Discussion of “Demystifying the Chinese Housing Boom” by Hanming Fang, Quanlin Gu, Wei Xiong, and Li-An Zhou

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The views expressed herein are those of the discussant and do not necessarily reflect the views of the Federal Reserve System.
Summary

- Construction of Chinese housing price indices (120 cities, 2003-2013) based on sequential sales of new homes within the same housing developments.

- Finding I: Is there a housing boom in China? Yes
  - enormous price appreciation (13.1/10.5/7.9% in tier-1/2/3)

- Finding II: Would a potential housing market meltdown trigger an imminent financial crisis in China? Unlikely
  - large downpayment (>30%) vs. 0-20% in US
  - not unaffordable (income grows 6.6/9.0/8.9% in tier-1/2/3)

- Finding III: Were low-income households able to buy houses? Yes
  - stable participation in the housing market
  - large financial burdens with price-to-income ratios of 8 ~ 10
The Chinese Housing Boom

- China’s investment in residential real estate
  - grows at **25.5%** during 1998–2014
  - more than 10% as a share of GDP in 2014
Official Housing Price Indices

- The official housing market index is published by National Bureau of Statistics (NBS) of China
- housing price growth: too smooth and too low (4.7-6.7%, tier-1, 2003–2013)
Housing Price Indices in This Paper

- This paper’s housing price indices seem to be more realistic:
  - rich dynamics and reasonable housing price appreciations (13-21%, tier-1, 2003–2013)
Nascent Chinese Housing Market

- The Chinese housing market is nascent in nature
  - before 1978 when first economic reforms began, all land and homes were publicly owned
  - In 1988, land transactions were allowed
    - the beginning of commercialization of housing in China
  - In 1994, “A Decision From the State Council on Deepening the Urban Housing Reform”
  - In 1998, “Circular of the State Council on Further Deepening the Urban Housing System Reform and Accelerating Housing Construction”
    - the housing market started to take off

- The short history of the housing market (and the data) poses a major challenge to housing price index construction.
Construction of the Chinese Housing Price Indices

- To control for quality change, two popular approaches of housing price index construction
  - “hedonic price regressions” (Kain and Quigley (1970))
    - used in Wu-Deng-Liu (2012) to construct Chinese HPI
  - “repeated sales method” (Case and Shiller (1987))

- Due to nascent nature of Chinese housing market, the authors propose a hybrid approach using a comprehensive mortgage loan dataset
  - For city $c$, month $t$, new home $i$ in development project $j$,
    \[
    \ln P_{i,j,c,t} = \beta_{c,0} + \sum_{s=1}^{T} \beta_{c,s} \cdot 1\{s = t\} + \theta_c X_i + DP_j + \epsilon_{it}
    \]
  - Housing price index $PI_{c,t}$ with $PI_{c,0} = 1$ and for $t \geq 1$
    \[
    PI_{c,t} = \exp(\beta_{c,t})
    \]
Some Quibbles

- The indices are constructed based on purchases of mortgage borrowers (18% of Chinese households). How different would the housing price indices be if all households were included in the sample?

- Changing demand for certain characteristics over time (e.g., square footage or location) may bias the estimation.
Comments: Comparison of Housing Market Indices

- Why are the new indices so different from the official NBS indices?
- For example, both indices seem to be close during 2003-2005, but diverge afterwards. Why?
The NBS index construction method is conceptually similar to this paper:

1. For each sampled housing complex \( j \) in city \( c \), calculate average transaction price \( P_{j,c,t} \)

\[
P_{j,c,t} = \frac{\text{Total Sales Revenue in Complex } j \text{ in } t}{\text{Total Area Sold in Complex } j \text{ in } t}
\]

2. For each city \( c \), compute volume-weighted average of price changes

\[
\frac{PI^{NBS}_{c,t}}{PI^{NBS}_{c,t-1}} = \sum_{j \text{ sampled}} w_{j,c,t} \frac{P_{j,c,t}}{P_{j,c,t-1}}
\]

Despite some differences, can the authors apply the NBS method to construct alternative NBS indices?

\[
\ln P_{j,c,t} = \beta_{c,0} + \sum_{s=1}^{T} \beta_{c,s} \cdot 1 \{s = t\} + \epsilon_{it}
\]

By comparison, alternative NBS indices may shed light on why official NBS indices are too smooth (e.g., suburbanization).
Comments: Investment or Speculation?

- Housing in China is also considered as “alternative investment”, but has it become a tool for speculation lately?
  - As shown by recent NBS indices, Shenzhen housing price level increased by 40% per annum between Jan 2015 and Mar 2016
  - Alarmingly, “zero down payment”, “P2P down payment loans”
Comment: Boom or Bubble?

- Can this paper shed light on the debate whether the Chinese housing market has a bubble? (Chen-Wen 2014)
- Compared to the US, residential RE investment as a share of GDP in China seems to be very high.
Conclusion

- Very interesting paper and important questions.

- Based on a new methodology and a comprehensive dataset, the authors build a 120-city housing price indices in China between 2003 and 2013.
  - Significant improvement upon the official indices.
  - Discussion about the differences would be very helpful.

- The authors document the Chinese housing boom and consider risks in the housing market as moderate
  - has the housing market become riskier, speculation-driven, bubbly?
  - "too important to fail"?