US-Subprime Market Crisis

– Structural Causes and Issues for Emerging European Mortgage Markets -

European Federation of Building Societies
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About the author

- Fmr. World Bank, consulting firm founder in Berlin (financial sector development);
- Author or co-authorship of all major European comparative studies in the mortgage sector since 1995;
- US experience through advisory services for US corporations in the European market and several studies on the US market for European clients;
- International economist network in mortgage finance.

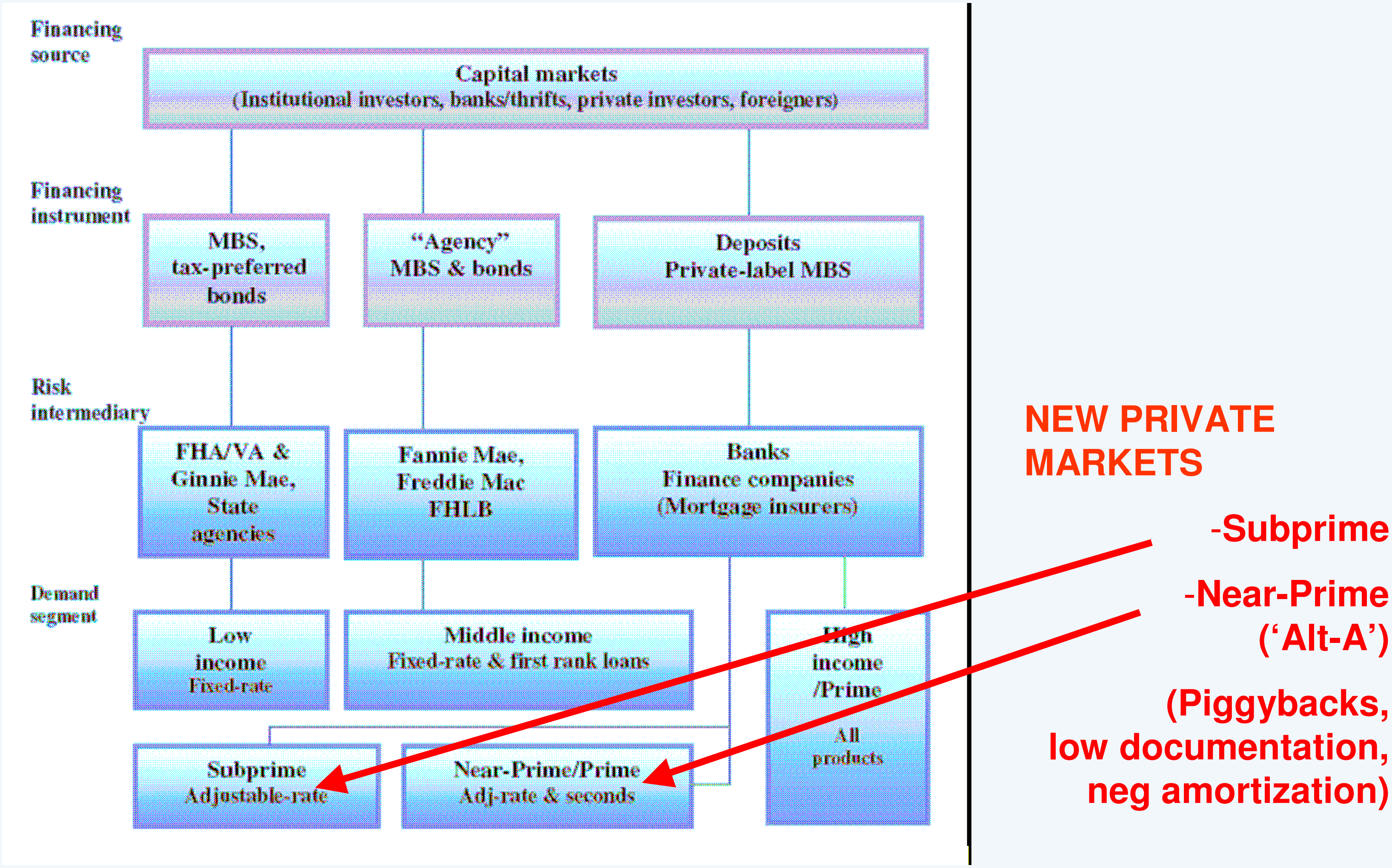
US Historical Market Structure Limits Private Sector

- 1920s banks and S&L business limited to states by regulation, 1932 creation of **Federal Home Loan Banks** to assist cross-border funding.
- 1934 federal mortgage credit guarantees (**Federal Housing Administration**), limited to long-term fixed-rate mortgages on single-family homes.
- 1937 Federal National Mortgage Association (**Fannie Mae**) creates parallel funding system to banks and S&Ls, originating through mortgage brokers.
- 1969 Vietnam fiscal crisis results in Fannie Mae privatization. Separation of **Ginnie Mae** (low-income, veterans) and creation of a competitor, **Freddie Mac**.
- 1980s: federal deregulation intiative abolishes usury ceilings →s**ubprime market** is created.
- 1990s: in the aftermath of the the S&L crisis, Fannie Mae and Freddie Mac emerge as central financial guarantors and refinancing agents in the middle-income market.

Result: private sector reduced to risky market niches

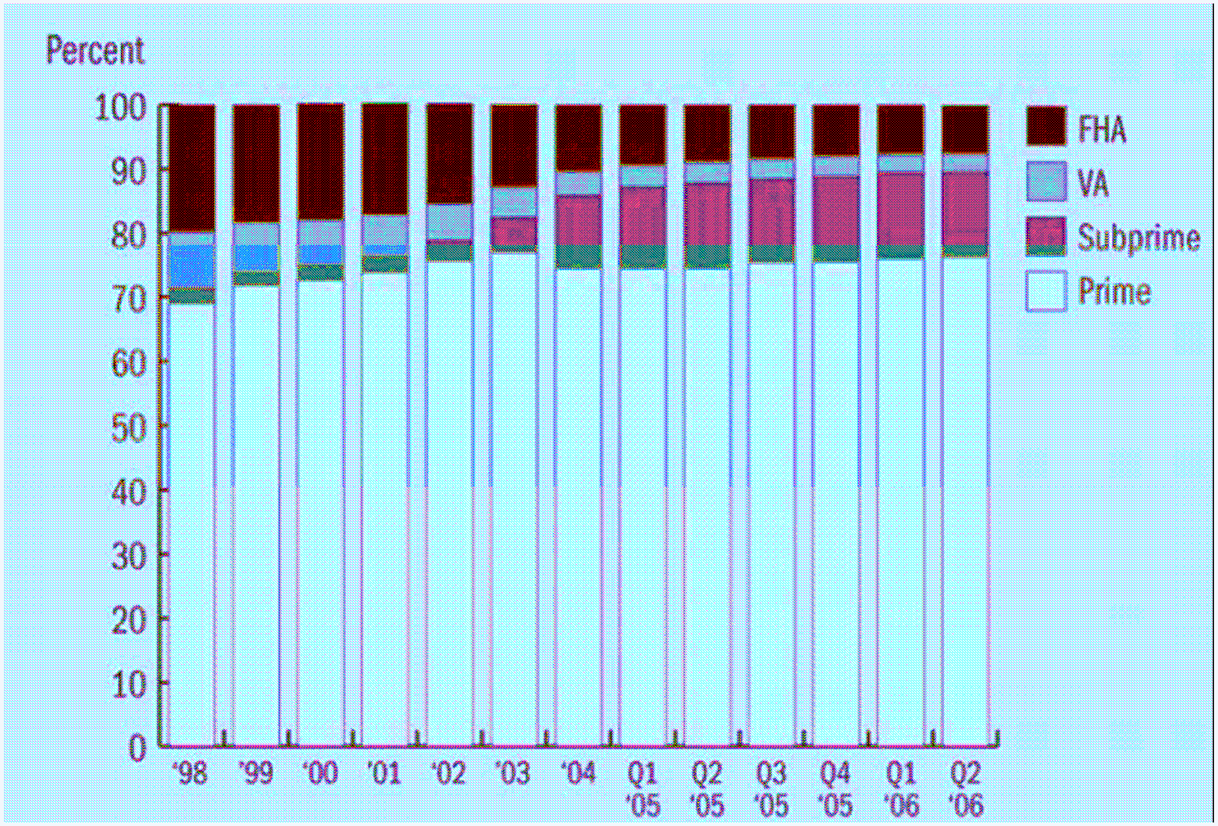
Jumbo, subprime, non-traditional products/ARMs.

Legacy and New Market Segmentation in the US



Source: Finpolconsult.

Private Subprime Market has Pushed Aside Public Low-income Programs for a While



Reasons: lags in adjustment of house price ceilings, public sector focus on fixed-rate lending, incentive structure of brokers.

Source: MBAA.

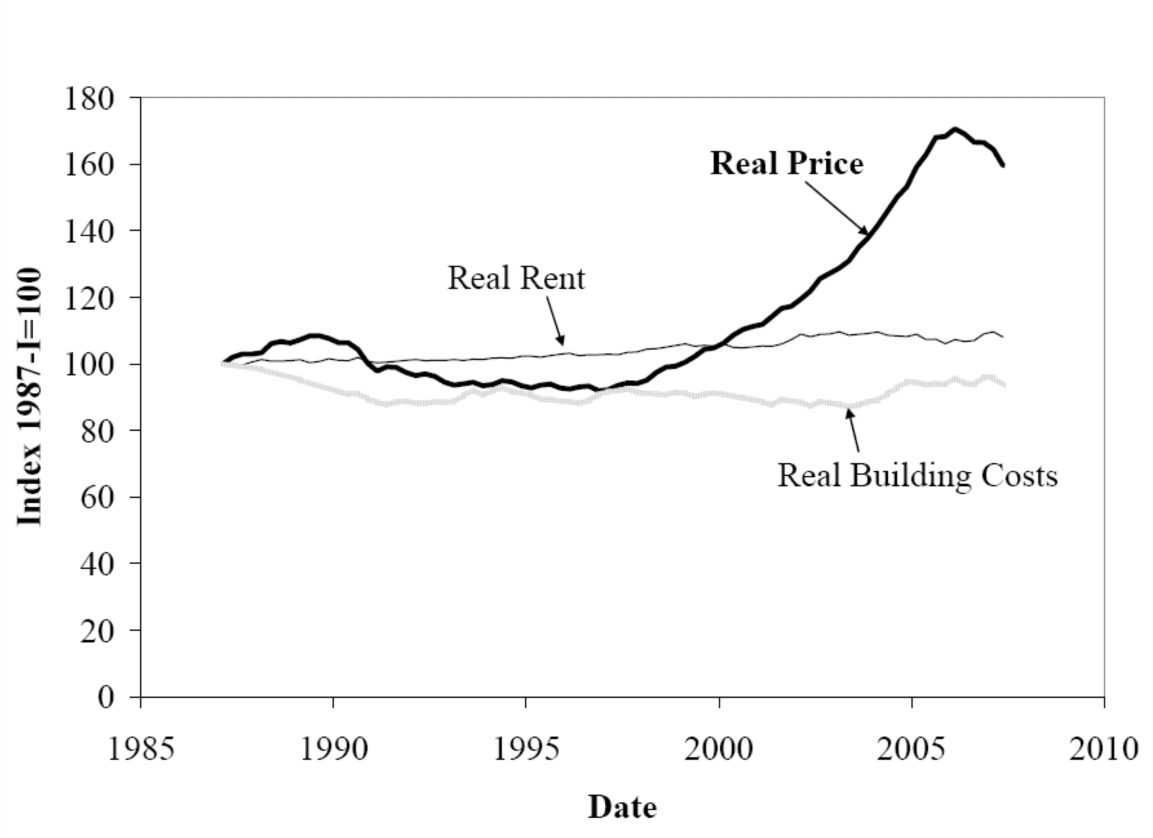
US Housing Policy Distortions

- No public **downpayment savings** programs at federal level, leverage cum guarantee approach banking on capital gains;
- Mortgage **interest tax deduction** up to 1 mln USD loan volume (multi-purpose, incl. for consumption) promotes leverage;
- Other **tax distortions**: mortgage insurance (premia not deductible until 07) vs. ’piggybacks’ (second mortgages, interest tax-deductible);
- **No rental housing support programs** except for the very poor (stigmatization), rental law for the remainder dominated by short-termism (1 yr roll-over);
- Homeownership as **‘piggybank’** for consumption finance, creates extra-value?.

Result: ca 10% of US households are owners although, for solvency reasons, they ought to be renters.

Absent deep rental markets as benchmarks, US housing valuations rely on ‘open market values’ and routinely ignore opportunity costs/yields.

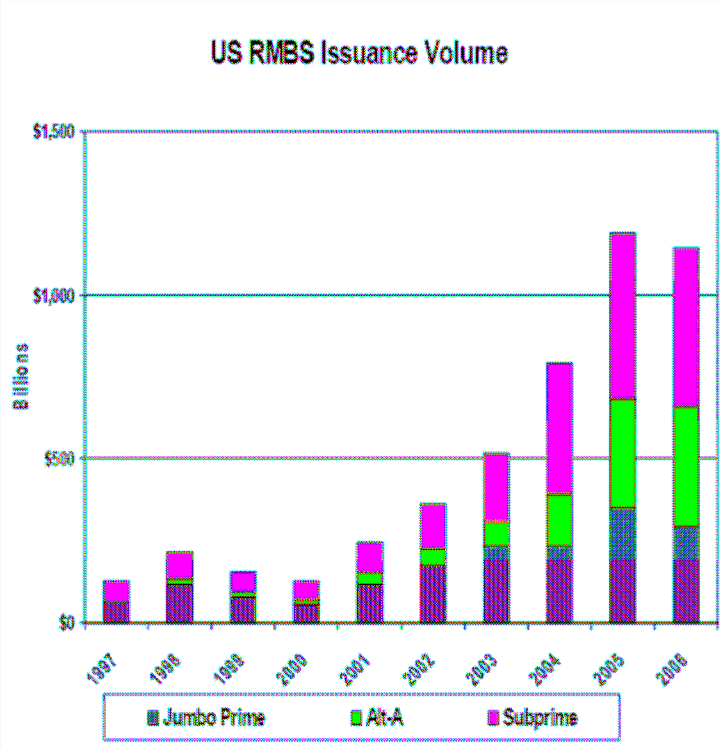
Open Market Prices Divorced from Cash Flow and Replacement Valuation Benchmarks

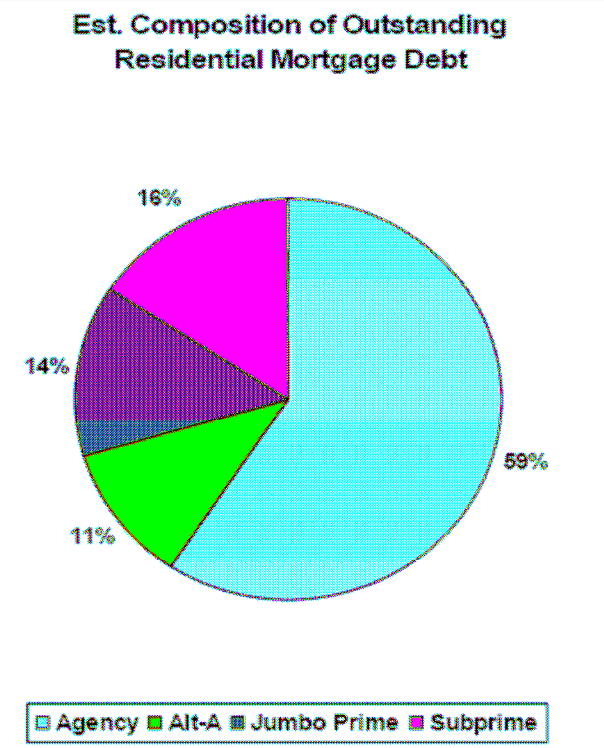


Case/Shiller house price index, McGraw Hill construction cost index, Bureal of Labour rent and consumer price indices.

Source: R.Shiller, Jackson Hole Sept 07.

With the Price Bubble, Non-Prime Market Segments Reach New Dimensions





Source: FitchRatings.

Fragmented Regulation System

- Regulation system with many branches
  - Fannie Mae/Freddie Mac (OFHEO),
  - Banks (FDIC),
  - Savings and loans (OTC),
  - Insurers (state regulators, esp. North Carolina, New York, Arizona),
  - Bond issuers (SEC), indirectly also regulating finance companies and investment banks.

  Entire supply chains are hardly regulated at all (e.g. brokers – in some states Codes of Conduct, finance companies, private equity and hedge funds).

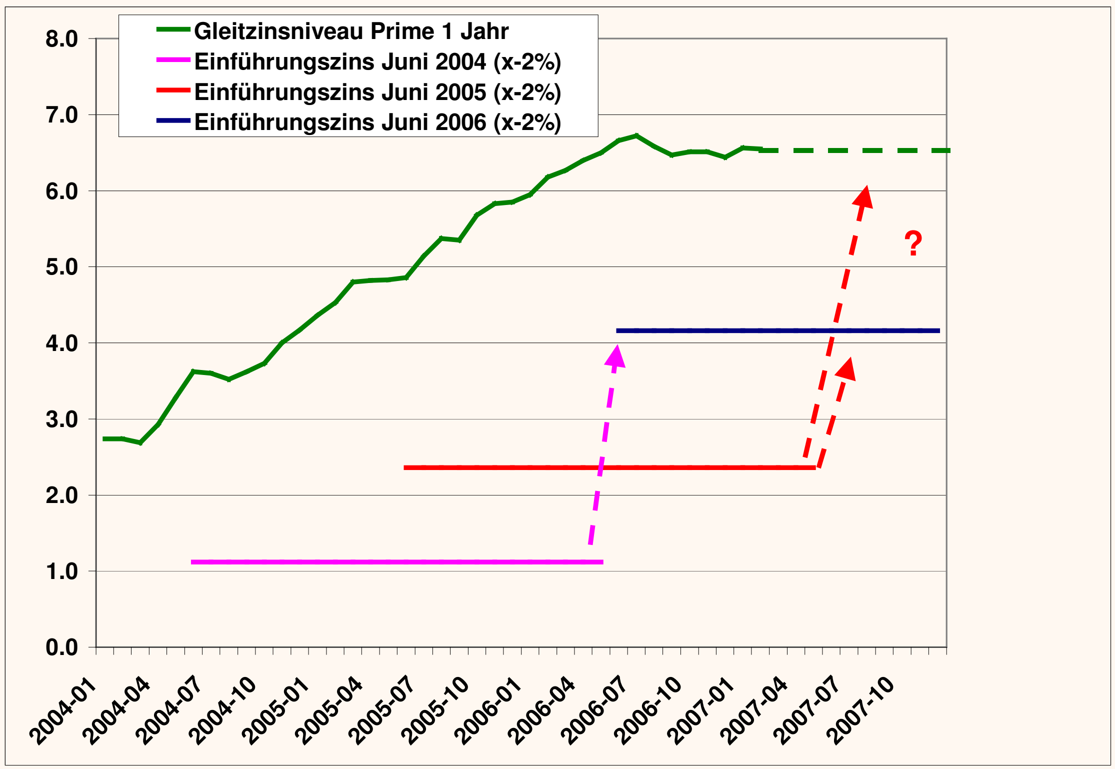
- Fragmented consumer protection (on most issues still state regulation).

Result: system reacts with policy and coordination lags to market problems

- **Interagency Guidance on subprime loans of 2007 comes 3-4 years too late, works procyclically;**
- **There is no uniform mortgage credit regulation standard, e.g. concerning valuations, underwriting standards and covenants of intermediaries;**
- **Intermediary incentives to inflate prices remain unaddressed.**

Example Reset Problems – Interagency Initiatives Come Too Late

Interest Rate Shock in Subprime Lending, Numerical Example



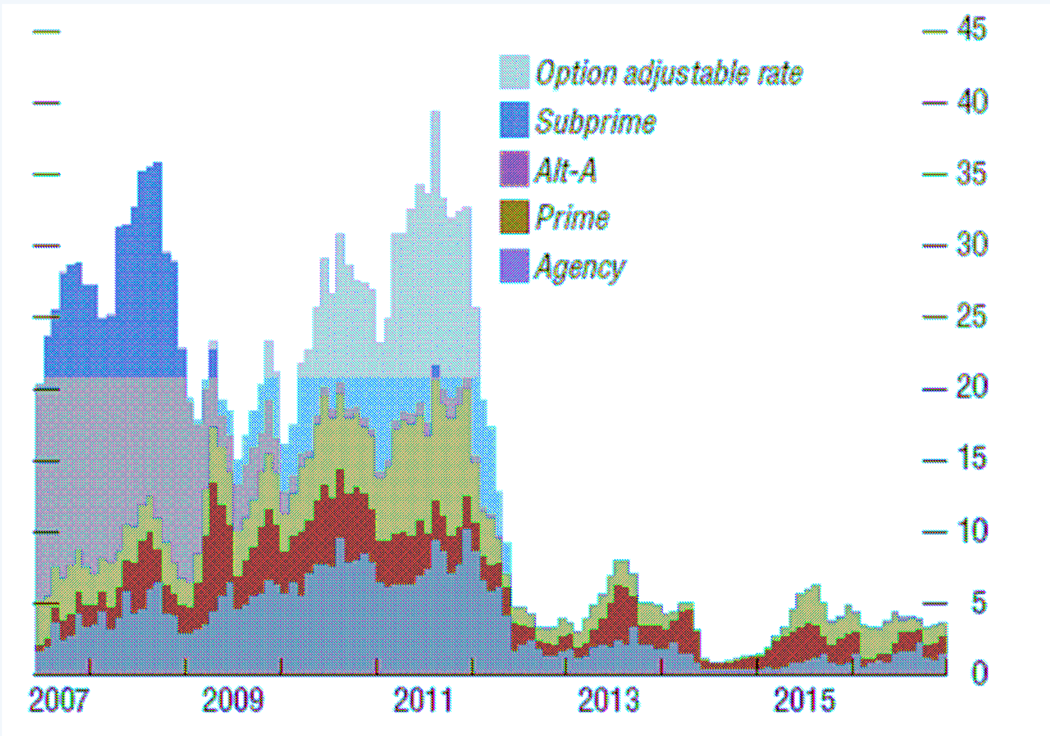
Fully-indexed, fully-amortizing underwriting, as required by Interagency Guidance, would mean immediate default.

Lenders are forced to restructure and/or forgive debt (short sales, etc.).

Source: Finpolconsult/Dübel

Delayed Reaction Means: the Problem will Stay Around

Time Profile of First Resets in Different Lending Categories, in Billion USD per Month



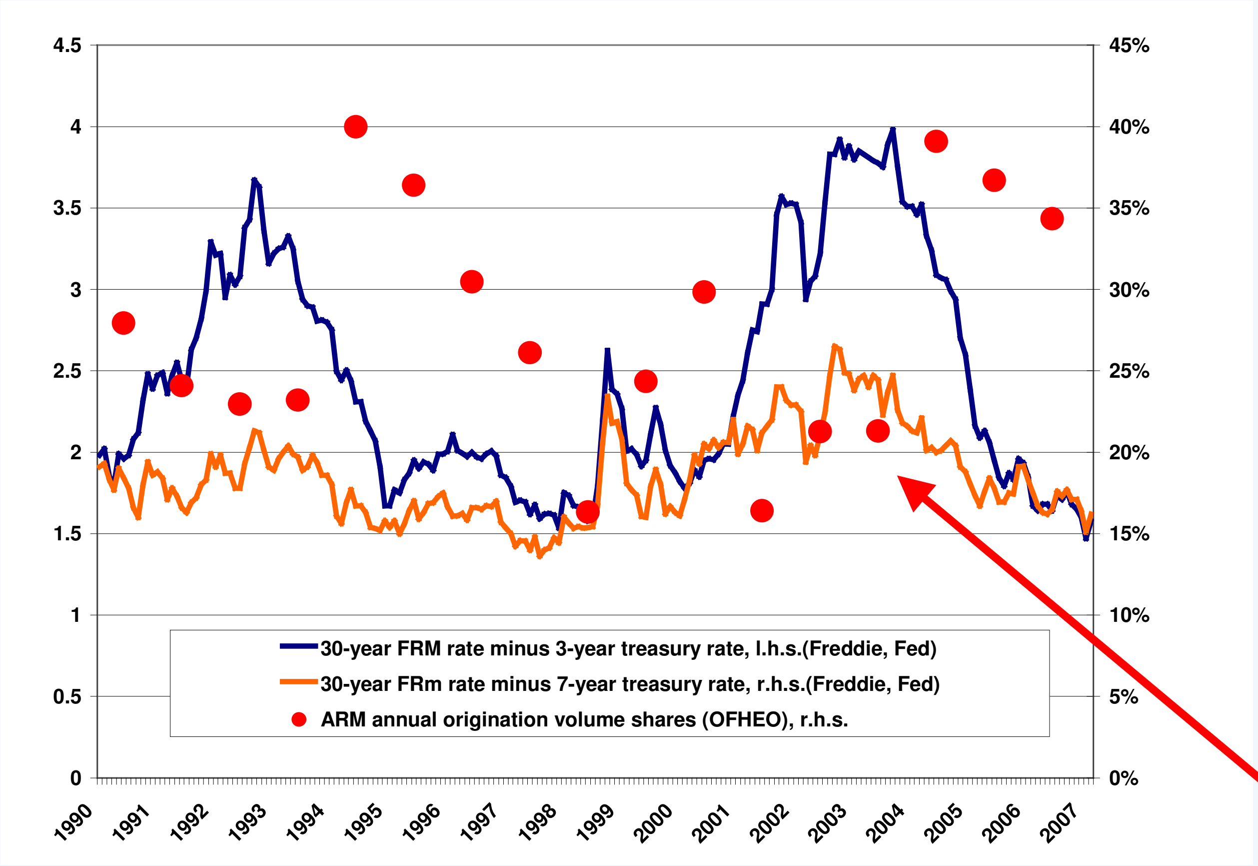
Source: Credit Suisse.

Pump-Priming the Economy with a More Aggressive Housing Finance System

- Expansive monetary policy (short-term) and Asian savings glut/exchange rate policy (long-term) reduce rates across the board → discount factor for housing falls.
- Early repayments of fixed-rate mortgages shield US from recession.
- Share of adjustable-rate products rises cyclically →discount factor falls further.
- Mortgage equity-withdrawal economy for consumption finance drives house prices further (home equity loans, cashout refinancings);
- Later in the cycle, vs. 2004/5, ‘non-traditional’ products - interest only, interest payment capitalization, adjustable-rate with teaser fixed rates and reset - grow.
- Tax policy prefers ‘piggyback’ loans with high LTVs - 100% financings become the standard in many coastal areas.
- Subprime market pushes public (fixed-rate-) loan programs aside.
- Prime credit turns into to subprime, due to high house prices, broker fee structures;
- New market: Alt-A, with a high share of low-documentation loans (vulgo: ‘liar loans’).

Result: declining lending standards, general increase of payment shock risk, credit, price and consumption bubble.

The 2002 Prepayment Wave Came at a Considerable Cost, Discouraging Interest Rate Risk Protection

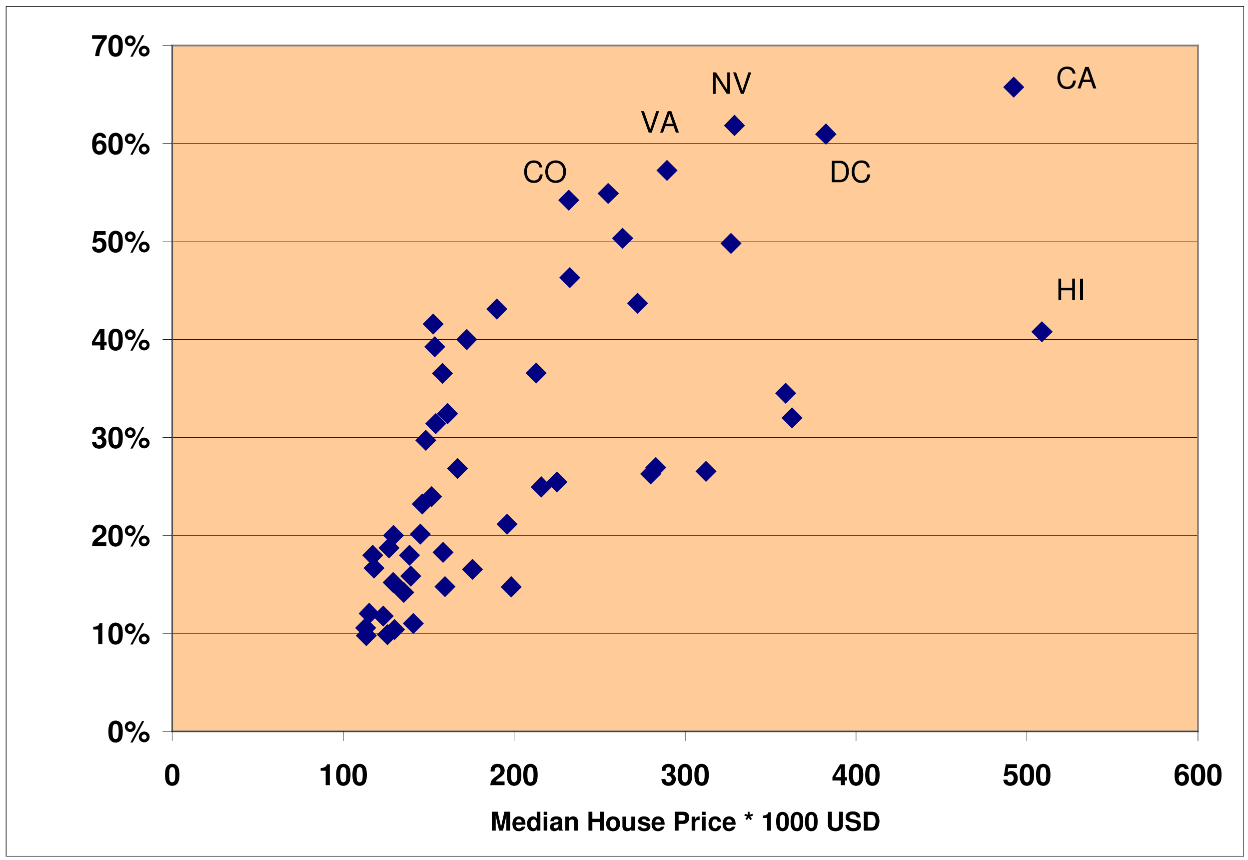


Risky but margin rich adjustable-rate products (250-300 bp margin in rate trough)

Cost rise in fixed-rate lending 01-02 + 50 bp! Reason: unexpectedly high prepayments.

Quelle: Freddie Mac, Finpolconsult.

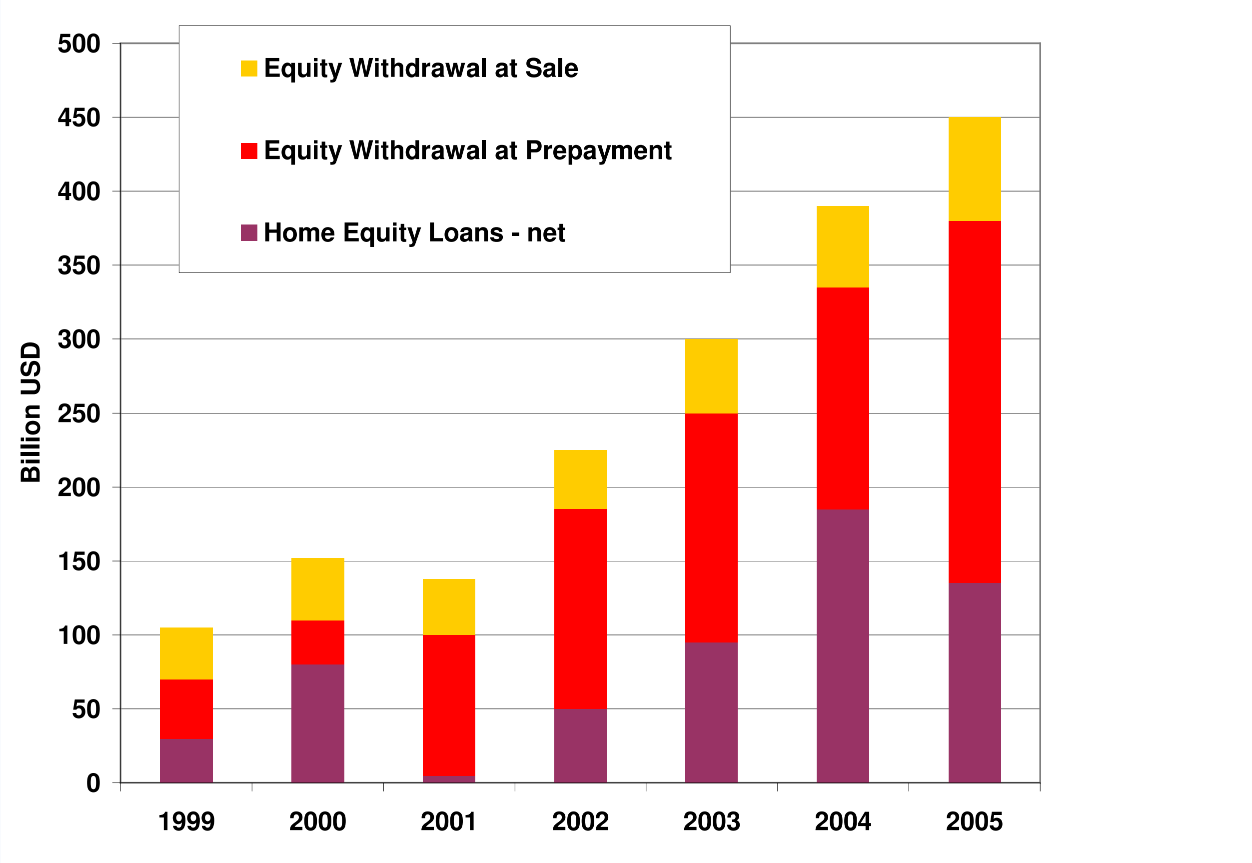
Non-traditional* Loans and House Price Levels were Closely Correlated, 2005



***Interest-only, interest capitalization, teaser rates, payment options. Data refer to adjustable-rate loans only.**

Source: Anthony Sanders, Arizona State University.

Your House as an ATM Machine - Equity Release through Home Equity Loans and Cashout Refinancings



For instance, Countrywide (California) in 2006 was the largest retail lender – in **Mexico**, via cashout refinancings to immigrants.

Source: Calculated Risk Blog.

House Price Inflation depends on the Character of Housing Finance Systems

Explaining inflation/volatility:

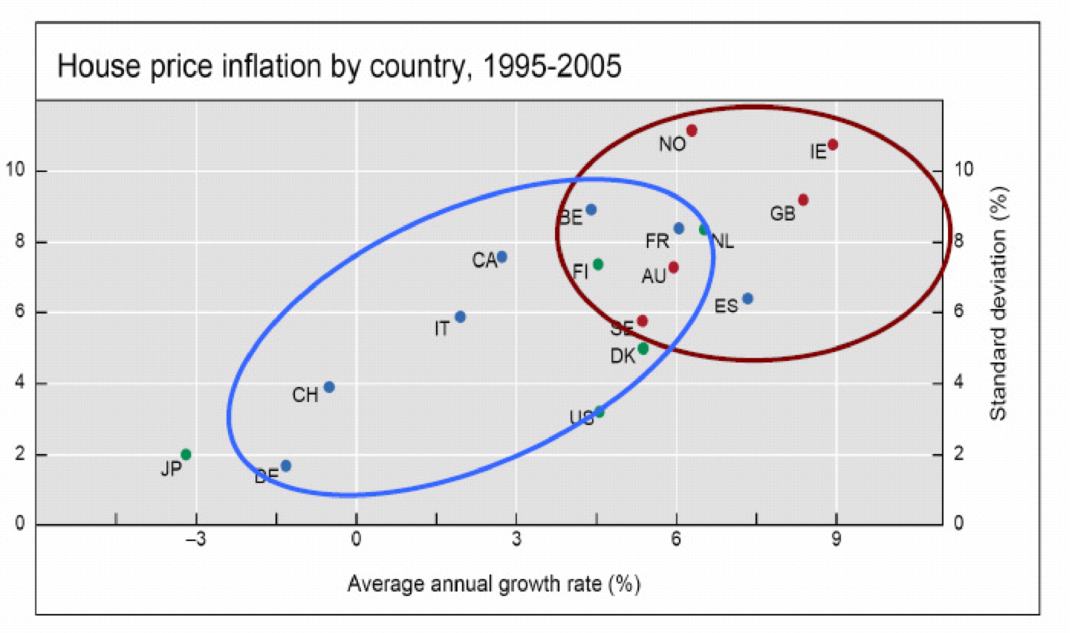
- Product type ARM or FRM (→discount factors)
- Equity withdrawal options
- High-loan-to-value markets
- Valuation methods

Regulatory issue:

- Misalignment of industry and consumer incentives.

- E.g. excessive housing valuations against consumer and investor interests.

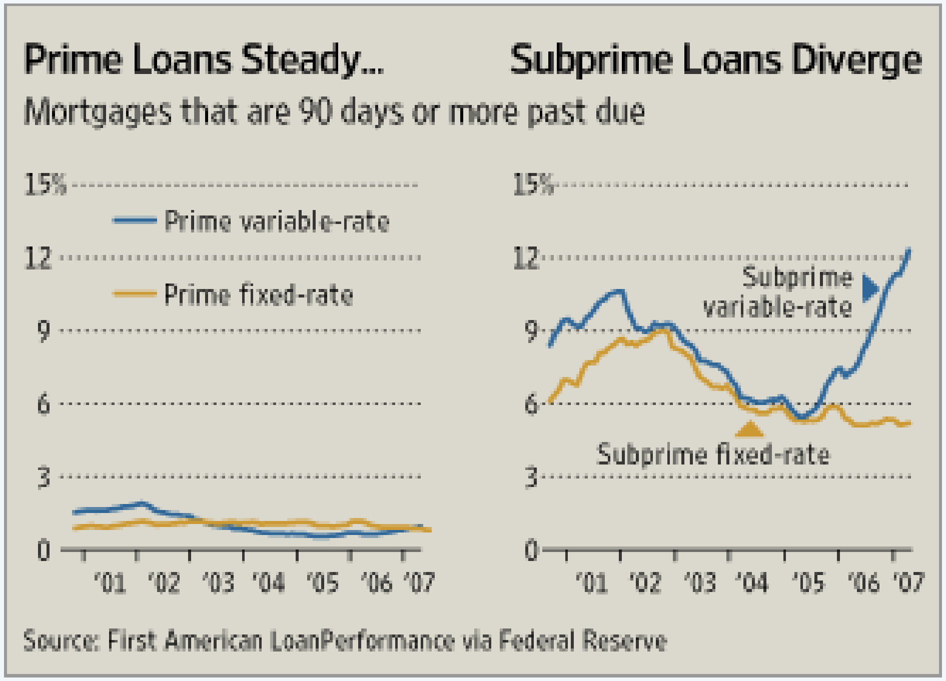
US system has changed its character during 01/06.



		Mortgage rate	MEW	Maximum LTV	Valuation method
Group 1	BE, CA, FR, DE, IT, ES, CH	Mostly Fixed	No	Low	Mixed
Group 2	DK, FI, JP, NL, US	Mostly Fixed	Yes	Medium	Mixed
Group 3	AU, IE, NO, SE, UK	Variable	Yes	Very high	Market value

Source: BIS/ Zhu & Tsatsaronis

Defaults Depend on Product Characteristics



Picture may change as negative equity due to negative house price appreciation, high combined LTVs starts dominating default motives.

→high 2006 cohort defaults.

Source: Wall Street Journal

The Bond Market Side:
Structural Problems in the Securitization Market

- Private-label securitization market based on **SEC regulation model**:
  - No risk intermediaries, just service providers and investors;
  - Profits primarily from service fees and trading;
  - ex-post control of risks via issuance prospect recourse.

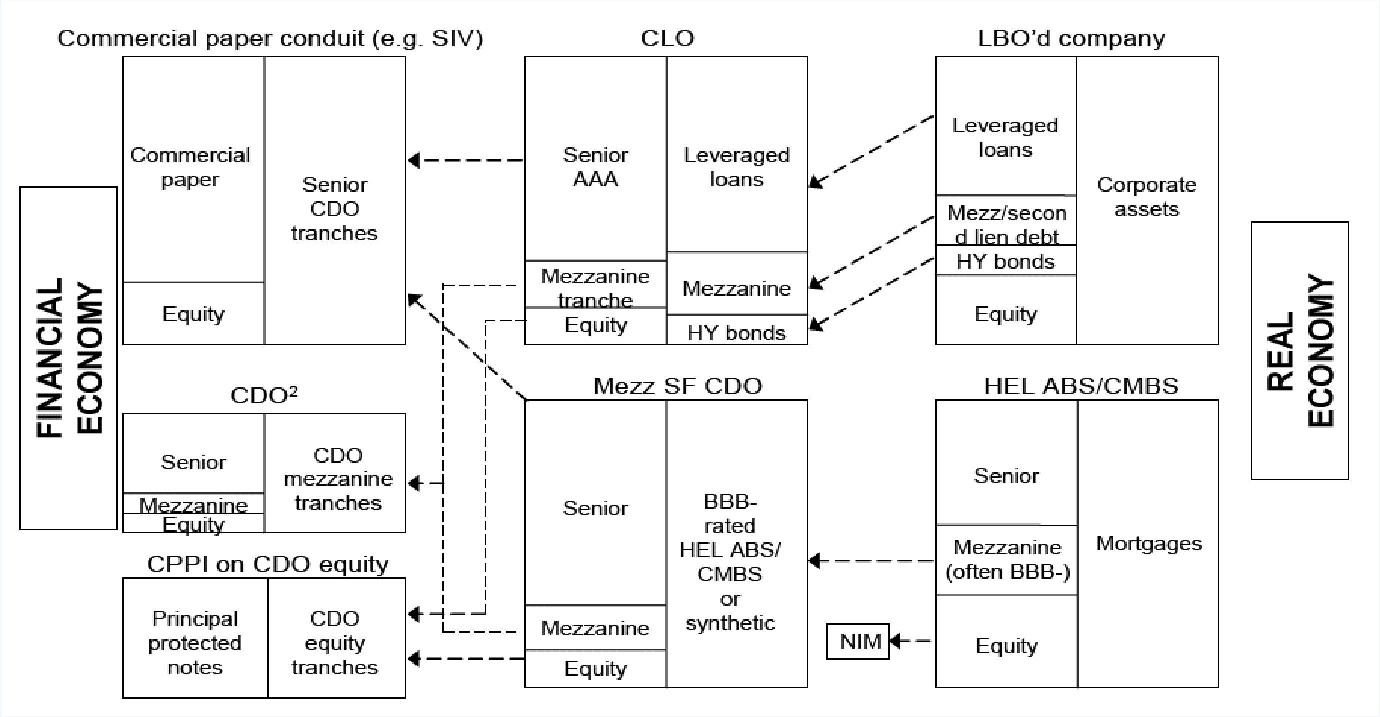
  In the ‘agency’-MBS market (Fannie Mae, Freddie Mac) and in the banking market there are risk intermediaries and risk regulations → broadly lower defaults.

- Rating agencies and investment banks work without economic model of the housing market (modelling price and production cycles), moreover **incentive problems**:
  - Advice given to investors frequently deviates from internal trading behaviour;
  - Complexity and illiquidity of certain instruments creates safe profits (e.g. CDO);
  - Rating agencies are paid by issuers, instead of investors.

- **Accounting rules** allow for excess valuation of loans vs. investors,
  Effective interest rate rules allow for understatement of value vs. borrowers;

Turning Unsafe Assets into Safe Bonds …

Converting mortgages and corporate assets into bonds



- No risk intermediaries, fee-based system;
- No liquidity, no market pricing;
- SEC always too late.

Issue: Are CDOs the future of the covered bond system?

Source: Presentation given at Barcelona Global ABS Conference June 2007

… apparently safe

Source: Bud Grace/Piranha Club, ca 2001 (Enron crisis)

Cyclical Problems in the Securitization Market

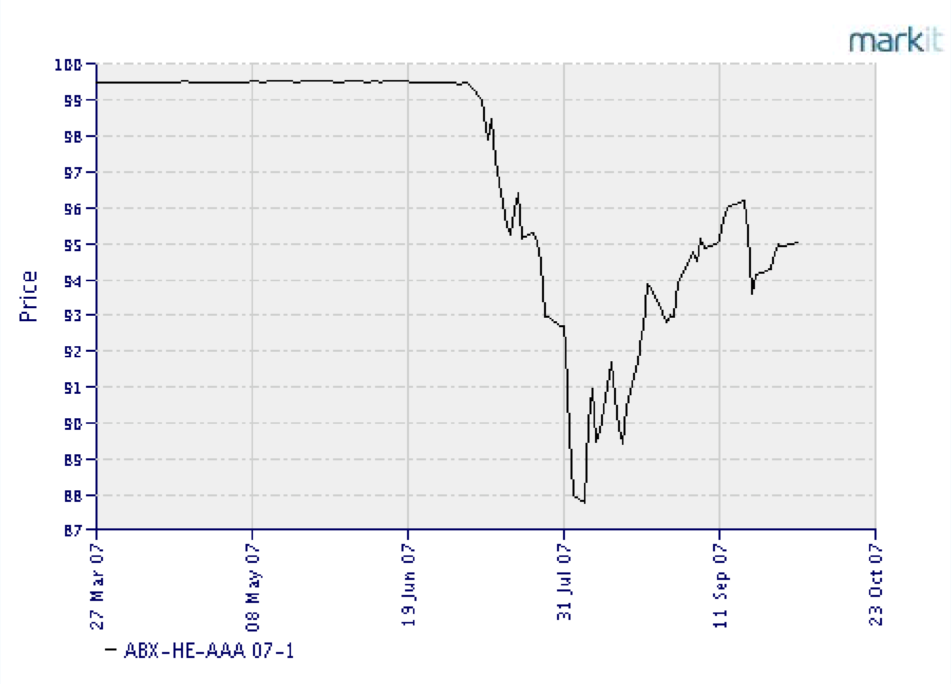
- Prices for subordinate tranches collapse since mid-2006, on the back of fraud reports;
- Since early 2007, lawsuits against originators on fraud claims, liquidations (New Century), takeovers, affecting also the prime market;
- August/September 07:
  - Interbank market crisis due to excess leverage, unclear exposures of banks to illiquid or high-default products, US house price risk;
  - Marking-to-market of illiquid products de-facto impossible, affects entire investor universe;
  - Bear Stearns hedge fund failures seen as preceding future failures of funds, other funds with high profits;
  - Corporate finance sector seriously affected:
    - ABCP market (IKB crisis), Basel I arbitrage,
    - SIVs (quasi-S&Ls), Basel I arbitrage,
    - Leveraged loan market.

Result: Central Bank interventions to address systemic risk, mismatch.

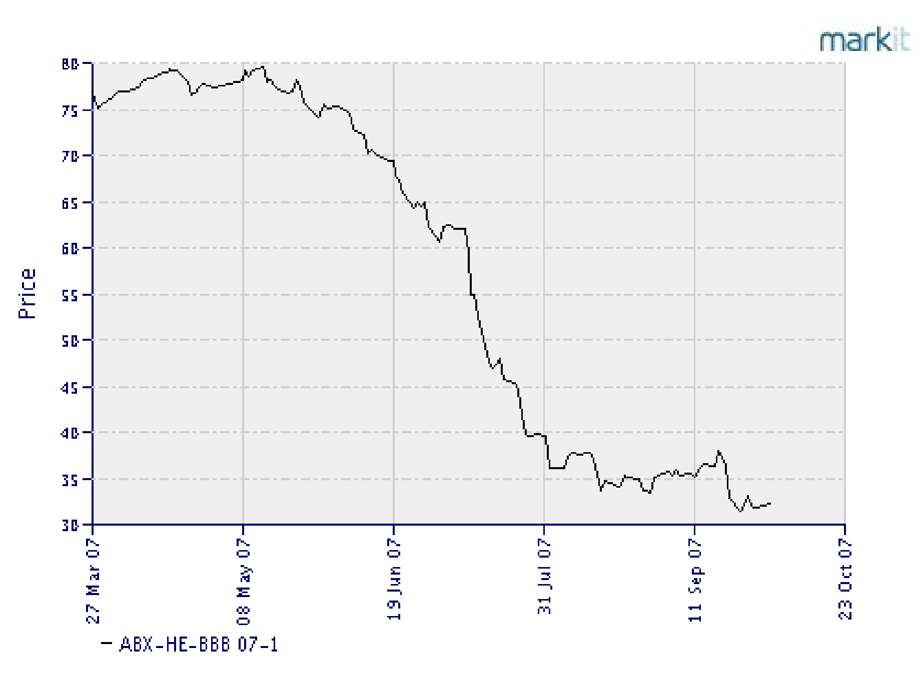
Loss of investor confidence in the asset-backed market.

AAA Prices follow BBB
(Home Equity Loans)

AAA



BBB



Source: Markit.com

Consequences of the US Market Crisis for Europe

Direct:

- Investors in US-mortgage-related securities (often uninformed), broadly moderate exposure (exceptions).
- Financiers of US mortgage market agents (generally more professional)

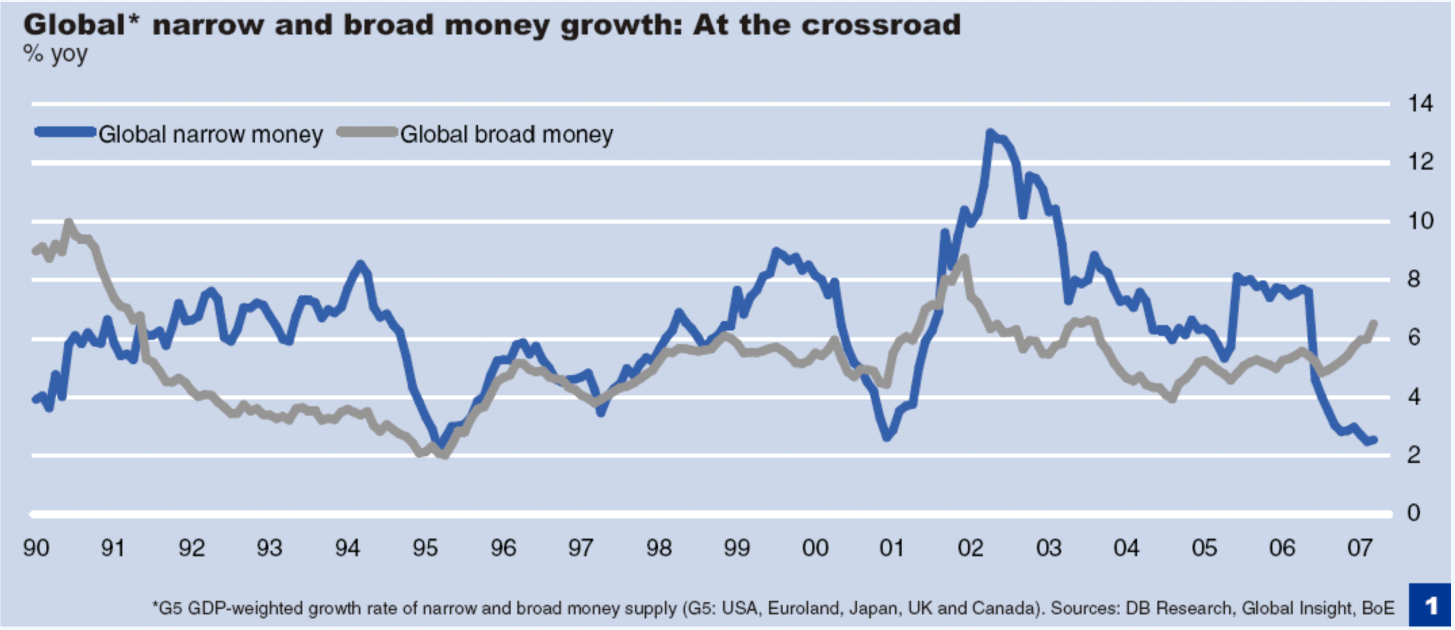
Indirect:

- Securitization issuances are postponed, likely stagnation or decline of issuance;
- Subordinated and high-risk lending prices increase;
- Risks of existing exposures in high-risk markets (UK, Spain) are perceived more clearly, repriced;
- Marking-to-market and downgrades imply tighter regulatory barriers for institutional investors → declining primary market liquidity;
- Hedge fund and SIV travails (leverage reduction) reduce secondary market liquidity.

HOWEVER:

- Global liquidity glut continues, esp. provoked by Asian savings, central bank interventions buy time to deleverage investments and fight general liquidity crisis;
- Global growth supports both credit risk of and demand for european real estate assets.

Global Liquidity Growth Remains High, to be Exacerbated by Short-term Rate Cuts

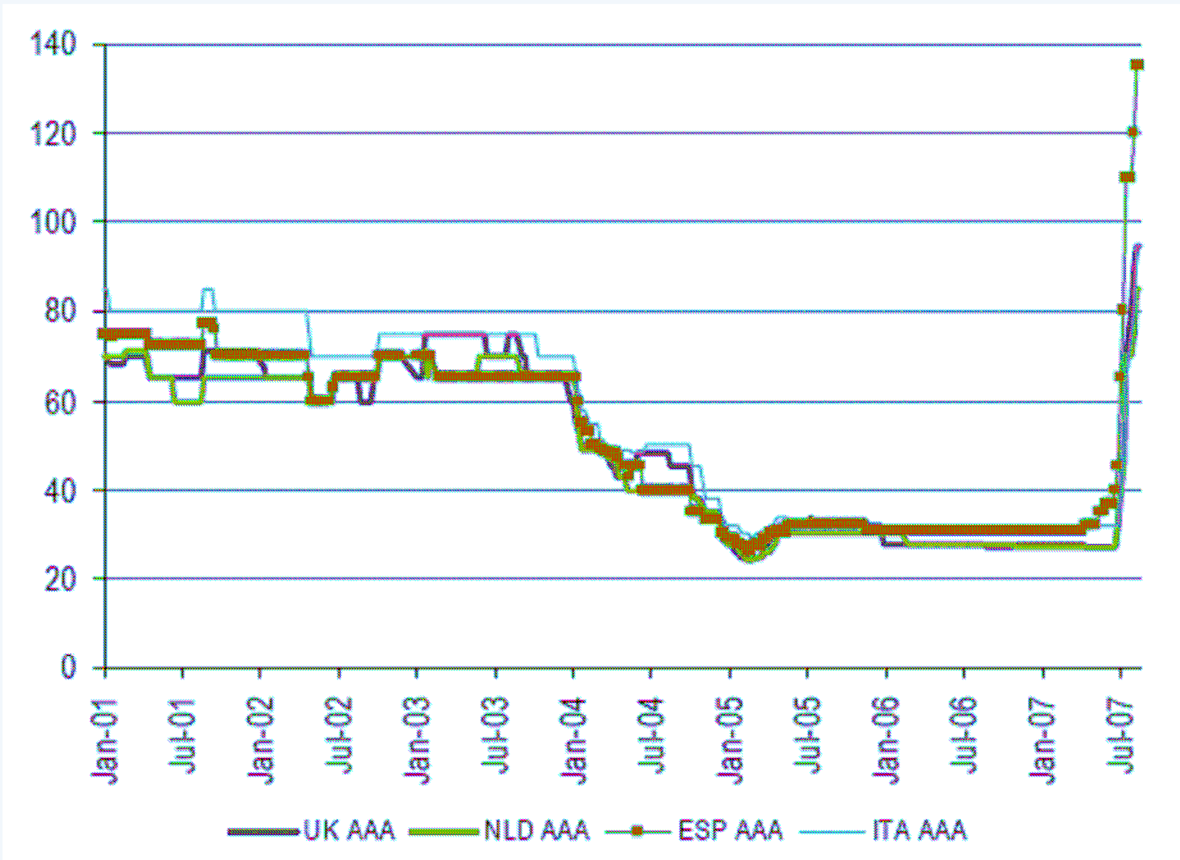


US rate cuts, central bank herd behaviour likely to drive narrow money.

Repo liquidity via asset-backed instruments likely to decelerate.

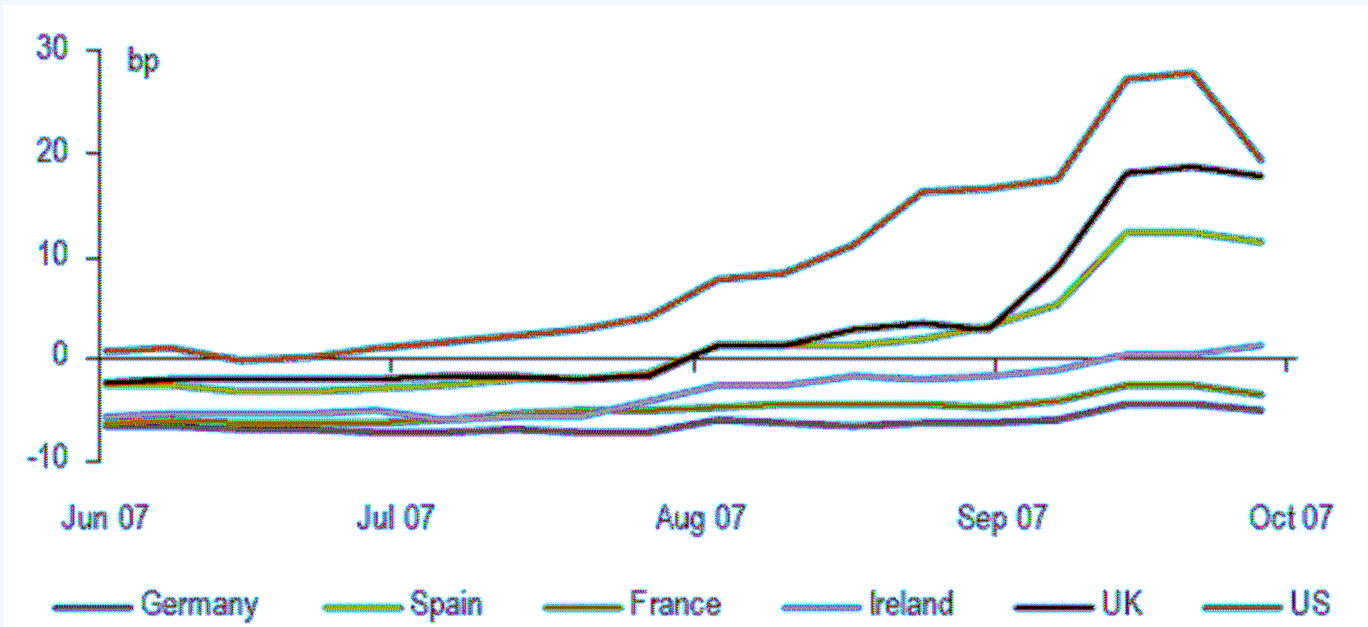
Source: Deutsche Bank

Repricing of European RMBS in High-risk Markets - Spreads of AAA Tranches



Source: Merrill Lynch

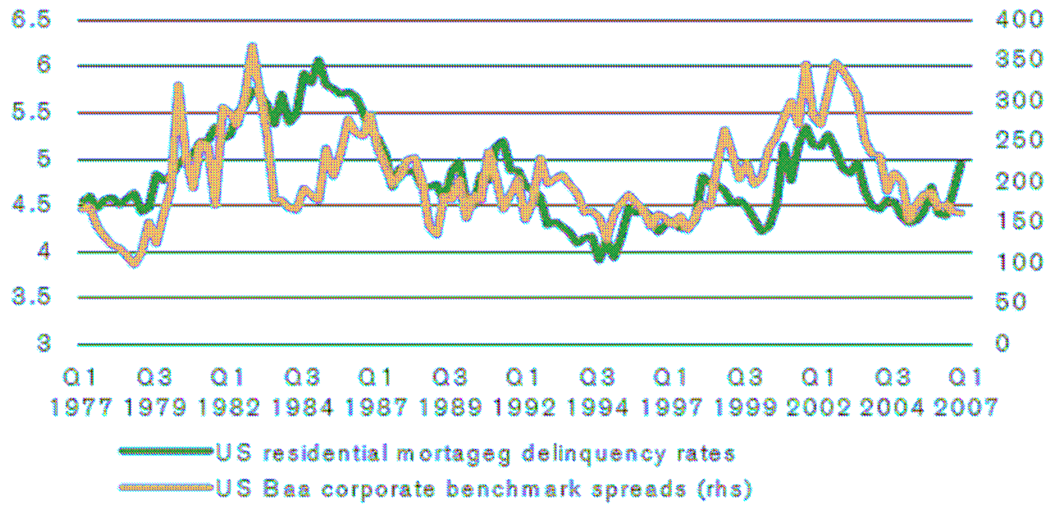
Considerable Repricing also of European Covered Bonds



But mind the smaller scale compared to AAA RMBS, related to corporate credit protection layer and collateral mix.

Source: Merrill Lynch

Historical Experiences with Spread Widenings suggest Cycle of 3-4 Years (Trough to Peak)



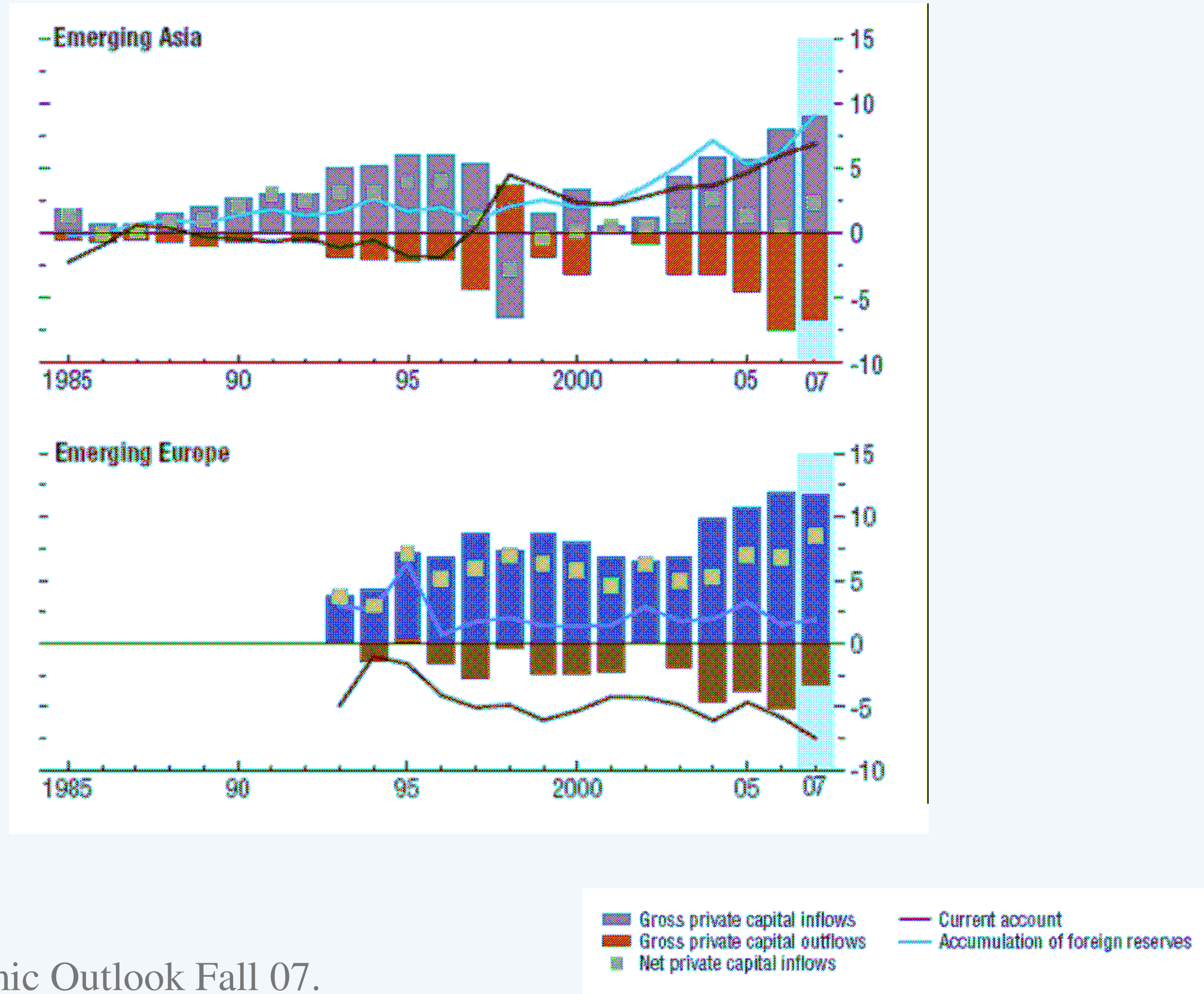
Delinquency rate have the best explanatory power assuming a lead of 1Q vs. corporate spreads

Source: Credit Suisse, Bloomberg

Risk Factors in Emerging European Mortgage Markets

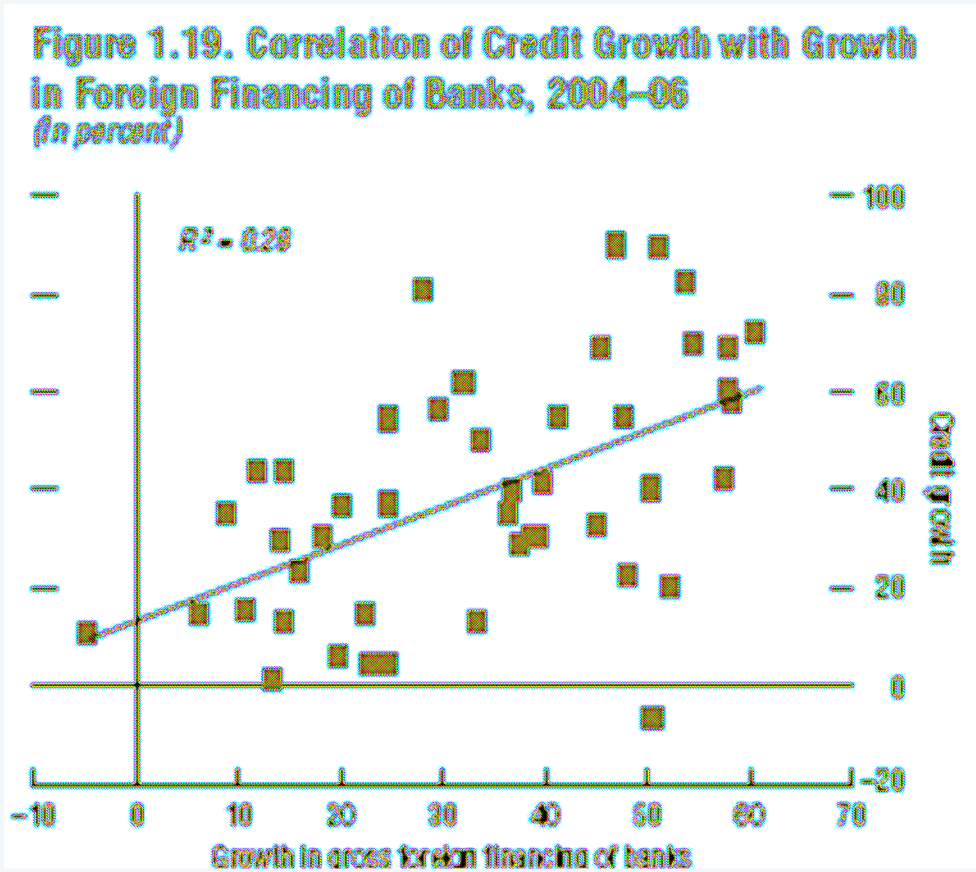
- Large current account financing element of mortgage finance through international bank lending, often accompanied by aggressive market entry strategies,
- Strong reliance on variable-rate instruments, in many cases combined with foreign-exchange rate risk (‘carry trade’ of the small man).
  - Exceptions: Czech Republic, Slovakia, Hungary.
- Variable- and forex rate countries see stronger house price growth, e.g. Estonia, Latvia (Euro), Poland (CHF) vs. Czech Republic.
  - How much of this is initial price adjustment (introducing housing finance) vs. a cycle or bubble?
- Fairly fast extension of product menu to high-LTV lending, even including home equity lending (in CZ ‘american mortgage’).
- Increasing third-party origination combine with new market entrants, e.g. Poland 30% (mostly brokers, entrants e.g. Millennium Bank).
- Regulatory structure in consumer protection still quite undeveloped, bank regulations with holes (e.g. forex exposure of lenders with domestic deposit base).

Emerging Europe with Large Net Capital Inflows and Current Account Deficits (analogous to US)



Source: IMF Economic Outlook Fall 07.

Foreign Credit Growth to Banks Drives Emerging Mortgage Markets



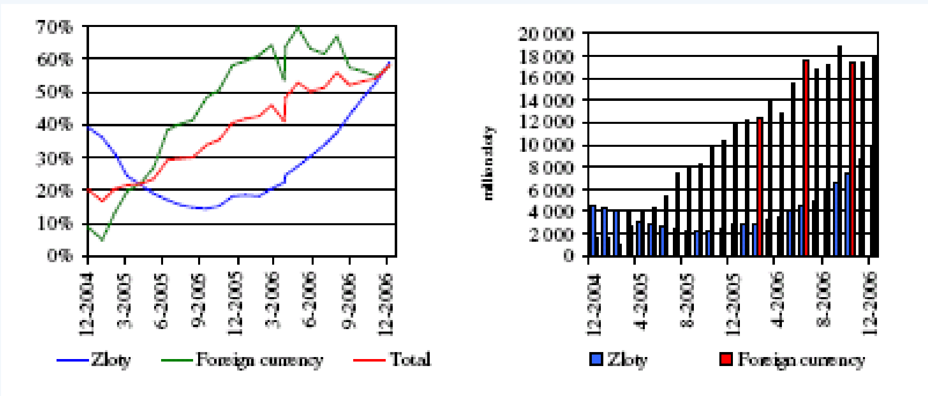
Source: IMF Global Financial Stability Report, September 07

Risk Mitigating Factors in Emerging European Mortgage Markets

- Strong foreign direct investment, limits liquidity risk (usually owners lend to their local subsidiaries).
- Remaining locally controlled banks increasingly professionalizing and specializing in real estate.
- “Create and trade”-model susceptible to high liquidity risk not yet established.
- Some markets with fixed rate instruments and savings support schemes (yet at often high subsidy costs).
- Important fundamentals (e.g. demographics, migration, vacancies) slow down price growth
  - exception Poland with largest demand pressure, as well as urban centers in other countries.
- New construction is responding fairly well to price signals, reduced construction lags limit the risk of price overshooting.
  - exception Latvia and Estonia with inelastic supply conditions
- Yet no evidence of excess construction activity - return to 1980s ‘normal’ conditions.

Poland – Risking a Bubble

Lending Dominated by Forex Loans

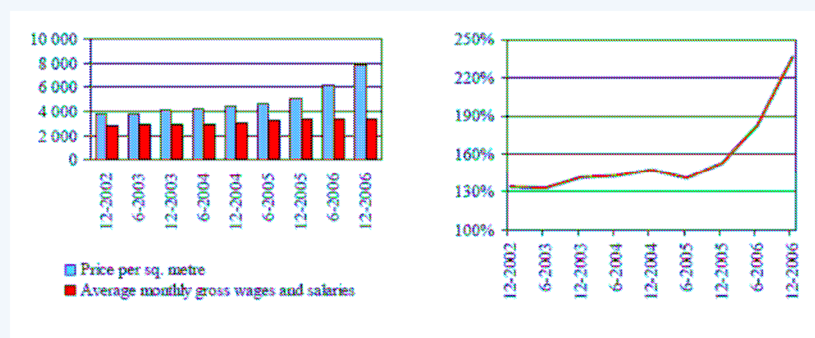


- Forex lending at short-term rates drives down initial payments, at the expense of payment shocks.
- Product menu expands swiftly into riskier segments (FF compared to Western European development since the 70s).
- High brokerage distribution ratio, esp. used by newcoming lenders.
- House-price-income ratio in Warsaw doubled since 2003.

Risk Profile of the Product Menu

	1995	2005
Purpose	Only housing	Any purpose related to real estate
Loan-to-value ratio	70%	80% (exceptions up to 100%)
Maturity	10 years	15 years (up to 35 years available)
Currency	PLN	PLN, CHF, EUR, USD
Distribution	Only through banks	Alternative distribution channels
Interset rates in Zloty	37%	8%

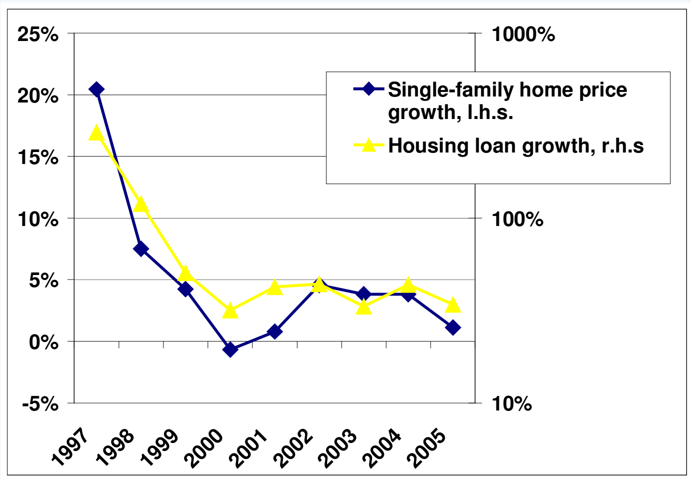
Warsaw House Prices and Salaries



Sources: NBP, Finpolconsult research.

Czech Republic – Calming Down after the Initial Adjustment

Lending Growth and House Price Growth

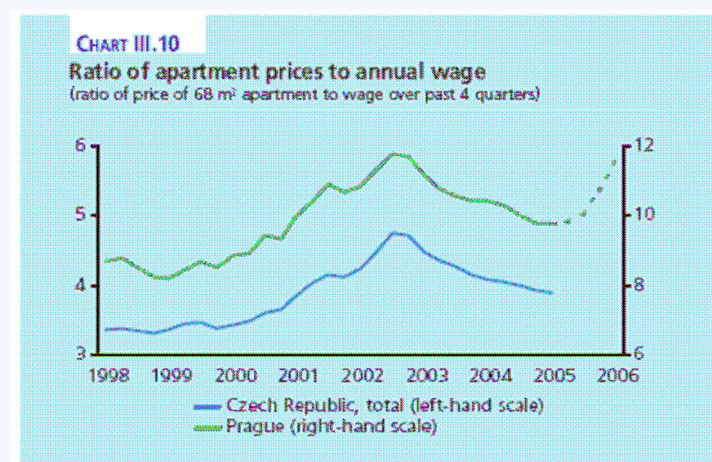


Risk Profile of the Product Menu

	1995	2005
Purpose	Only housing	Housing, home equity
Loan-to-value ratio	70% (legal limit)	70% (higher possible)
Maturity	15 years	20 years (up to 40 years available)
Currency	CZK	CZK
Distribution	Only through banks	Some alternative distribution
Interest rates in CZK	14%	5%

- Almost exclusively CZK lending.
- Typically fixed-to-term lending (5 year fixing), with tight spreads over covered bond benchmark or Bauspar deposits.
- Expanding product menu, but still mostly conservative loan-to-value ratios.
- Distribution dominated by bank networks.
- Price deceleration since 2003.

Prague and CZ House-price Income Ratios



Source: CNB, Merrill Lynch, CNB, Finpolconsult.

Issues to be Addressed in Emerging European Markets

- Emerging real estate markets as ‘safe haven’ for liquidity in danger of becoming the next bubble spot.
- Capital controls possible response, yet with undesirable long-term effects (Malaysia).
- Protections against real estate bubble situations should include:
  - Floating exchange rates, to increase cross-border risk premium and auto-adjust current account deficits (esp. Baltics).
  - Discouraging of forex loans and related consumer ‘carry trade’, as a target for liquidity glut, supported by regulation.
  - An improved regulatory framework for lenders and borrowers promoting:
    - fixed-rate lending,
    - cash-flow valuation techniques (as opposed to open market values),
    - moderate LTVs, prior savings for downpayment,
    - risk transparency and use of capital markets for risk transfer,
    - banking charter ‘light’ for securitization channel.
  - Sufficiently conservative domestic monetary policy, moderating growth in exchange for greater stability.

A Few Broader Conclusions from the US Crisis

- **Problem Nr. 1 global liquidity glut and low credit risk prices:**
  - Asian savings glut, sovereign funds and other excess liquidity sources destroy whatever monetary policy options there were to influence long-term rates;
  - Greater consumption, domestic capital market development, flexible exchange rates priority in order to redirect global capital flows into most productive use.
- **Problem Nr. 2: deficiencies in financial regulation and consumer protection standards:**
  - Incentive standards for the securitization market (risk intermediaries, model policing for rating agencies, investment banks, use of market data for regulation);
  - Transparency and regulation of non-bank financial institutions as a major source of arbitrage;
  - Stigmatization of consumer protection as 'anti-business' to be overcome by joint regulation approach (part of financial regulation);
  - Basel III, to include risk-based capital for interest mismatch run by universal banks (currently cross-subsidizing mortgage credit risk);
  - Deficiencies in real-estate market specific regulations, esp. concerning valuations, risk models.
- **Problem Nr. 3: lack of global coordination:**
  - Liquidity and regulatory policies no longer possible in isolation, given scale of global capital flows;
  - Regional integration approaches as a starting point (e.g. EU financial integration).

Contact Detail

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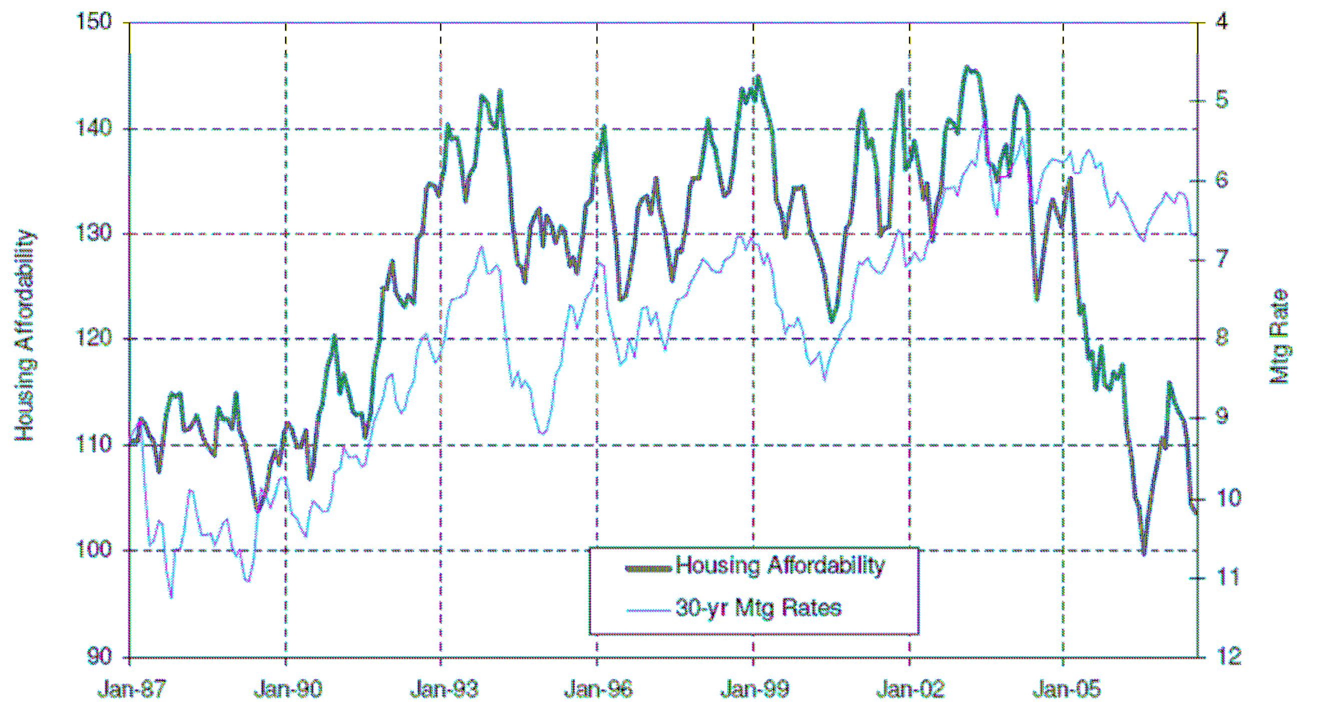
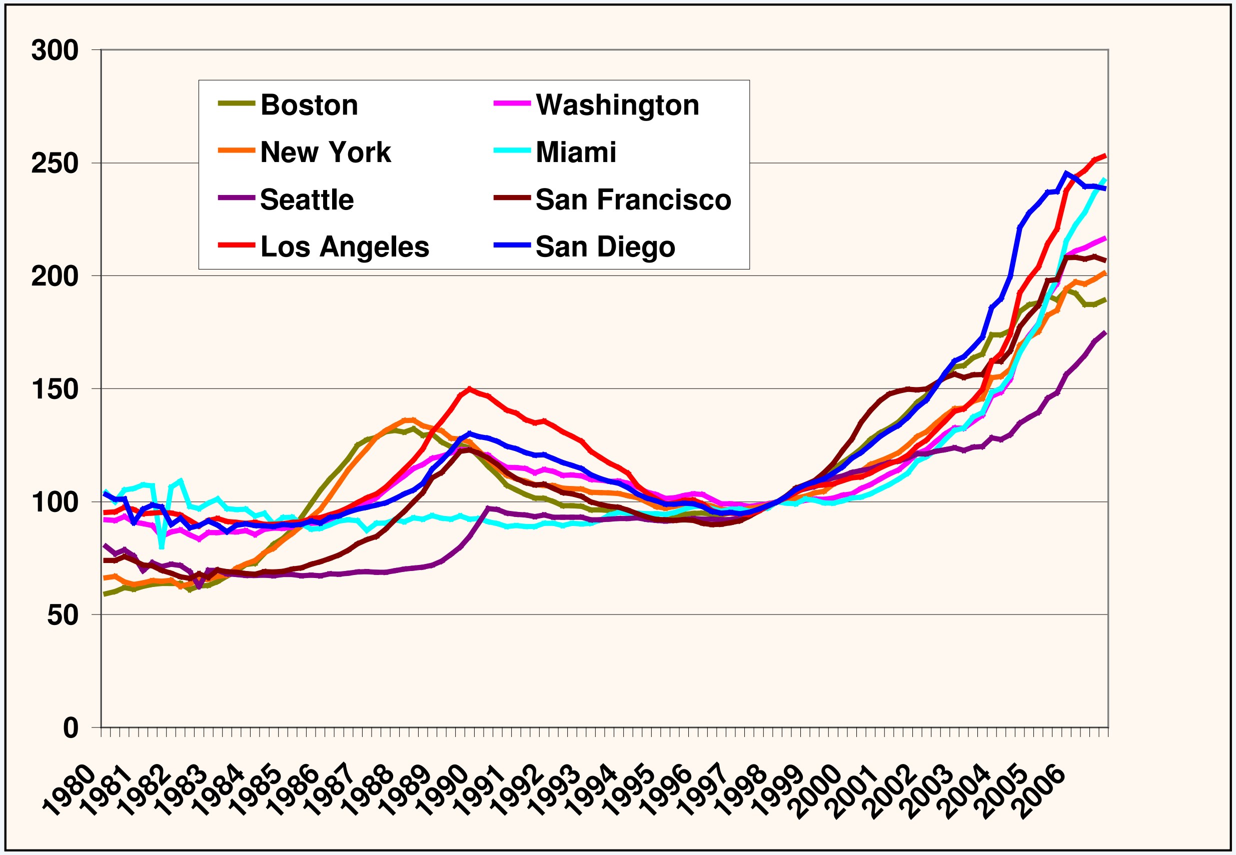
Additional Data

Housing Affordability for 30 Year FRM down since 2005



Source: National Association of Realtors, Freddie Mac
Latest is estimated: Jul 2007: Housing Affordability = 103.6; 30-yr no-point Mtg Rate = 6.70

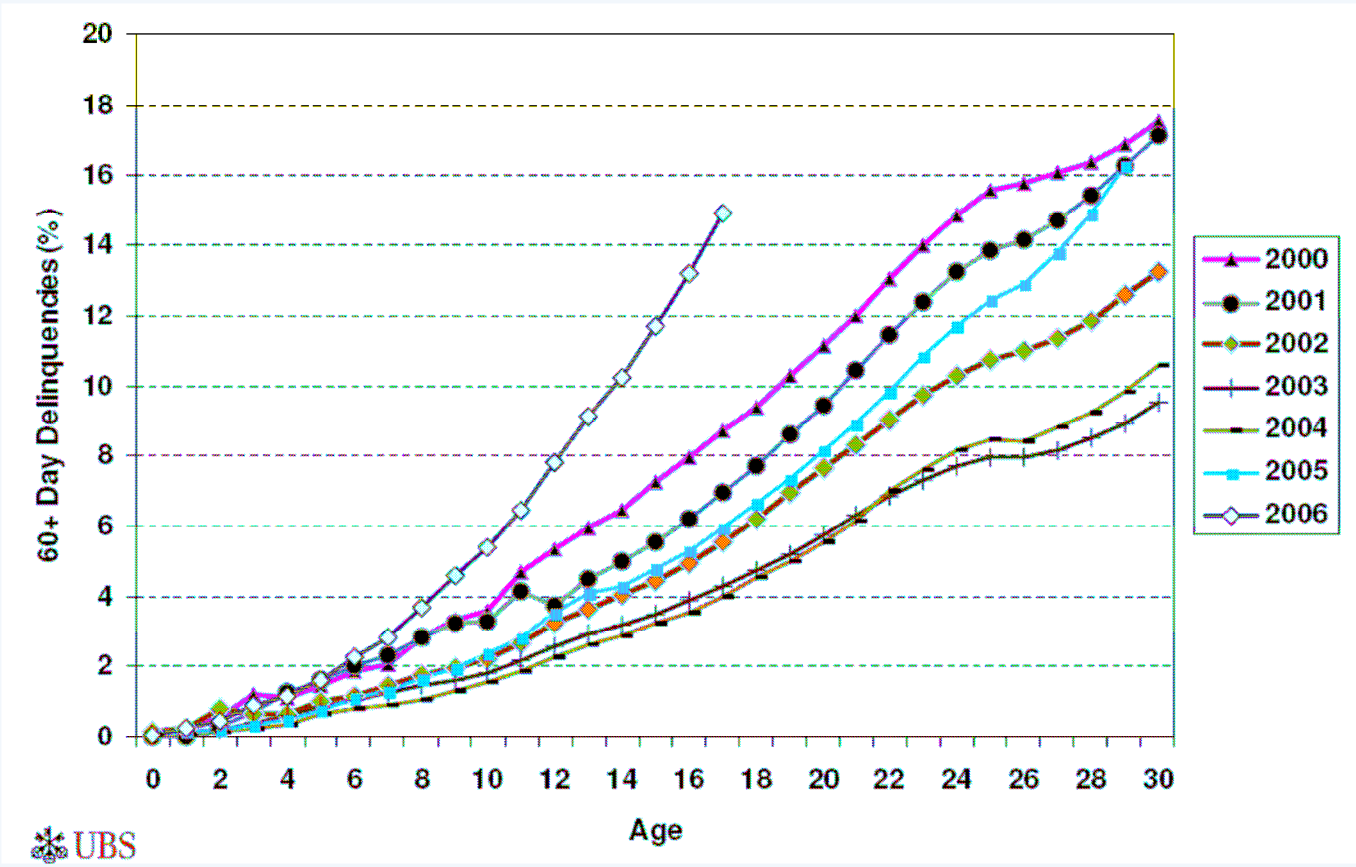
Real House Price Cycle indicates Excessive Valuations by 2003/4, 2005-6 Price Bubble



OFHEO house price index, deflated with consumer price index, 1999 = 100

Source: OFHEO, Bureau of Labour, Finpolconsult.

Defaults – 2006 Worst Subprime Cohort Ever



Source: Zimmerman/UBS