

Discussion of
**Risk sharing in a world economy with
uncertainty shocks**
by Robert Kollmann

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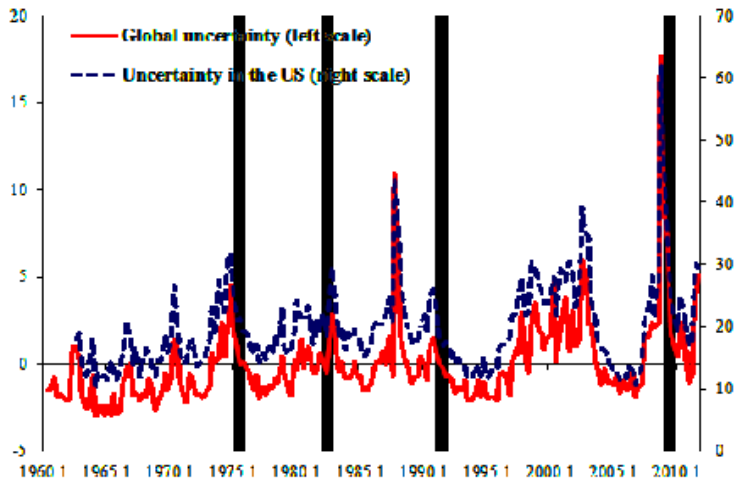
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MOTIVATION

- ▶ The financial crisis has highlighted the implications of volatility/uncertainty shocks on the business cycles;
- ▶ Uncertainty endogenously increases during recessions (i.e. in macroeconomic volatility) which in turn damages short-run growth as it reduces households / firms' willingness to spend/invest
- ▶ There is an important literature dealing with uncertainty in a closed economy set-up.
- ▶ Impact on international business cycles?

MOTIVATION

1a. Macroeconomic Uncertainty



THIS PAPER

- ▶ This question is tackled by Robert using an estimated two-country DSGE model;
- ▶ Key features:
 - ▶ recursive preferences
 - ▶ volatility shocks (on output) and risk appetite shocks.
- ▶ Key results:
 - ▶ recursive preferences reconcile the standard Open-Economy RBC framework with the data;
 - ▶ a risk appetite shock generates a wealth transfer for the country experiencing the shock;

MODEL

- ▶ Simple two-country model with flexible price and complete financial markets;
- ▶ Output is exogenous (no supply), it is affected by volatility shocks;
- ▶ Households preferences are recursive: uncertainty affects the RER.
- ▶ Model estimated via likelihood methods using data from the US and OECD countries.

UNCERTAINTY IN THE MODEL

- ▶ Recursive preferences à la Epstein & Zin:

$$U_{i,t} = \left[(1 - \beta) C_{i,t}^{1-\sigma} + \beta (\mathbb{E}_t U_{i,t+1}^{1-\gamma})^{(1-\sigma)/(1-\gamma)} \right]^{(1-\gamma)/(1-\sigma)}$$

- ▶ FOC, the marginal of substitution of consumption:

$$\rho_{i,t} = \beta \left(\frac{C_{i,t+1}}{C_{i,t}} \right)^{-\sigma} \left(\frac{U_{i,t+1}}{(\mathbb{E}_t U_{i,t+1}^{1-\gamma})^{1/(1-\gamma)}} \right)^{\sigma-\gamma}$$

- ▶ Risk matters for $\gamma > \sigma$, the marginal rate of consumption is affected by the future realization of shocks/utilities.
- ▶ (requires higher order approximations)

UNDERSTANDING THE MECHANISM

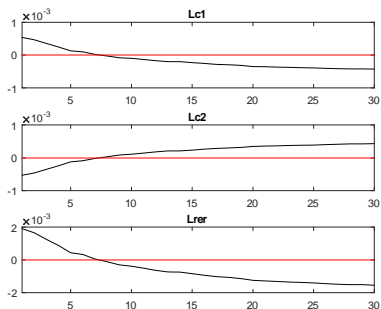
- ▶ Output is assumed to be fixed (or exogenously determined by volatility shocks).
- ▶ Under this assumption, the model analyzes the re-allocation of consumption between countries after a risk appetite shock.
- ▶ Adding a production function would allow to analyse the world re-affectation of consumption and labour.
- ▶ Is there any motivation for limiting the analysis to consumption re-allocation?

ESTIMATION

- ▶ Is there any reason you estimate (only) shock parameters?
Too challenging to estimate more parameters?
- ▶ Regarding your time series involved in the fit exercise, is the GDP *per capita*?
- ▶ If not, it is not surprising your find an unit root.
- ▶ (Is your 3rd order estimation able to capture the asymmetry /skewness of output distribution?)

SIMULATIONS

- Risk appetite shocks analysis would be improved at no cost with an IRF.



SECOND MOMENT STATISTICS

- ▶ Your comparisons rely on standard deviation and cross-correlation statistics but not autocorrelation, is there any reason?
- ▶ The model tends to over predict the autocorrelation of consumption/RER, is it a standard result in RBC two-country model?

order	1	2	3	4	5
c_H	0.9988	0.9978	0.9969	0.9959	0.9949
C_F	0.9990	0.9982	0.9974	0.9965	0.9957
RER	0.9989	0.9980	0.9971	0.9962	0.9953

CONCLUSION

- ▶ Very nice paper, that sheds light on a topical question.
- ▶ One of the first DSGE model estimated using 3rd order approximation;
- ▶ Model can be extended to account for supply effects and nominal effects;