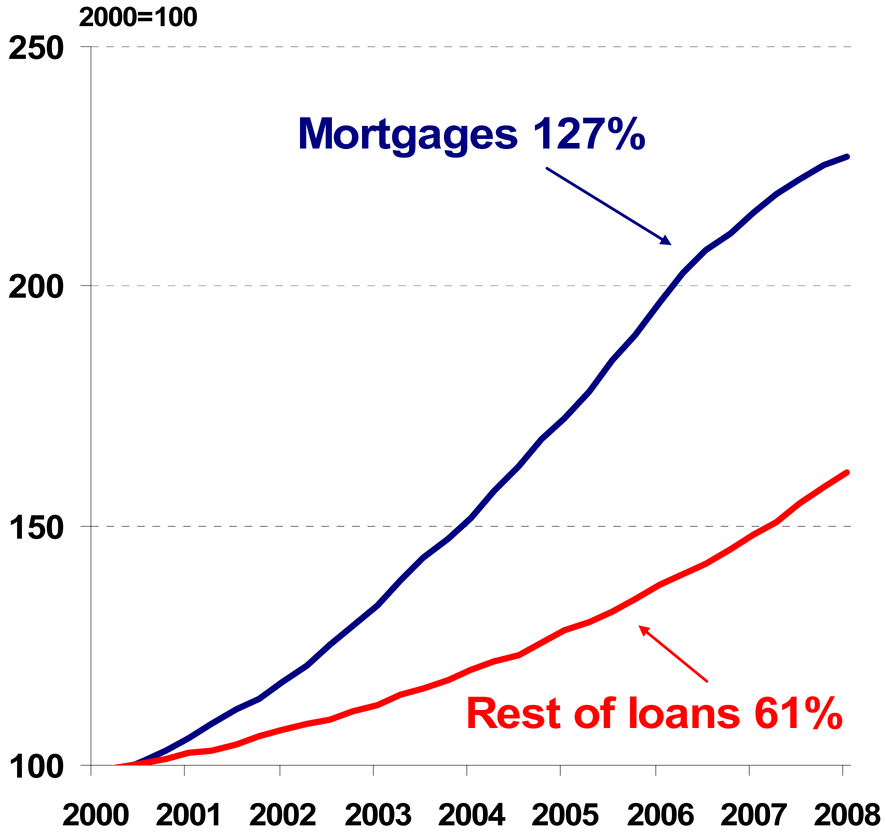
✓ **Europe will probably follow the US experience, with most of the effect to come in the future …**



Source: IMF

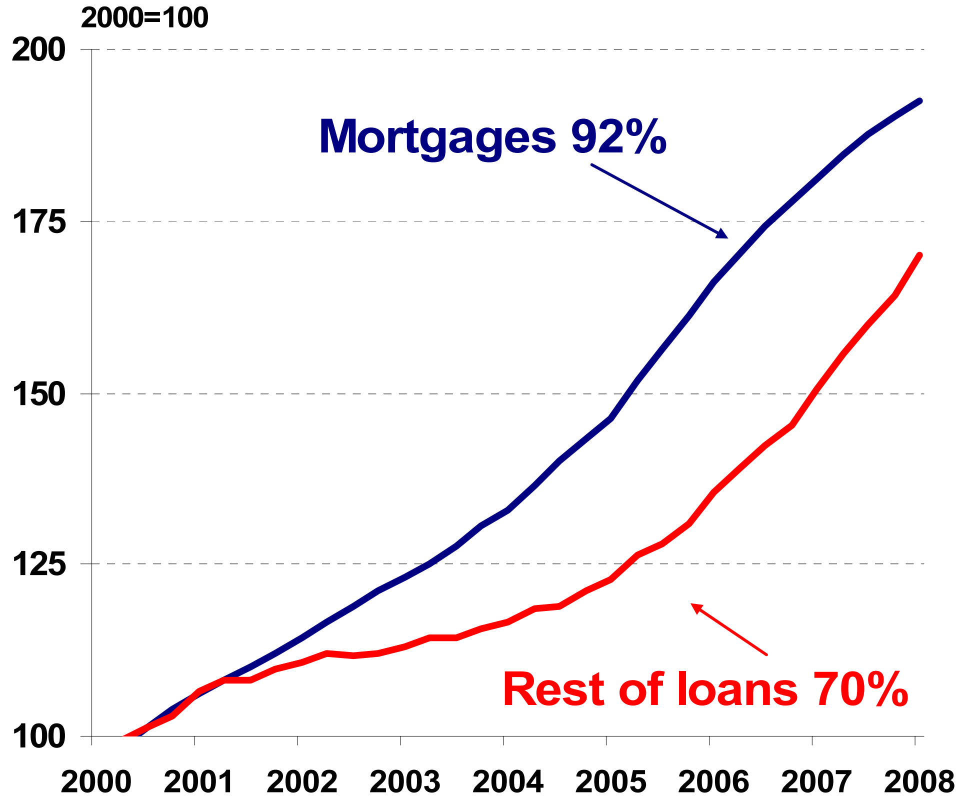
I.2 Rapid credit expansion

USA



Source: Federal Reserve

EUROZONE



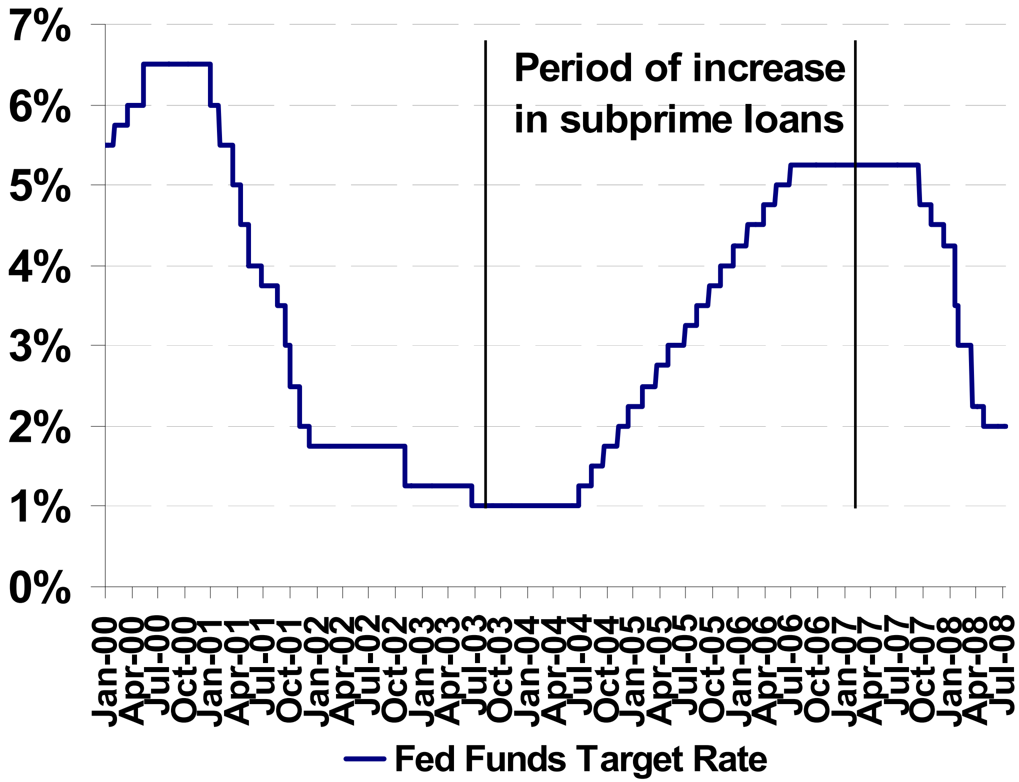
Source: ECB

In the US, subprime loans expanded

In Euro Area, no subprime lending

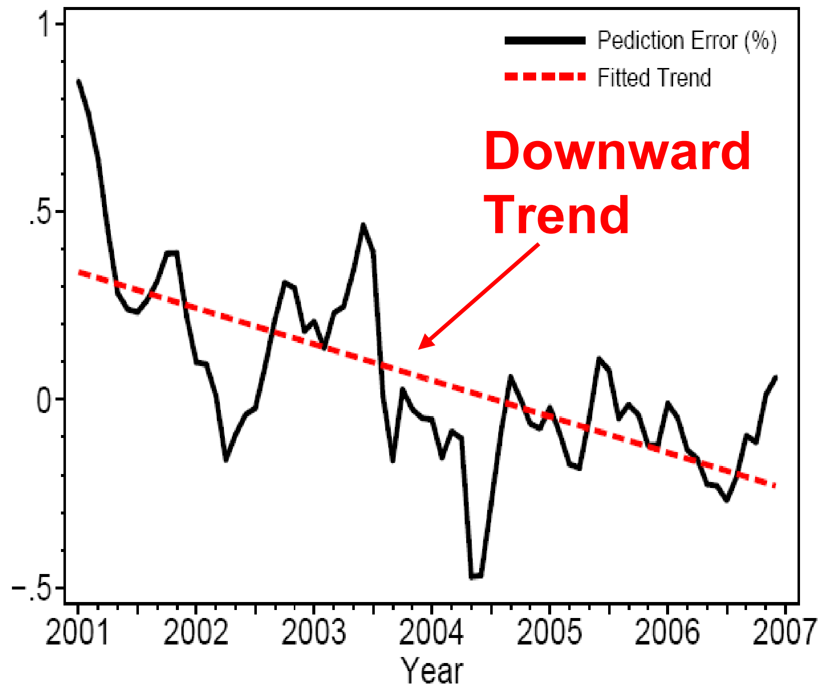
I.2 Expansion in subprime loans in the US with deteriorating credit standards

Subprime: **From 9% of total mortgages in 2003 to 24% by mid-2007 (subprime & Alt-A)**



A "Minsky" apparatus:

Subprime-Prime spread
after controlling for loan characteristics



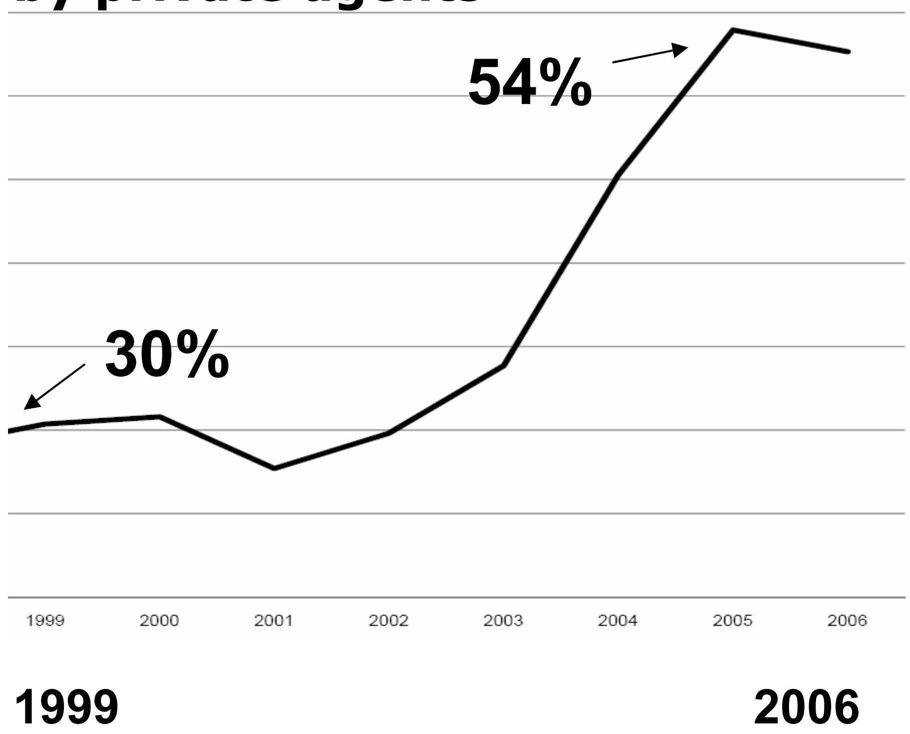
Source: Demyanyk & Van Hemert (2008)

I.3 ... due to the cannibalization of a useful market innovation: Securitization

Banks have three options:

1) Keep the loans on their balance sheets
2) Sell the loans to state controlled agencies (FNMA, FHLA, etc.), which in turn securitize them, a practice existing since 1939. So banks acquire the necessary liquidity in order to give new loans.
3) Sell the loans to private agents, especially the **jumbo** loans, which also securitize them.

Share of mortgages securitized by private agents



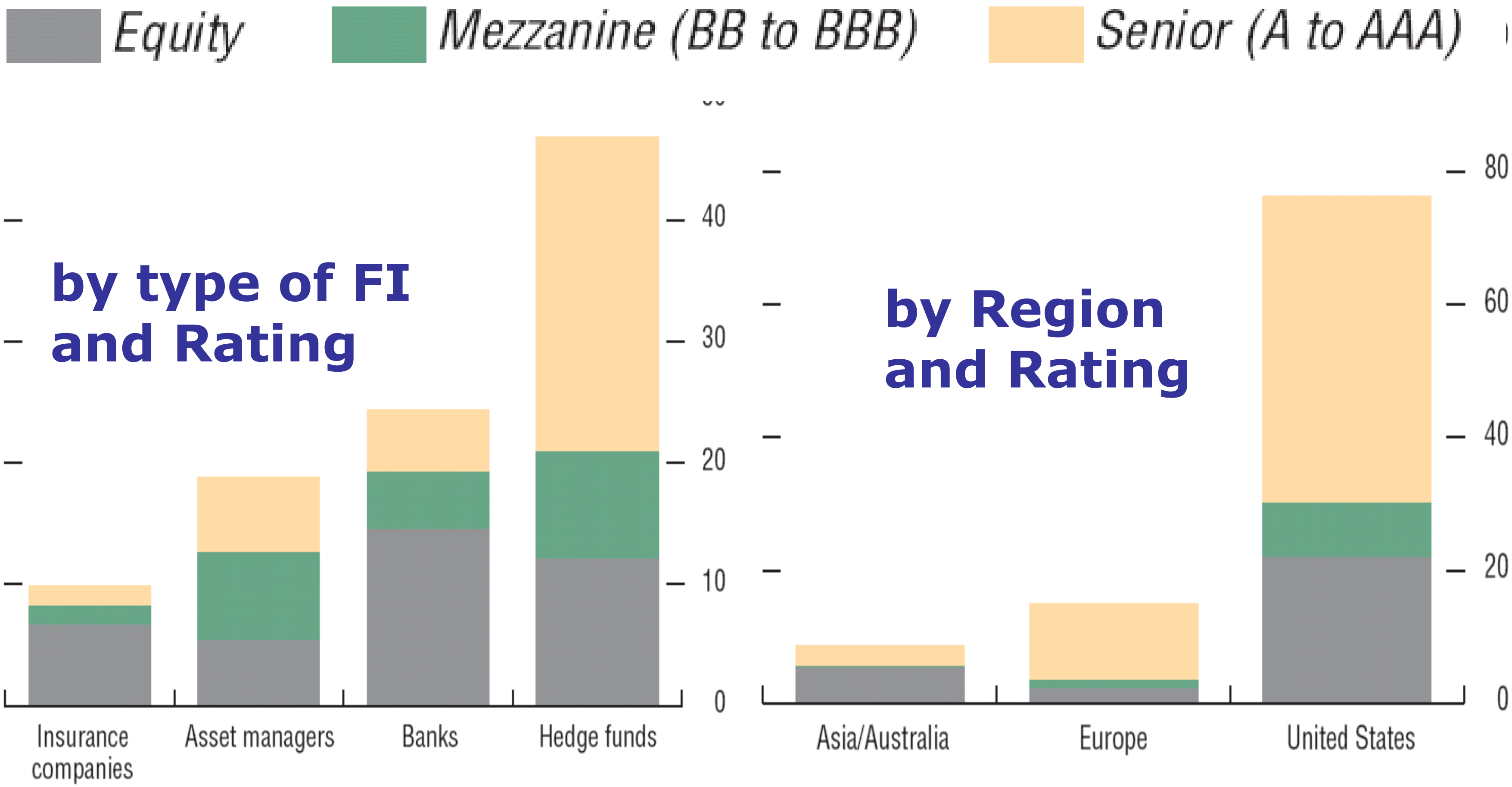
Source: Mian & Soufi (2008)

✓ **77% of new subprime loans were securitized**

I.3 The distribution of risk classes in CDOs

Buyers of ABS CDOs and distribution of risk

(Market size: $350 bn)



- ✓ **Banks and Insurance companies own mostly the equity portion**
- ✓ **Subprime exposure in Europe & Asia was small, yet the crisis spread**

Source: IMF, 10/2007

I.3 Why did FI hold the equity portion?

- ✓ **Lack of transparency?**
- ✓ **Lack of intimate knowledge of risk in subprime loans?**
- ✓ **Lack of knowledge on the softness of ratings of securitized products?**
- ✓ **Lack of understanding of the leverage factor and its consequences?**

My view:

- ✓ **Excessive short-term profit seeking, as the equity portion provided the highest return**
- ✓ **Miscalculation of the probability of a systematic collapse of the market**
- ✓ **Unfortunate realization of the "bad state," although true probability of occurrence was perhaps low, i.e. the inverse of the "peso" problem in financial markets**

I.3 The crisis spread as …

1. **Structured products** are present **everywhere**
   in portfolios across the entire financial system, in US, European and Asian banks, funds, insurance companies, etc.
2. **Counterparty risk increased** (lack of transparency & complexity)
   Interbank market – liquidity problems
3. **High leverage** of hedge funds, investment banks:
   Increased the need for liquidity & pressures for selling
   (Near) defaults of Investment Banks, Insurers, Hedge funds
4. **Supply of credit insurance by single entities**
   Credit Default Swaps (a $62 trill. market), Monoline Insurers
5. **Securitization had expanded into non-mortgage loans**
   Asset Backed Commercial Paper
6. **Rating agencies became more strict**
   Further write-downs
7. **International Accounting Standards:** Mark-to-Market
   Banks are forced to show PV losses
   Increased pressure for selling assets → fire sales → lower prices

PART II:

HOW SERIOUS IS THE FINANCIAL CRISIS?

1. The market was taken by surprise
2. Huge write-offs
3. Cost of capital up, credit spreads do not shrink
4. Housing market and MEW in the US economy
5. No decoupling of emerging markets
6. Inflation shock poses a dilemma for central banks
7. Is the inflation shock really unrelated to the financial shock?

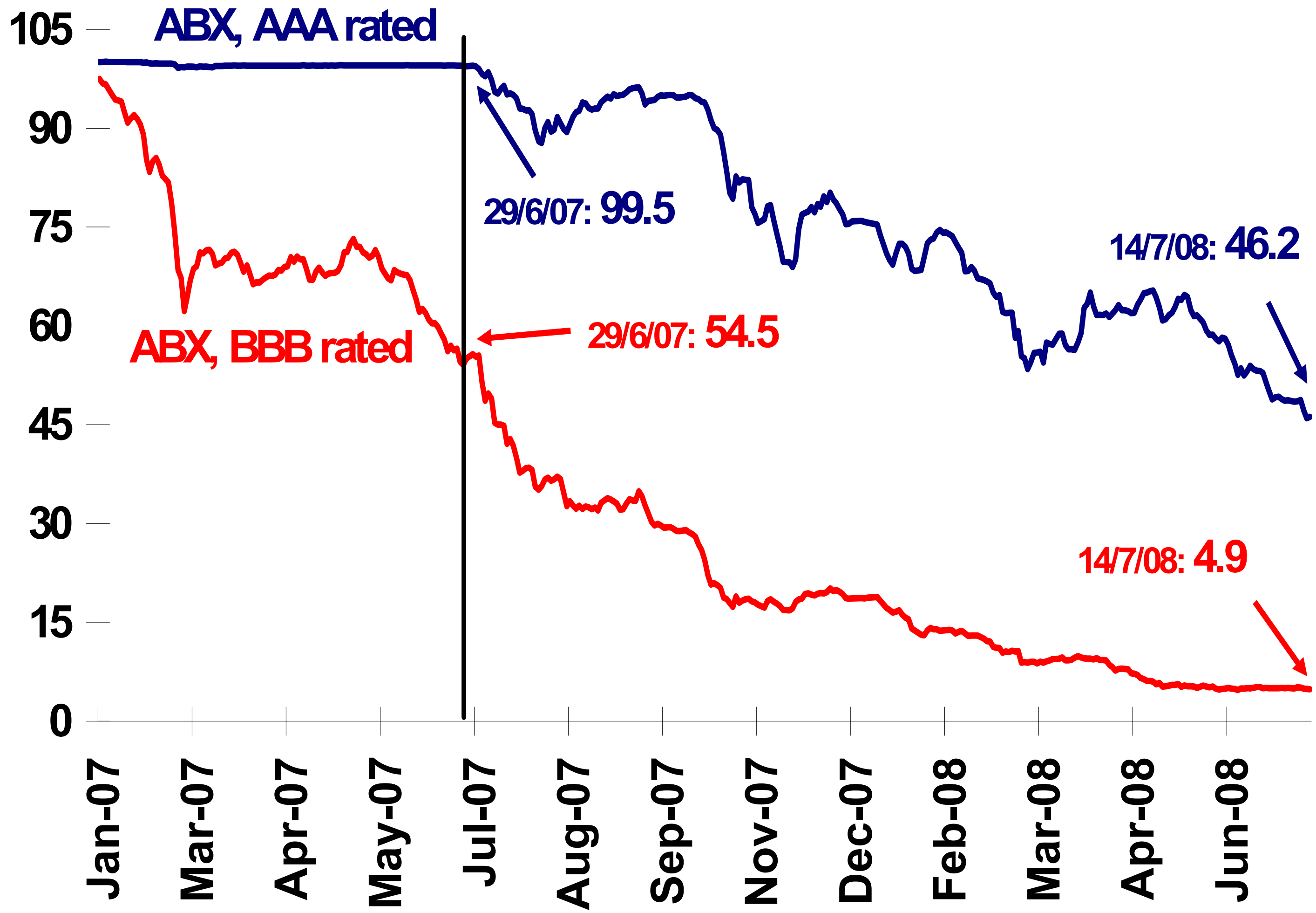
II.1 The market was taken by surprise:

Evidence from Mortgage-based Credit Default Swaps

Losses since the beginning of the crisis (July 2007):

- High credit quality loans **AAA : - 54%**
- Low credit quality loans **BBB: - 91%**

Source: Ecowin



***Note**: ABX contracts are used by investors to speculate on or hedge against the risk that the underlying mortgage securities are not repaid as expected. A decline in the ABX Index signifies investors' sentiment that subprime mortgage holders will suffer increased financial losses from those investments.*

II.2 Huge write-offs

- **50 million** households with mortgages, **18%** of whom have negative equity, i.e., a mortgage loan higher than the value of the house (mortgages of about **$1.9 trillion**). This number is likely to increase, as house prices continue to decline.
- Asset write downs & credit losses, **1/ 2007 – 6/2008**:

  Total write-downs of $416 bn - $326 bn capital increases

  Estimated losses (IMF):$945 billion: $225 billion on unsecuritized US loans
  $720 billion mark-to-market losses on related securities

Therefore:

- **Additional capital increases necessary**
- **Assets have to shrink** (by about $1-2 trillion) → credit squeeze → significant economic deterioration

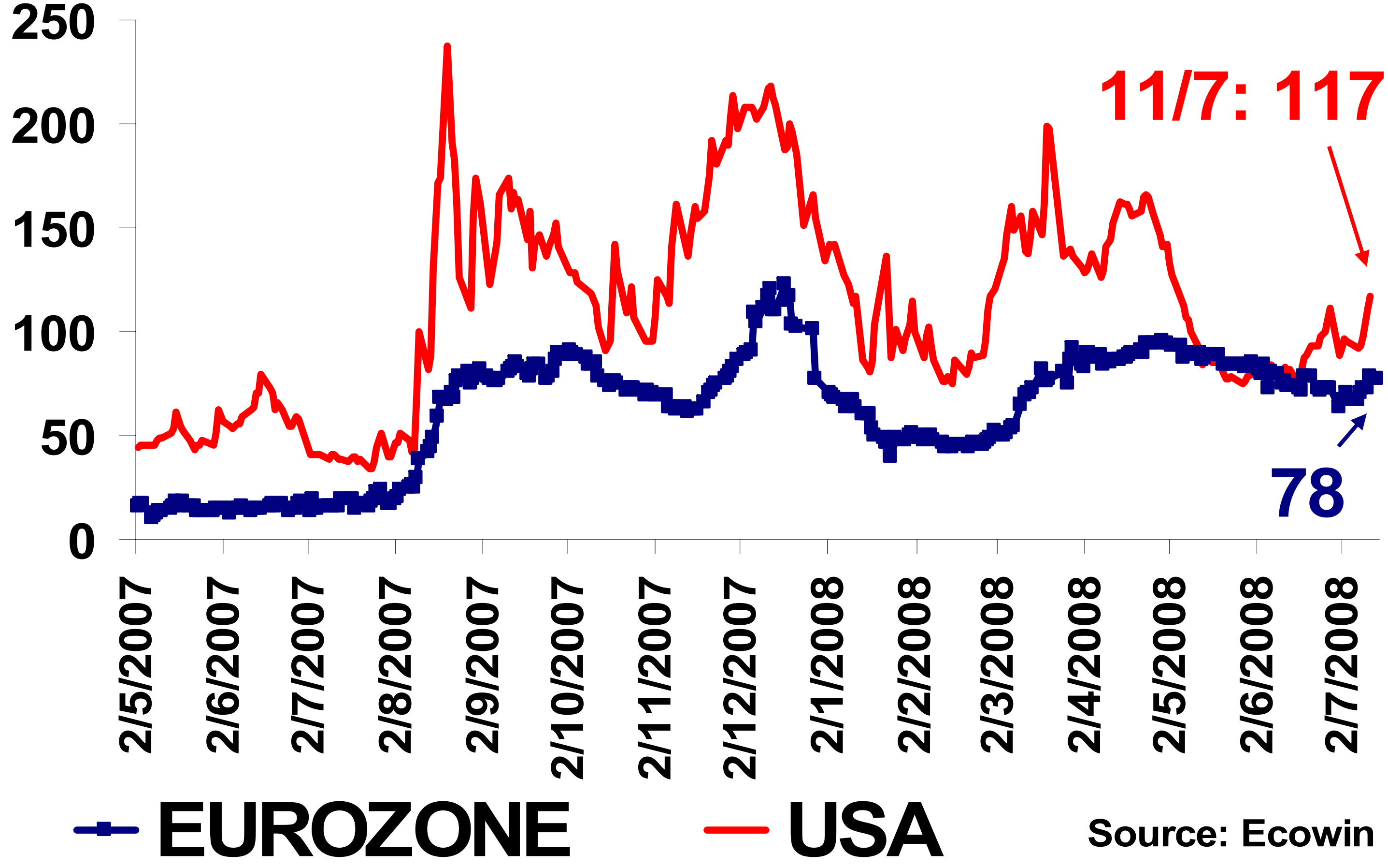
The authorities do whatever it takes to contain the crisis:

- Bernanke: Deeply aware of the Great Depression 1929-1933, innovative and effective interventions
- Fiscal package for the US recession
- **Financial Stability Forum** → recommendations to **G7 countries**
- **Corrigan** group, etc.

The credit crisis is deep and widespread, but hopefully will not prove to be like in Japan in 1990, or the Great Depression

II.3 A rise in the cost of capital for banks

- ✓ TED spread points to an increase in default premiums (3mEurodollar - 3mTbill)
- ✓ Same is true in the Euro Area (3mEuribor – 3mEuroZoneTbills)
- ✓ This leads to an increase in household and corporate lending rates by around 1%

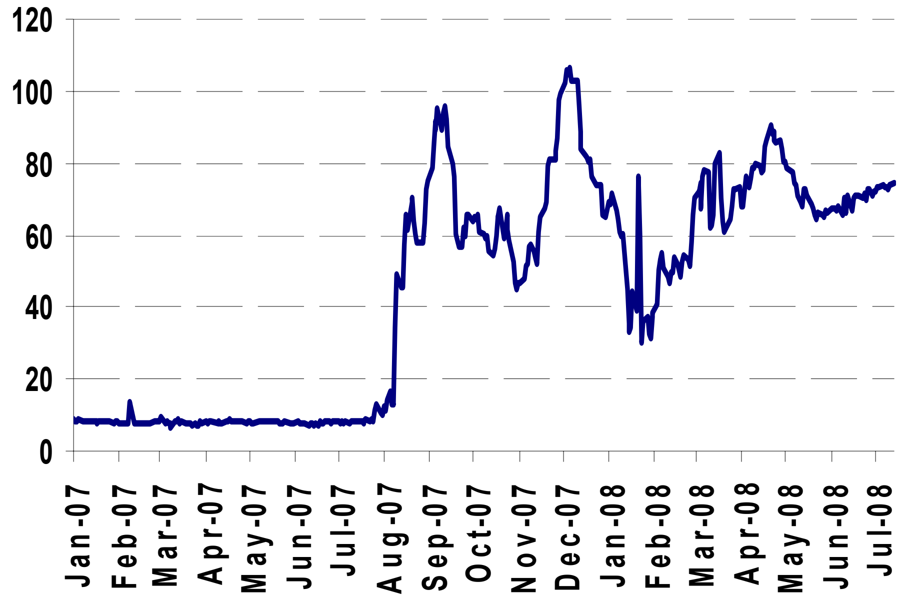


Source: Ecowin

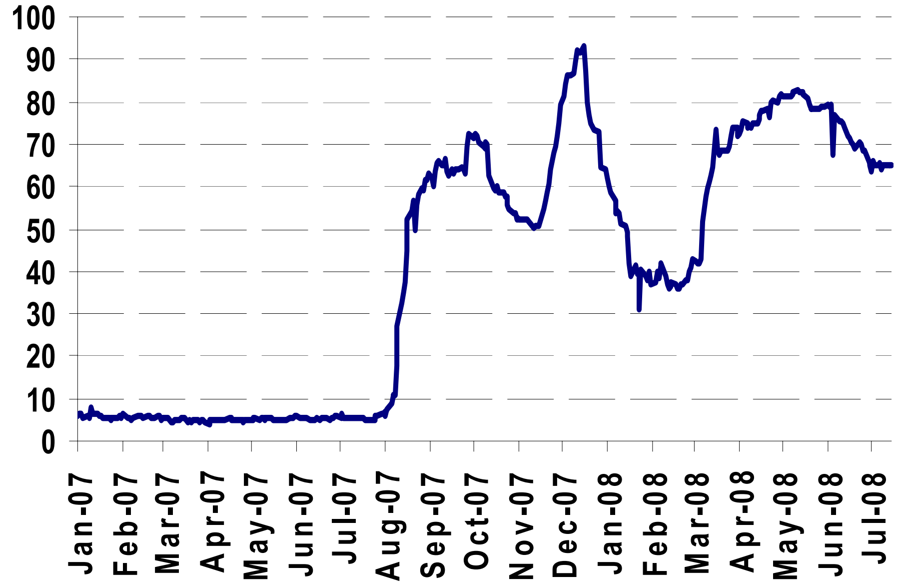
II.3 Turbulence in money markets signifies increase in counterparty risk

Uncovered minus covered 3-month inter bank rates

US: 3m LIBOR-OIS



Eurozone: 3m EURIBOR-EONIA, OIS

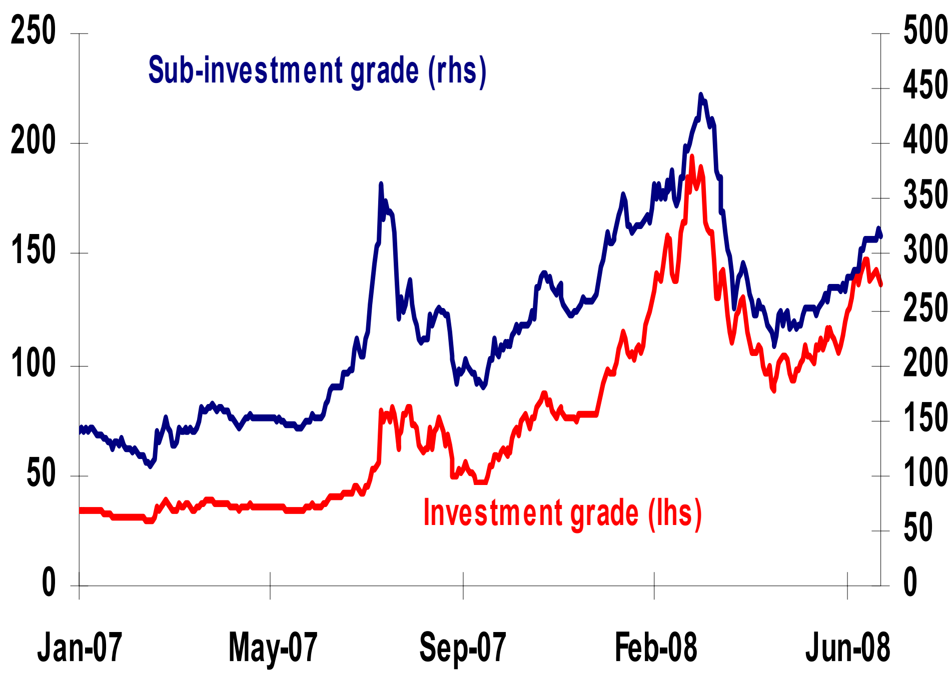


Source: Bloomberg

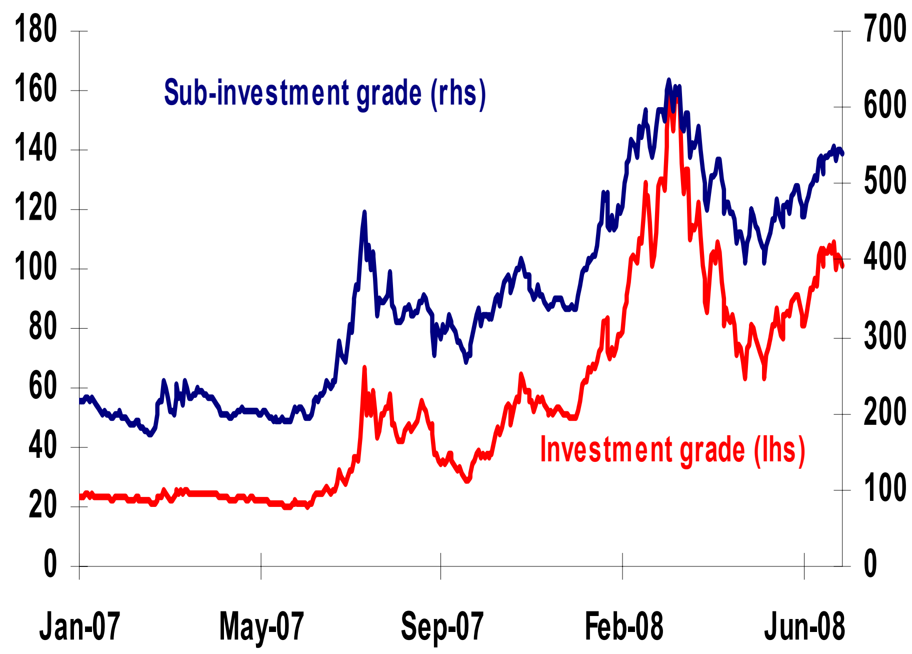
II.3 Credit-derivatives: Systemic risk worries continue

- CDS spreads in **mid-March** multi-year **highs**
- Rebound following FED's initiative to rescue Bear Sterns and coordinated central bank activity, but new widening shows syste**mic risk worries** continue

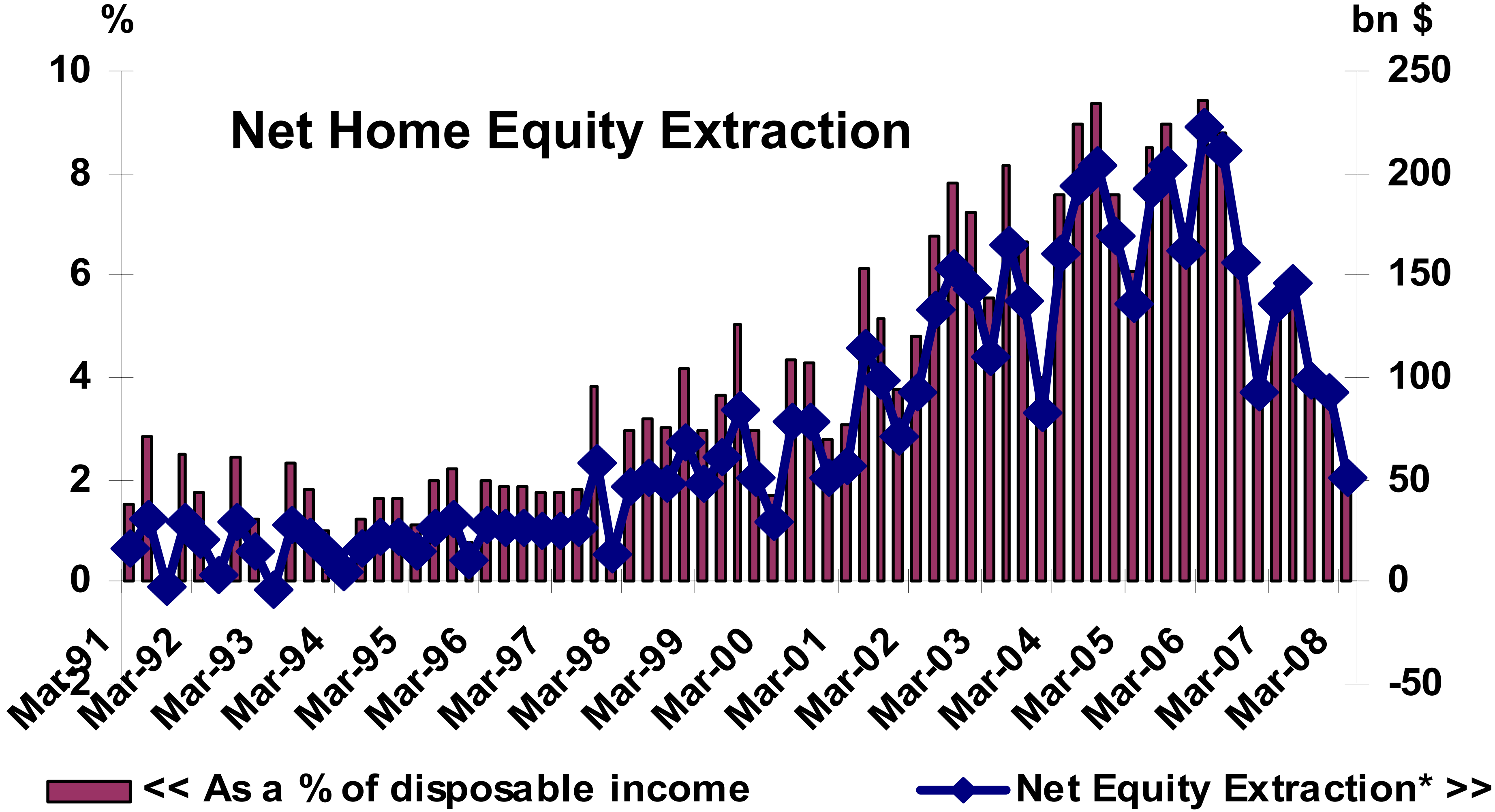
CDX Indices: 5yr CDS spreads (bps) - US



iTraxx Indices: 5yr CDS spreads (bps) - Europe

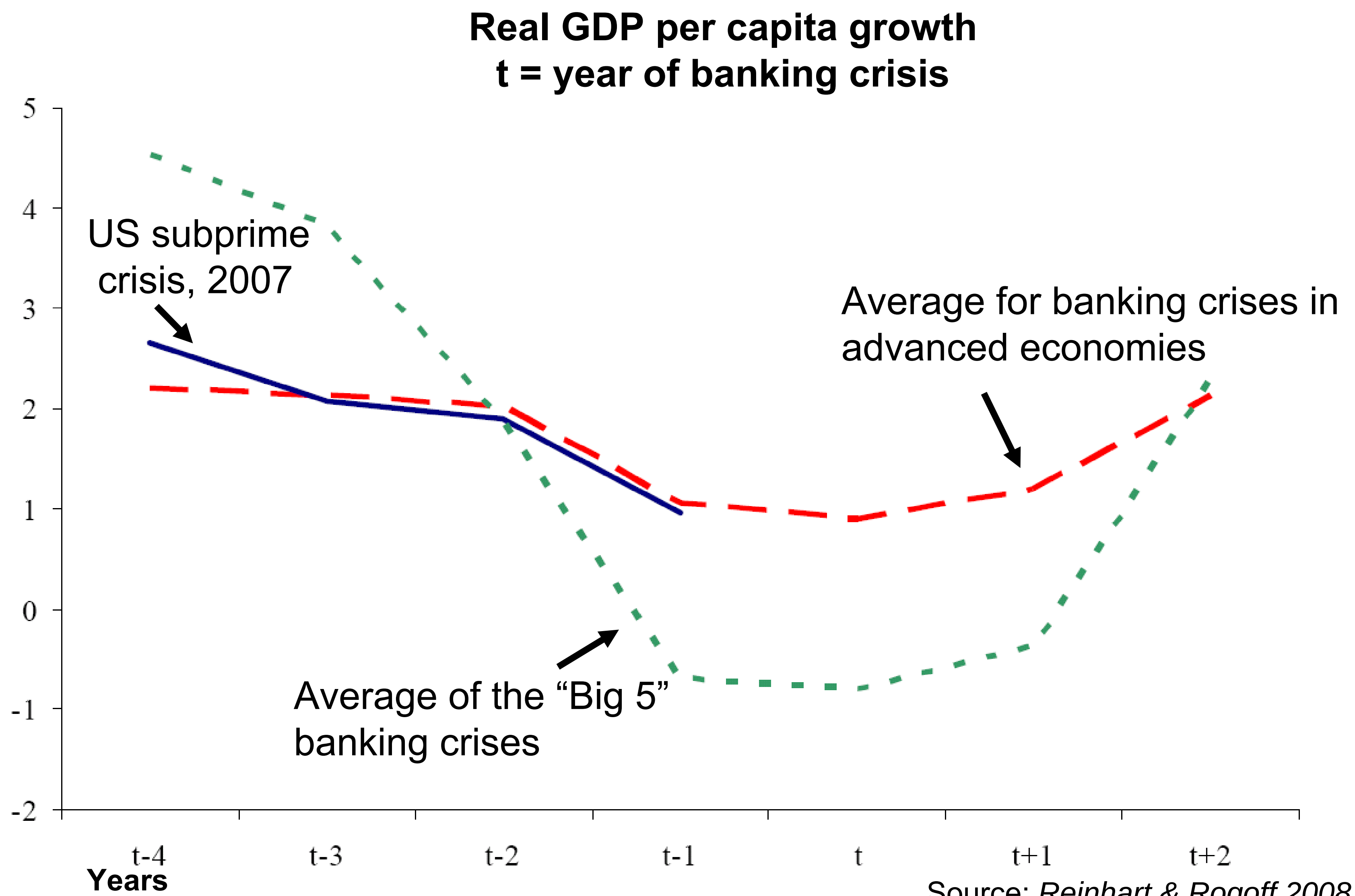


II.4 Housing markets pose a threat



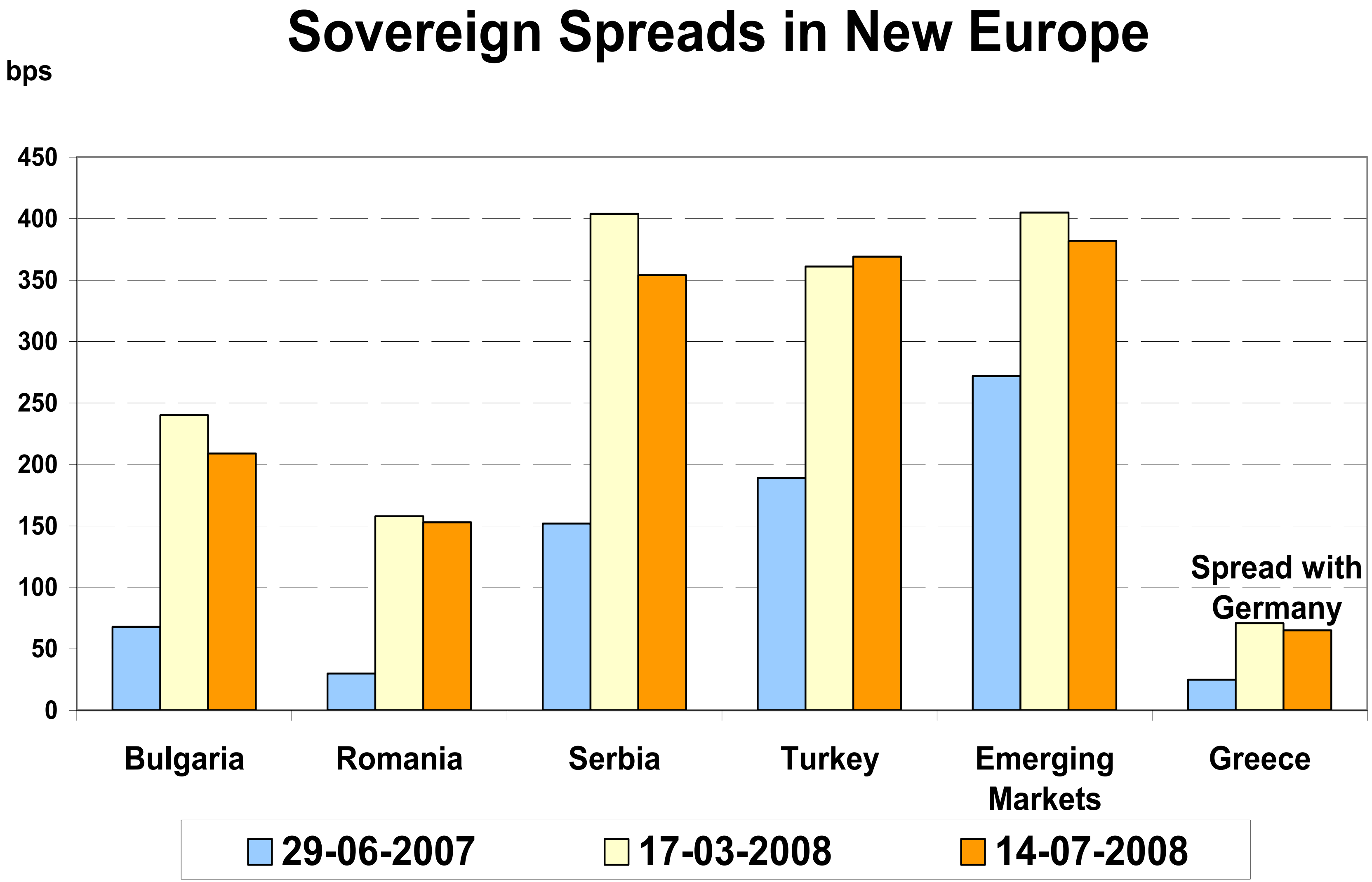
* Net Equity Extraction: Free cash resulting from equity extraction - Closing costs on existing home sales, refinancings, and home equity loans

II.4 Output falls after banking crises



Source: *Reinhart & Rogoff 2008*

II.5 No decoupling: Country risk premia stay high



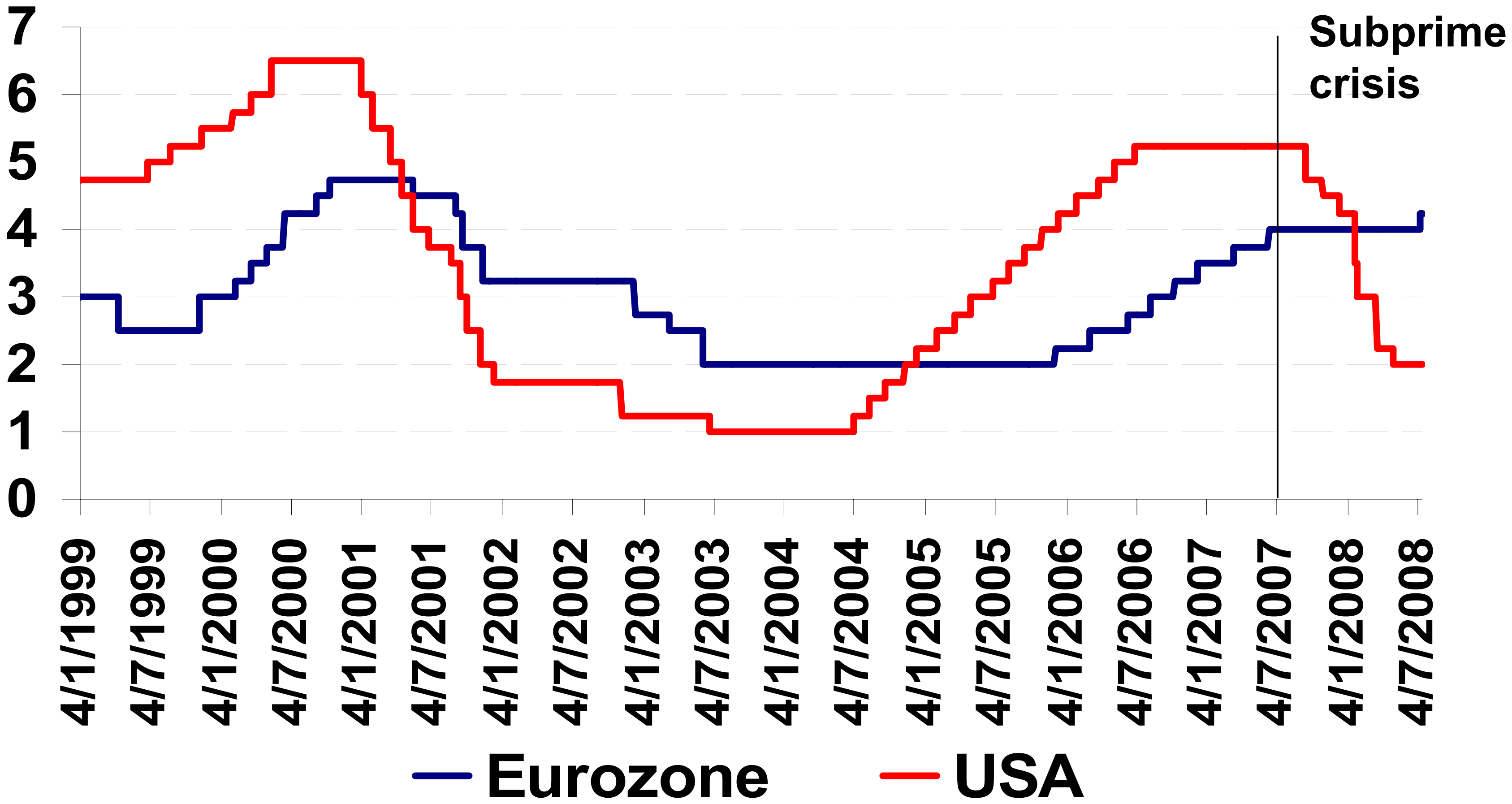
Source: Bloomberg, JP Morgan EMBIG Index

II.5 No decoupling so far

Real GDP growth	2007	Economist 2008f	Bloomberg 2009f
World (IMF)	4.9	3.7	3.8
US	2.2	1.2	2.0
		(0.36)	(0.61)
Eurozone	2.6	1.7	1.5
		(0.21)	(0.30)
Japan	2.1	1.3	1.4
		(0.18)	(0.30)
China	11.9	9.6	9.5
		(0.40)	(0.46)
Brazil	5.4	4.6	4.0
		(0.21)	(0.33)
Russia	8.1	7.1	6.5
		(0.33)	(0.24)
India	9.3	7.6	8.0
		(0.15)	(0.40)

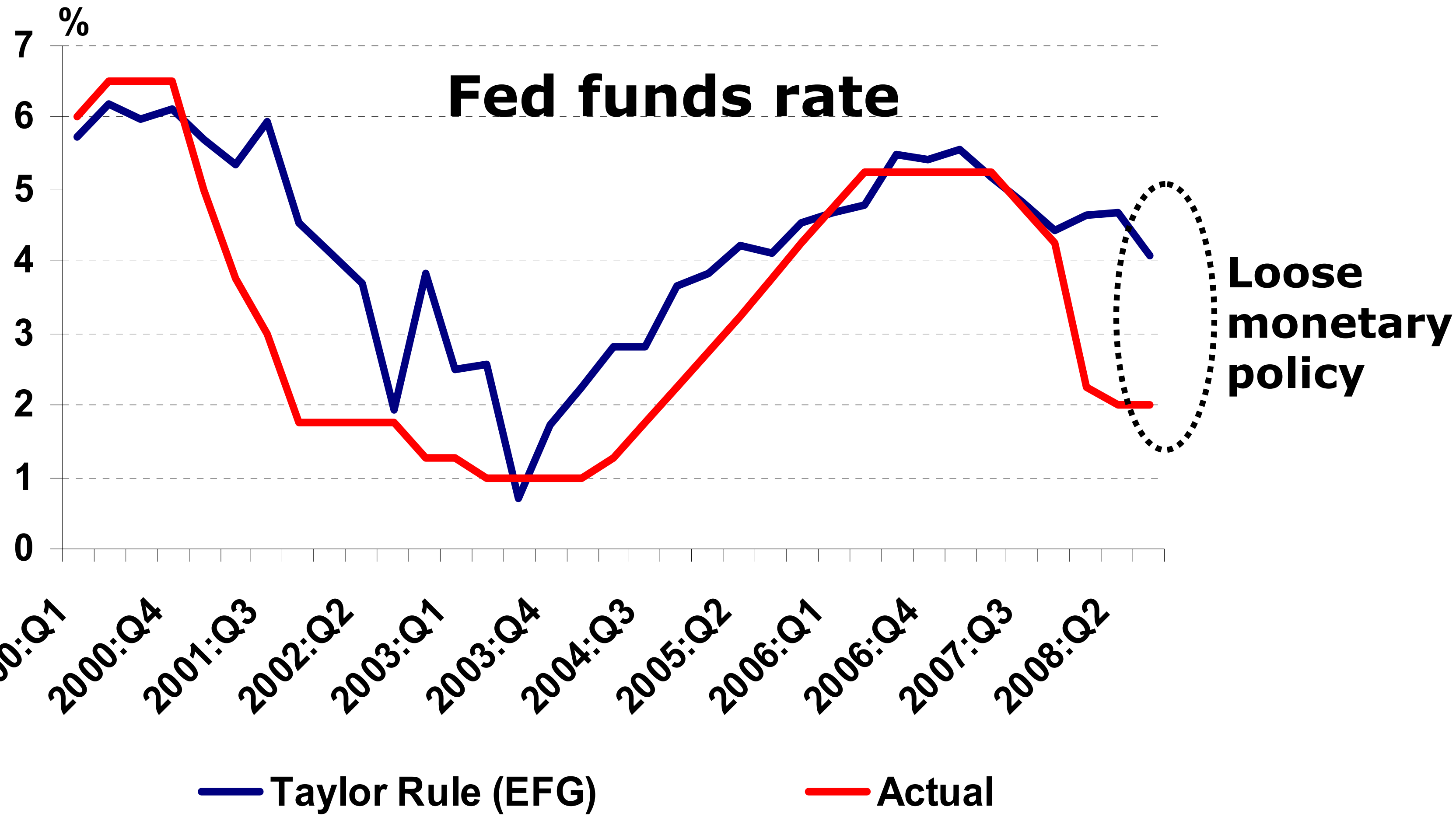
II. The Fed does worry

- ✓ Fed: An aggressive reduction in rates, from 5.25% to 2.00%
  Substituted good for bad collateral
  Intervened beyond its jurisdiction to save an investment bank
- ✓ ECB: Puts emphasis on inflation



II.6 The central bank dilemma

Our Taylor rule with real time data, says Greenspan was correct to bring FF down to **1.0%** in 2003, but the same rule now says that the FF should have been at **4.1%**

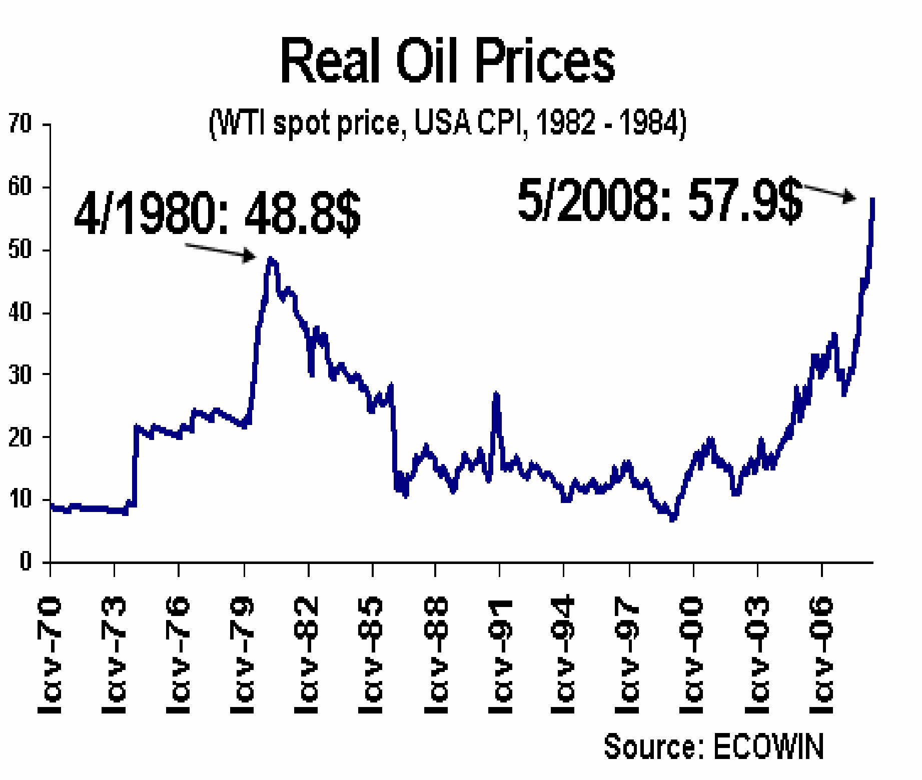


Taylor rule: Fed funds = 1.87 + 1.09*PCE(-1) + 2.02*LMT(-1) + u,
R^2 = 63%, sample: 1987Q1 – 2007Q2

PCE = Core Personal Consumption Expenditure
LMT = Inverse of product of the unemployment rate and the median duration of unemployment

II.7 Yet another shock: Global inflation

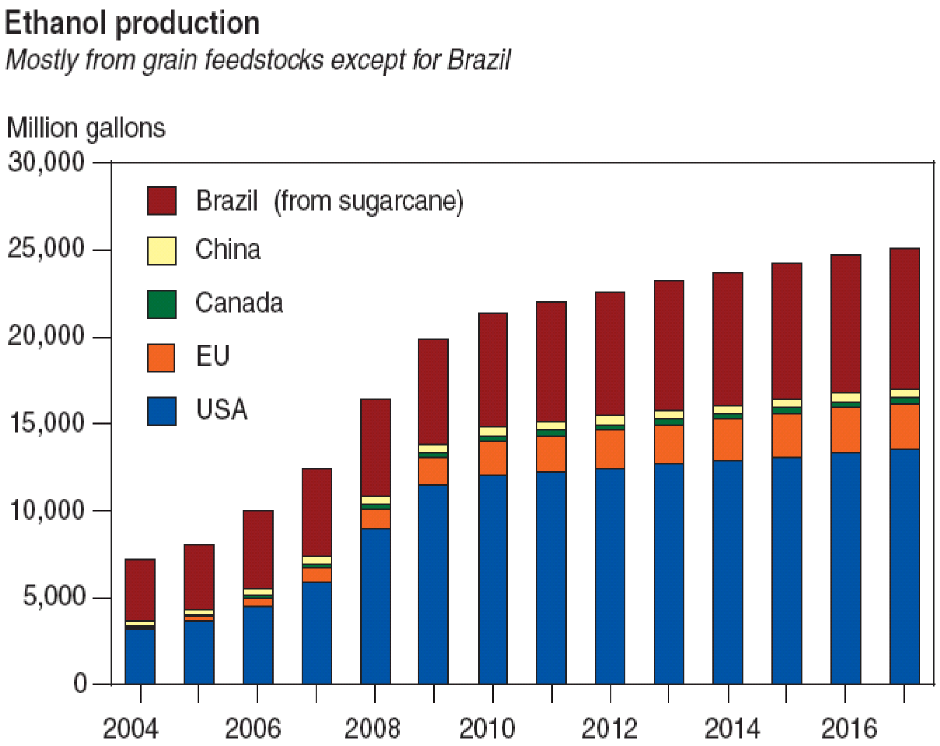
✓ The fall in global growth reduces the size of the increase in demand, but problems at the production and **refining** stage remain

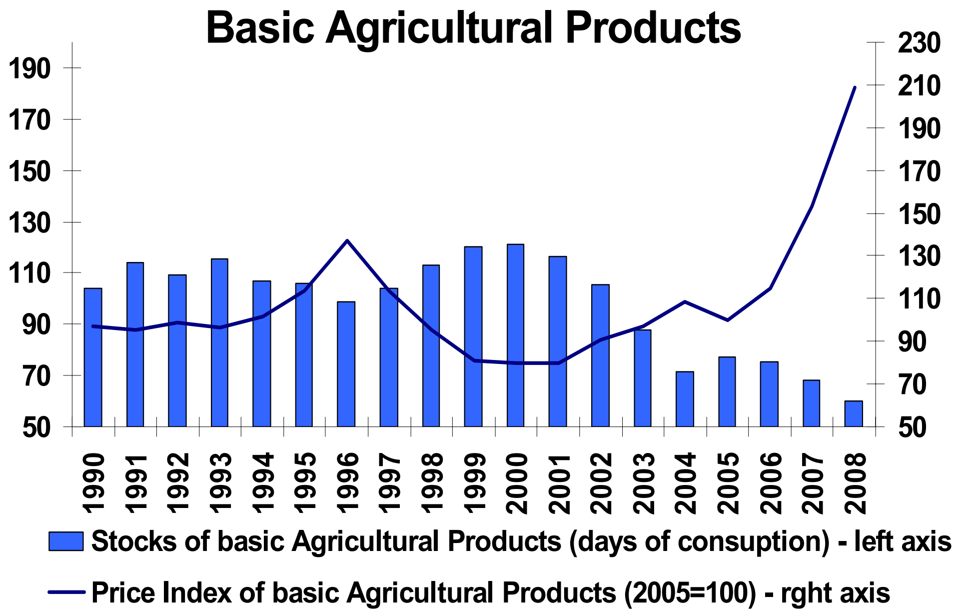


	2000 (mil. bl per day)	7-year Growth	2007 (mil. bl per day)	Share in Total Growth
Global Demand	76.4	12.3%	85.8	100%
Advanced Economies	48.1	2.1%	49.1	10.5%
China	4.5	66.6%	7.5	32.0%
Other Developing Economies	23.8	22.7%	29.2	57.5%
Global Supply	80.2	9.4%	87.7	

II.7 Food prices on a march forward

- Food prices picked up, albeit by **less than oil and metals**
- ***Contributing factors*:**
  - ✓ Increase in demand from China & developing economies
  - ✓ Increase in demand for bio-fuel production
  - ✓ Energy cost increases in production, processing and transportation
  - ✓ Restrictions in exports





Meat consumption in China

20kg/person in 1980, 50kg in 1997

1kg of beef requires 7 kg of grains

II.7 Is the inflation shock related to the origins of the financial crisis?

- ✓ **Some have argued that the global imbalances and the excess liquidity in emerging economies kept interest rates, especially long rates, too low: Greenspan's conundrum**
- ✓ **The low rates led to an unusual expansion in aggregate demand, in the US and the emerging world**
- ✓ **The low rates also led to a quest for yield: Carry trades, securitization**
- ✓ **This could be done as long as the world benefited from the GREAT MODERATION, a period with high growth and low inflation**
- ✓ **But eventually the expansion in global demand growth was not matched by an equivalent supply growth, leading to the current problems.**
- ✓ **Hence, view C: today's super-big financial problem is due to a single source, the past global macro environment**

PART III:

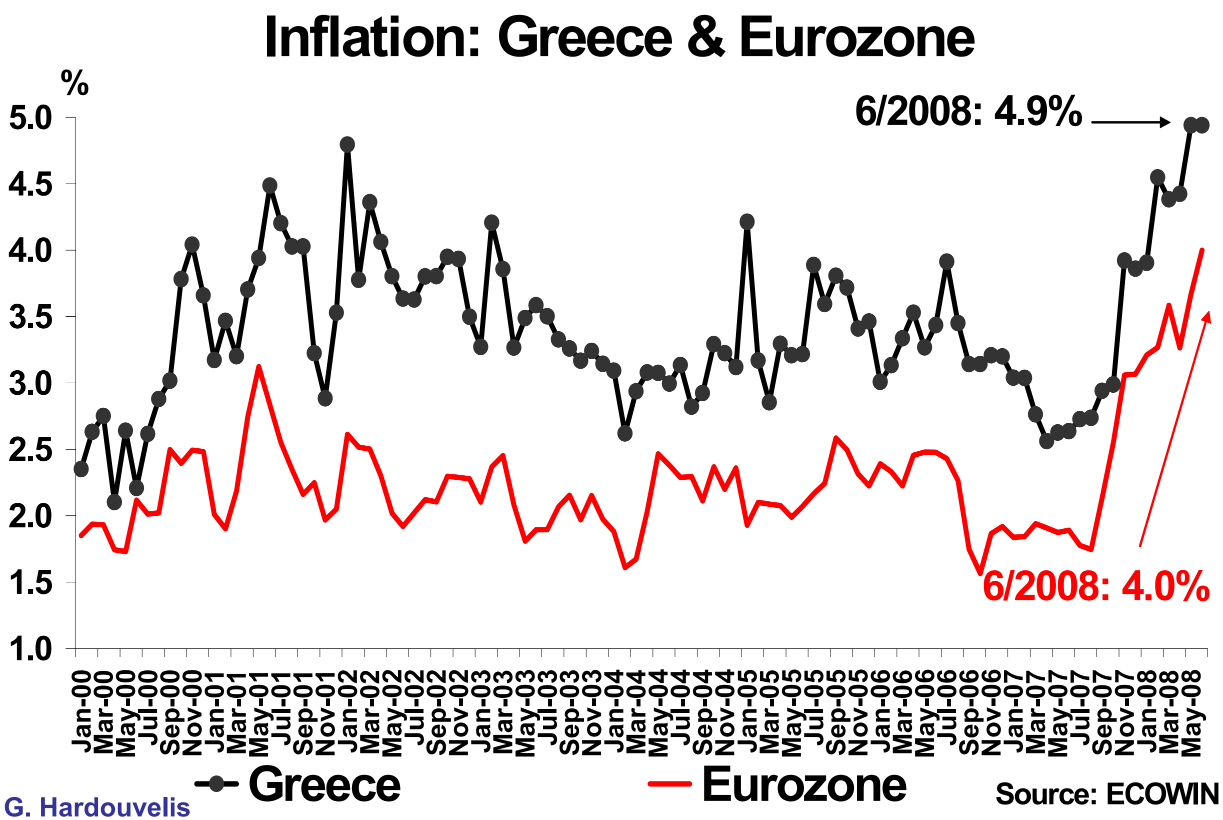
THE UNCERTAIN FUTURE GROWTH PROSPECTS IN GREECE

Σκίτσο του Ηλία Μακρή.

FT: *"Greeks will again become immigrants …"*

III. Impact on Greece … higher than perceived

- ✓ Global shocks are precursors to an **inevitable reduction in Greek growth**
- ✓ **Fin. Crisis**: Cost of capital up, exports down, tourism down, housing market down, shipping flat
- ✓ **Inflation**: Worse impact on Greece as energy intensity larger



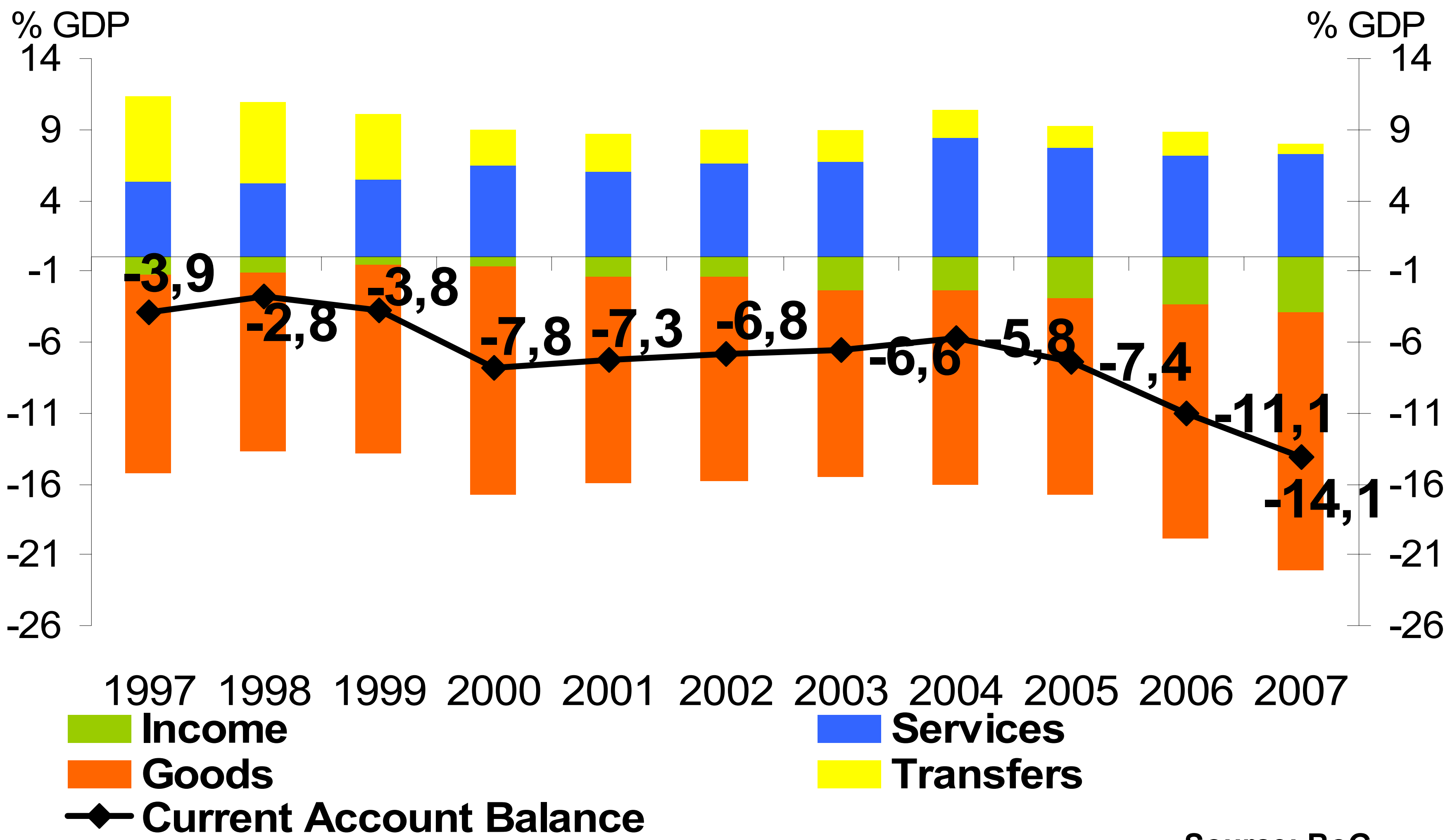
Energy Intensity of the Economy

(1995 real prices, consumption of oil equivalents in kg for the production of 1000€ GDP)

	EU-13	Greece
1995	196.3	268.5
2005	183.4	236.5

III. Problematic Competitiveness …

- ✓ **… the deepest thorn of the Greek economy**
- ✓ Visible at the macro level in the rising **current account deficit**



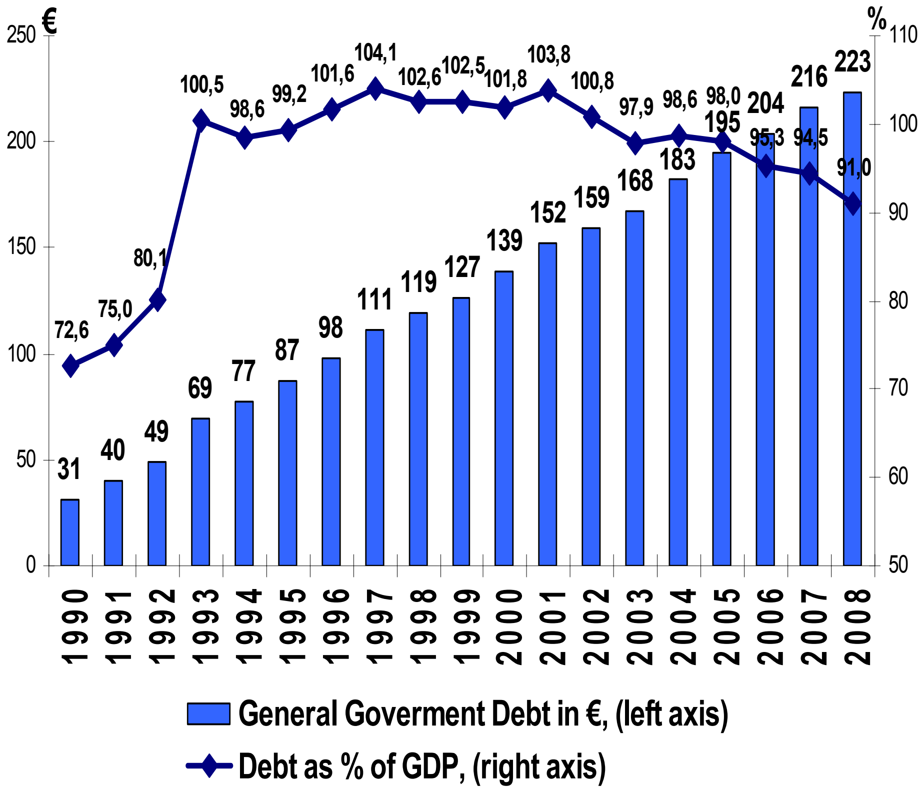
Source: BoG

III. Dismal Competitiveness rankings

- **World Bank: Greece ranks 100th in 2007 among 178 countries in the ease of doing business**

	Rank	Starting a Business (days)	Difficulty of Hiring Index (0-100)	Investor Protection Index (0-10)	Time for export (days)	Paying Taxes (hours)
Greece	100	15	44	3	20	264
OECD		6	25	6	10	183
Portugal	37	7	33	6	16	328
Czech Republic	56	17	33	5	16	930
Turkey	57	6	56	5.3	14	223
Bulgaria	46	32	17	6	23	616
Romania	48	14	78	6	12	202

III. High Public Debt & Aging Population



	2005	2010	2050
Health Expenditures (% GDP)	5.1	5.4	6.8
Education Expenditures (% GDP)	3.4	3.1	3.1
% of older employees (55 – 64)	10.9	12.0	17.4
Old-age Dependency Ratio	26.8	28.0	60.4
Number of pupils&students (thousands)	1888	1768	1444

Source: European Commission

THANK YOU FOR YOUR ATTENTION!!

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