State Dependent Effects of Monetary Policy: the Refinancing Channel
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Inflation-Targeting: Revisit! Revise it?

Summary

- How is transmission of monetary policy to the real economy affected by
  1. Costs of mortgage refinancing?
  2. History of interest rate?

- Empirically, paper shows that, in the US
  1. People refinance more when the gains from refinancing are greater
     - not terribly surprising but not previously well-demonstrated in a macro context
  2. Housing permits respond more when the gains from refinancing are higher
     - more surprising

Model Overview

Rich, partial-equilibrium life cycle model with incomplete markets to understand role of refinancing in monetary transition mechanism

- ▶ Incomplete markets in the sense that HH cannot borrow against future labor inome
  - ▶ given shape of life cycle income profile, strong incentive to borrow when young

- ▶ Rich labor income dynamics
  - ▶ received as an endowment, no labor supply decision

- ▶ Bequest motive (to match homeownership among old)

- ▶ Feed in interest rates and historical home prices

- ▶ Real model - no inflation

Mortgage Finance in the Model

- Mortgage are all fixed-rate and fully-amortizing

- Mortgage maturity is equal to the remaining (maximum? expected?) lifespan of HH
  - e.g., 40 year-old with maximum life expectancy of 85 gets mortgage with 45-year term

- HH chooses LTV optimally subject to maximum of $\phi=80\%$

- Lenders are financially unconstrained

- Fixed cost of refinancing measured in units of consumption

- Mortgage maturity assumption means that mortgage term does not change when the household refinances
  - Instead, household potentially gets a lump sum paid out in addition to increasing the LTV

Monetary Policy in the Model

- Monetary authority controls the real short-term interest rate

- PE model (no housing supply response) such that effects of monetary policy are the consumption of HH

- Bigger stock of households that will benefit from refinancing if rates have been flat than if they have been rising

- Thus, a given rate cut (e.g., 25bp) will have a bigger impact on consumption if rates have been flat
  - State-dependency of monetary policy!

- Effect is largely driven by households that face binding borrowing constraints

Contribution

Useful, novel insight into monetary transmission mechanism!

I suspect the main results of the model will also hold in GE and/or with a richer mortgage choice environment

Paper is clear and easy to read

Still, some questions and suggestions....

Role of Home Prices in Monetary Transmission?

- ▶ Paper finds that, empirically, 80% of all refis involve cash out..
    - ▶ Surprising fact
    - ▶ How does this share vary over time?
    - ▶ Distribution of amount of cash taken out?
    - ▶ Maybe get some cash out to cover closing costs?

- ▶ What matters for monetary policy is **rate refis**, not equity extraction refis

- ▶ If already at max LTV, cannot get cash out **unless** keep making old payment with old term
    - ▶ Empirical description of rate refinancing makes it seem like this is common

Role of Home Prices in Monetary Transmission?

- In model, mortgage maturity is remaining lifespan

- In reality, hard to get a 23-year mortgage
  - More liquidity because we tend to standardize mortgage products into a handful of products 15-yr FRMs, 30-yr FRMs

- In practice, when you get a **rate refi**, get the term extended so payments fall but do not extract equity
  - Not clear to me that rate refis usually end up with households a higher LTV

- In practice, must have seen recent rises or at least flat home prices to get much effect of rate cuts

- Relationship between rates and home prices is somewhat of a black box in the model

Role of Home Prices in Monetary Transmission Mechanism

At this point, paper is mixing up **home prices** (which are not under control of the monetary authority) with **rates** (which are)

If mortgage contract were instead standardized into fixed contract lengths that don't depend on age, what changes when rates fall?

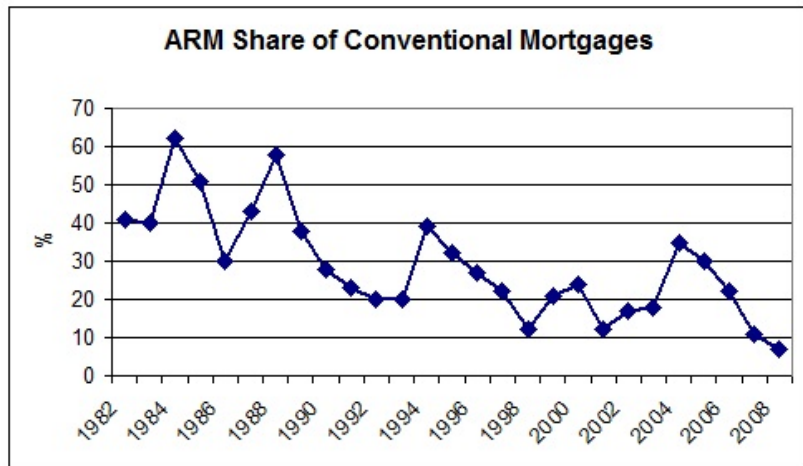Lenders will not allow households to go to a higher LTV even if rates have fallen

Bigger bang for the buck from rate cut when home prices have recently risen

Paper emphasizes state dependence of monetary policy on rate history but my suspicion is that path of home prices matters at least as much

Role of ARMs Empirically

Paper shows that response of housing permits to change in interest rate depends on the average rate gap

But how do the authors treat ARMS?

ARM Share of Conventional Mortgages

Role of ARMs Empirically

We know that the immediate impact of monetary policy is higher with ARMs than with FRMs...

- ▶ See, for example, Garriga, Kydland, and Sustek (2017, RFS)

What is the correlation between the ARM share and the average rate gap?

Solution: add ARM share in the regressions of housing permits

Fixed Costs of Refinancing?

- Model assumes that cost of refinancing is pecuniary and fixed

- If so, means that unemployed HHs would be *less* likely to refinance than employed HHs
  - higher MU of consumption for unemployed HHs so less willing to pay fixed cost while unemployed

- DeFusco and Mondragon (2018): **Unemployed HHs are 5X more likely to refinance than employed HHs**

Fixed Costs of Refinancing?

- Main cost of refinancing is a cognitive one measured in units of time, not a pecuniary one

- Given it's an endowment economy, might capture cross-sectional distribution of refinancing costs by having lower refi costs when get a low realization of transitory component of labor income

- More generally, would like to see more cross-sectional implications of the model
  - Homeownership rates by income
  - Refinancing rates by income

Key Policy Question

If monetary authority wants to cut rates by a total of 100 basis points for a given history of interest rates, should it

1. Cut rate by 25 basis points each quarter for next four quarters?
2. Cut rate by 100 basis points immediately?

I think the answer is 2) but would be nice to see paper explicitly conduct this policy experiment

Conclusions

- ▶ Nice paper on an important topic

- ▶ Paper will be more useful if more clearly discusses the state dependence on **home prices**

- ▶ Empirical analysis would be stronger if they could incorporate the role of ARMs

- ▶ Paper would be richer if authors explored heterogeneity in responsiveness to rate cuts and refinancing costs more