European Commission

Directorate General Economic and Financial Affairs

The EU's Composite Business Cycle Indicators

Andreas Reuter
*Business and consumer surveys and
short-term forecast (DG ECFIN A4.2)*

International Workshop on Short-term Statistics, 18-20 May 2015, Beijing

Outline

- Introduction to Composite Business Cycle Indicators

- EU sectoral confidence indicators

- EU Economic Sentiment Indicator

- EU Business Climate Indicator

  - purpose
  - construction
  - performance

Introduction to Composite Business Cycle Indicators

pu

su

di

in

MCD in a nutshell

1) decomposing indicator into:
- (i) trend-cycle component
- (ii) irregular component (noise)
- (iii) seasonal component

2) calculating <u>mean absolute changes</u> for:
- (i) trend-cycle component
- (ii) irregular component (noise)
- $month_t$ vs. month $_{t-1}$
- $month_t$ vs. month $_{t-2}$
- $month_t$ vs. month $_{t-3}$
- etc.

3) determining after how many months trend-cycle component dominates over irregular component

Interpretation: e.g. MCD of 3:
If indicator increases in **January**, I need to wait until **April** to be able to verify if the trend of the indicator really increases.

criteria for good composite indicators

- good **tracking** of hard-data series
- **smoothness** of indicator

rationalised as…

rrelation with
hard data series

low <u>months-for-cyclical dominance</u> (MCD)

The EU's Sectoral Confidence Indicators

construction method: arithmetic mean of (s.a.) balances from selected survey questions

% of positive replies
minus
% of negative replies

selected questions:

criteria:
- high correlation with reference series
- smoothness

| Industry	Services	Construction	Retail Trade	Consumers
order books - currently	business - last 3 months	order books - currently	business activity (sales) - last 3 months	household's fin. position - next 12 months
stock of (finished) products - currently	demand for firm's services - last 3 months	firm's employment - next 3 months	volume of stock - currently	econ. situa-tion in MS - next 12 months
production - next 3 months	demand for firm's services - next 3 months		business activity (sales) - next 3 months	unemploy-ment in MS - next 12 months
				likelihood of saving money - next 12 months

mostly forward-looking questions

4

Performance of the Confidence Indicators

Industry

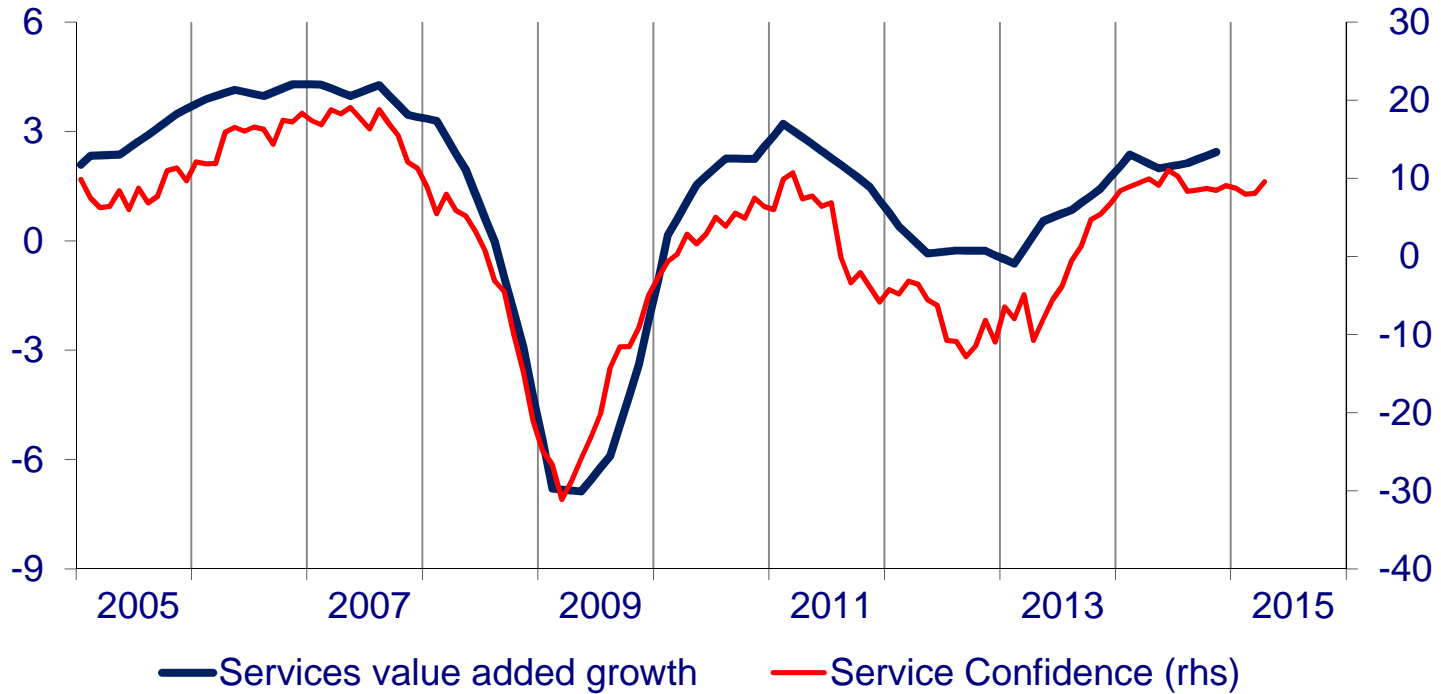Industrial production growth   Industrial Confidence (rhs)
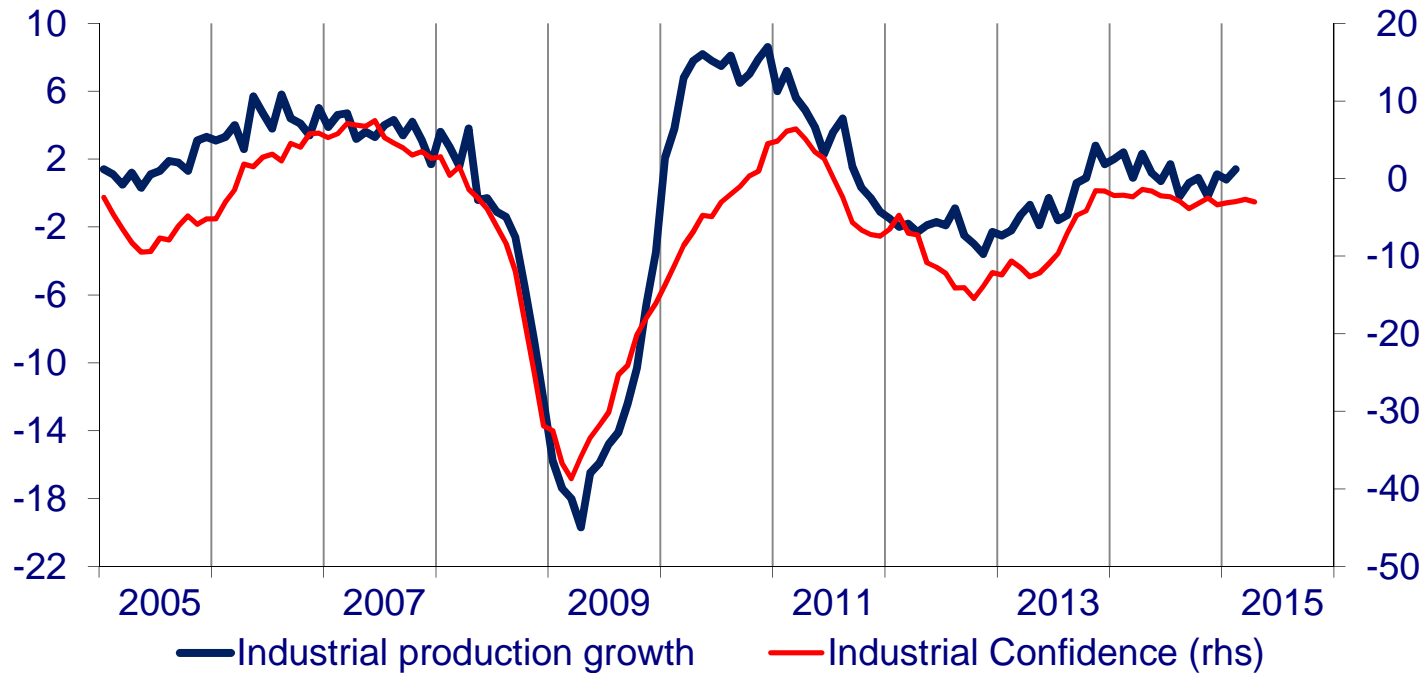
Notabene: given substantial publication lead of CIs,
the coincident correlation is practically a leading correlation.

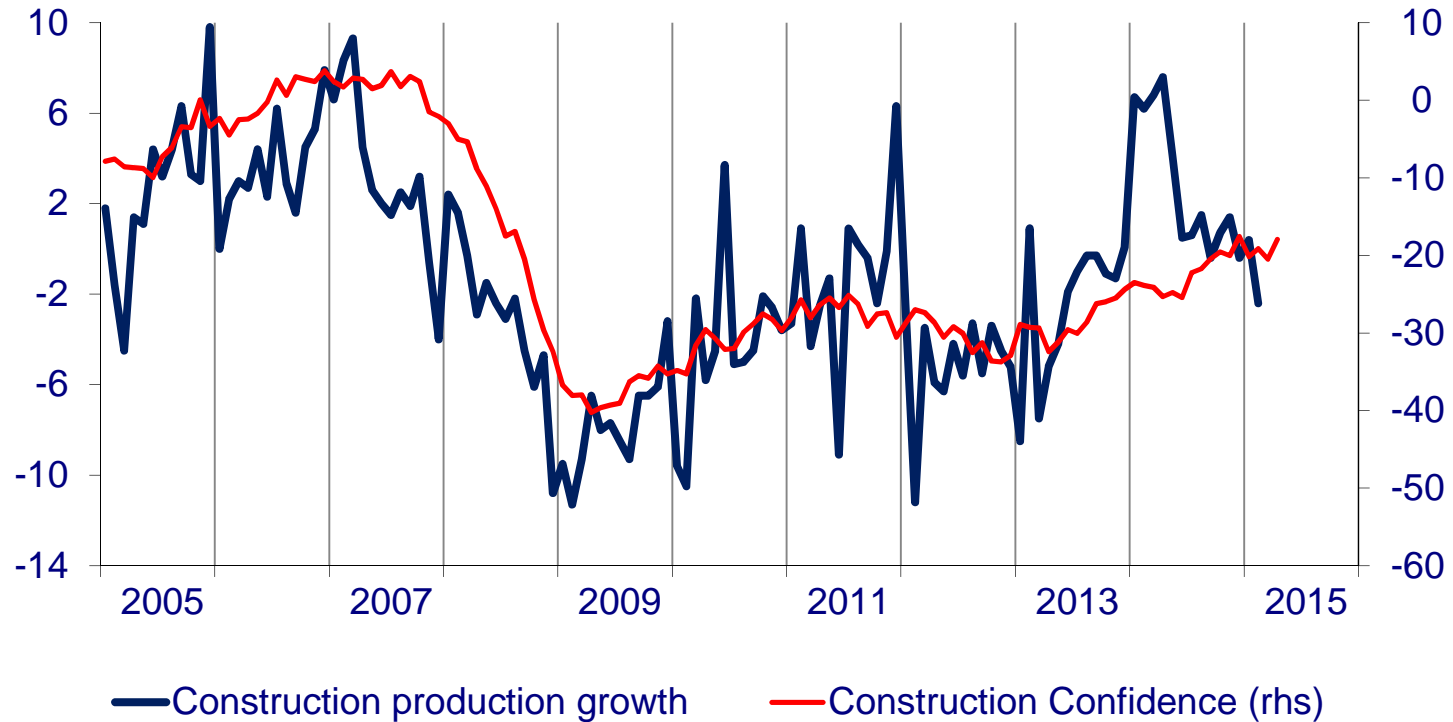| correlations:		MCDs:	
		industrial production:	**industry confidence:**
coincident:	0.90		
leading 1:	0.88	2	1
leading 2:	0.83		

European Commission

5

Services

Chart legend: Services value added growth — Service Confidence (rhs)

correlations:		MCDs:	
		services v.a. growth:	services confidence:
coincident:	0.94	n/a	2
leading 1:	0.95		
leading 2:	0.94		

Construction

Legend: ━━ Construction production growth   ━━ Construction Confidence (rhs)

correlations:		MCDs:	
		constr. production:	constr. confidence:
coincident:	0.70		
leading 1:	0.69	5	2
leading 2:	0.65		

European Commission

7

Retail Trade
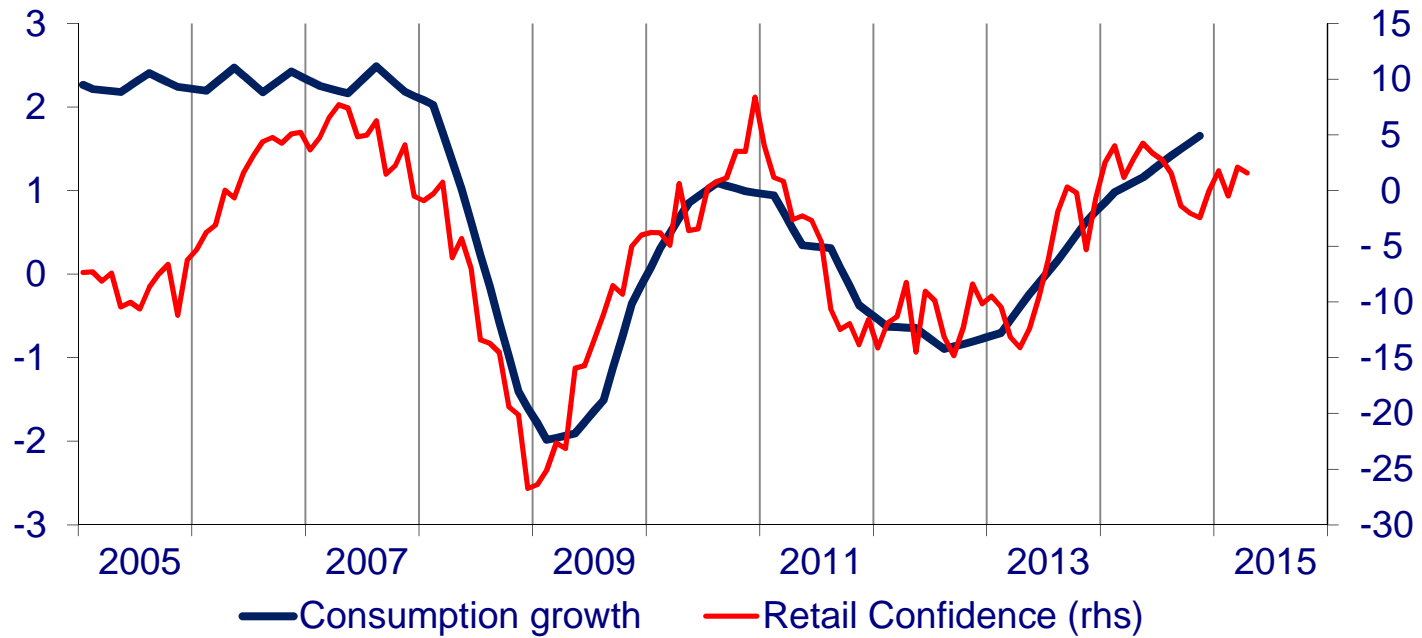
correlations:		MCDs:	
		private consumption:	retail confidence:
coincident:	0.73		
leading 1:	0.75	n/a	2
leading 2:	0.76		

European Commission

8

Consumers
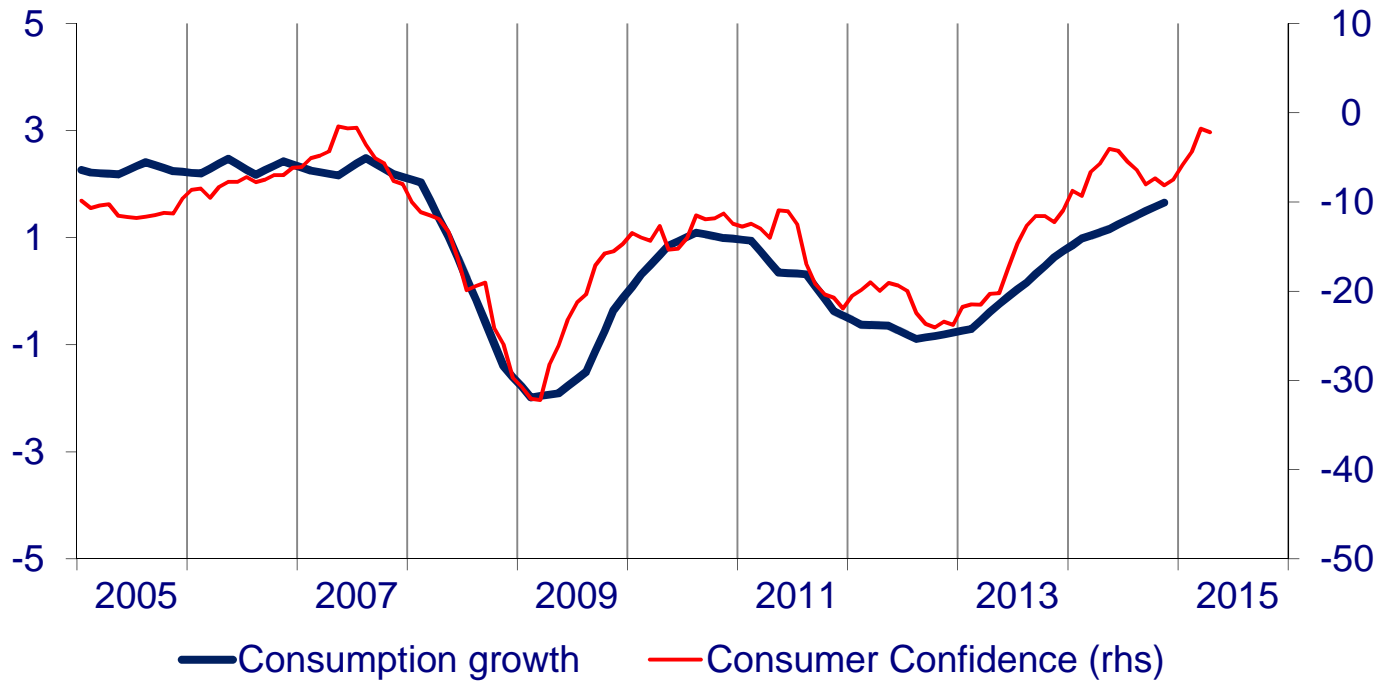
correlations:		MCDs:	
		private consumption:	cons. confidence:
coincident:	0.89		
leading 1:	0.91	n/a	1
leading 2:	0.91		

9

The EU's Economic Sentiment Indicator (ESI)

purpose:

summarising overall economic developments, in all 5 surveyed sectors (industry, services, etc.)

calculation method:

15 balance series of the 5 sectoral CIs:

- seasonally adjusted
- standardised

allocating weights per sector:

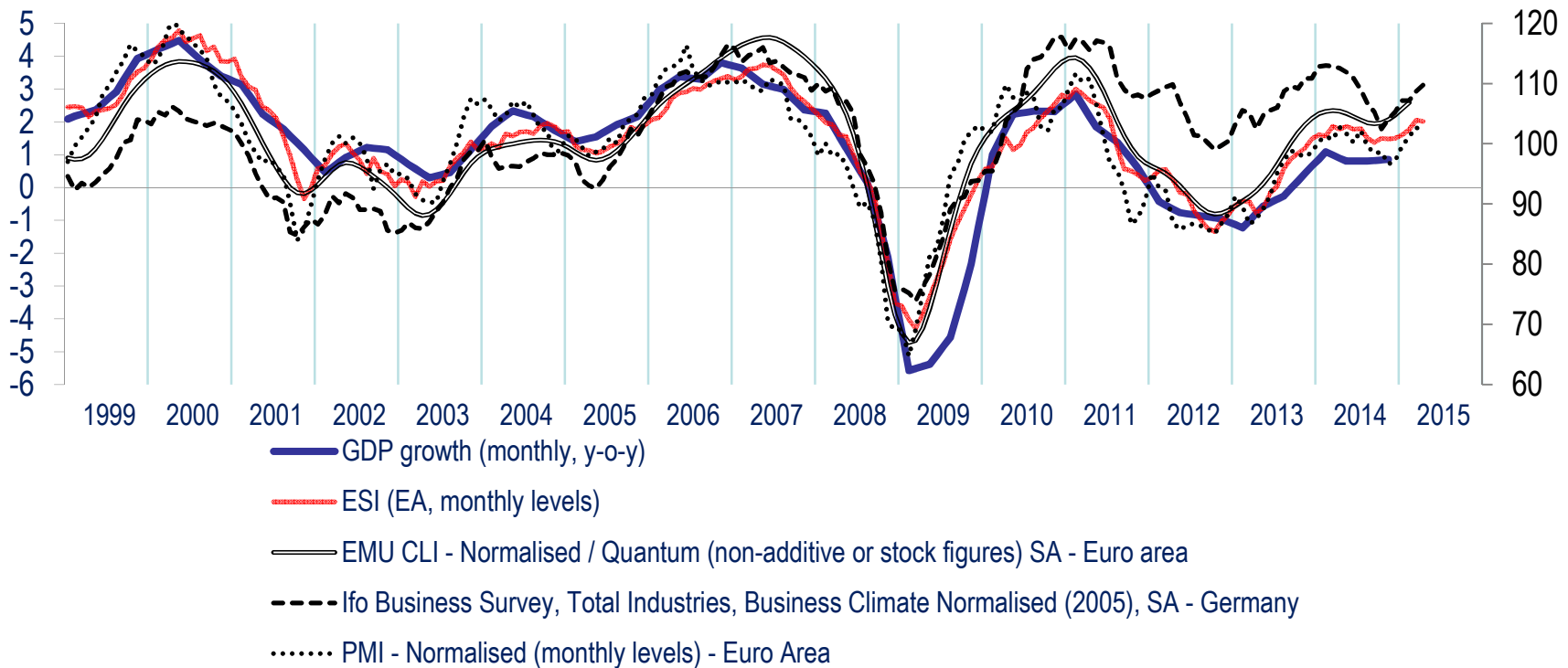Industry: 40% ; Services: 30% ; Consumers: 20% ; Construction: 5% ; Retail Trade: 5%
→ individual INDU question has weight of 13.3% (= 40% / 3 questions)

calculation of arithmetic mean of weighted balances

standardisation of the ESI and:

- addition of 100
- multiplication by 10

- values >100 indicate above-average economic sentiment
- 2/3 of observations will be in the interval [90 ; 110] (assuming normality)

European Commission | 10

Performance of the ESI

— GDP growth (monthly, y-o-y)

— ESI (EA, monthly levels)

— EMU CLI - Normalised / Quantum (non-additive or stock figures) SA - Euro area

---- Ifo Business Survey, Total Industries, Business Climate Normalised (2005), SA - Germany

······ PMI - Normalised (monthly levels) - Euro Area

correlations:			
	ESI:	EMU CLI:	Ifo:	PMI:
coincident:	0.92	0.83	0.50	0.84
leading 1:	0.92	0.84	0.50	0.88
leading 2:	0.91	0.83	0.49	0.91
leading 2:	0.88	0.80	0.46	0.92

European Commission | 11

The EU's Business Climate Indicator (BCI)

purpose:

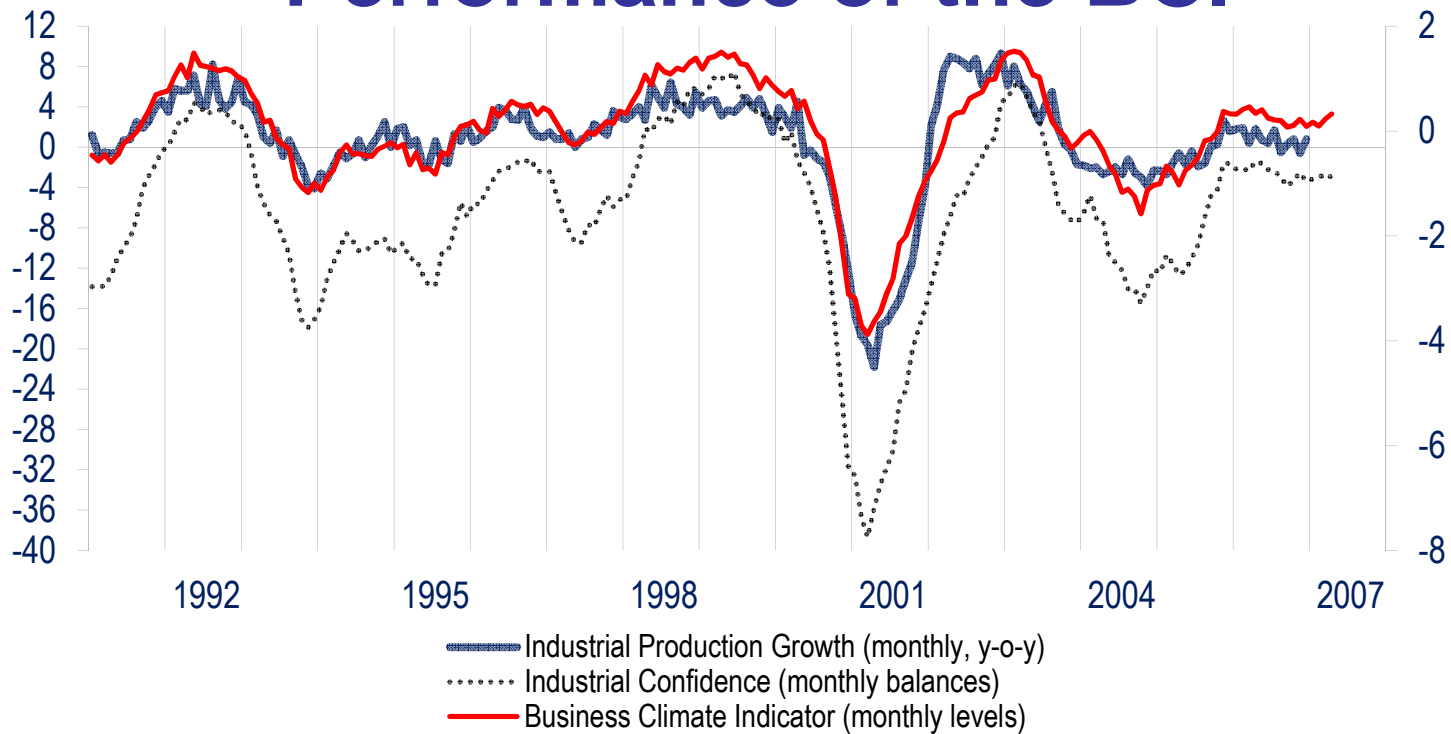timely tracking of IP/gross value added growth in the manufacturing sector

components: 5 balance series from the industry survey:

- production last 3 months
- production next 3 months
- order books currently
- export order books currently
- stock of finished products currently

conducting **factor analysis**:

- only one factor retained

  (assumption is: business cycle can be represented by a single variable)

European Commission | 12

Performance of the BCI

Industrial Production Growth (monthly, y-o-y)
Industrial Confidence (monthly balances)
Business Climate Indicator (monthly levels)

	correlations:			MCDs:	
	ind. CI:	BCI:		ind. CI:	BCI:
coincident:	0.92	0.83			
leading 1:	0.92	0.84			
leading 2:	0.91	0.83		1	1
leading 2:	0.88	0.80			

European Commission

13

Further information on the EU's Composite Business Cycle Indicators

methodological User Guide (March 2014):

http://ec.europa.eu/economy_finance/db_indicators/surveys/documents/bcs_user_guide_en.pdf

all time-series free for download:

http://ec.europa.eu/economy_finance/db_indicators/surveys/time_series/index_en.htm

Thanks for your attention!