Discussion of Sá and Wieladek's

"Capital Inflows and the U.S. Housing Boom"

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This paper:

1) Derives sign restrictions to identify four shocks:
   - Savings Glut in the ROW
   - Monetary Policy in the ROW
   - Monetary Policy in the US
   - Housing Demand in the US

2) Estimates Vector Autoregression

   Data from US and ROW (weighted sum of 32 countries) from 1979Q1 to 2006Q4

- Would it be interesting to add the crisis period?

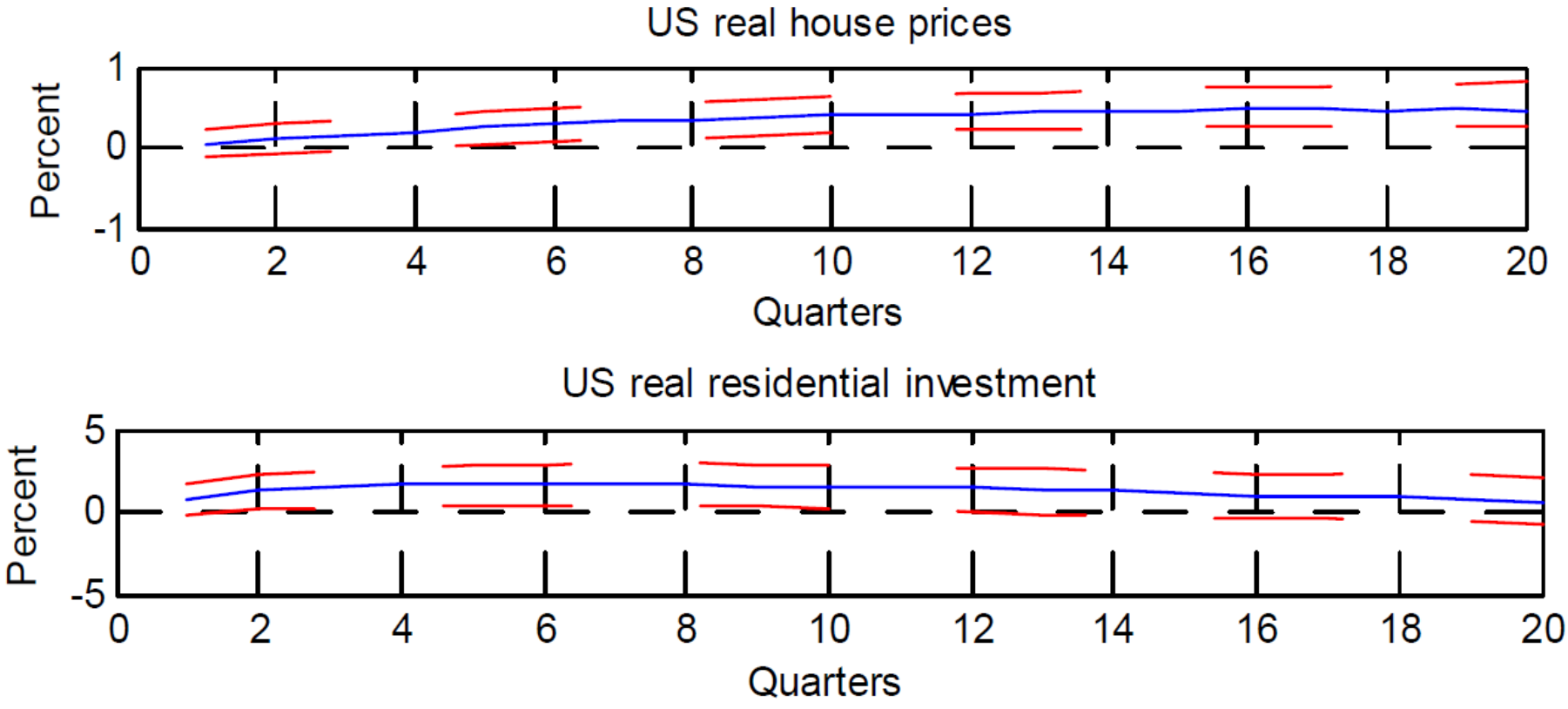
3) Identifies the shocks and does...

- **IRs**: what happens after each shock?
- **Variance Decomposition** (VD): which fraction of variance of k-step ahead forecast error is attributed to each shock?
- Also report **Historical Decompositions** to see recent boom. IRs and VDs are based on whole sample

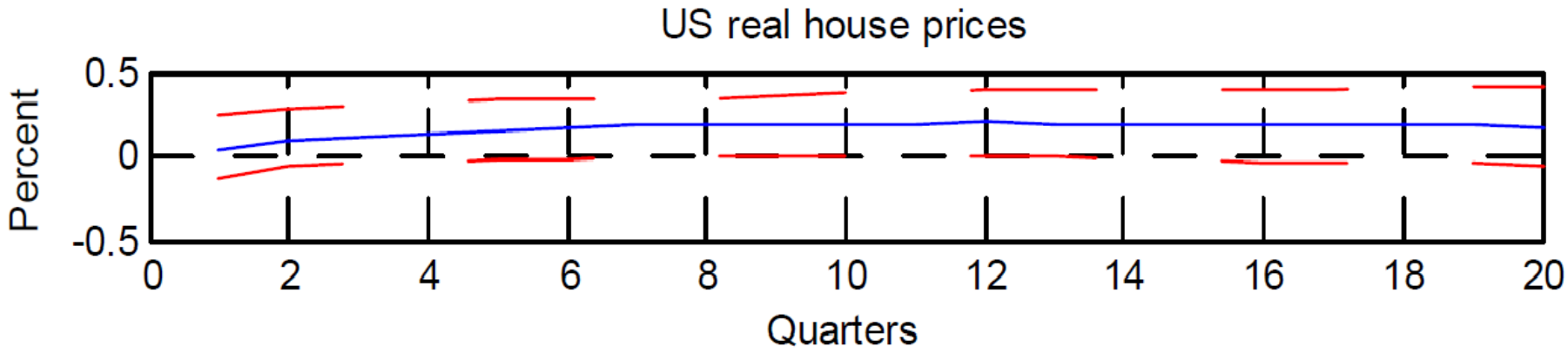
4) Main results:

- Only "savings-glut" shocks have significant IRs for real house prices and residential investment
- Fraction of VD of house prices explained by "savings-glut" ranges [6%,13%]
- US monetary policy shocks explain $\simeq$2%
- Housing demand $\simeq$4%

Impulse Response to Savings-Glut Shock



Impulse Response to Expansive US Monetary Shock



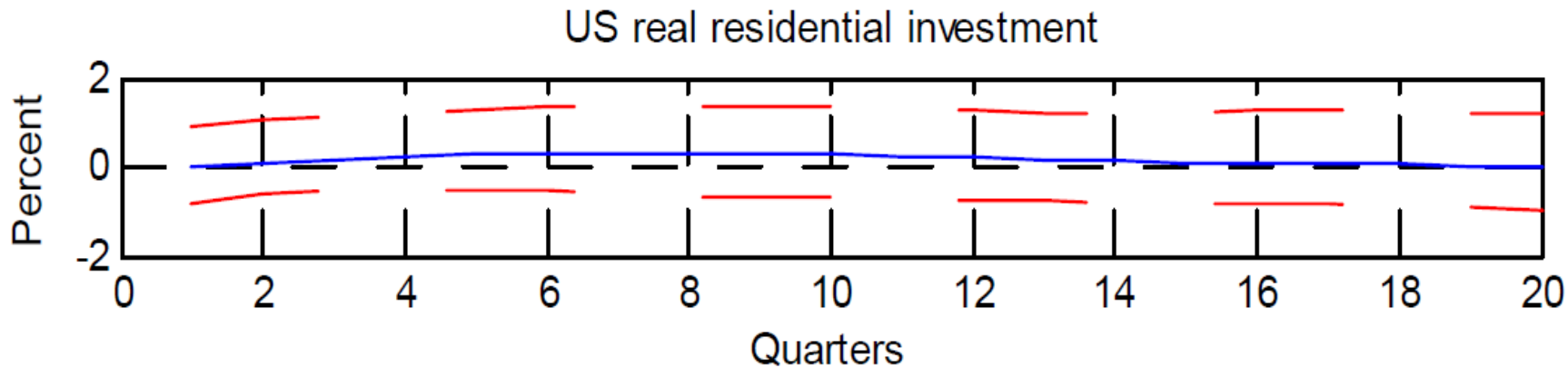


Table 4. Variance decompositions

	Real residential investment			Real house prices		
	1 Year	3 Years	5 Years	1 Year	3 Years	5 Years
Savings glut	6.7%	13.2%	10.9%	5.9%	10.8%	12.2%
Monetary expansion ROW	3.9%	3.4%	3.7%	4.1%	5.1%	7.1%
Monetary expansion US	2.1%	2%	2.4%	4%	3.7%	3.1%
LTV/housing preference US	4.3%	3.4%	4.2%	4.5%	9.1%	11.2%

- Would be interesting to explore which shocks explain the remaining $\simeq$80%

My Comments

- Interesting paper, authors derive carefully the sign restrictions
- Some comments

Brief review of VARs

- Reduced form VAR

$$
\begin{aligned}
Y_t &= AY_{t-1} + u_t \\
E\left[u_t u_t'\right] &= \Sigma
\end{aligned}
$$

- To give economic interpretation we need to disentangle u_t into "structural" orthogonal shocks

$$u_t = Be_t$$

$$E\left[e_t e_t'\right] = I$$

- How do we recover B?

$$\Sigma = BB'$$

We need theory restrictions to pin down B

Why Sign Restrictions?

- With **recursive identification** (B lower triangular) often the reactions of some variables do not look "as they should".

Recursive identification

- E.g. the **liquidity puzzle**: when identifying monetary policy shocks as surprise increases in the stock of money, interest rates tend to go up, not down.
- Or the **price puzzle**: after a contractionary monetary policy shock, even with interest rates going up and money supply going down, inflation goes up rather than down.

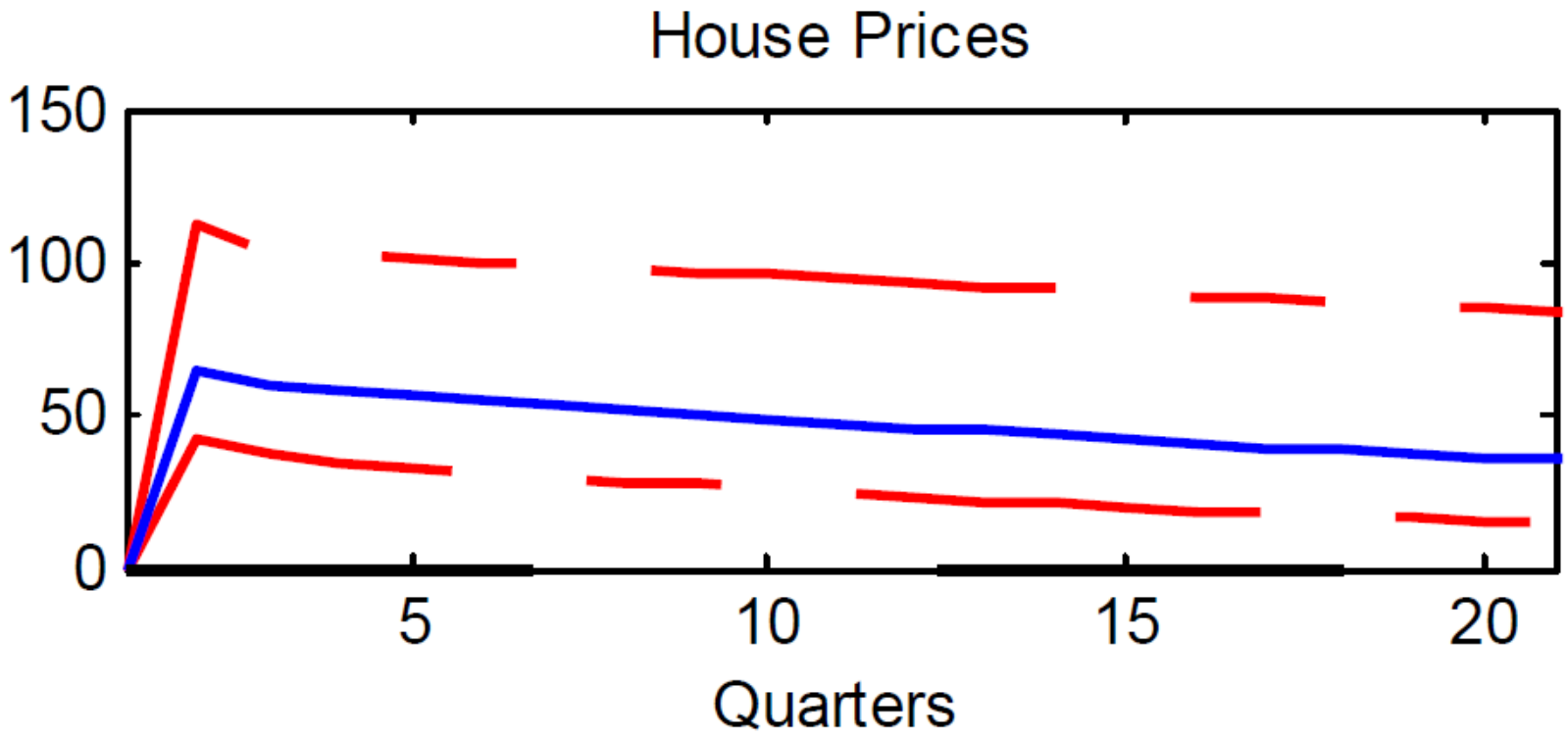
Sign Restrictions

- Impose the "right results" as part of the identifying restrictions
- Pick *set* of Bs that give the "right" IRs
- If theory for certain says:
  - positive shock X $\Rightarrow$ variable Z increases
  - if variable Z decreases, it was not a shock X, it was a different shock

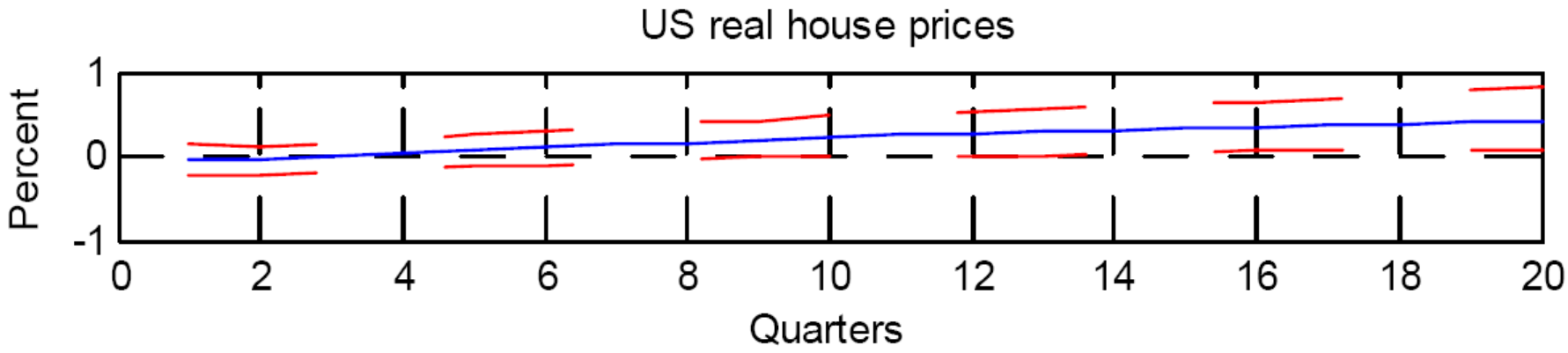
What does theory say that happens to housing after a housing demand shock?

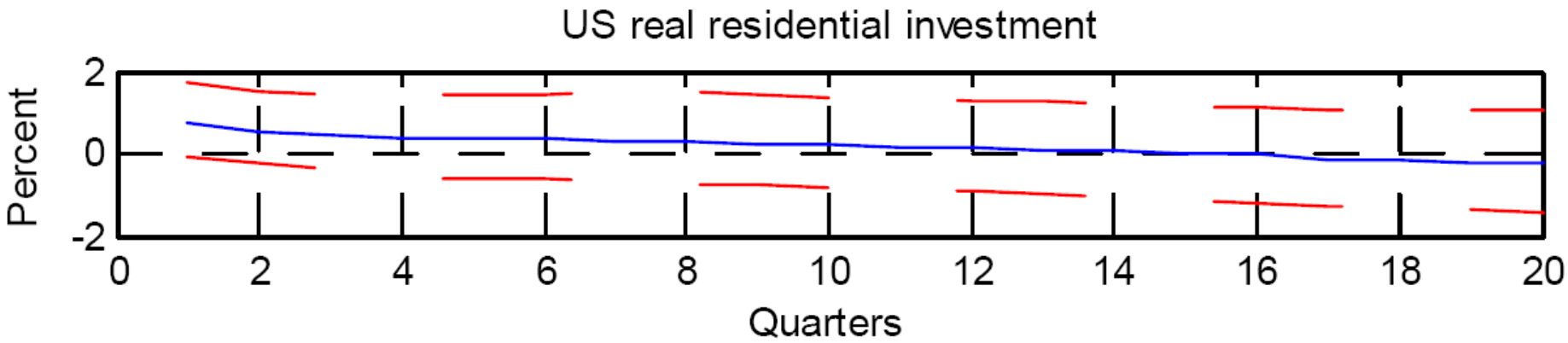
- In all models house prices and residential investment increase

Model Figure 3 (d). US monetary-policy expansion

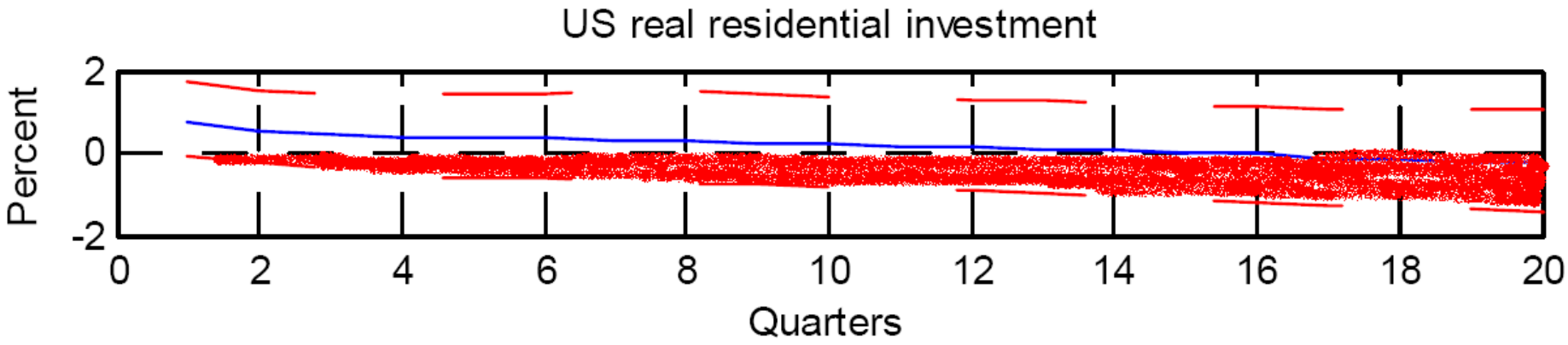


What does the SVAR in the current version of this paper say that happens to housing after a housing demand shock?




US real residential investment
Percent
2
0
-2
0
2
4
6
8
10
12
14
16
18
20
Quarters

- Can we have a "housing puzzle" for housing demand shocks?
- Recursive VAR identification generates puzzles
- Sign restrictions VARs by construction avoid puzzles



- Shocks in the red shaded area are not theory-consistent housing demand shocks

How does the paper identify monetary policy?

Table 2. Sign restrictions

Variables/shock	ROW monetary expansion	US monetary expansion
US consump		≥ 0
ROW consump	≥ 0	≥ 0
US short rate		≤ 0
ROW short rate	≤ 0	
US long rate		≤ 0
ROW long rate	≤ 0	
US CPI		≥ 0
ROW CPI	≥ 0	
US Current account	≤ 0	≤ 0
US Real Exchange	≥ 0	≤ 0

- Restrictions imposed on impact for the current account, on impact plus two quarters for all other variables

Problem with restrictions on current account:

It is easy to come up with a model such that:

- Fed lowers short rates$\Rightarrow$
- $\Rightarrow$ by UIP the dollar (nominal exchange rate) depreciates$\Rightarrow$
- $\Rightarrow$ US exports increase, US imports decrease$\Rightarrow$
- $\Rightarrow$ What happens to the US trade balance and current account?

a) If price elasticities of exports and imports are high enough then a surplus

b) If low elasticity of import substitution (e.g. oil) then a deficit in the short-run (the J-curve)

- Thus, sign of the reaction of the current account after a monetary shock is ambiguous

Solution

- Do not use the current account to identify monetary policy
- Better to use exports or imports

Problem with restrictions on real exchange rate

- Durable goods sector is much more interest-sensitive than the nondurables (Erceg and Levin 2006)
- Housing is the most important non-tradable durable good

- Fed lowers short rates$\Rightarrow$

$\Rightarrow$ demand for durable goods react more than demand for non-durables $\Rightarrow$

$\Rightarrow$ if housing supply inelastic, house prices increase more in the US$\Rightarrow$

$\Rightarrow$ housing is non-tradable, if law of one price applies to tradables $\Rightarrow$

$\Rightarrow$ US real exchange rate appreciates (Balassa-Samuelson effect)

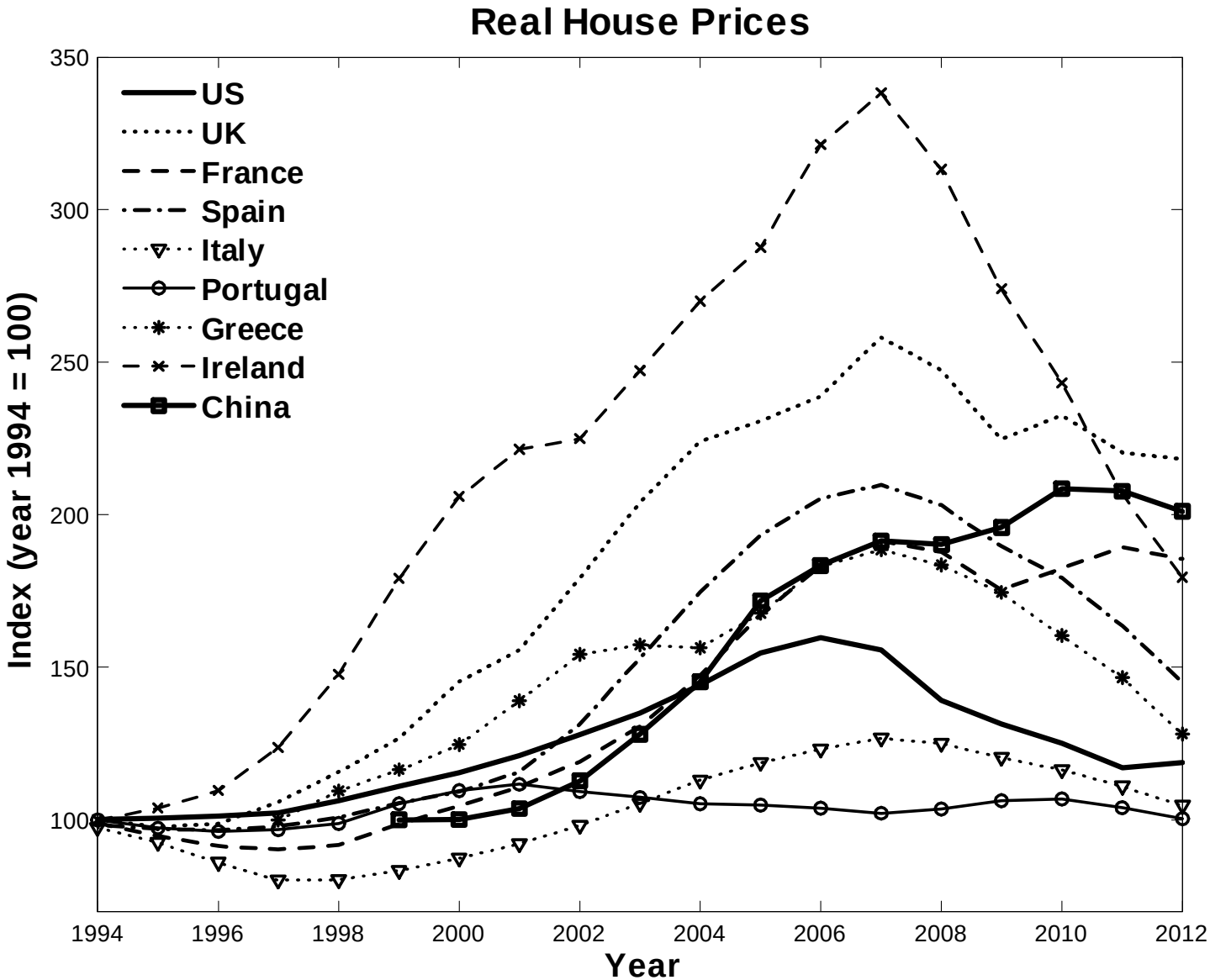
Solution

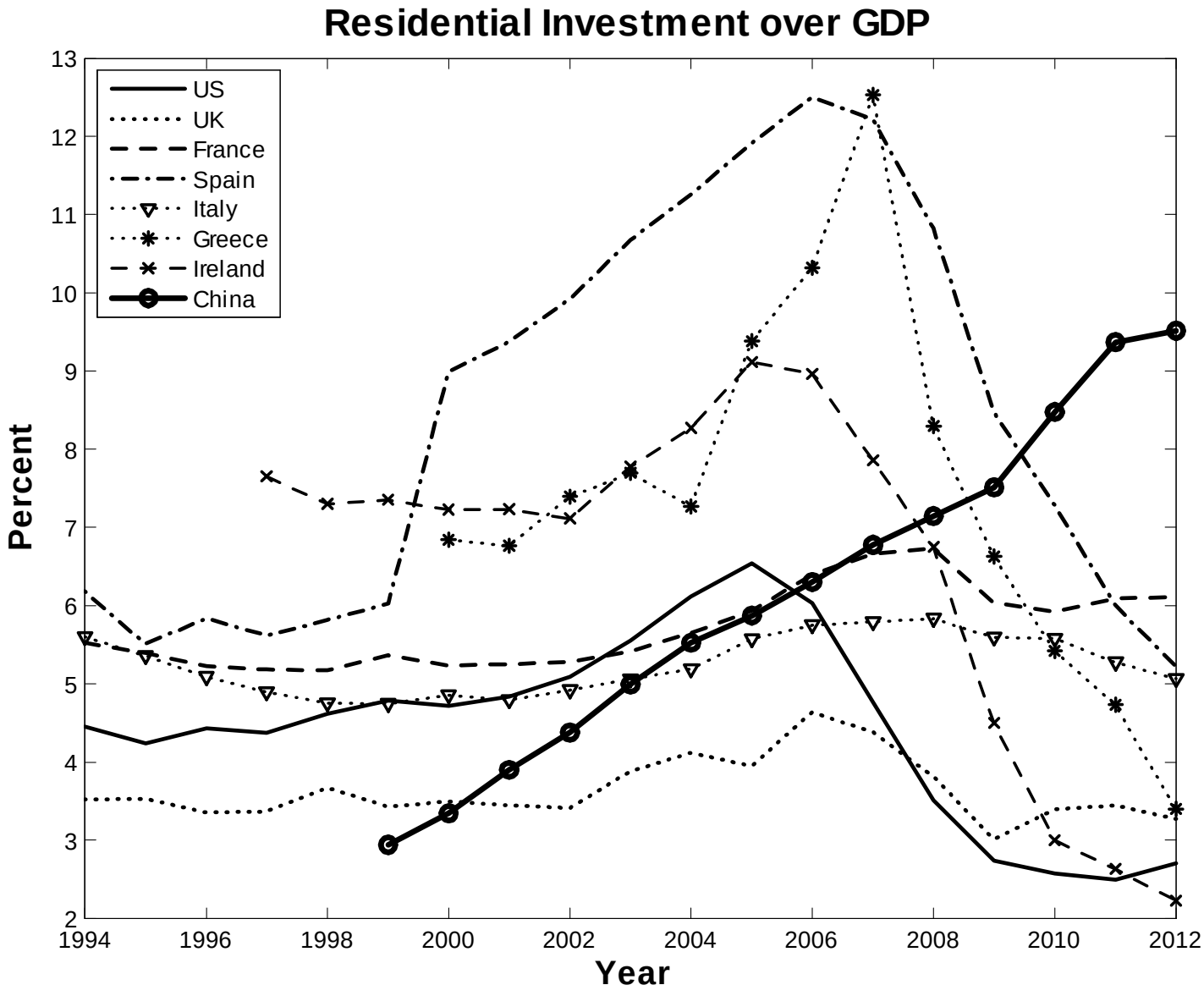
- Do not use the real exchange rate to identify monetary policy
- Better to use nominal exchange rates, or real output

Vargas-Silva (2008 Journal of Macroeconomics)

- Uhlig (2005): a contractionary monetary policy shock does not lead to an increase in prices, non-borrowed reserves and real GDP, or decreases in the federal funds rate
- Contractionary monetary policy shocks have a negative impact on housing starts and residential investment
- Explain about 10% of the variation in housing prices after 24 months

A related exercise, what about China? Bian-Gete (2013)




Residential Investment over GDP
US
UK
France
Spain
Italy
Greece
Ireland
China
Percent
Year
13
12
11
10
9
8
7
6
5
4
3
2
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012

- Using only data for China identify 5 Chinese shocks:
  - Population
  - Bubble
  - Credit expansion
  - Savings Glut
  - TFP

Variance Decomposition of 2 years forecast error

	Real House Prices
Population	6.7%
LTV	6.1%
Housing preference	19.3%
Savings glut	18.7%
TFP	5.4%

Conclusions on Sa and Wieladek (2013)

- Interesting paper
- I'd push authors to stick to the sign restrictions methodology.
  - Impose restrictions to avoid puzzles.
  - Also strenghten some restrictions
- Robustness exercises