Monetary Policy and the Mortgage Market

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Karin Kinnerud | BI Norwegian Business School

What role do mortgages and housing play in the transmission of monetary policy?

- How do changes in mortgage interest rates and house prices affect aggregate demand?
- Do aggregate responses depend on the type of mortgages that are used?
  Fixed-rate vs. adjustable-rate mortgages (FRM vs. ARM)

Method

A heterogeneous-agent life-cycle model to trace out aggregate consumption demand as a function of a real interest rate path

Key model features

- Incomplete markets
  - Idiosyncratic earnings risk
  - Savings in liquid bonds or housing equity, and no unsecured borrowing
  - 30-year mortgages: down-payment and payment-to-income requirements (LTV & PTI)
- Liquid housing equity: transaction costs in the housing market, refinancing costs, and borrowing requirements

Model successfully replicates

- Share of homeowners with low liquid savings
- Negative correlation between debt and liquid assets
- Life-cycle patterns of mortgages and housing wealth

The experiment

- Start from steady state with an invariant distribution over households
- Study non-linear impulse response functions to a probability zero shock to the real interest rate

Interest-rate paths

- 100bp expansionary monetary policy shock
- Empirically estimated path of the real interest rate, from Auerll, Roghlie, and Straub (2020)

Aggregate income

Conclusions

- The interaction of changes in mortgage interest rates and house prices amplifies the response in aggregate consumption to an expansionary monetary policy shock
- The amplification is largely driven by
  - Constrained homeowners who take up a new mortgage or use cash-out refinancing to smooth consumption
  - Renters who postpone their house purchase due to higher house prices
- When mortgages have adjustable interest rates, as opposed to fixed rates
  - House prices increase substantially more
  - The aggregate response of consumption is more than six times as large