B Economic Cycle

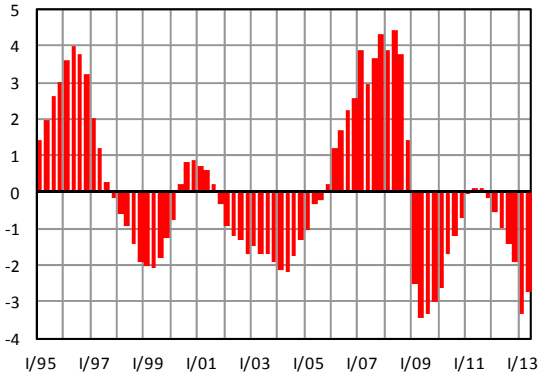
Sources of tables and graphs: CNB, CZSO, EC, Eurostat, own calculations

B.1 Position within the Economic Cycle

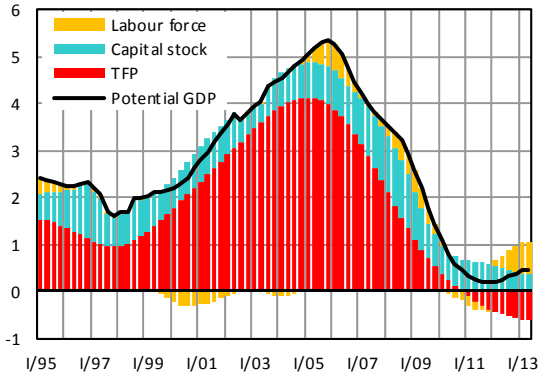
Potential product, specified on the basis of a calculation by means of the Cobb–Douglas production function, indicates the level of GDP to be achieved with average utilisation of production factors. Growth of the potential product expresses possibilities for long-term sustainable growth of the economy without giving rise to imbalances. It can be broken down into contributions of 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 potential product. 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 of deepening of the negative output gap from a slowdown in potential product growth. The results of these calculations display high instability and should be treated with caution.

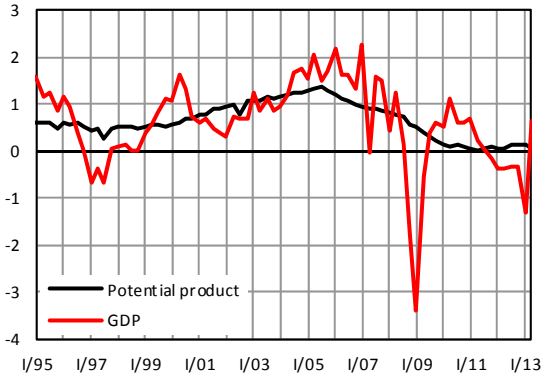
Graph B.1.1: **Output Gap**
in % of potential GDP



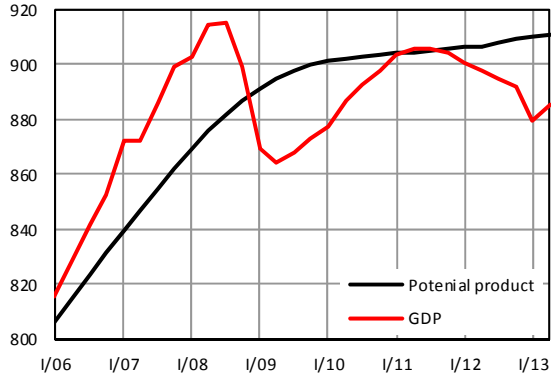
Graph B.1.2: **Potential Product Growth**
in %, contributions in percentage points



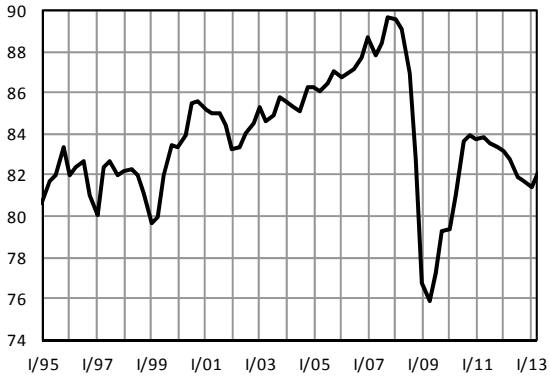
Graph B.1.3: **Potential Product and GDP**
QoQ growth in %



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 %

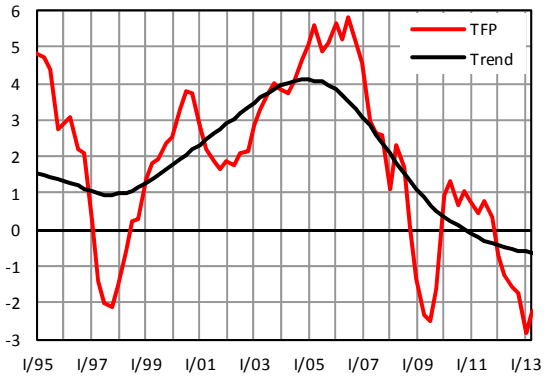


Table B.1: **Output Gap and Potential Product**

		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013 H1
Output gap	*per cent*	**-1.8**	**-0.3**	**1.9**	**3.7**	**3.4**	**-3.1**	**-1.6**	**0.0**	**-1.2**	**-3.0**
Potential product	*growth in %*	**4.7**	**5.2**	**4.9**	**3.9**	**3.3**	**2.0**	**0.7**	**0.2**	**0.3**	**0.4**
Contributions:											
– Trend TFP	*perc. points*	**4.0**	**4.1**	**3.6**	**2.7**	**1.7**	**0.8**	**0.2**	**-0.3**	**-0.5**	**-0.6**
– Fixed assets	*perc. points*	**0.7**	**0.8**	**0.9**	**1.1**	**1.2**	**0.8**	**0.6**	**0.6**	**0.5**	**0.4**
– Participation rate	*perc. points*	**-0.2**	**0.2**	**0.2**	**-0.2**	**0.0**	**0.3**	**0.2**	**0.3**	**0.8**	**1.2**
– Demography [1)]	*perc. points*	**0.2**	**0.2**	**0.2**	**0.3**	**0.4**	**0.1**	**-0.2**	**-0.4**	**-0.5**	**-0.5**

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

The so-called great recession at the turn of 2008 and 2009 plunged the Czech economy into a large negative **output gap**. Although it closed for a short time in Q2 2011 and Q3 2011 thanks to a slight recovery after the end of the great recession, the onset of another recession at the end of 2011 caused the output gap to widen once again to –3.3% in Q1 2013. Utilization of economic potential was as low as in Q2 2009 when the so-called great recession bottomed out. In Q2 2013, GDP lagged behind the potential by 2.8%.

Due to long periods of recession or sluggish economic growth, the YoY growth rate of **potential product** has been around 0.4% since 2011, according to our calculations. However, these estimates might in our opinion underestimate the reality.

The most seriously affected component of potential product is **total factor productivity**. In Q2 2013, TFP was 4.5% lower than at the peak of the cycle in Q3 2008, decreasing in QoQ terms since Q1 2011. Its trend component, derived from the Hodrick-Prescott filter, has been decreasing since mid-2010, which is reflected in the appreciably negative contribution of TFP to potential product growth. The fact that labour as a production factor enters the calculation in the form of the number of employed persons (which has been growing surprisingly strongly in spite of the recent long-lasting recession) and not in the form of the number of hours worked (which has been falling dramatically) plays a certain role here.

The decline in gross fixed capital formation, which has continued unabated since 2008, has led to a decline in the contribution of **capital stock** from 1.2 pp in 2008 to 0.4 pp in H1 2013.

Labour supply is affected by a reduction in the working-age population, caused by the population ageing process and by zero net migration. In H1 2013, demographic development slowed potential product growth by 0.5 pp.

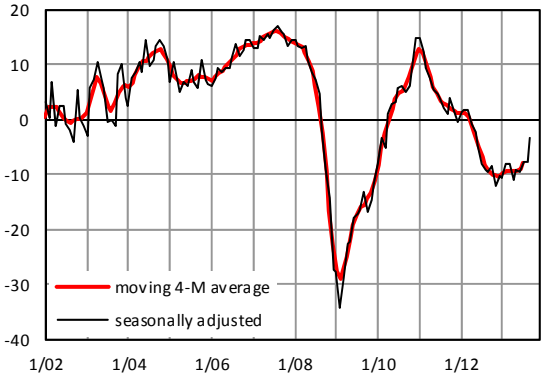
Nonetheless, not only is the size of the labour force nondecreasing; it is even growing at a dramatic pace; in H1 2013 by 1.4% YoY. The negative impact of the decline in working-age population on labour supply is more than compensated by a sharp increase in the **participation rate** (ratio of the labour force to the population aged 15–64 years).

The effects within the age structure of the labour force are reflected here, with the structural proportions of age groups with high or growing participation (the demographic effect) increasing. We also see an increased motivation to work under difficult economic conditions supported by postponement of the retirement age (the participation effect). With a contribution of 1.2 pp, the participation rate remained the most important factor of potential product growth in Q1 2013 and Q2 2013.

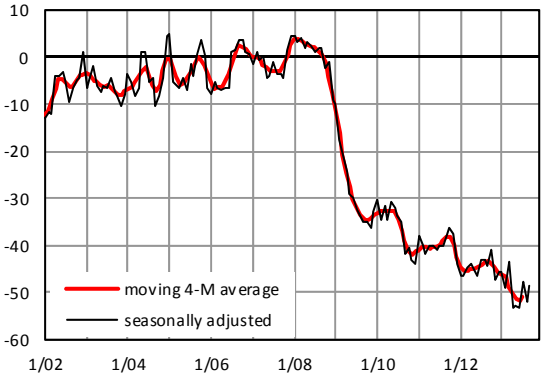
B.2 Business Cycle Indicators

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.[2]

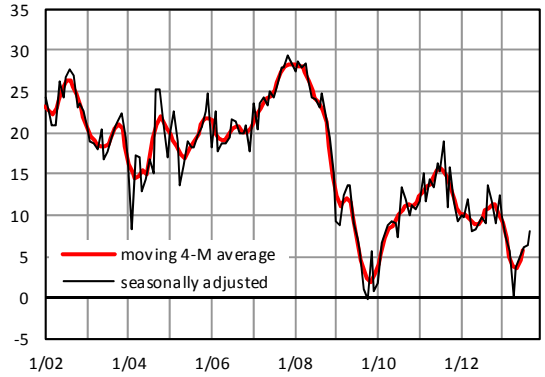
Graph B.2.1: **Industrial Confidence Indicator**



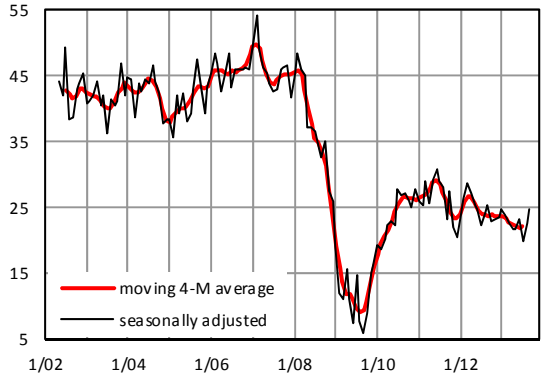
Graph B.2.2: **Construction Confidence Indicator**



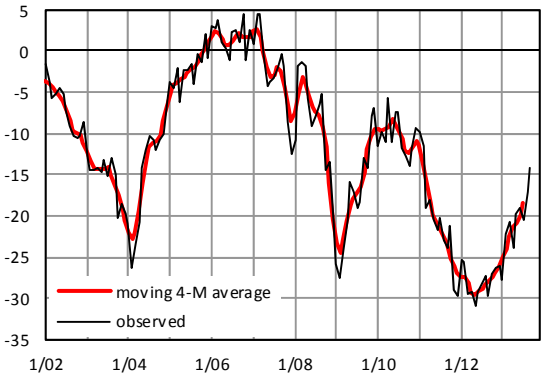
Graph B.2.3: **Retail Trade Confidence Indicator**



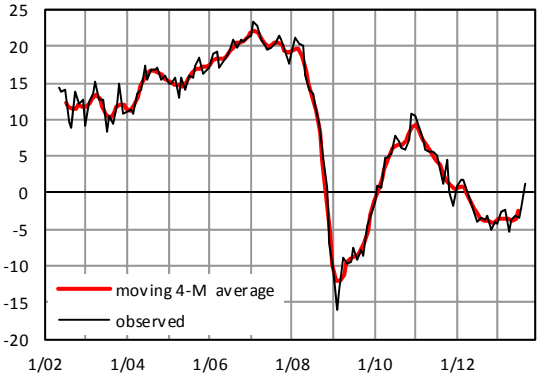
Graph B.2.4: **Selected Services Confidence Indicator**



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



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



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

In Q3 2013, compared with Q2 2013, the indicators in industry, construction, trade and selected sub-sectors of services improved slightly on average. However, this improvement was driven in particular by the development in September. The positive data published on QoQ GDP dynamics were probably reflected here.

In **industry,** the negative assessment has persisted, but the indicator improved in Q3 2013 relative to Q2 2013. Assessment of foreign demand improved, probably thanks to the positive development in the EU28 in Q2 2013. So far, the assessment of economic situation has not shown any convincing improvement, though.

The indicator for **construction** showed a slight QoQ improvement, though the assessment of respondents was overwhelmingly pessimistic. The 3-month outlook for total demand, which for this sector enters the calculation of the leading indicator, improved slightly.

The total indicator for **trade** increased on a QoQ basis. Moreover, positive responses among respondents were prevalent. The assessment of economic situation improved slightly, but the 3-month outlook for employment did not record any convincing movement.

The indicator for selected **service sectors** stagnated in QoQ terms, though the respondents responded mostly positively. The 3-month outlook for employment improved slightly.

Consumer confidence witnessed relatively stable growth in its value, but the assessment of respondents continued to be mainly negative.

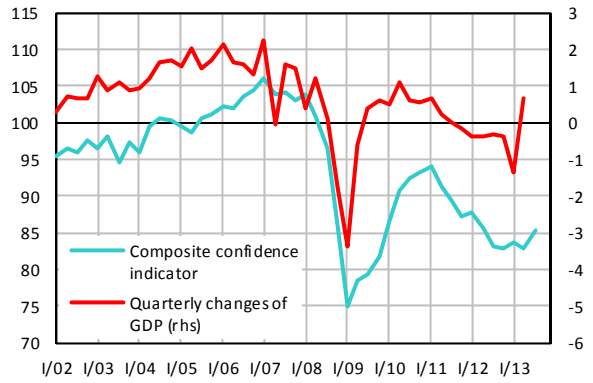
The **composite confidence indicator** witnessed a QoQ increase in Q3 2013. Thanks to a very slight prevalence of respondents' positive replies, its September balance was even positive (see Graph B.2.6).

Although the relationship between the values of the composite confidence indicator and the QoQ changes in real gross domestic product is not particularly close (without any lag their mutual correlation is approximately 60%), it does at least enable us to utilize the fact that the composite indicator is published in advance of quarterly national accounts. In Graph B.2.7 we present only a qualitative graphic appraisal. It is clear that for Q3 2013, the composite confidence indicator signalled QoQ growth of GDP.

For Q2 2013, the composite leading indicator signalled a decrease in the relative cyclical component of GDP and a QoQ GDP decline, which the published data did not confirm. Part of the deviation can be attributed to the influence of stockpiling cigarette tax stamps as the excise tax on tobacco and cigarettes was increased on 1 January 2013. This one-off effect contributed negatively to GDP development in Q1 2013, though in Q2 2013 its effect was positive. The composite leading indicator cannot capture these one-off effects. Another part of the deviation was probably caused by the surprisingly positive development of the European economy in Q2 2013. Last but not least, the estimate of the end of the relative cyclical component is affected by error depending on the method of estimate (the problem of the end point); this is considerably intensified by the fact that the currently published GDP data are certainly not definitive. With subsequent publications of the national accounts data, the course of the estimated relative cyclical component is thus most likely to undergo substantial revisions.

Graph B.2.7: **Composite confidence indicator and QoQ GDP growth**

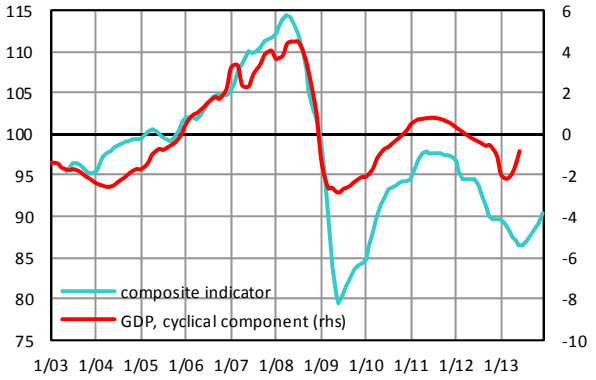
2005=100 (lhs), QoQ GDP growth in % (rhs)



For Q3 and Q4 2013, the indicator signals closing of the negative output gap. With regard to the fact that the trend dynamics can be considered in the short term as approximately constant, this signal is consistent with a QoQ growth of GDP in H2 2013. At the very least, however, QoQ growth of GDP in Q3 2013 should not be higher than in Q2 2013.

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)



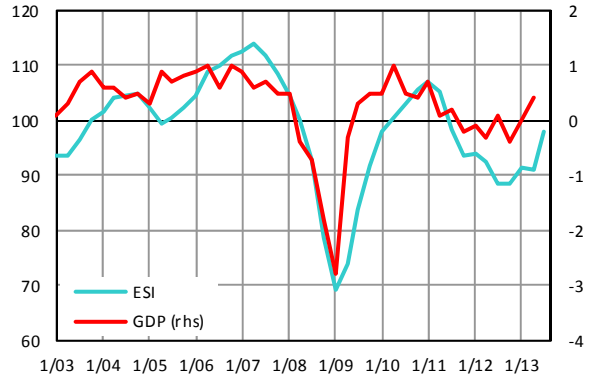
B.3 Business Cycle Indicators in the EU

In Q3 2013, the composite confidence indicator (ESI) published by the EC for the EU28 recorded a sharp increase. All components of the indicator witnessed considerable improvement, partially in response to the positive GDP development in Q2 2013, though this also points to a similarly positive QoQ GDP growth in the EU28 in Q3 2013.

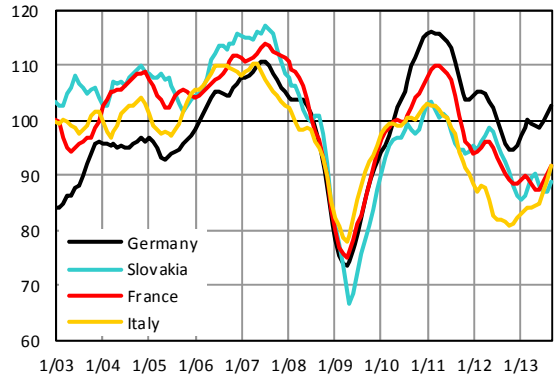
In Q3 2013, the composite confidence indicator rose in Germany, France, Italy and Slovakia. After the previous correction, optimism is once again returning to the economies of the main trading partners of the Czech Republic. This was also confirmed by the composite Purchasing Managers Index (PMI) in Germany. In September, the PMI reached its 8-month maximum of 53.8.

For Q4 2013, the composite leading indicator signals growth of the positive relative cyclical component of GDP in Germany and the EU as a whole. Considering the stable short-run dynamics of potential product, supported by the European Commission's estimate of the output gap for 2013, the closing of the negative output gap in the production function methodology can be explained by a continuation of the economic recovery in H2 2013.

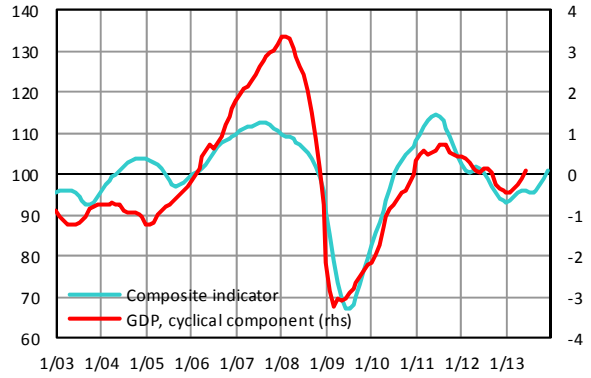
Graph B.3.1: **ESI and GDP Growth in the EU**
indicator – quarterly averages, QoQ growth in %, sa data



Graph B.3.2: **ESI in Selected Trading Partner Countries**
3-month moving averages



Graph B.3.3: **Composite Leading Indicator** – EU
monthly data, 2005=100, cyclical component in % of trend GDP



Graph B.3.4: **Composite Leading Indicator** – Germany
monthly data, 2005=100, cyclical component in % of trend GDP