Low interest rates and house price bubbles:

Not *post hoc* **or** *propter hoc*

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November 10, 2011

International Banking Conference
Federal Reserve Bank of Chicago / European Central Bank

Conventional "wisdom"

- Low interest rates drive up house prices.

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- Low interest rates drive up house prices.
- By keeping interest rates low, the Fed inflated house prices and created a bubble.

Outline

- Review the transmission channels from monetary policy to property prices.
- Discuss the quantitative implications of the User Cost model.
- Present some new evidence on the effects of interest rates.

The conclusion in advance

The conventional wisdom is wrong.

- Conventional theory: interest rates have a big impact on house prices. No bubbles needed.

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The conventional wisdom is wrong.

- Conventional theory: interest rates have a big impact on house prices. No bubbles needed.
- Evidence: interest rates have only small effects on property prices.

The User Cost (UC) model

$$\frac{R_t}{P_t} = UC_t = i_t + \delta + \Lambda_t - \pi_t^e$$

Implication: 1% (not percentage point) reduction in $UC \Rightarrow$ 1% increase in Price/Rent ratio.

- R/P = Rent/Price ratio, i = interest rate,
- δ = depreciation, Λ = risk premium,
- π^e = expected appreciation, $\dot{P}/P$.
- Property and income tax rates omitted for simplicity.

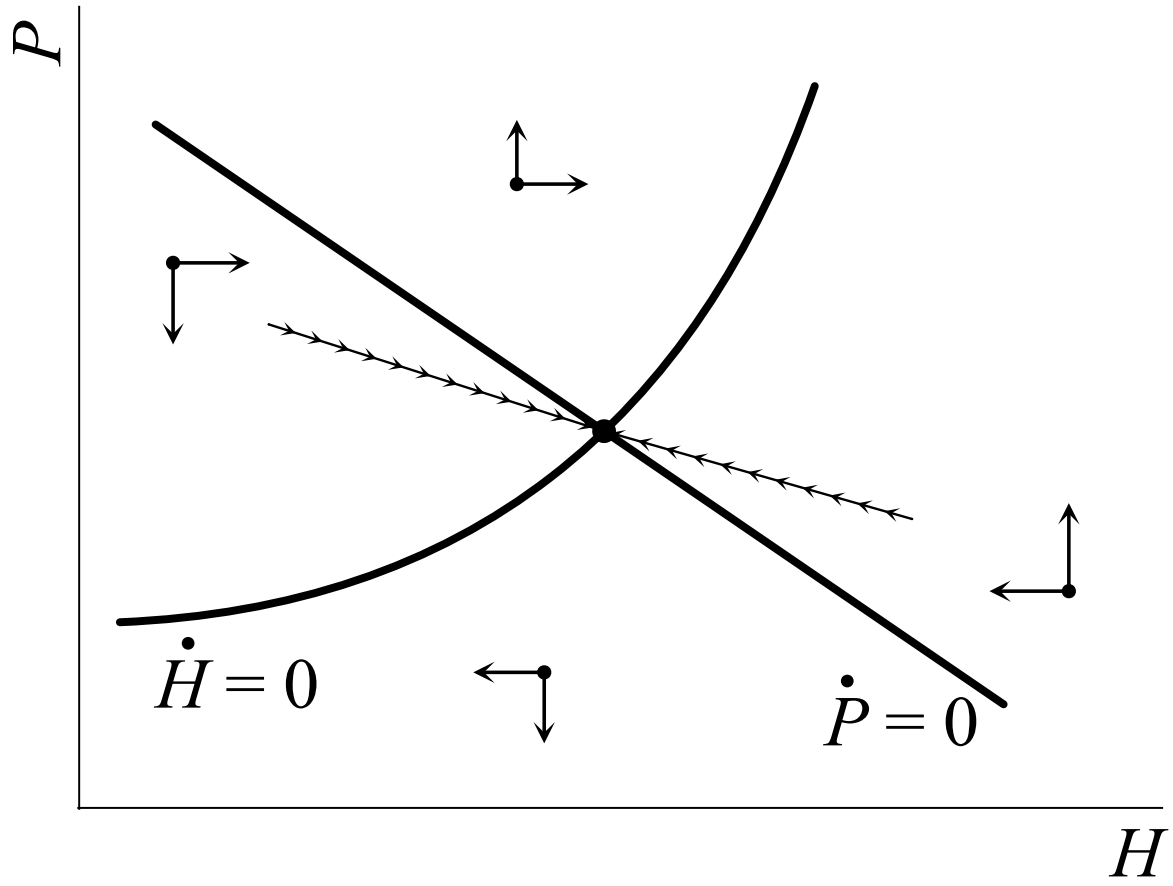
A dynamic UC model

$$
\begin{aligned}
\frac{R}{P} &= i + \delta - + \Lambda_t - \frac{\dot{P}}{P} \quad \text{UC equation} \\
R &= f(H) \quad \text{Demand} \\
\frac{\dot{H}}{H} &= g(P/C) - \delta \quad \text{Flow supply}
\end{aligned}
$$

Implication: Rate reduction $\Rightarrow$ house price *overshoot*.

- $f(\cdot)$ = inverse demand function,
- C = marginal cost of house production,
- $g(\cdot)$ = flow supply function.

Dynamic effects of a rate reduction



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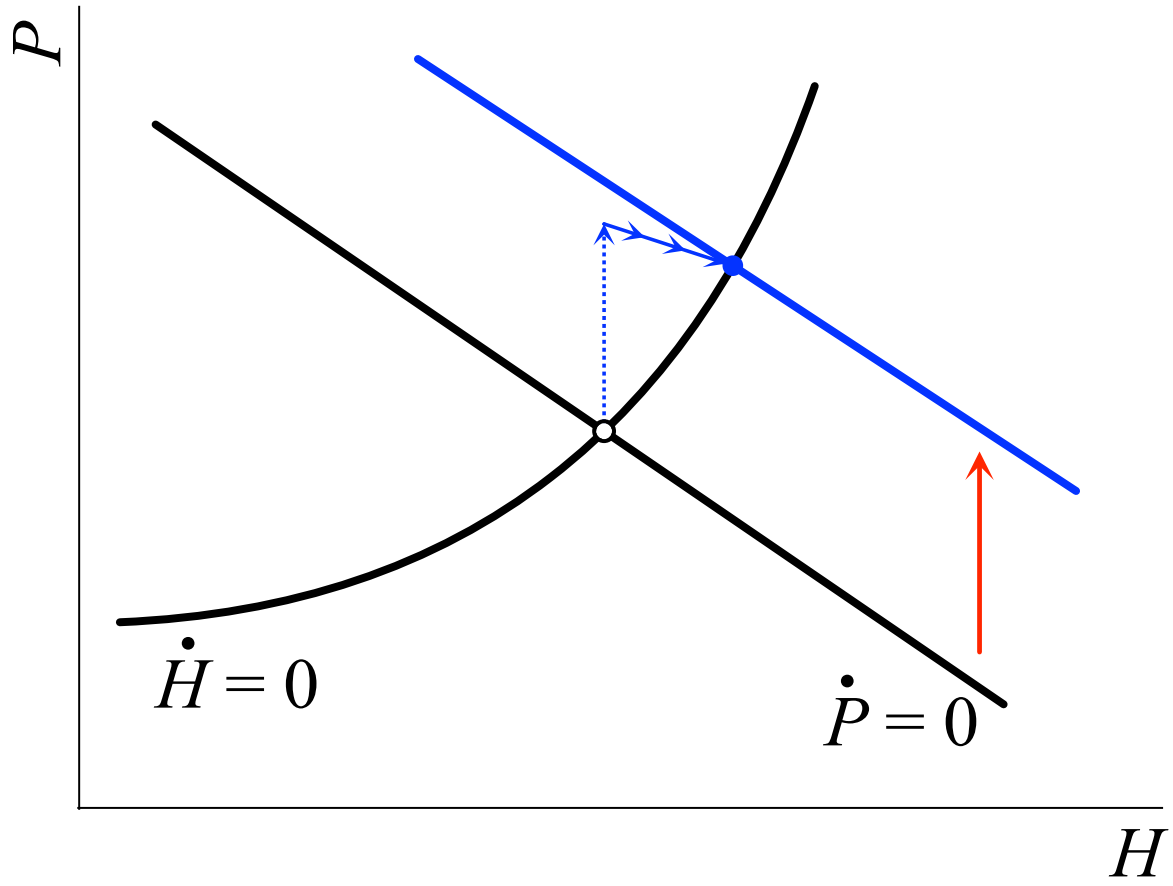


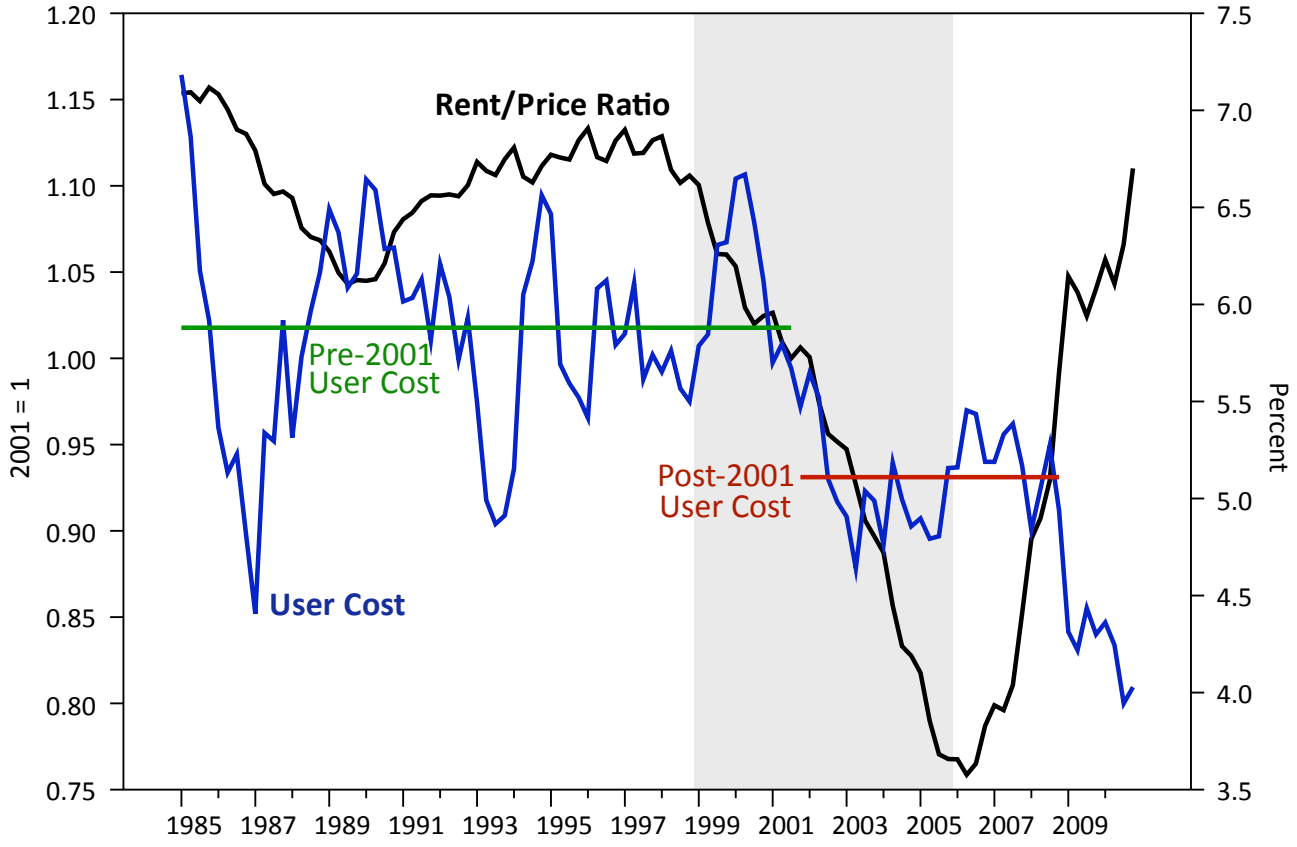
Credit conditions

- Credit conditions are nowhere in the standard UC model.
- How could they be included?
  - Credit constraints $\Rightarrow UC < R/P$, relaxing constraints $\Rightarrow P \uparrow$.
  - Increased credit supply can speed $\dot{H}/H$.

Risk-taking

- Owning a home is risky: reflected in risk premium in UC model, Λ.
- Conjecture: low interest rates encourage risk-taking.
- Implies a reduction in Λ, higher P.

UC model $\Rightarrow$ large interest rate effect



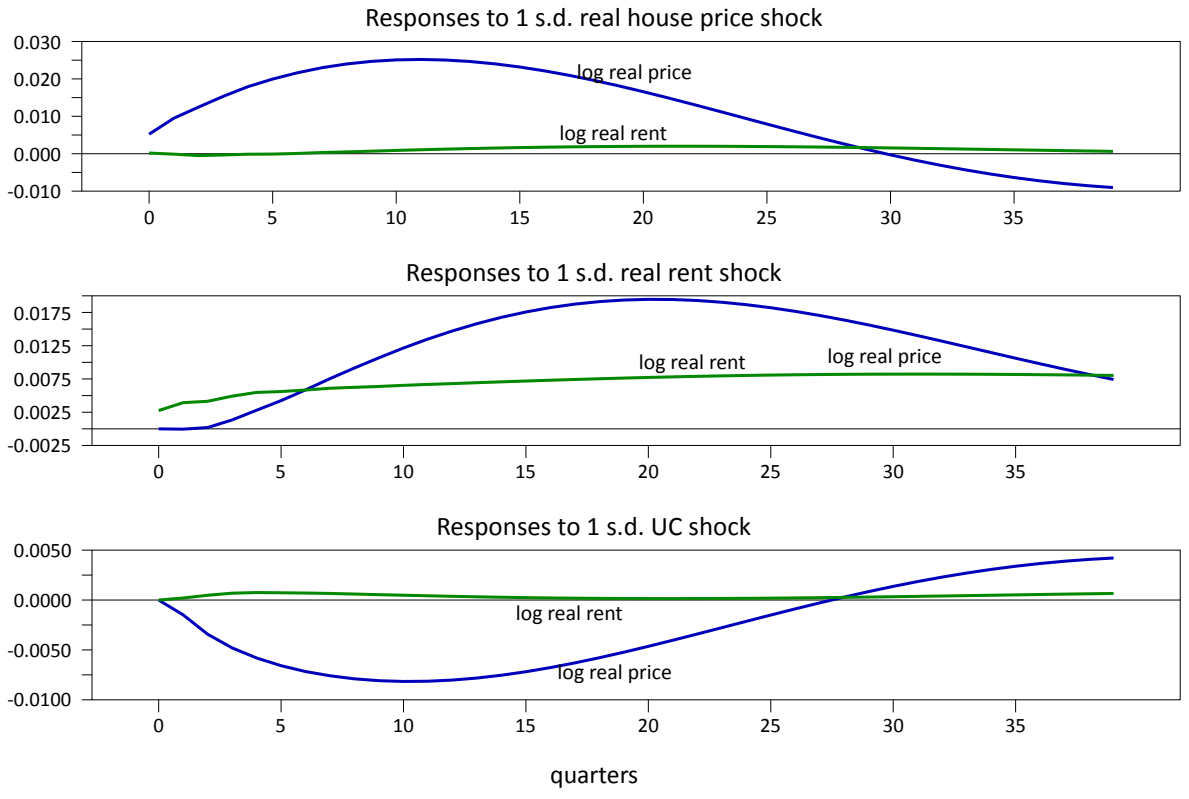
- UC decline from 6% to 5% $\Rightarrow$ 18% rise in P/R.
- *Actual* increase was closer to 33%.

Existing studies find small effects

- Jarociński & Smets (2008): 25 bp policy shock $\rightarrow$ 0.5% Δ house price (US).
- Sá *et al.* (2011): 25 bp policy shock $\rightarrow$ 0.3% Δ house price (industrialized countries).
- Glaeser *et al.* (2010): 100 bp change in real 10-year interest rate $\rightarrow$ 7% Δ house price.

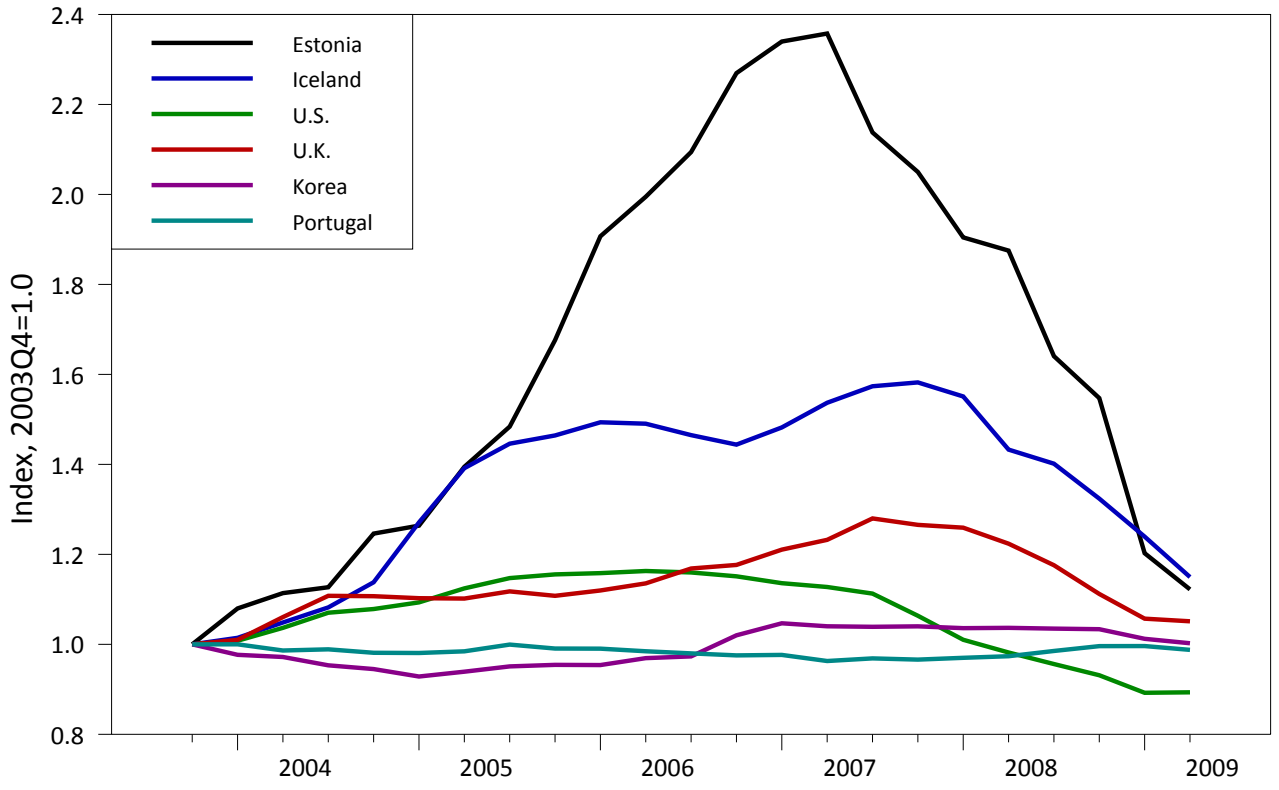
Much smaller than implied by the UC model!

Results from an error correction model



- 1 percent (transitory) UC shock $\Rightarrow$ 2.2% change in property price after two years.
- Also much smaller than the UC model prediction.

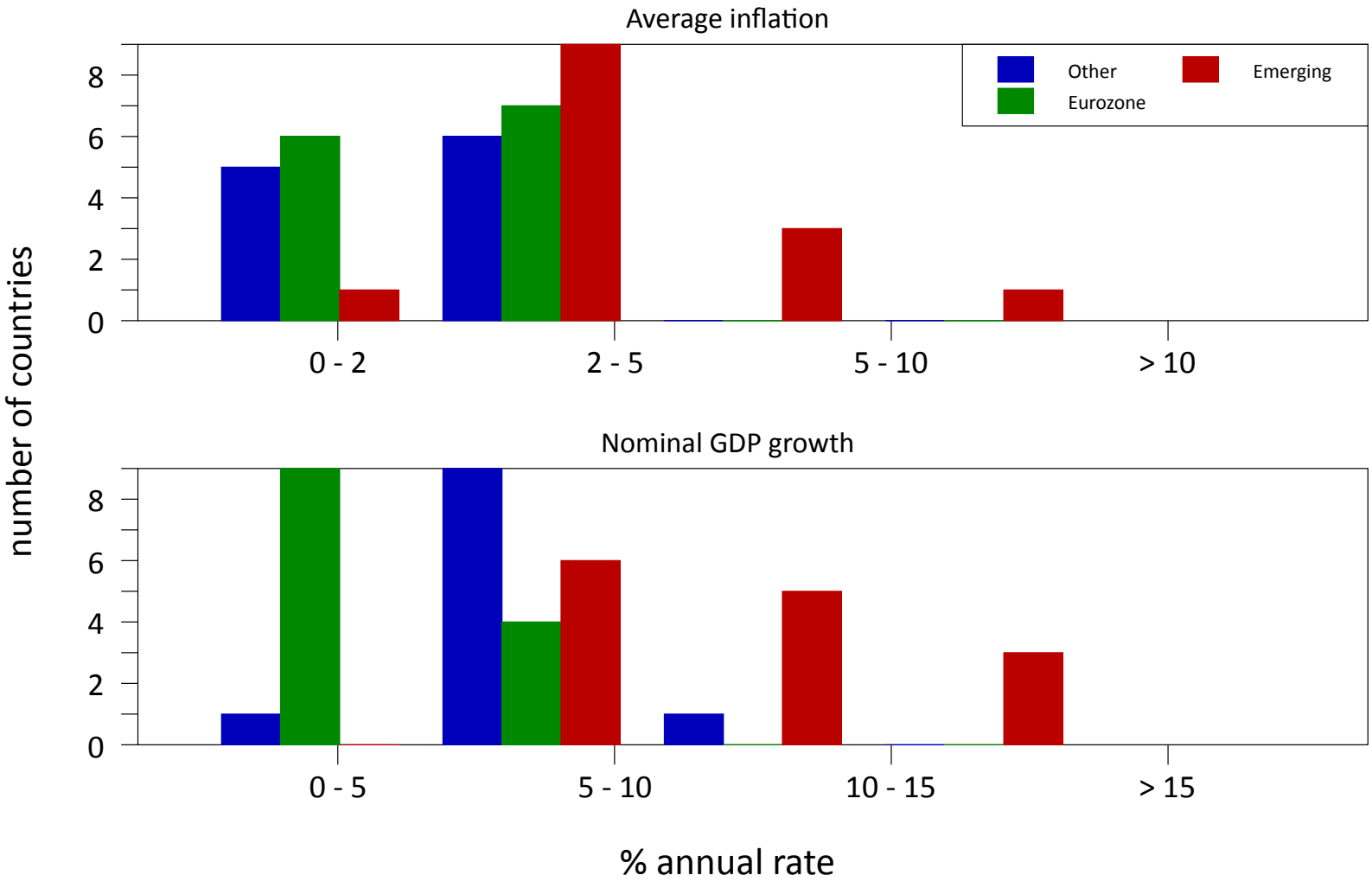
Cross-country evidence



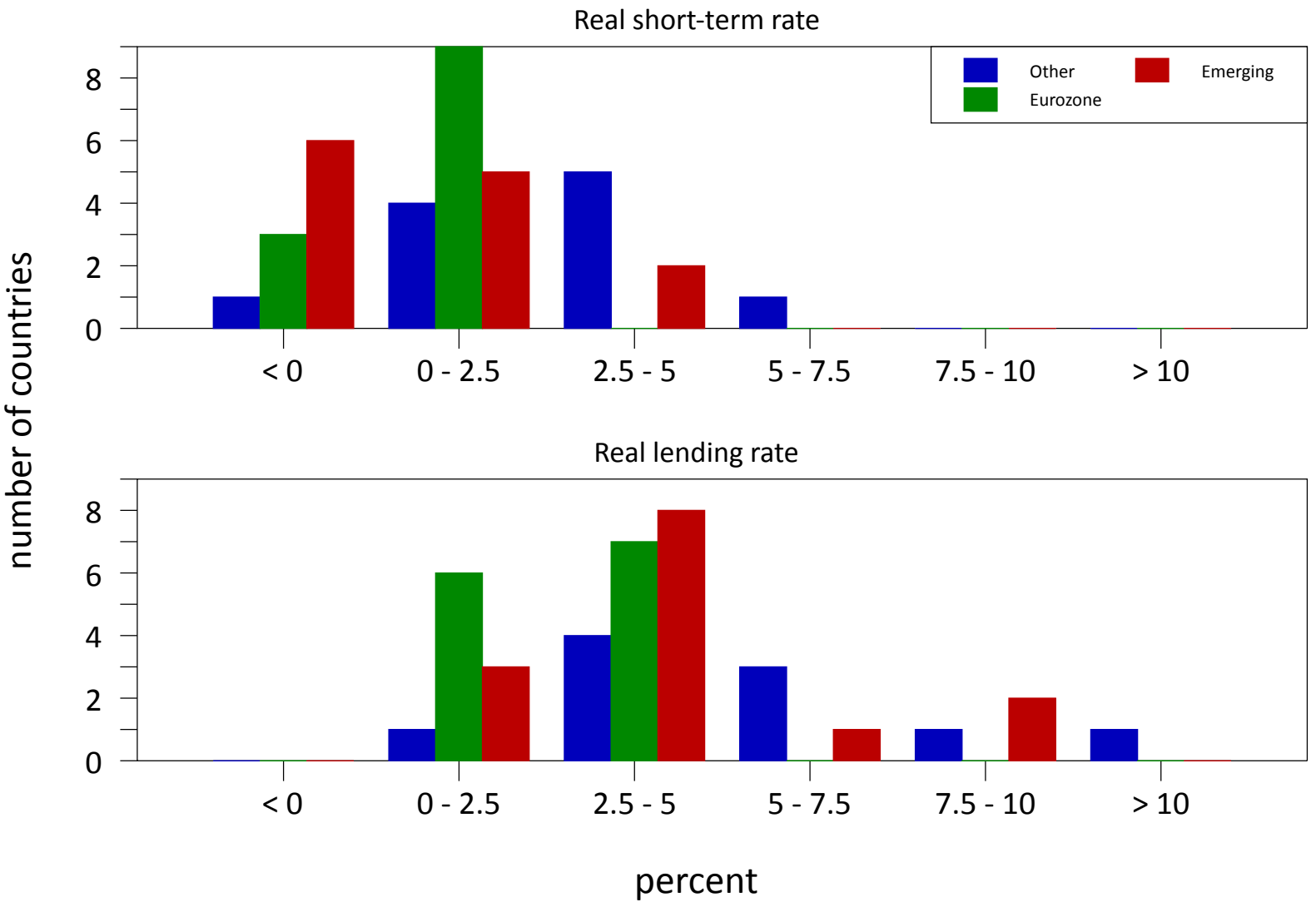
- The magnitude of the boom (and bust) varied widely across countries...
- What explains this variation?

House price and credit growth

Inflation and nominal GDP growth



Interest rates



A simple regression model

$$Y_i = \beta_0 + \beta_1 r_i^L + \beta_1 r_i^S + \beta_2 \%\Delta MB_i + \beta_3 D_i^{eu} + \beta_4 D_i^{em}$$

- 38 countries: Euro, emerging markets, none of the above
- Time span: 2003Q4 through 2007Q2
- $Y =$ property price appreciation, housing credit growth, inflation, nominal GDP growth
- Property price data from the BIS

Regression results

	Dependent variable			
Regressor	Property price	Inflation	Housing credit	Nominal GDP
Real S.T. rate	0.37	-0.93^{***}	-0.11	-1.40^{***}
Real lending rate	-1.22	0.54^{***}	-0.43^{**}	0.58^{**}
Rates' joint significance		0.01	0.05	0.01
Real base growth	0.35^{***}	0.04^{**}	0.17^{***}	0.08^{**}
Emerging market	4.17	-0.01	-0.99^{*}	1.69
Euro area	-3.95	0.47	-0.72	-2.87^{**}
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Observations	36	37	33	37

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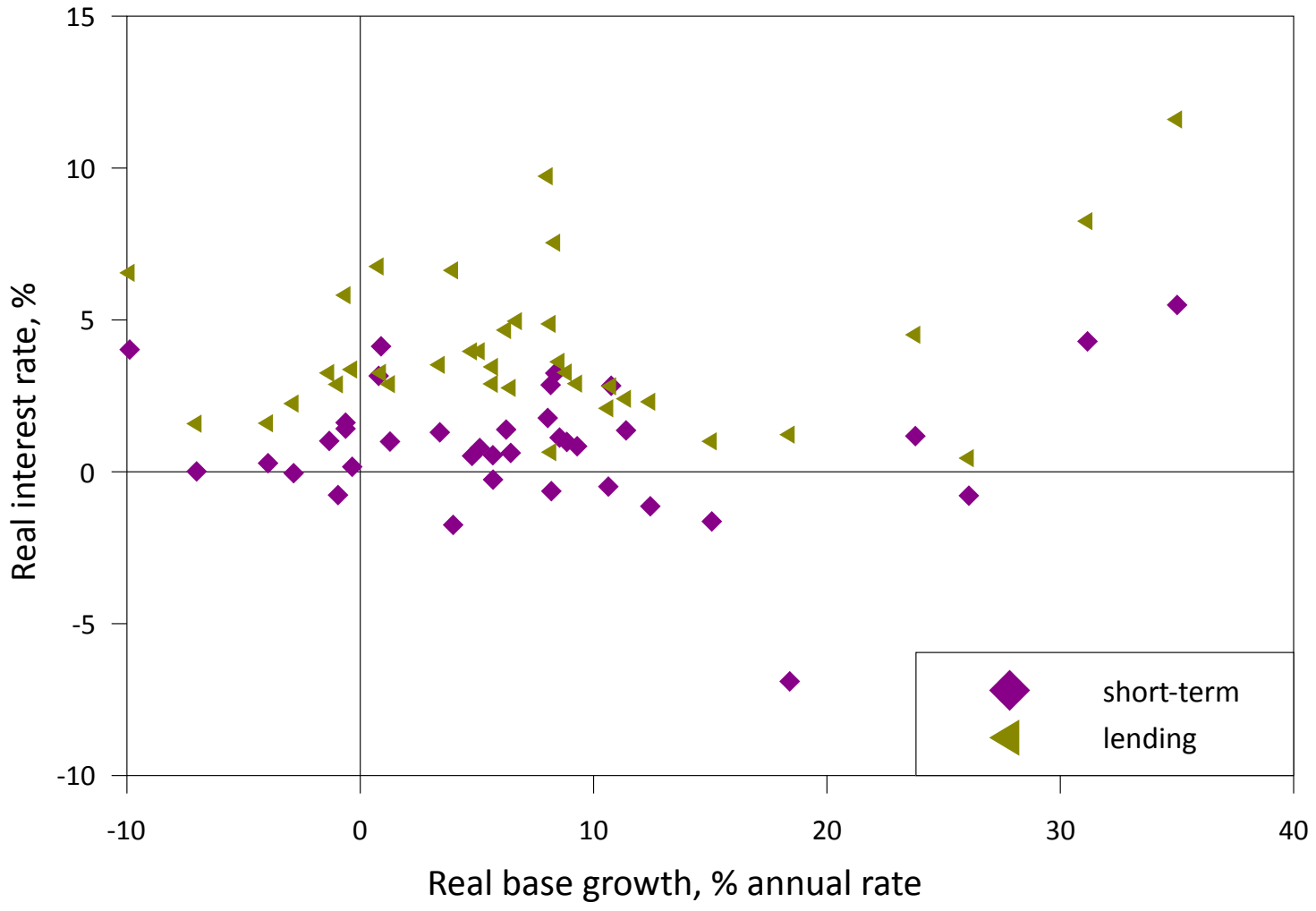
High base growth ⇒ housing boom?

Low rates ⇒ base growth?



Conclusions

- Standard economic theory says interest rates should have large effects on property prices.
- Econometrically estimated effects are significantly smaller.
- Low rates were probably a minor factor in the recent housing boom.
- Interest rate policy is an ineffective tool for dampening booms.
- Do "monetary conditions" more broadly have an effect?