

# Comments on Changes in International Business Cycle Affiliations

# Executive summary

- Good econometrics
- Bad applications

# Econometrics

- Identify and date breakpoints using and develop further dynamic programming approach of Bai and Perron and Perron and Qu.
- Very useful approach
  - Good simulation properties
  - Works well in practice
- Limited to stationary variables

# Econometrics

- Recent extensions
  - Testing subject to parameter restrictions within regimes
  - Breaks in covariances
  - Systems
  - Here: decompose into covariances and correlations
  - VARs: solve possible problem with breaks in marginal processes

# Applications

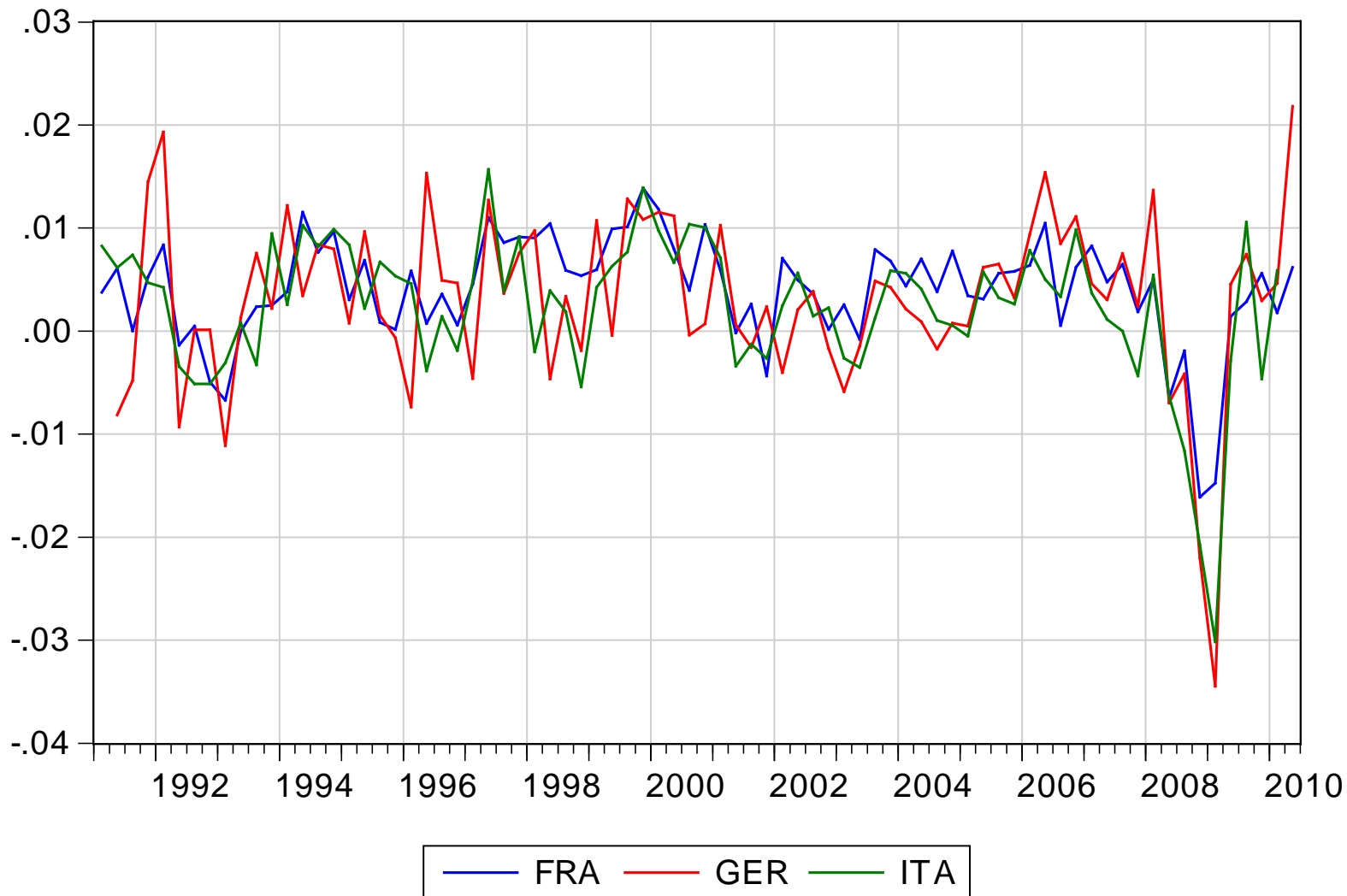
- International VAR
  - US
  - Euro
  - UK
  - Canada
- Main Euro
  - France
  - Germany
  - Italy

# 1. order VAR

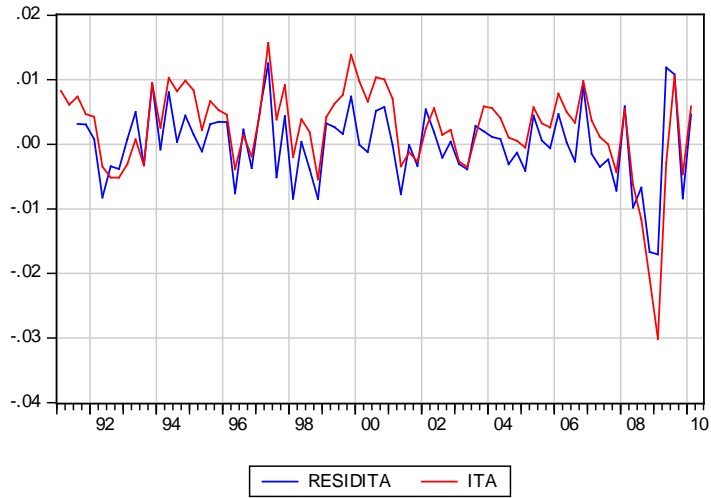
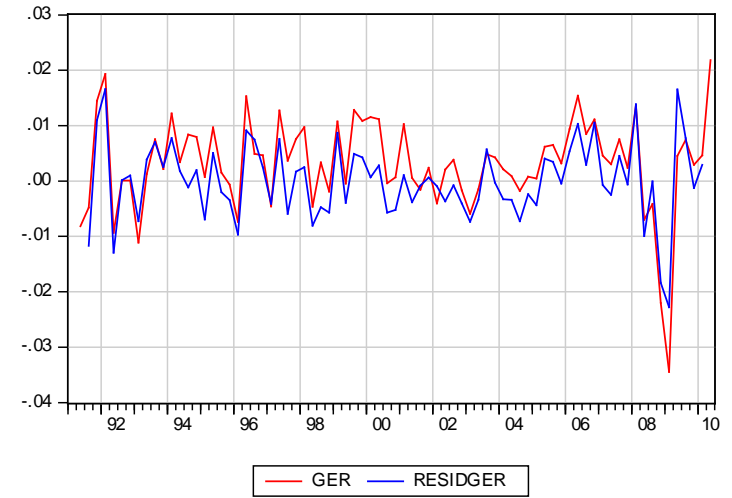
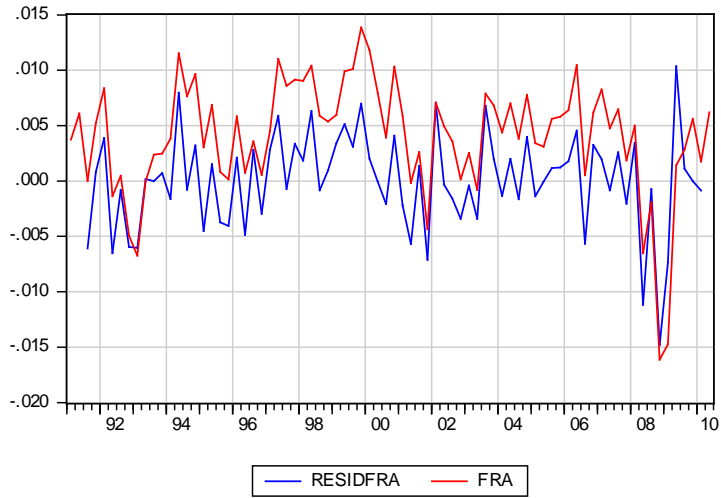
- Business cycle indicators
  - Quarterly growth rates
  - Bad model
  - Not much hope of explaining growth rates by lagged (short-run) growth rates of other economies
  - much noise
  - most parameters insignificant

# Pictures speak louder than words

## EU model quarterly growth rates



# EU-model endogenous variables and residuals





# What do we learn?

- Not much
- Probably better to impose zero restrictions
- Higher power in volatility tests
- The US leads the other economies
  - Consequenses for current situation?

# Covariance breaks

- Striking with the same 3 regimes
- More economic identification
- Problem: Requires 20% of observations in each regime
  - Can first be second oil crisis?
  - Last from 2002 but interpretation of credit crisis
  - Smaller trimming possible to pin down more accurately?

# Suggestions

## (If you insist on the applications)

- Use actual rates rather than log-approximations
  - More volatility---more power
- Use annual rates
  - More explanatory power
  - Easier to detect regimes
- Problem with overlapping observations