Discussion of Robert Hall's Paper "The High Sensitivity of Economic Activity to Financial Frictions"

Matteo Iacoviello
Federal Reserve Board

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This is a Timely Paper and I am Sympathetic to its Approach

Its basic message is that **financing frictions** matter for understanding housing and business investment dynamics.

The Housing Market in 2005

1. 2005: bought a house, got a loan at the peak of the housing boom...
2. ...in 3 weeks.

The Housing Market in 2009 and 2010

1. Late 2009, sold the small house.
2. Late 2009–Spring 2010, looking to buy a bigger house, found a house under bankrupcy (could only find bankruptcies, foreclosures and short sales).
3. We have fought with lawyers, bankruptcy trustees, agents, reluctant lenders who don't want to mess up with this for the last 5 months
4. It is not that borrowing rates are higher. Borrowing rates are posted on the lender's website and are pretty low.
5. But banks seem to look for excuses not to give you the loan: as I speak, they want evidence that there are no termites before we close...
   ...but it looks as if they hope there are
6. In sum: Hard not to see why nobody wants to build new homes or improve the existing ones in presence of financial frictions.

You can see how I could rant about this for ages, but let me discuss the paper.

Four main comments

1. The way the model is "closed" makes comparisons with existing literature a bit hard
2. The assumption that a house is like a refrigerator might be questionable
3. The complementarity between consumption and hours might hide interesting economics
4. The financing frictions highlighted here might be powerful, but will require more thought on the microeconomics behind them

The Core of Modern New-Keynesian Model

9 Variables: $C, K, H, N, RK, w, X, R, \pi$

$$C_t + K_t - (1 - \delta_k) K_{t-1} + H_t - (1 - \delta_h) H_{t-1} = K_{t-1}^\alpha N_t^{1-\alpha} \quad (1)$$

$$u_{ct} = \beta u_{ct+1} \frac{R_t}{\pi_{t+1}} \quad (2)$$

$$u_{ct} = \beta u_{ct+1} \left(RK_{t+1} + 1 - \delta_k \right) \quad (3)$$

$$u_{ct} = u_{ht} + \beta u_{ct+1} \left(1 - \delta_h \right) \quad (4)$$

$$w_t u_{ct} = v_{nt} \quad (5)$$

$$MPL_t = w_t X_{pt} \quad (6)$$

$$MPK_t = RK_t X_{pt} \quad (7)$$

Comment 1: Closing the Model

1. Macro models with price stickiness have this:

$$\pi_t = \phi\left(\pi_{t+1}, X_{pt}\right)$$
$$R_t = \phi\left(\pi_t, Y_t\right)$$

   Macro models in 1 generate markups that are procyclical
   (technology) or countercyclical (monetary) depending on the shocks
   In this models, elasticity of markup to output depends on shocks,
   parameters of policy rule, degree of price rigidity

2. This paper closes the model with this

$$X_{pt} = g\left(Y_t\right), \; g' < 0$$
$$\pi_t \text{ undetermined}$$

   Here, everything is collapsed in the elasticity of X_{pt} to Y.

3. Approach 2 is reasonable, but makes interpretation and policy
   analysis a bit difficult

The Friction

$$C_t + K_t - (1 - \delta_k) K_{t-1} + H_t - (1 - \delta_h) H_{t-1} = K_{t-1}^{\alpha} N_t^{1-\alpha}$$

$$u_{ct} = \beta u_{ct+1} \frac{R_t}{\pi_{t+1}}$$

$$u_{ct} = \beta u_{ct+1} \left(RK_{t+1} + 1 - \delta_k \right)$$

$$u_{ct} = \frac{u_{ht}}{1 + f_t} + \beta u_{ct+1} \left(1 - \delta_h \right)$$

$$w_t u_{ct} = v_{nt}$$

$$MPL_t = w_t X_{pt}$$

$$MPK_t = (1 + f_t) RK_t X_{pt}$$

Should a decline in the rental rate of capital undo part of the increase in $1 + f$?

If that happens, it is hard to see how capital can drop so much in the model simulations.

Comment 2: Housing and Markups

Yes, this is a new-keynesian model with housing

- Macro-housing papers assume that housing prices are flexible
  The paper assumes that a common degree of price stickiness applies
  to new goods, new capital goods and new houses
  Some might find this a bit unsettling (most new homes are priced for
  the first time when they are sold)

- Some might dislike idea that a common production technology
  applies to homes, cars, fruit... (think about land)

- I modified Bob's model to allow prices of new houses to be flexible...
  (assume separability b/w consumption and hours throughout)

$$C_t = (s_t K_{t-1})^\alpha \, n_{ct}^{1-\alpha}$$
$$H_t = (s_t' K_{t-1})^\alpha \, n_{ht}^{1-\alpha} + (1 - \delta_h) \, H_{t-1}$$
$$K_t = ((1 - s_t - s_t') \, K_{t-1})^\alpha \, n_{kt}^{1-\alpha} + (1 - \delta_k) \, K_{t-1}$$
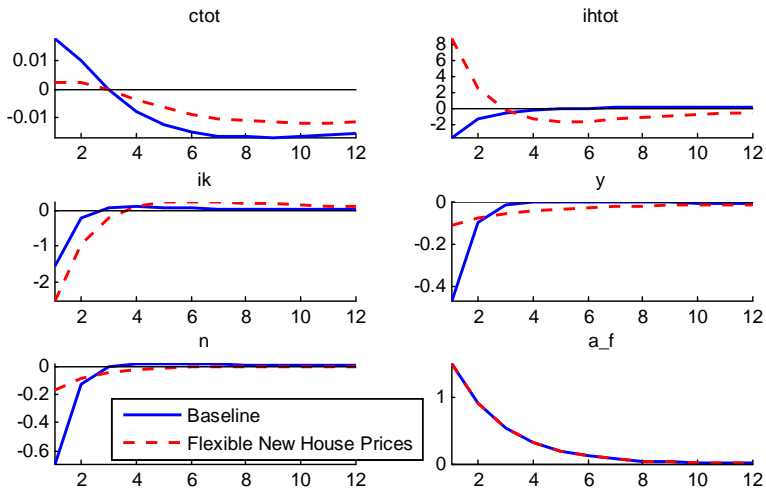
Impulse response to a shock to financial friction

Comment 3: Is it Complementarity between Consumption and Hours or Something Else?

- Complementarity might hide interesting propagation mechanism
- Maybe borrowing constraints would not require complementarity
- Distinction might be important for welfare purposes
- Suppose 15% of population borrow against their home, and are credit constrained

$$c_t + q_t \left(h_t - (1 - \delta) h_{t-1} \right) = w_t n_t + b_t - R_{t-1} b_{t-1}$$

$$b_t = m \frac{q_{t+1} h_t}{R_t \left(1 + f_t \right)}$$

so the f shock hits this guys directly...

- With borrowing constraints consumption can fall even in absence of complementarity b/w c and n
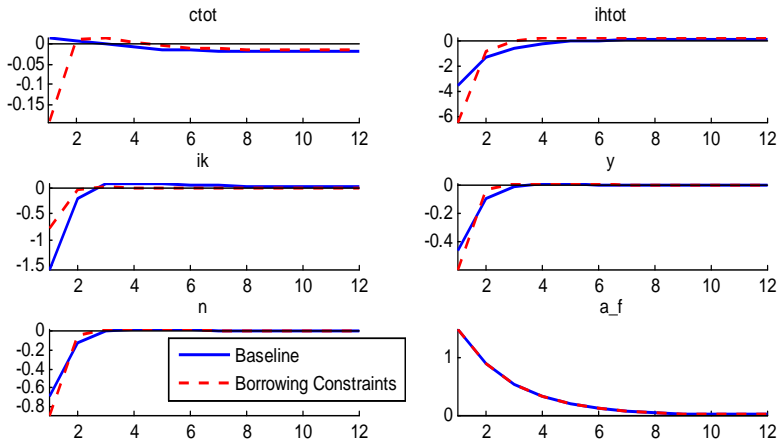
Impulse response to a shock to financial friction

Comment 4: The Role of Financing Frictions

- This is a model of financing frictions without finance

$$\max Y_t - w_t L_t - RK_t \left(1 + f_t\right) K_{t-1}$$

- What if an entrepreneur faces a financing friction on borrowing?
  A capital-producing entrepreneur who owns K_t and borrows B_t to produce K_t

$$\max \left(B_t + \left(RK_t + 1 - \delta\right) K_{t-1} - R_t \left(1 + f_t\right) B_{t-1} - K_t\right) \quad (1)$$

  A goods producing entrepreneur who owns K and borrows B_t to produce Y_t

$$\max \left(B_t + Y_t - R_t \left(1 + f_t\right) B_{t-1} - W_t L_t + \left(1 - \delta\right) K_{t-1}\right) \quad (2)$$

- Case 1: Friction on borrowing = tax on capital of this paper
  Case 2: Friction on borrowing = tax on all output
  Most often one sees modelers choose 1 or 2 based mostly on analytical convenience given other technical problems. Hall's results highlight that 1 might be more powerful than 2 for understanding current recession.

Conclusions

1. I agree that that the recent recession proves that financing frictions are important
2. The mechanisms highlighted in the paper are a bit of black box, but many others should try to open it up