The Macroeconomic Effects of Housing Wealth, Housing Finance, and Limited Risk-Sharing in General Equilibrium

**Workshop:** Households, risk and insurance

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Overview

This paper examines a two-sector (housing + non-housing production) GE model with heterogeneous households facing limited risk-sharing possibilities (incomplete financial markets: via uninsurable risks & collateral borrowing constraints)

- **Given the ‘stylized’ input (calibrated to US economy):**
  - Relaxation of credit constraints
  - Decline in housing transaction costs
  - Infusion of exogenous capital

- **Authors discover/simulate (crisis?):**
  - Variability in house price-rent ratios
  - Composition of wealth shifts toward housing
  - Short-run boom in aggregate consumption
  - Short-run bust in investment
  - Lower future housing returns, not higher future rents.

- **These are really interesting and important findings**
Authors do an excellent job by providing very interesting:

1. Panorama of the current state of the housing market;
2. Probable scenario of how it got there.

- Authors set up a complex and quite complete GE model:
  - Analytically intractable
  - Must be simulated numerically

- I like the paper and the approach.
Specific Comments: Foreign Demand

Why foreigners continue to invest in US when $r \downarrow$?

- Rise in foreign ownership of US Treasuries is exogenous, calibrated to data 2000–2008 (Model 3).
- Can this be relaxed (endogeneized) so that foreigners optimize their holdings of US debt over longer periods?

Put it differently:

- What causes foreigners to rise their ownership of US debt?
- Is there also a “liberalization” in the market for foreign capital?
  - The paper focusses on impact on US economy (Model 3) and is silent on the issue of progressing capital markets’ globalization.
Specific Comments: “Liberalization”

The word “liberalization” is not employed in the usual “range” of its meaning:

- Typical use: “liberalization” = costs declining from $\infty$ (barriers) or very high values down to reasonable, equilibrium values set in a market;
- In the paper: Already low and reasonable costs set in a already “liberalized,” free market, further decline almost to zero.
Specific Comments: Limitations

The model abstracts from default on debt, including mortgages:

- Foreclosures and subprime sector are not modelled.

Housing sector output (construction of new homes) is modelled:

- How well would the model perform to describe e.g. a UK economy where construction of new housing is close to zero?

Long-term debt is not allowed:

- “Financial market is limited to a one-period riskless bond.”

Short sales in the risky asset are ruled out:

- Isn’t this an additional source of market incompleteness?
This overlapping generations model is extremely precise as far as “function” and age of individuals is concerned:

- Born at time $t = 0$, becomes an adult at $t = 21$, worker until $t = 65$, then retired, dies stochastically before maximum $t = 100$, calibrated to life expectancy data.

Yet, financing home purchase is only possible using short-term, one-period borrowing on domestic capital market, which must be rolled-over period after period:

- We know that this contributed to Great Depression of the 30’s, people unable to find next loan to pay-off their balloon principal payment.
- Subsequently, mortgage product innovations followed (e.g. fixed-rate 30-year mortgage in the US).
I would like to see whether it is possible to:

- Explicitly model use of a specific mortgage long-term borrowing product such as FRM?
- Explicitly model using a mix of mortgage long-term borrowing products e.g. FRM/ARM? Prime/subprime? FRM/ARM/PM/CWM?
  - FRM: Fixed Rate Mortgage
  - ARM: Adjustable Rate Mortgage
  - PM: Participating Mortgage
  - CWM: Continuous Workout Mortgage

How would results change for a country with a predominance of FRM over ARM (e.g. US) and vice versa (e.g. UK)?
Specific Comments: Renting vs Owning

Decision to Own vs to Rent is not explicitly modelled:

- What *is* explicitly modelled is the “consumption of housing services,” and is optimized period by period.
- The concept of “renting” only comes out as a by-product of FOC where the price of the “housing service flow” comes out as a **marginal utility of housing vs marginal utility of consumption**.
  - What “renting” actually is seems to be a matter of interpretation:
    - In this setup the marginal utility of housing $\frac{\partial U}{\partial H}$ is not necessarily related to the utility of renting but is also the utility of owning (consuming housing services).
Specific Comments: Renting vs Owning

Model produces the ratio of housing price to an aggregate measure of renting across individuals $p/R$ without actually differentiating between owning and renting at the individual level:

- The ratio $p/R$ is one of the output of simulations, under general equilibrium, and is compared to several sources of data for this period (first Figure at the end of the paper).

I would like to see whether it is possible to explicitly model individual decisions of Renting vs Owning as a function of e.g. age and of conditions in domestic housing and financial markets:

- When $r \downarrow 0$ and financial constraints are relaxed, will individuals decide to own rather than to rent, as we observed recently?
Specific Comments: Shifting wealth to housing

Interestingly, the model predicts that financial market liberalization, lower collateral constraints and influx of foreign capital leads households of all ages to shift the composition of their wealth towards housing. (See: Model 3, Table 3, Housing Wealth Relative to Total Wealth)

<table>
<thead>
<tr>
<th></th>
<th>young</th>
<th>old</th>
<th>all</th>
<th>low earn</th>
<th>medium earn</th>
<th>high earn</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>0.67</td>
<td>0.44</td>
<td>0.46</td>
<td>0.43</td>
<td>0.63</td>
<td>0.40</td>
</tr>
<tr>
<td>2001</td>
<td>0.67</td>
<td>0.43</td>
<td>0.44</td>
<td>0.44</td>
<td>0.58</td>
<td>0.40</td>
</tr>
<tr>
<td>2004</td>
<td>1.14</td>
<td>0.53</td>
<td>0.55</td>
<td>0.49</td>
<td>0.70</td>
<td>0.51</td>
</tr>
<tr>
<td>2007</td>
<td>0.92</td>
<td>0.52</td>
<td>0.54</td>
<td>0.51</td>
<td>0.71</td>
<td>0.50</td>
</tr>
</tbody>
</table>

Model 1 | 1.55  | 0.46| 0.49| 0.41     | 0.47        | 0.54      |
Model 2 | 1.69  | 0.52| 0.56| 0.46     | 0.54        | 0.62      |
Model 3 | 2.09  | 0.53| 0.58| 0.50     | 0.55        | 0.63      |
However, the paper also claims that the levels of Housing Wealth are consistent with data:

- This is true, except for young households (< 35 yr.):
  
  209% (model) compared to e.g. 92% (data, in 2007)

- This is quite a big difference.

- Is this because young households can use housing as a collateral to borrow (much) more in order to increase their level of consumption?
Summary

Authors establish that a financial liberalization and an increase of foreign demand for Treasuries will result in many of the recently observed phenomena:

1. *Considerable shifts in house price-rent ratios;*
2. *Shifts in wealth composition towards housing;*
3. *Lowered interest rates and increased consumption and wealth inequalities;*
4. *Greater systematic risk in the equity and housing markets.*

A question which naturally arise from this research is:

- What are predictions of the model for the time after subprime crisis?

I like the paper and the approach:

Excellent paper!