"News and Financial Intermediation in Aggregate and Sectoral Fluctuations", by Christoph Görtz and John D. Tsoukalas

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Search Frictions and Aggregate Dynamics'

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News in a two sector model with banks

three important statements as motivation for this paper

- expectations are important !!!
- one sector economies are over-simplifying !!!
- banks are an important ingredient to understand macro fluctuations !!!

News in a two sector model with banks

Two main results:

1. 'asset value news shock are important and explain a sizeable fraction of fluctuations at business cycle frequency ...' ('first quantitative assessment of anticipated and unanticipated asset news shocks')
2. 'financial news shock can generate aggregate and sectoral co-movement'

News in a two sector model with banks

It is very ambitious research project

- ex-ante I would agree with both the motivation as well as with the results
- the authors provide a rather impressive two-sector model with financial intermediation, with a very nice story on the cross sectional transmission of asset value news shocks

But in the end they must make a stronger case to be convincing on these results

News in a two sector model with banks

With the current version I remain unconvinced:

- Why do we need a two sector model to understand news shocks?
- What is the role of this kind of news shock in a one sector model?
- Is the model really identified?
- (Do we really trust the economic agents so much to form expectations two years ahead in every period? Or is it rather that they *sometimes* form expectations?)

The model: 3 ingredients

Standard DSGE model extended with 3 key ingredients

1. two sector structure
2. Gertler/Karadi structure to finance investment
3. news shock in estimation

Structure of the model

One sector Gertler/Karadi economy

1. capital service production with Gertler/Karadi technology $\Rightarrow$ capital services as a function of net-wealth and capital rate.
2. physical capital is produced based on capital services in competitive sector
3. employment agencies organize labor and wages are set according to Calvo
4. conditional on the physical capital and labor, production and price setting of intermediate goods takes place
5. final goods as aggregated intermediate goods

Two sector version: final consumption and investment goods are produced as described above

Sector specific

What is sector specific:

- production and price and wage setting
- structural shocks:
  - TFP shock in production
  - price mark-up shock
  - equity capital shock
  - asset value shock

Sector connections

What is connecting the different sector:

- household budget constraint in combination with market clearing in both sectors
- TFP level in investment sector affects fixed cost in both sectors
- structural shocks:
  - wage mark-up shock
  - time preference shock
  - GDP measurement shock
  - monetary policy shock

Can the model replicate sectoral co-movement?

$\Rightarrow$ Yes, there are sufficient common elements in the model allowing to replicate co-movement between the two sectors.

The authors stress the asset value news shock (sector specific): if the shock originates in the consumption sector asset it transmits quite strongly to the investment sector.

- value of asset declines
- via deleveraging and balance sheet effects as in Gertler/Karadi the capital service sector can finance less capital goods therefore investment goes down.

Asset value news shock

Key role of asset value news shock

- the authors conclude that asset value news shock explain a large part of output and price fluctuations, this is based on the variance decomposition.
- the asset value news shock is also an important source of co-movement.

How are the results related? Are the news shocks important per-se in a Karadi/Gertler setting? Or are they important because they induce co-movement in a two sector model?
To find out if news shocks in Karadi/Gertler are important is an important result and somehow a prerequisite of your results.

Asset value news shock

In the appendix you try to address the question on news shocks and co-movement by introducing a common TFP shock, but you find that the importance of news shocks remains unchanged.

- the technology shock in the consumption sector both in the common TFP shock as well as in the sector specific TFP shock version explains close to nothing.
- why are technology shocks so unimportant in your setting?
- it is important to understand first why TFP shocks are unimportant before choosing them as a source of potential co-movement.

News shocks

- Traditional approach:
  Distinguish between
  - unanticipated shocks
  - anticipated shocks

  This was mainly a matter of scenarios rather than estimation and mainly related to policy shocks (fiscal and monetary): what happens if agents know that there will be a fiscal contraction?
- new approach: new shocks are state variables in the model. Agents are (in every period) forming expectations of $t+4$, $t+8$ state variables $\Rightarrow$ we can estimate the model with news shocks.

News shocks: Illustration

Example from Schmitt-Grohe/Uribe(2012)
Assume the following shock process:

$$x_t = \rho_x x_{t-1} + \epsilon_{x,t}$$
$$\epsilon_{x,t} = \epsilon^0_{x,t} + \epsilon^4_{x,t-4} + \epsilon^8_{x,t-8}$$

this implies that agents have an information set larger than in normal models: agents observe current and past values of the shocks and can forecast future values of $\epsilon_{x,t}$ as follows

$$E_t \epsilon_{x,t+k} = \begin{cases} \epsilon^4_{x,t+k-4} + \epsilon^8_{x,t+k-8} & \text{if } 1 \leq k \leq 4 \\ \epsilon^8_{x,t+k-8} & \text{if } 4 < k \leq 8 \\ 0 & \text{if } k > 8 \end{cases} \quad (1)$$

Identification

- Obviously, the introduction of the news shocks changes the state space and the forward lookingness of agents then allows to estimate the shock processes even though the innovations are not observable.
- But identification issues become vital: the models have more shocks than observable variables and add a lot of 'MA' terms to the reduced form of the model.
- in this paper the authors use Iskrev (2010)

Identification

Various ways to check identification

- Iskrev (2010) proposes to compute the Jacobian mapping from the set of structural parameters to the first and second moment of the data (or the derivative of the predicted autocovariogram of the observables with respect to the parameters). It needs to have full rank to be locally identified. This is confirmed by the authors.
- Schmitt-Grohe/Uribe (2012) go one step further by creating artificial data (same length as observable data) based on the posterior mode estimate and then re-estimate the parameters based on the artificial data.
- performing this exercise could help to find out how important the shock correlation at posterior mode actually is.

Identification

Various ways to check identification

- Koop/Pesaran/Smith (2012) go a further step by simulating the model at posterior mode for a large sample (T) and then predict posterior precision based on subsamples cT for $c = 0.001, 0.01, 0.1, 1$. If the posterior precision increases at rate T (on average) the parameter is identified.
- doing this exercise would allow you to find out which parameters are identified and which are weakly or not identified.

Conclusion

- It is a very ambitious research project with an impressive model featuring a lot of new channels and results.
- To make the results really convincing additional steps are necessary
  1. show that news shocks in a Gertler/Karadi setting are important making a strong case on identification
  2. analyze how the two sector model is affecting the results of the first step.

$\Rightarrow$why don't you split the paper into two papers!