Financial frictions, expectations, and [the] business cycle: evidence from an estimated DSGE model

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Backbround

Adaptive learning confronts data

- Calibration and propagation
- Bayesian estimation
- Predictor selection

What RSW did.

RSW game plan

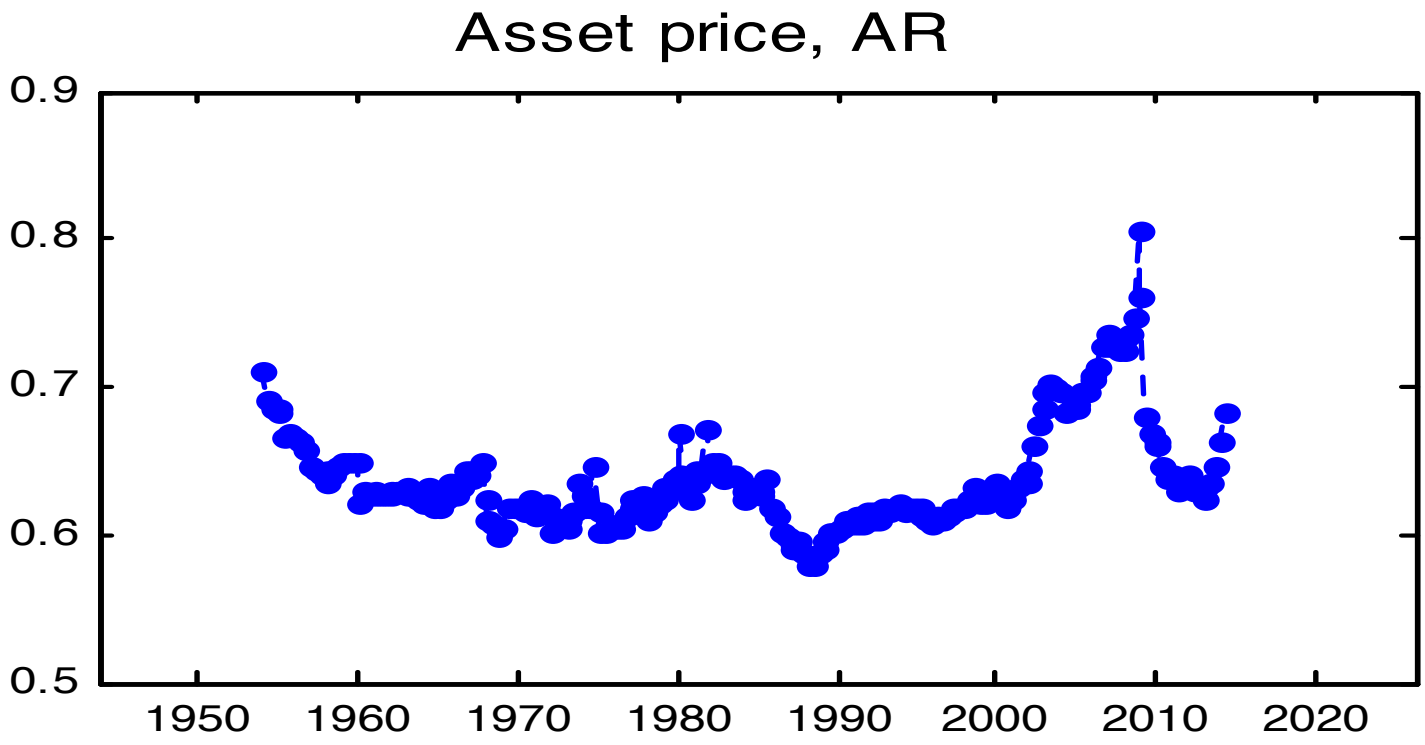
- Incorporate financial accelerator into the Smets-Wouters model
- Replace rational expectations with adaptive learning
- Estimate using Bayesian methods

What RSW found.

RSW results

- Learning model fits better
- “Adaptive learning can amplify and propogate shocks”
- Other results. . .
- Perceived asset-price persistence varies over time

Perceived asset-price persistence



"If agents perceive asset prices to be more persistent, financial shocks will have a greater impact on agents' financial position (net worth) and hence the external finance premium."

Can this be examined more precisely?

Perceived asset-price persistence

Entreprenuers and the external finance premium

- Risk-neutral, idiosyncratic productivity shocks, possibility of default
- Key equation:

$$E_t R^k_{t+1} = E_t \left[s\left(\frac{N_{t+1}}{Q_t K_{t+1}} \right) \varepsilon^b_t R_t \right], \; s' < 0$$

- "An entrepreneur purchases capital up to the point where the expected real return on capital is equal to the marginal cost of external finance."
- Where does this equation come from?

Perceived asset-price persistence

Entreprenuers and the external finance premium

- According to BGG it comes from the FOC

$$K_{t+1} = \frac{N_{t+1}}{Q_t} \psi \left(\frac{E_t R^k_{t+1}}{\varepsilon^b_t R_t} \right), \ \psi' > 0.$$

  This is quite promising: capital demand as a function of expectations!

- But maybe more thought is needed. . .

Perceived asset-price persistence

Optimal contracts

Rational entrepreneurs entering into optimal contracts with rational banks act so as to solve

$$\max_{K_{t+1},\bar{\omega}\left(R^k_{t+1}\right)} E_t\left\{\int_{\bar{\omega}}^{\infty} \omega R^k_{t+1} Q_t K_{t+1} dF(\omega) - (1-F(\bar{\omega}))\bar{\omega} R^k_{t+1} Q_t K_{t+1}\right\}$$

subject to

$$(1-F(\bar{\omega}))\,\bar{\omega} + (1-\mu)R^k_{t+1} Q_t K_{t+1} \int_0^{\bar{\omega}} \omega dF(\omega) = R_t \varepsilon^b_t (Q_t K_{t+1} - N_{t+1})$$

How do boundedly optimal entrepreneurs interacting with boundedly optimal banks behave?

Conclusion

- Nice research program
- Many interesting findings, including a new transmission mechanism for financial shocks
- Suggests the need for careful agent-level modeling of the finance sector