What should Central Banks do about Real Estate Prices?

Franklin Allen
and
Elena Carletti

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• Reinhart and Rogoff (2009) document that many financial crises are the result of a sharp drop in property prices

• In the current crisis Ireland, Spain and some regions of the U.S. had sharp run ups and then collapses in property prices that have had a severe effect on these countries’ banking systems and economies
Figure 1
Housing Prices in Ireland, Spain and the U.S.
What are the causes of these real estate bubbles?

• It is widely argued there are two important ones
  1. Loose monetary policy – low interest rates
  2. Global imbalances – easy availability of credit

• The debate needs to go beyond Taylor’s (2008) assertion that low interest rates cause property bubbles if preventive policies are to be designed

• We need to model how property bubbles arise
Theories of bubbles

1. **Infinite horizon** (Tirole 1985, Caballero and Krishnamurthy 2006, and Farhi and Tirole 2010)


What should a theory of bubbles explain?

• In “normal times” there are not property bubbles (e.g. Germany for last 20 years)

• In “bubble times” there is a sharp increase in leverage and run up in property prices, then a collapse

• This distinction suggests there is a threshold where speculators enter and start a bubble

• We use an agency approach to model this
Normal times

Willingness to pay for housing services

\[ P_1' = H(S_1') \]

\[ P_1'' = H(S_1'') \]

Risk neutral consumers determine prices

\[ P_0^N = H_0 + \frac{\pi P_1' + (1 - \pi) P_1''}{1 + \rho_C} \]
Bubble times

• Risk neutral speculators use their own wealth $W$ and loan with loan-to-value ratio $\lambda$ to buy $x$ units at price $P_t$ so $\lambda P_t x + W = P_t x$

• We focus on the case where there is no default when the price is high but there is when it is low so speculators enter if

$$\pi \left[ H_0 (1 + \rho_s) + P'_1 - (1 + r_0) \lambda P_0^N \right] x > W(1 + \rho_s).$$
• In this case speculators enter and the price is bid up so this condition is satisfied with equality and there is a bubble if

\[ p_0^B = \frac{H_0(1 + \rho_S) + P_1' - W(1 + \rho_S)/(\pi x)}{(1 + r_0)\lambda} > p_0^N \]

• In the special case \( \lambda = 1, W = 0 \) and \( \rho_S = \rho_C = r_0 = r \)

\[ p_0^B = H_0 + \frac{P_1'}{(1 + r)} > p_0^N = H_0 + \frac{\pi P_1' + (1 - \pi)P_1''}{1 + r} \]
Policy considerations

- Objective of policy should be to prevent bubbles occurring in the first place and restoring normal times if speculators have entered.

- Speculators’ entry condition more likely to be satisfied with low interest rates and easily available credit.

- Monetary policy and credit availability can have a role to play in controlling bubbles in small homogeneous countries like Sweden but in large heterogeneous economies like China, the Eurozone and the U.S. macro-prudential policies need to be relied upon.
Macro-Prudential policies

• Should eliminate speculators’ incentive to enter the real estate market and create a bubble

1. Mandatory reductions in loan-to-value ratios

2. Increases in annual real estate taxes

3. Increases in taxes on real estate transfers

4. Direct restrictions on real estate lending
Implementation of macro-prudential

• Borio and Lowe (2002) and other papers from the BIS suggest difficult but not impossible to identify property bubbles

• Christensson et al. (2010) look at Financial Stability Reports of the Netherlands, Norway, Spain, Sweden, and the U.K. over the period preceding and during the crisis

• FSRs were successful in identifying risks and unsustainable trends but many were regarded as low probability events not worthy of action
Chinese experience

• The Chinese have tried a number of these measures
  
  – Lower loan-to-value ratios for second, third, and more houses
  – Taxes on resales of certain types of housing
  – Restrictions on foreigners buying
  – Loan restrictions on commercial property

• They have not worked very well in the major cities
Beijing Housing Price vs Disposable Annual Income
Normalized, base year=2002
adjusted by CPI, 2002=100
Shanghai Housing Price vs Disposable Annual Income
adjusted by CPI, 2002=100
Shenzhen Housing Price vs Disposable Annual Income
Normalized, base year=2002
adjusted by CPI, 2002=100
Concluding remarks

• Objective of policy should be to prevent the property market becoming speculative

• Monetary policy and credit availability can have an important role in some economies like Sweden

• It is not clear that macro-prudential policies will prevent or eliminate bubbles but they may help

• Inefficiency of property markets is also important, i.e. positive serial correlation of returns (e.g. Englund, Quigley and Redfearn 1998), and needs to be incorporated in the analysis