B Economic Cycle

Sources of tables and graphs: CNB, CZSO, EC, Eurostat, own calculations

B.1   Position within the Economic Cycle

Potential product (PP), specified on the basis of a calculation by means of the Cobb–Douglas production function, indicates the level of GDP to be achieved with average utilisation of production factors. Growth of PP expresses possibilities for long-term sustainable growth of the economy without giving rise to imbalances. It can be broken down into contributions from the labour force, capital stock, and total factor productivity. The output gap identifies the cyclical position of the economy and expresses the relationship between GDP and PP. The concepts of potential product and output gap are used to analyse economic development and to calculate the structural balance of public budgets.

Under current conditions, when abrupt changes in the level of economic output have occurred, it is very difficult to distinguish the influence from deepening of the negative output gap from a slowing in PP growth. The results of these calculations display high instability and should be treated with caution.
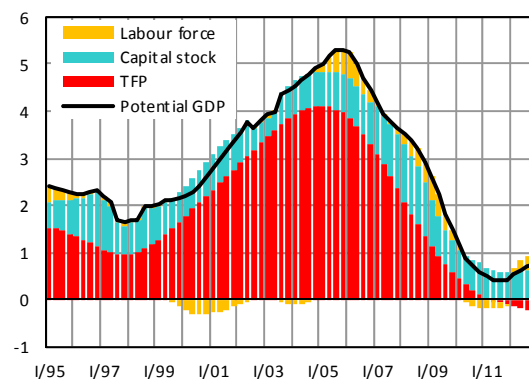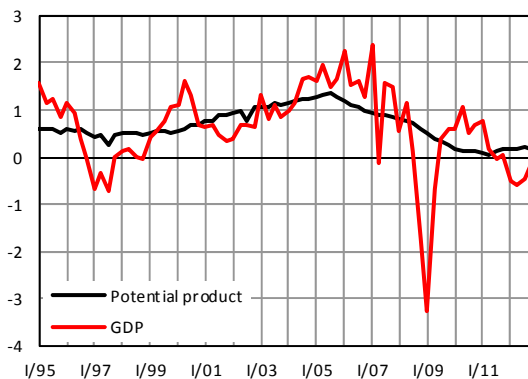
Graph B.1.1: **Output Gap**
in % of potential GDP
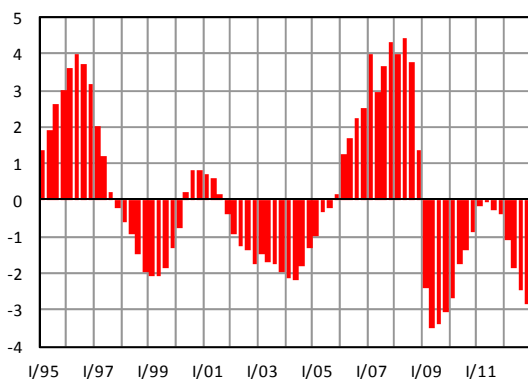
Graph B.1.2: **Potential Product Growth**
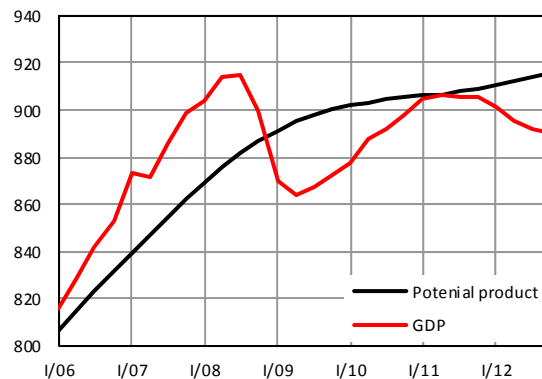*in %, contributions in percentage points*

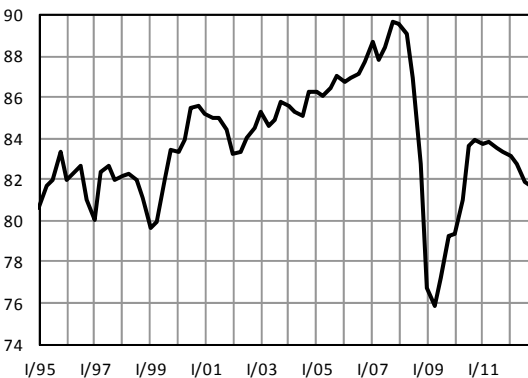Graph B.1.3: **Potential Product and GDP**
QoQ growth in %

Graph B.1.4: **Levels of Potential Product and GDP**
in bill. CZK of 2005

Graph B.1.5: **Capacity Utilisation in Industry**
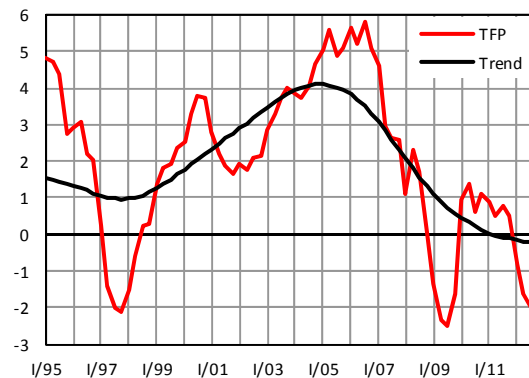*in %*

Graph B.1.6: **Total Factor Productivity**
YoY growth in %

Table B.1: **Output Gap and Potential Product**

		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Output gap	*per cent*	-1.7	-1.9	-0.3	1.9	3.7	3.4	-3.1	-1.7	-0.2	-1.8
Potential product	*growth in %*	4.2	4.7	5.2	4.8	3.9	3.3	2.0	0.8	0.4	0.6
Contributions:											
Trend TFP	*perc. points*	3.7	4.0	4.1	3.6	2.7	1.7	0.8	0.3	0.0	-0.2
Fixed assets	*perc. points*	0.5	0.7	0.8	0.9	1.1	1.2	0.8	0.6	0.6	0.6
Participation rate	*perc. points*	-0.2	-0.2	0.2	0.2	-0.2	0.0	0.3	0.2	0.3	0.7
Demography [1]	*perc. points*	0.2	0.2	0.2	0.2	0.3	0.4	0.1	-0.2	-0.4	-0.5

[1] *Contribution of growth of working-age population (15–64 years)*

Since the so called deep recession at the turn of 2008 and 2009, the Czech economy has been in a negative **output gap**. With a modest recovery after the end of the recession, the gap almost closed in Q2 2011. The onset of a recession at the beginning of 2012, however, caused the output gap to deepen once again to -2.8% in Q4 2012.

Economic output has not yet exceeded the peak level of the previous economic cycle in Q3 2008. Due to a long period of recessions and/or sluggish economic growth, YoY growth of the **potential product** (PP) has remained below 1% since 2010, our calculations suggest. These estimates, however, may underestimate the reality.

The most seriously affected component of the PP is **total factor productivity** (TFP). TFP was 3.1% lower in Q4 2012 than at the peak of the cycle in Q3 2008. The recession of 2012 led to a renewal of QoQ declines. The TFP trend component, derived using the Hodrick-Prescott filter, even started decreasing in the course of 2012, leading to a negative contribution of TFP to PP growth. The fact that labour, as a production factor, enters the calculation in the form of the number of employed persons (which has grown slightly, even in spite of the recession) and not in the form of the number of hours worked (which has fallen dramatically, see Chapter C.3) may play a certain role here.

A drop in investment activity led to a decline in **capital stock's** contribution from 1.2 p.p. in 2008 to 0.6 p.p. in the years 2010–2012.

**Labour supply** has been affected by declining number of inhabitants in the productive age resulting from the process of population ageing as well as from a significant drop in immigration. In 2012, demographic development slowed down the growth of economic potential by 0.5 p.p.

Nevertheless, not only is the size of the labour force non-decreasing, but it is even growing at a rapid pace; in Q4 2012 by 1.4% YoY. The negative impact from a decline in the working-age population on the labour supply is being compensated by a sharp increase in the **participation rate**, measured as the ratio of the labour force to the population aged 15–64 years.

Effects within the age structure of the labour force are felt here, with structural proportions of the age groups with high or growing participation increasing (the demographic effect in Graph B.1.7 [2]). Another factor is increased motivation to work under difficult economic conditions supported by postponing the retirement age (the participation effect in Graph B.1.7). With a contribution of 0.7 p.p., the participation rate has thus become the most important factor of PP growth.

Graph B.1.7: **Participation rate**
The ratio of the labour force to population aged 15–64, YoY change in %, contributions in p.p.


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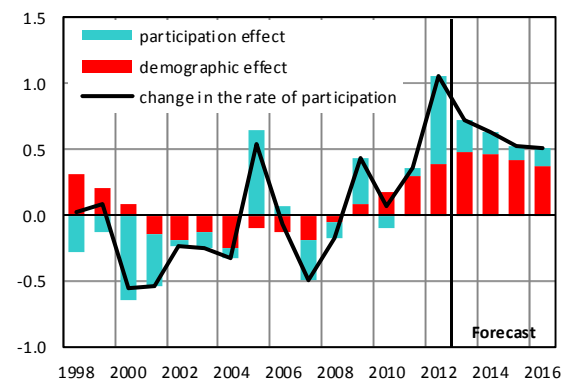
[2] *The methodology of analysis is described in the Macroeconomic Forecast – January 2013, Box C.3.*
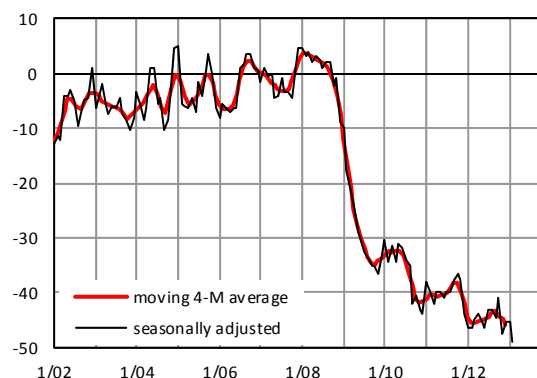
B.2　Business Cycle Indicators

Business cycle indicators express respondents' views as to the current situation and short-term outlook and serve to identify in advance possible turning points in the economic cycle. Their main advantage lies in the quick availability of results reflecting a wide range of influences shaping the expectations of economic entities.[3]
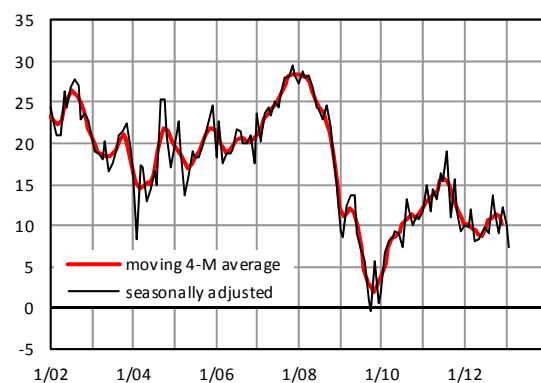
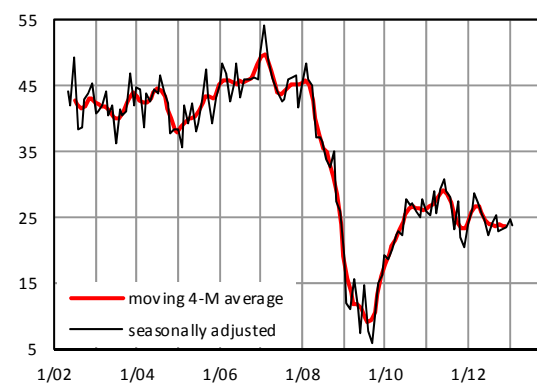Graph B.2.1: **Industrial Confidence Indicator**
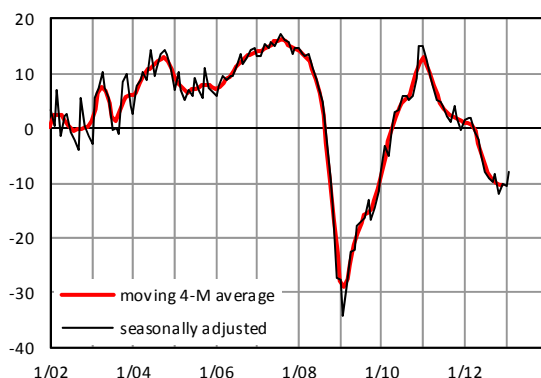
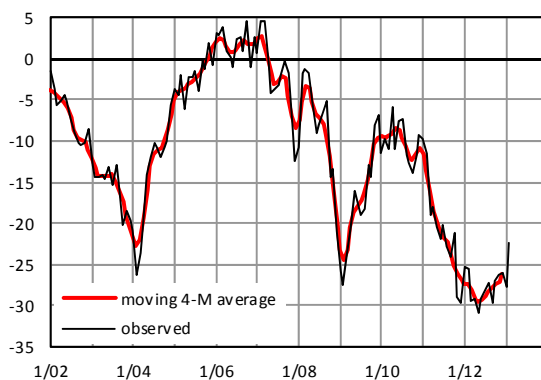Graph B.2.2: **Construction Confidence Indicator**
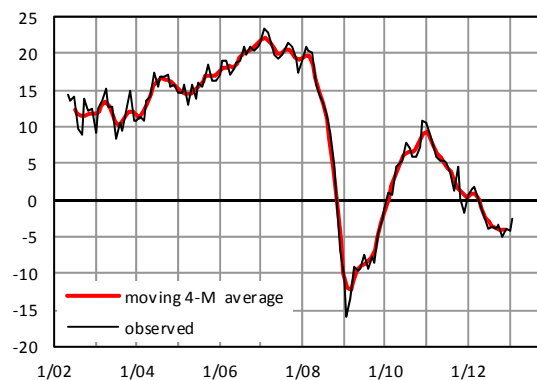
Graph B.2.3: **Retail Trade Confidence Indicator**

Graph B.2.4: **Selected Services Confidence Indicator**

Graph B.2.5: **Consumer Confidence Indicator**

Graph B.2.6: **Aggregate Confidence Indicator**

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[3] *For the business cycle research methodology, see CZSO: http://www.czso.cz/eng/redakce.nsf/i/business_cycle_surveys.*

In Q4 2012, indicators in industry, construction, trade and selected sectors of services demonstrated either a slight decrease or stagnation of their values, and basically similar development could have been seen in January and February 2013. The commentary on individual sectors provided below relates to the first two months of this year.

In **industry** the negative assessment of the three-month outlook for total demand, economic situation and employment prevailed. Although growth was observed in the overall indicator for industry at the beginning of 2013, considering this a turning point might be a false conclusion. In addition, it still holds true that the balance is negative, i.e. on average the respondents' pessimistic assessment prevails.

The indicator for **construction** continued declining, the respondents' pessimistic assessments being clearly dominant here. The three-month outlook for total demand witnessed a decline in both of the last two months.

In the case of the indicator for **trade**, positive reactions of the respondents dominated, but the indicator has recently declined. Especially negative development could have been seen in the case of the three-month outlook for employment.

In Q4 2012 and at the beginning of 2013, the indicator for selected sectors of **services** was rather flat, even though positive reactions of respondents still tend to predominate (see Graph B.2.4). Over the last months monitored, a further deterioration of the three-month employment outlook was observed on average.

Consumer confidence continued to show very low values, though the indicator grew since the beginning of H2 2012. However, it is very difficult to find a clear relationship between the dynamics of household consumption and that of the consumer confidence indicator.

In Q4 2012, the **composite** confidence **indicator** was flat, whereas in January and February 2013 its value increased slightly (see Graph B.2.6). As is the case of the indicator for industry, however, for the time being it would be premature to consider this development a turning point. The relationship between QoQ changes in GDP and lagged values of the composite indicator is not very close. With respect to the fact that without any lag the correlation between these two time series is approximately 60%, the relationship between the composite indicator and QoQ changes in GDP enables

us to utilise the fact that the composite indicator is published in advance of quarterly national accounts. Below we present only a qualitative graphical appraisal. It is clear that for Q1 2013 the composite confidence indicator signalled a slight increase in quarterly dynamics of GDP, i.e. roughly a stagnation.

Graph B.2.7: **Composite confidence indicator and QoQ GDP growth**
*2005=100 (lhs), QoQ GDP growth in % (rhs)*
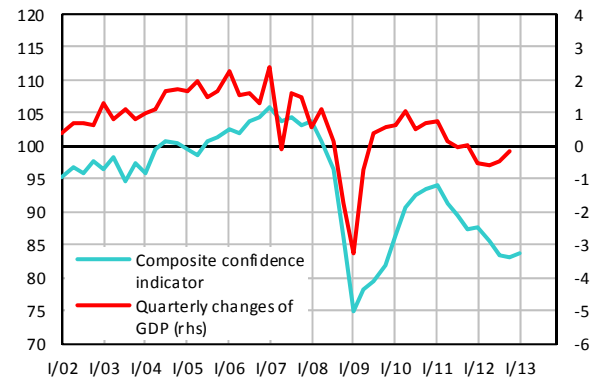
For Q4 2012 the **composite leading indicator** correctly signalled a drop in the relative cyclical component of GDP, which the data published in March 2013 confirmed. For Q1 2013 the indicator further signalled a slight drop in the relative cyclical component of GDP. Considering the fact that trend dynamics can be reasonably regarded as constant in the short term, the conclusion for QoQ dynamics of GDP in Q1 2013 is approximately in line with the observation based on comparing QoQ changes in GDP to the composite confidence indicator – i.e. a stagnation or a slight QoQ drop in GDP. For Q2 2013, the composite leading indicator implies that the relative cyclical component of GDP could decline.

Graph B.2.8: **Composite Leading Indicator**
average 2005=100 (lhs), in % of GDP (rhs)
synchronized with cyclical component of GDP based on statistical methods (Hodrick-Prescott filter)
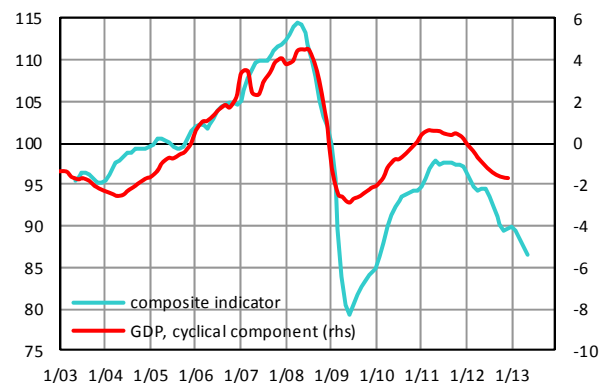
B.3   Business Cycle Indicators in the EU

An improvement to the composite confidence indicator for the EU27, published by the EC, was observed in Q1 2013 (approximated by the average of January and February values, as no data for March were known as of the Forecast's closing date). Strongly negative sentiment is prevailing in all components of the indicator. Compared to the previous quarter, however, the evaluation in industry and services improved considerably. Consumer confidence did more or less stagnate, whereas the retail trade sector and construction deteriorated slightly. For Q1 2013 the composite indicator is signalling that the QoQ drop in EU27 GDP should slow down or come to a halt, which is in line with the forecast.
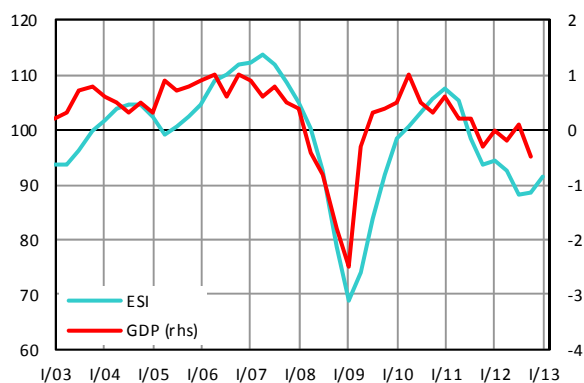
The composite confidence indicator continued to grow sharply in Italy and mainly in Germany in Q1 2013.

Contrary to expectations, German manufacturing PMI (Purchasing Managers Index) decreased in March, thus considerably reducing overall optimism. In France, the trend of a gradual return of confidence, which emerged at the end of the last year, is continuing. The Slovak composite indicator also reached the bottom, with the decline coming to a halt a few months later than in Germany.

For Q2 2013, the composite leading indicator implies that in the whole EU, and especially in Germany, the relative cyclical component of GDP should become less negative. Considering stable short-run dynamics of the potential product, supported by the EC's estimate of output gap for 2013, the closing of output gap can be explained by a return to economic growth in mid-2013.
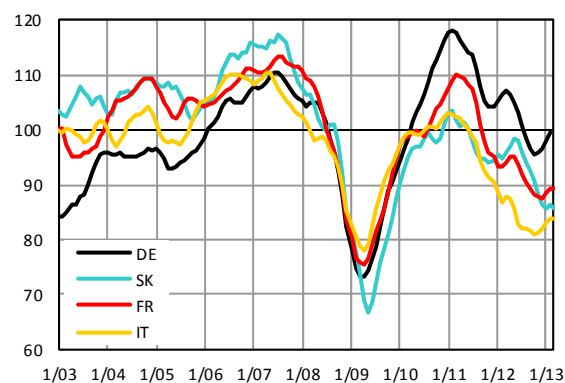
Graph B.3.1: **Composite confidence indicator and GDP growth in EU27**
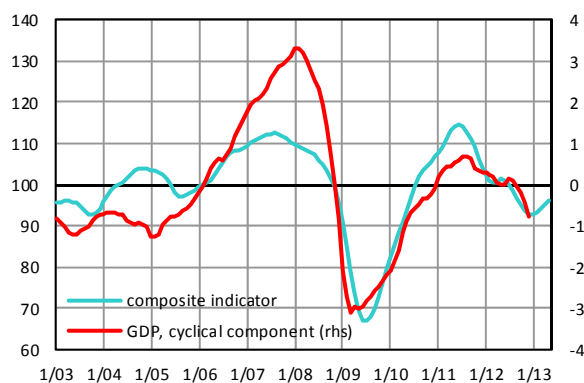*indicator – quarterly averages, QoQ growth in %, sa data*

Graph B.3.2: **Composite confidence indicator, selected trading partner countries**
3-month moving averages

Graph B.3.3: **EU – composite leading indicator**
monthly data, 2005=100, cyclical component in % of trend GDP

Graph B.3.4: **Germany – composite leading indicator**
monthly data, 2005=100, cyclical component in % of trend GDP