How Has the Euro Changed the Monetary Transmission Mechanism?

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Scope of the paper

- Paper assesses the monetary transmission mechanism in the EA and possible changes due to EMU.

- It derives stylized facts from a FAVAR (Bernanke et al. 2005) and a large dataset with 245 series over the samples 1987-2007 and 1999-2007.

- It then explores explanations for observed changes in the monetary transmission mechanism in an open economy DSGE model (Ferrero et al. forthcoming).

Main findings

- Over the entire sample
  - considerable heterogeneity in the transmission mechanism
    - stronger bond yield ↑ in IT and SP → stronger ↓ in consumption and investment in IT and SP than in other countries
    - depreciation in IT and SP, appreciation in other countries → smaller ↓ in exports in IT and SP than in other countries.
  - but similar aggregate output response (interesting in light of other papers which also find similar output responses, but differences where masked)
- After 1999
  - Less heterogeneity and smaller output responses
    - smaller impact of MP tightening on bond yields in IT and SP than before
    - appreciation in all countries
- Theoret. model suggests that EMU has eliminated exch. rate risk and that ECB responds more aggressively to Δ in output and infl.
- Other differences remain (M, public consumption, ...).

Praise

- Paper is very interesting, already fully developed (published in 2008 NBER Macroeconomics Annual) and reveals several intuitive results.

- Main contributions
  - Paper looks at effects of common monetary policy shock on many variables (different countries/types of variables) which helps to understand the transmission mechanism.
  - Basic empirical results can be replicated and explained by theoretical model.

- Many of my comments/questions are not specific to paper, but general to literature and may be addressed in future research.

Comments - outline

- (1) Empirical analysis relies on many assumptions → many of these could be tested
  - some work with Benoît's data
  - checks and (hopefully) interesting additional results

- (2) Some further comments

Comments (1) – timing of the break

- Did the break really occur in 1999?

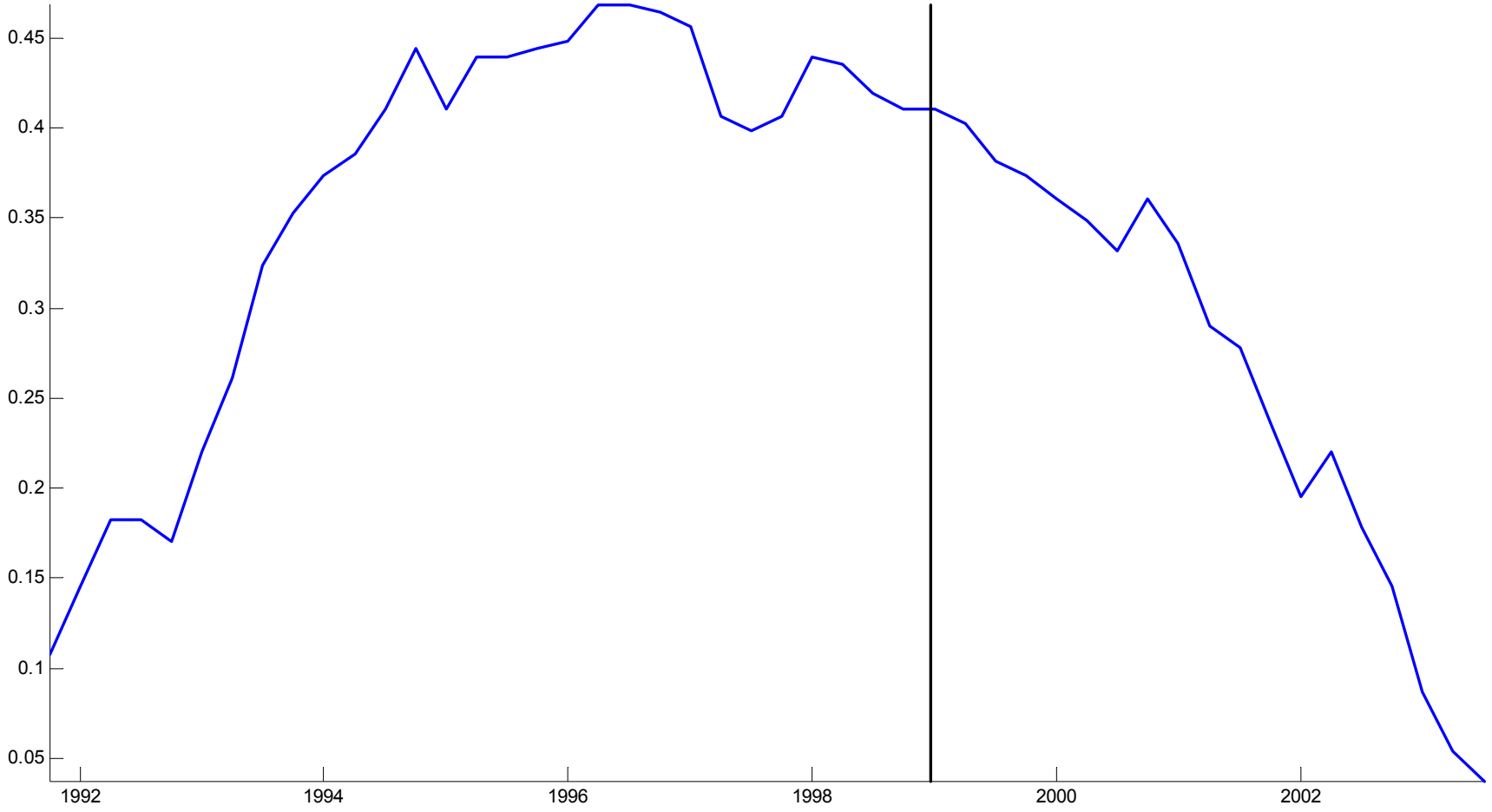
- Break may have occurred
  - *before* 1999 due to anticipation effects and fiscal and structural adjustments in the run-up to EMU or
  - *after* 1999 as a consequence of the ↓ in transaction costs, ↑ trade and financial integration and, hence, ↑ business cycle synchronization.

- Empirical evidence suggests that break may not have taken place exactly in 1999 (Canova et al. 2009, Breitung/Eickmeier 2008).

- I apply the (Chow-type) test suggested in Breitung/Eickmeier to detect breaks in loadings to Benoît‘s dataset.

Comments (1) – timing of the break cont.

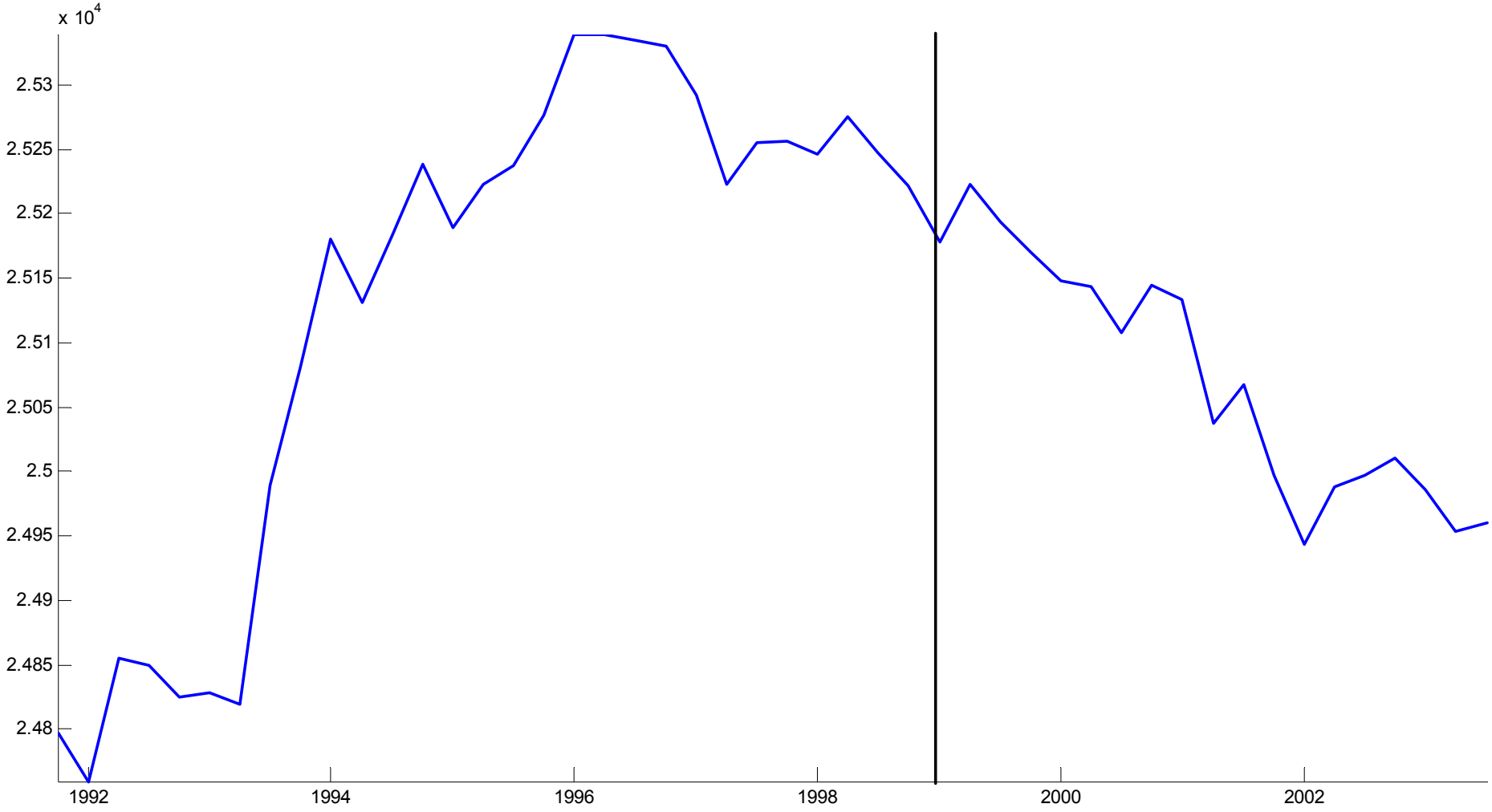
- Relative frequencies of rejections (H_0: no break in loadings)



Note: LM statistic robust w.r.t. breaks in variances, pI = 2, r = 7

Comments (1) – timing of the break cont.

- Log likelihood (H_0: no break in loadings)



Note: LM statistic robust w.r.t. breaks in variances, pI = 2, r = 7

Comments (1) – timing of the break cont.

- → Break may have occurred ealier (around 1996/97).

- Of course, this just looks at breaks in all loadings, but it would be useful to test for breaks in loadings w.r.t. R (- our test also allows to look at in which variables‘ loadings‘ breaks have occurred -) and in the VAR parameters.

Comments (1) – coincidence of latent and observed factors

- The Boivin/Giannoni (2008) procedure assumes that the observable factors lie in space spanned by the latent factors.

- This can be tested by applying the Bai/Ng (2006) tests.

- Bai/Ng consider $\boldsymbol{G_t = \gamma' \hat{F}_t + error}$, with G $\in$ $\{\pi^{oil}, R\}$

- and construct (exact) tests based on $\tau_t = \dfrac{\hat{G}_t - G_t}{\text{var}(\hat{G}_t)^{1/2}}$:

$$A = \frac{1}{T}\sum_{t=1}^{T} 1(|\hat{\tau}_t| > \Phi_\alpha^\tau) \quad \text{and} \quad M = \max_{1 \le t \le T} |\hat{\tau}_t|$$

Comments (1) – coincidence of latent and observed factors cont.

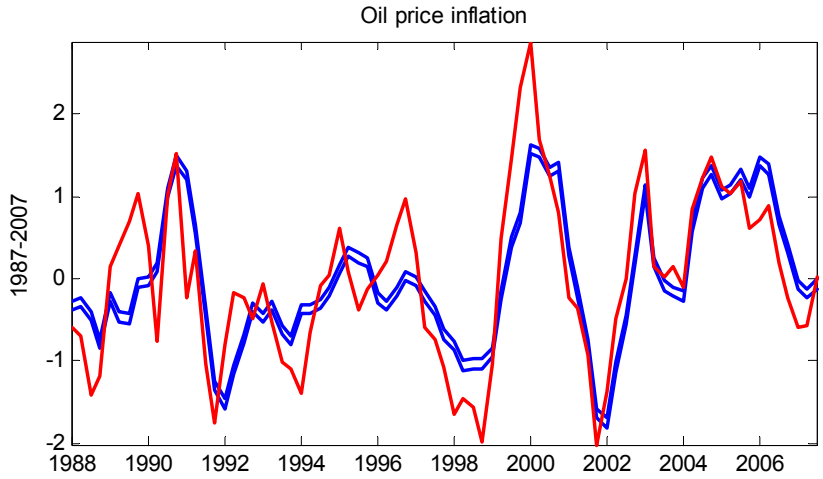
- Results for Benoît's data

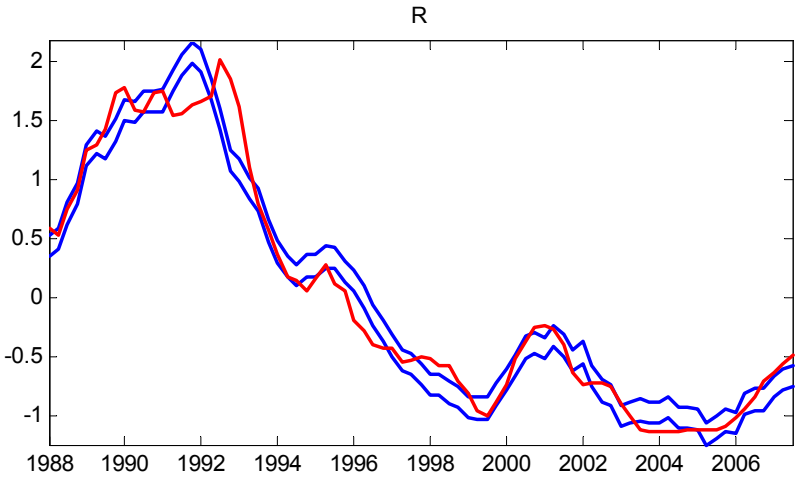
	A*	M**	R^2
1987-2007			
Oil price inflation	0.97	55.53	0.65
R	0.54	14.88	0.96
1999-2007			
Oil price inflation	0.86	22.66	0.86
R	0.80	13.00	0.96

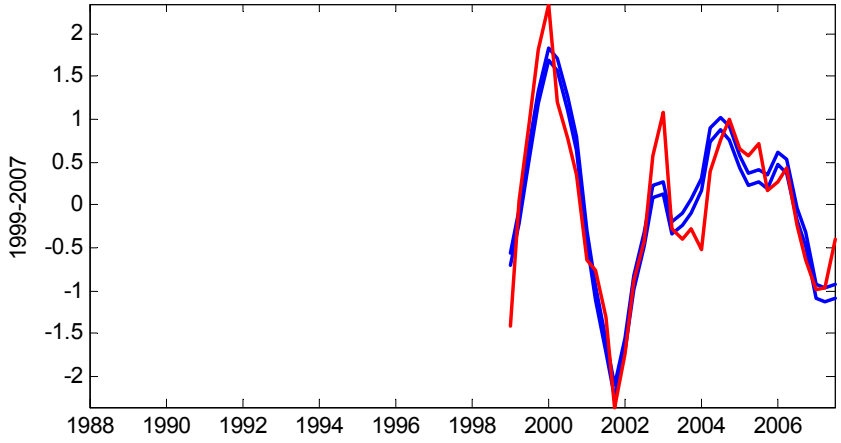
Results are based on r = 7. *α = .05, **5% critical value ≈ 3.40.

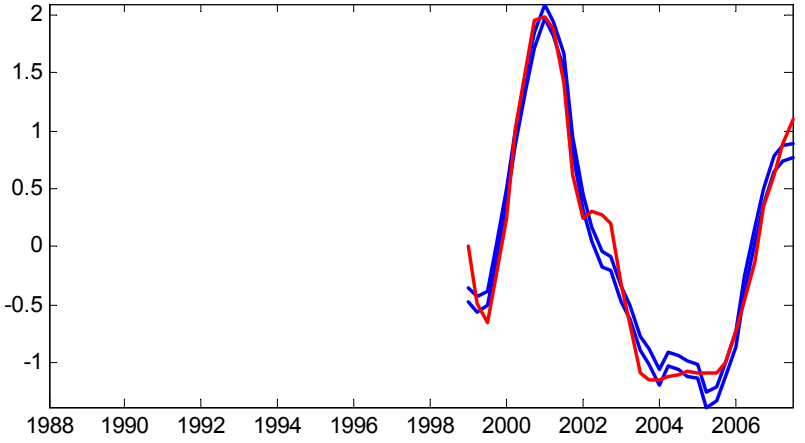
Comments (1) – coincidence of latent and observed factors cont.

- Obs. factor (red) and 95 percent confid. bands around fit (blue)









Comments (1) – coincidence of latent and observed factors cont.

- → Close relationship of latent factors with EA short-term rate.

- → Looser relation with oil price inflation before 1999, but closer relation after 1999.

Comments (1) – cross-correlation of ICs and commonality

- Assumptions of the approximate dynamic factor model are (among others) weak cross-correlation of ICs and high commonality.

- But literature suggests that there may be clusters of EA countries/regional cycles (Koopman/Valle e Azevedo 2008, Carvalho/Harvey 2005, Camacho et al 2008) which may result in highly cross-correlated ICs and low commonality and which could worsen factor estimates.

Comments (1) – cross-correlation of ICs and commonality cont.

- Correlation between Benoît's latent factors (which were extracted from entire dataset) and factors extracted from reduced dataset

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	N
1987-2007						
entire dataset	1.0000	1.0000	1.0000	1.0000	1.0000	241
excl. commonality < .1	1.0000	1.0000	1.0000	1.0000	1.0000	241
excl. commonality < .2	1.0000	1.0000	0.9999	0.9999	0.9998	240
excl. commonality < .3	0.9999	1.0000	0.9998	0.9992	0.9993	237
excl. commonality < .4	0.9999	0.9998	0.9996	0.9986	0.9990	231
rule 1 (Boivin/Ng 2006)	0.9927	0.9732	0.9749	0.8783	0.9017	106
1999-2007						
entire dataset	1.0000	1.0000	1.0000	1.0000	1.0000	241
excl. commonality < .1	1.0000	1.0000	1.0000	1.0000	1.0000	241
excl. commonality < .2	1.0000	1.0000	1.0000	1.0000	1.0000	240
excl. commonality < .3	0.9997	0.9998	1.0000	0.9996	0.9997	238
excl. commonality < .4	0.9996	0.9997	0.9998	0.9989	0.9991	236
rule 1 (Boivin/Ng 2006)	0.9894	0.9829	0.9902	0.9765	0.9493	114

Comments (1) – cross-correlation of ICs and commonality cont.

- → well-behaved dataset and based on this exercise no evidence for „regional cycles“

Some further comments (2) cont.

- Better compare samples 1999-2007 and 1987-1998 (not 1987-2007) if there is a break in long sample.

- Show confidence bands for IRFs estimated over 1999-2007. → Are differences in IRFs over the 2 samples significant?

- You may want to include 2 more observables (i.e. EA GDP and inflation) in FAVAR.
  - Could compare coefficients of the interest rate equation over the 2 samples to explore one explanation for the ↓ impact of monetary policy shocks, i.e. more aggressive monetary policy.
  - Central bank might react to „noise components“ of these variables (Ahmadi/Uhlig 2008).

Some further comments (2) cont.

- How realistic is ν (i.e. sensitivity of the wedge in UIP w.r.t. foreign monetary policy shock) = .6?

- Could you explore other explanations for changes in the monetary transmission mechanism such as
  - globalization (e.g. Boivin/Giannoni 2007)
  - technological progress and financial innovations?

- Could you bring the theoretical closer to the empirical model?
  - Do the factors driving the theoretical model coincide with the empirical factors? (Oil price inflation, for ex., not included in theoretical model.)
  - Could IRF matching, for example, help to estimate some key parameters such as ν or parameters of the interest rate rule?