

Discussion of
Collateral Quality and House Prices *by Jing Zhou*

Min Fang

University of Lausanne & University of Geneva

June 20, 2022 @ China International Conference in Macroeconomics 2022

The BIG Question: What drives the observed fluctuations in house prices?

What are the observations and what's the explanations:

- Obs.1 **House prices are highly volatile and procyclical (co-move with output).**
- Obs.2 Rents are not moving around accordingly (price-rent-disconnect).
In other words: Prices are not equal to the discounted NPV of rents (real value).
- What do we learn? **Fluctuations in house prices reflects changes in financial value.**

$$P_t = R_t + E_t[M_{t+1}P_{t+1}] + E_t[M_{t+1}\mathbf{F}_{t+1}], \quad \mathbf{F}_{t+1} = \text{collateral or liquidity premium}$$

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How to explain such volatile changes in financial value of houses?

- Discount shocks + collateral constraints in [Miao-Wang-Zha-2020](#).
- Credit supply shocks + collateral constraints in [Liu-Wang-Zha-2021](#).
- Credit supply shocks + market segmentation in [Greenwald-Guren-2021](#).
- This paper: **Collateral quality shocks + Information Regime Switch**

Summary of the paper

DSGE model with endogenous information regime switch and Bayesian estimation of shocks:

1. Quantitative Modeling:

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2. Bayesian Estimation: with aggregate U.S. data from 1975Q1 to 2019Q4

- Six shocks: productivity shocks, housing demand shocks, labor supply shocks, collateral quality shocks, financial tightness shocks, and aggregate IST shocks.
- Six time series: real consumption per capita, real investment per capita, hours worked per capita, real house prices, price-rent ratio, National Financial Conditions Indexes.

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- Six shocks: productivity shocks, housing demand shocks, labor supply shocks, collateral quality shocks, financial tightness shocks, and aggregate IST shocks.
- Six time series: real consumption per capita, real investment per capita, hours worked per capita, real house prices, price-rent ratio, National Financial Conditions Indexes.
- Results: Collateral quality shocks and the associated regime switch account for about half of the variations in house prices & price-rent ratio during the 2000s.

The quantitative model and estimation are well-executed and the message is clear!

Comment One: On the Comparison of the Collateral Quality Shock

An interesting comparison to two other popular shocks:

- A negative housing demand shock \Rightarrow Rent $\downarrow\downarrow$ + Price \downarrow (future rents recover) $\Rightarrow \frac{P}{R} \uparrow$
- A negative financial tightness shock \Rightarrow Demand for collateral $\uparrow \Rightarrow$ Prices \uparrow (Rent unaffected)

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What kind of shock does it belong to? Supply, demand, or financial?

- A negative CQS \Rightarrow Negative supply shock of housing services \Rightarrow Rent \uparrow (constant demand)
The GE effects on demand brings down rent, eventually almost unchanged.
- A negative CQS \Rightarrow Negative financial shock in collateral premium \Rightarrow Prices \downarrow

\Rightarrow As a result, P/R ratio almost co-move with P

Comment Two: On the Empirical of the Collateral Quality Shock

The collateral quality shock is the key in the whole paper. Then:

What indeed is a *collateral quality shock (CQS)* to houses in real life or data?

- The author states that "collateral quality should be interpreted **in the broad sense** of the quality of an asset in terms of **its ability (probability) to generate dividend (rent) streams.**"
- Since quality is really hard to measure and any prices (rents) are equilibrium outcomes. How could we identify the *collateral quality shock* in the data?

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Potential empirical evidence of the CQS and the Regime Switch Mechanism?

- Evidence on CQS: A negative CQS \Rightarrow We should observe an increase of the proportion of houses generating zero rents (un-rented) or decreasing rents (to be more realistic).
- Evidence on the IS/II Switch: In Gorton-Ordenez-2014 "Collateral Crises", they provide some evidence of such regime switch mechanism of the mortgage market. Maybe for here as well?

Comment Three: New Shock, New Wedges, or Micro-data?

In general, usually two ways to explain unexplained semi-elasticities of business cycle:

- More Shocks: i.e., build on Bayesian DSGE by Smets and Wouters
- More Wedges: i.e., build on Business Cycle Accounting by Chari, Kehoe, and Mcgrattan
- The key idea in both is to squeeze the most "understanding" out of **macro-data**
⇒ Results: we know which part (shock/wedge) is key without understand "within the part".

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New approach: micro-data for macro-dynamics:

- The raise of **micro-data**: applied micro econometrics for macro studies
- Inference from micro to macro: i.e., Nakamura-Steinsson (2018), Wolf (2021)
- Micro-data on prices/rents/finance (individual/regional) could be very useful here.

Conclusion

- An interesting paper with well-executed quantitative model and estimation.
- An important question asked and clearly answered.
- Will be interesting to look into data to provide evidence for the shock.