European Commission
Directorate General for Economic and Financial Affairs

Convergence of Business Cycles in the Euro Area: Further Evidence from Survey Data

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EU Workshop on recent developments in Business and Consumer Surveys
20-21 November 2006, Brussels

Two objectives:
1. Can we use survey data to gauge business cycle synchronisation in the euro area?
2. What do related measures tell us on (de-) synchronisation in the euro area in recent years?
Literature on euro-area synchronisation


→ Evidence on the effects of deepening economic and monetary integration on synchronisation is controversial
Part of the controversy is related to the use of hard statistical data.

Hard data have a number of important disadvantages for a timely analysis of synchronisation processes.
Disadvantages of hard statistical data:

- Arbitrariness of filtering: trending data require trend-cycle decomposition (HP, BK, CF, PAT, linear trend, ...). Canova (1998): properties of the cycle depend on how it is measured!
- Endpoint problem of filters: high uncertainty (forecasts, phase shifts) or data losses at sample end
- Revisions: real-time data and final data can lead to drastically different conclusions
- Release time lag
Advantages of survey data over hard data:

• Genuine cyclical information, not subject to long-term trends → No need for arbitrary trend-cycle decomposition

• No endpoint problems, no phase shifts, no loss of data → consistent end-of-sample data

• No statistical revisions

• Prompt availability at the end of the period

→ *Timely and reliable info also at the very end of the sample*
Approach in Gayer/Weiss (2006):

Monitoring correlation between euro-area country cycles over time, using

• the Industrial Confidence Indicator (ICI)
• (filtered) Industrial Production as benchmark
Methodology

• Computation of bivariate correlations over a series of rolling windows (3 years, centered on the midpoint)
• Last window: 2002:5-2005:5, centered on 2003:11
• Summing-up of all $n(n-1)/2$ bilateral coefficients in time $t$ by their mean and their variance
Results

• marked correspondence between ICI- and IP-based correlation curves over the whole sample
• average lead of about half a year of the ICI curve
• both ICI- and IP-based mean correlations abruptly decline to low levels around 2002
• findings robust to several modifications (different filters for IP series, alternative measures of convergence)
Conclusions of Gayer/Weiss (2006)

• ICI is a suitable instrument to track synchronisation developments in the euro area

• reliable *real-time* inference (no arbitrary filtering, no revisions, prompt availability, slight lead)

• No evidence of fostered synchronisation after EMU. Business cycles drift apart since 2002
Today: Further evidence

- Updated data series for ICI, IP (October 2006)
- Cross-check with broader activity-related series (ESI, GDP)
- Cross-check with longer correlation windows (5 instead of 3 years)
Motivation

- Industry-related results could be biased due to greater exposure to external shocks
- Monthly frequency could indicate short-lived periods of divergence not reflected in quarterly activity series
- Too short correlation windows can lead to artificial signs of de-synchronisation around TPs
First: update of monthly ICI and IP results, 3- and 5-years windows
GRAPH 1: ICI and IP: average country correlations, 3-year window

Source: Commission services
GRAPH 2: ICI and IP: average country correlations, 5-year window

Source: Commission services
- Close correspondence between the two curves
- Lead of the ICI curve
- Abrupt fall of average correlation around 2002
- Signs of recovery recently (2003/2004)
- 5-years window in line with 3-years
- Parallel developments in ESI/GDP?
Quarterly set-up

Applied 3- and 5-years rolling correlation windows to quarterly ESI series, using GDP as benchmark

- ESI data for 11 MS up to 2006Q3
- GDP data up to 2006Q2 plus forecasts up to 2008Q4 (to mitigate endpoint problem of filtering, band-pass version of HP to extract the cyclical component)
GRAPH 3: ESI and GDP: average country correlations, 3-year window

Source: Commission services
GRAPH 4: ESI and GDP: average country correlations, 5-year window

Source: Commission services
Confirmation of ICI/IP results

- Close correspondence between the two curves
- Lead of the ESI curve
- Abrupt fall of average correlation around 2002
- Signs of recent stabilisation/recovery at least from 3-years windows
Caveat

Contribution of individual countries to recent fall in average euro-area correlation unclear

- De-linkage according to ESI data: 
  \( ES, EL, PT \) and to lesser extent \( FI \)

- According to GDP data:
  \( IE, AT, EL \) and to lesser extent \( ES, BE \)

Better correspondance between ICI and IP
Conclusions (1)

- Connection between survey data and related hard data is not always close enough to allow for reliable analysis of country-wise developments
- However: survey data can be used to reliably gauge average developments in euro-area business cycle synchronisation
Conclusions (2)

• Close correspondence between hard data- and survey data-based synchronisation results

• Considerable lead of survey-based inference, plus publication lead and advantage of no revisions

• Analysis does not point to increased synchronisation since EMU

• Fall in average synchronisation around 2002/2003, but stabilisation/rebound more recently
Conclusions (3)

• Observed decline in average synchronisation is not in conflict with parallel observation of decreasing absolute distance of output gaps

• We measure the pure synchronisation of cycles, disregarding narrowing of cyclical amplitudes

• Future widening of cyclical amplitude could pose a policy challenge

→ Important role for survey indicators in monitoring synchronisation