Discussion of Sá and Wieladek’s

“Capital Inflows and the U.S. Housing Boom”

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Discussion of Sa and Wieladek’s "Capital Inflows and the U.S. Housing Boom"

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November 2013
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 \(\approx 2\%\).
- Housing demand \(\approx 4\%\).
Impulse Response to Savings-Glut Shock

US real house prices

Percent

US real residential investment

Percent

Quarters
Impulse Response to Expansive US Monetary Shock

**US real house prices**

**US real residential investment**
Would be interesting to explore which shocks explain the remaining $\approx 80\%$
My Comments

- Interesting paper, authors derive carefully the sign restrictions

- Some comments
Brief review of VARs

- Reduced form VAR

\[ Y_t = AY_{t-1} + u_t \]

\[ E [u_t u'_t] = \Sigma \]
To give economic interpretation we need to disentangle $u_t$ into “structural” orthogonal shocks

$$u_t = Be_t$$

$$E[e_t e'_t] = I$$

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?
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>
<thead>
<tr>
<th>Variables/shock</th>
<th>ROW monetary expansion</th>
<th>US monetary expansion</th>
</tr>
</thead>
<tbody>
<tr>
<td>US consump</td>
<td>≥ 0</td>
<td>≥ 0</td>
</tr>
<tr>
<td>ROW consump</td>
<td>≥ 0</td>
<td>≥ 0</td>
</tr>
<tr>
<td>US short rate</td>
<td>≤ 0</td>
<td>≤ 0</td>
</tr>
<tr>
<td>ROW short rate</td>
<td>≤ 0</td>
<td></td>
</tr>
<tr>
<td>US long rate</td>
<td>≤ 0</td>
<td>≤ 0</td>
</tr>
<tr>
<td>ROW long rate</td>
<td>≤ 0</td>
<td></td>
</tr>
<tr>
<td>US CPI</td>
<td>≥ 0</td>
<td></td>
</tr>
<tr>
<td>ROW CPI</td>
<td>≥ 0</td>
<td></td>
</tr>
<tr>
<td>US Current account</td>
<td>≤ 0</td>
<td>≤ 0</td>
</tr>
<tr>
<td>US Real Exchange</td>
<td>≥ 0</td>
<td>≤ 0</td>
</tr>
</tbody>
</table>

- 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
- by UIP the dollar (nominal exchange rate) depreciates
- US exports increase, US imports decrease
- 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

⇒ demand for durable goods react more than demand for non-durables ⇒
⇒ if housing supply inelastic, house prices increase more in the US ⇒
⇒ housing is non-tradable, if law of one price applies to tradables ⇒
⇒ US real exchange rate appreciates (Balassa-Samuelson effect)
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.
<table>
<thead>
<tr>
<th>Year</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>US</td>
</tr>
<tr>
<td>1996</td>
<td>UK</td>
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<tr>
<td>1998</td>
<td>France</td>
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<td>2000</td>
<td>Spain</td>
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<tr>
<td>2002</td>
<td>Italy</td>
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<td>2004</td>
<td>Greece</td>
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<tr>
<td>2006</td>
<td>Ireland</td>
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<tr>
<td>2008</td>
<td>China</td>
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<tr>
<td>2010</td>
<td></td>
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<tr>
<td>2012</td>
<td></td>
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</tbody>
</table>
Using only data for China identify 5 Chinese shocks:

- Population
- Bubble
- Credit expansion
- Savings Glut
- TFP
Variance Decomposition of 2 years forecast error

<table>
<thead>
<tr>
<th></th>
<th>Real House Prices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>6.7%</td>
</tr>
<tr>
<td>LTV</td>
<td>6.1%</td>
</tr>
<tr>
<td>Housing preference</td>
<td>19.3%</td>
</tr>
<tr>
<td>Savings glut</td>
<td>18.7%</td>
</tr>
<tr>
<td>TFP</td>
<td>5.4%</td>
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</tbody>
</table>
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 strengthen some restrictions
- Robustness exercises