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.
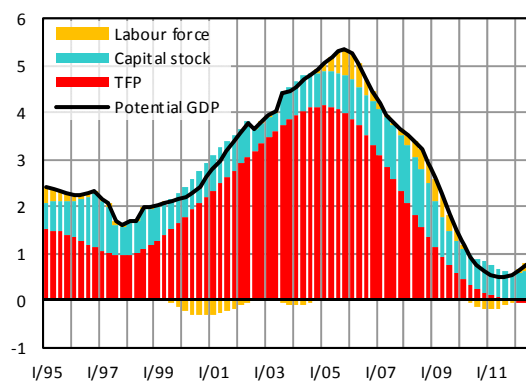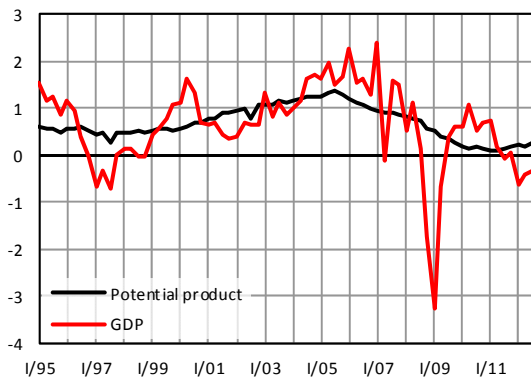
Graph B.1.1: **Output Gap**
in % of potential GDP
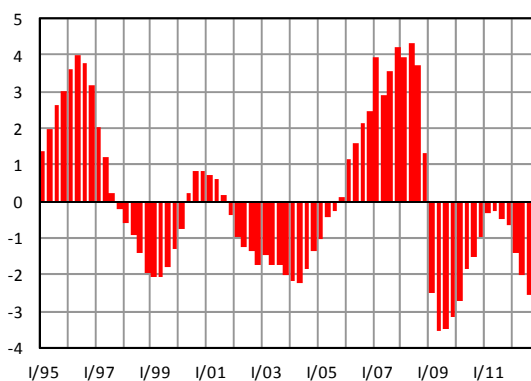
Graph B.1.2: **Potential Product Growth**
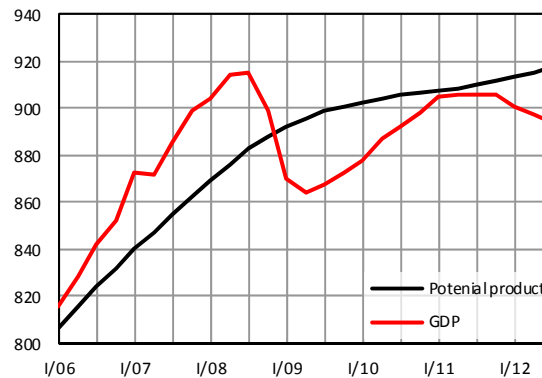*in %, contributions in percentage points*

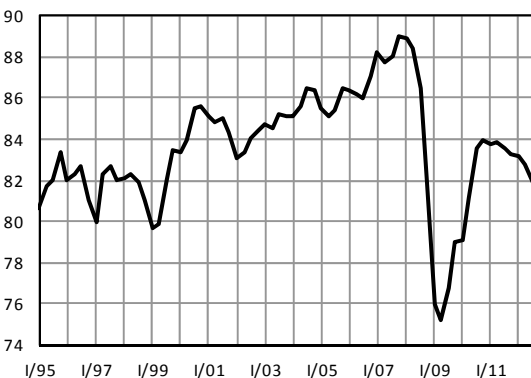Graph B.1.3: **Potential Product and GDP**
QoQ growth in %

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

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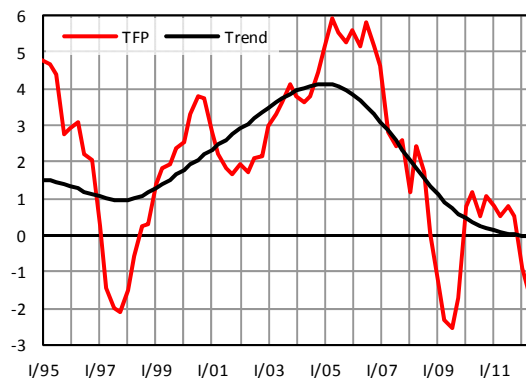*in %*

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 Q1-3
Output gap	*per cent*	-1.7	-1.9	-0.4	1.9	3.7	3.3	-3.2	-1.8	-0.4	-2.0
Potential product	*growth in %*	4.2	4.7	5.2	4.9	3.9	3.3	2.0	0.9	0.5	0.7
Contributions:											
Trend TFP	*perc. points*	3.7	4.1	4.1	3.6	2.7	1.7	0.8	0.3	0.1	0.0
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 deep recession at the turn of 2008 and 2009, the Czech economy has constantly been in a negative **output gap**. With the modest recovery after the end of the recession, the gap was gradually reduced to –0.3% in Q2 2011, although the onset of a shallow recession in 2012 caused the output gap to deepen once again to -2.6% in Q3 2012.

The Czech economy has not yet overcome the level of the peak of the previous economic cycle in Q3 2008. Due to a long period without significant economic growth, YoY growth of **potential product** has got below 1% since 2010 according to our calculations. However, we believe that these estimates may underestimate the reality.

The PP component most seriously affected is **total factor productivity** (TFP). TFP was 3.0% lower in Q3 2012 than at the peak of the cycle in Q3 2008. The recession in the course of 2012 showed itself in renewal of QoQ declines. The TPF trend component, derived using the Hodrick-Prescott filter, is therefore stagnating. The fact that the labour production factor is entered into the calculation according to the number of employed persons (which has grown slightly, even in spite of the recession) and not according to 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 2010–2012.

The **labour supply** has been affected by the decrease in the number of working-age inhabitants, which results from the process of population ageing as well as from a significant drop in immigration versus the situation recorded during in 2006–2008. In Q1 to Q3 2012, demographical development slowed down PP growth by 0.5 p.p. Nevertheless, the size of the labour force is not only not decreasing, but rather is even increasing relatively quickly (in Q3 2012 by 1.0% YoY), since the positive participation trend, measured as the ratio of the labour force to the number of inhabitants at the age of 15–64 years, has accelerated and, with a contribution of 0.7 p.p., has become the most significant factor for PP growth.
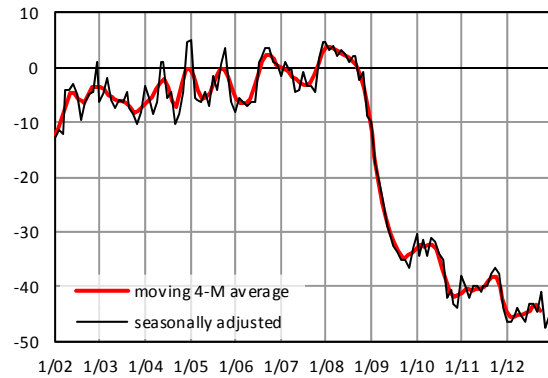
B.2 Business Cycle Indicators

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.[1]
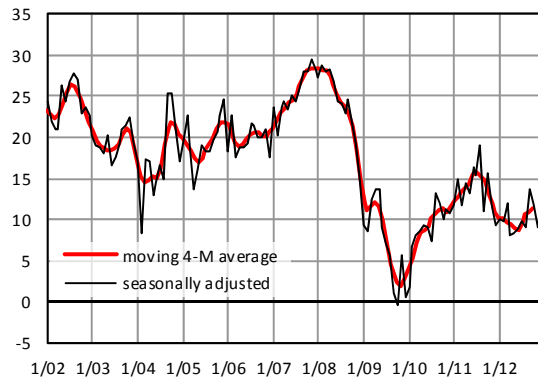
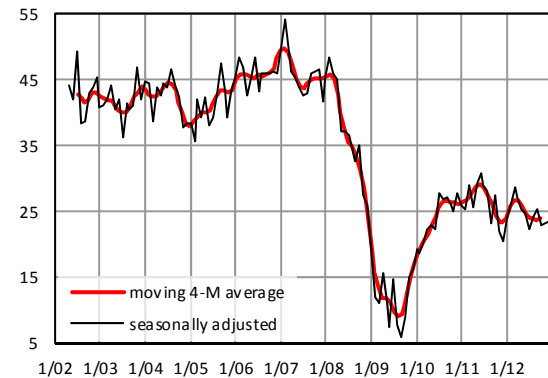Graph B.2.1: **Industrial Confidence Indicator**
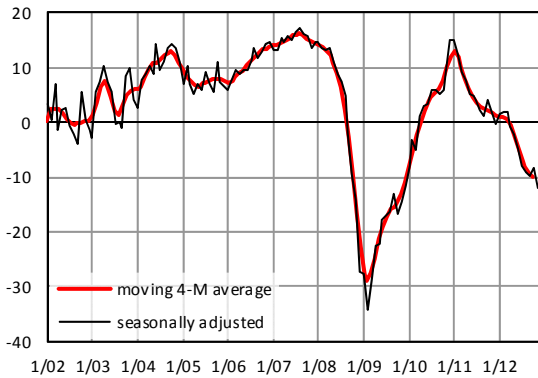
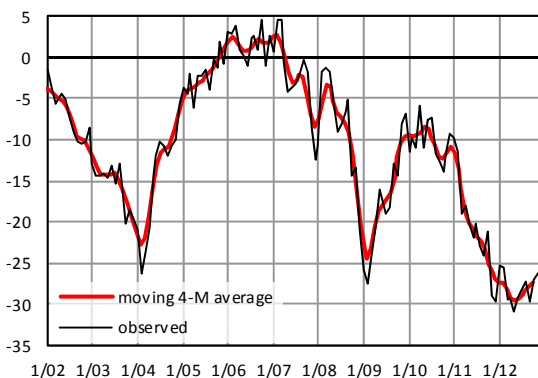Graph B.2.2: **Construction Confidence Indicator**

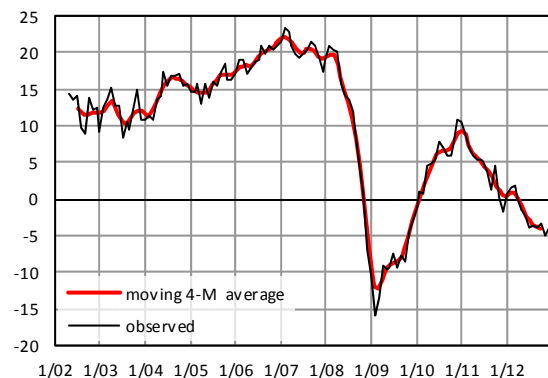
Graph B.2.3: **Retail Trade Confidence Indicator**

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

Business cycle indicators have continued to develop in a predominantly negative manner, also during Q4 2012.

In **industry** the assessment of overall and foreign demand was predominantly negative in Q4 2012, however, as compared to Q3 there was a slight decrease in negative assessments in the case of foreign demand. The economic situation of businesses was assessed positively in Q4 2012, but as compared to the previous quarter, the number of positive responses decreased. The three-month and six-month outlook for the economic situation for Q4 2012 has slightly improved, as compared to Q3. In the three-month outlook, the assessment of overall demand basically stagnated QoQ, however, the assessment of foreign demand improved slightly. However, respondents' negative responses still outweigh positive ones. The three-month outlook for employment decreased slightly, which corresponds to the development of the outlook for overall and foreign demand.

As regards the results of a business cycle survey, the worst situation can be found in the construction **industry**. The assessment as to the outlook for total demand was unambiguously negative in Q4 2012, while slight deterioration was recorded in comparison with Q3.

According to respondents in the sector of **trade,** in Q4 2012 (in comparison with the previous period) the assessment of the current economic situation slightly deteriorated. The three-month and six-month outlooks for the economic situation more or less stagnated compared to Q3.

The assessment of the current economic situation in selected sectors of **services** increased negligibly in Q4 2012. The assessment of the economic situation in the six-month outlook and expected development of the number of employees in the following three months, also as compared to Q3, showed an improvement.

Consumer confidence continued to be very low, despite a slight QoQ growth of the indicator occured.

The **composite confidence indicator** witnessed further decline in Q4 2012, as compared to the previous quarter (Graph B.2.6). Using regression analysis, we quantified the relationship between development of the composite confidence indicator and QoQ increase of real GDP. The relationship between QoQ increments of GDP and lagged values of the composite indicator is relatively weak. Without the lag, the correlation between these two time series is ca 60%. The

regression relationship between QoQ increments of GDP and the composite indicator (without lag) makes it possible to at least use the existing composite indicator published in advance of quarterly national accounts. Below we have presented only a qualitative graphical appraisal. It is clear that for Q4 2012 the composite confidence indicator signalled a further QoQ drop in GDP.

Graph B.2.7: **Aggregate confidence indicator and QoQ GDP growth**
*2005=100 (lhs), QoQ GDP growth in % (rhs)*
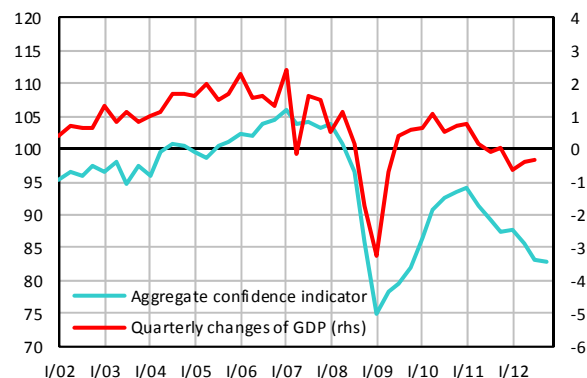
For Q3 2012 the composite leading indicator correctly signalled a drop in the relative cyclical component of GDP, which was confirmed based on data published in December 2012. For Q4 2012 the indicator further signalled a drop in the relative cyclical component of GDP. Considering the fact that trend dynamics can be regarded as constant in the short term, the conclusion for QoQ dynamics of GDP in Q4 2012 is in line with observations resulting from comparison of QoQ changes in GDP with the composite confidence indicator. According to the composite indicator, the relative cyclical component should slightly fall in Q1 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)
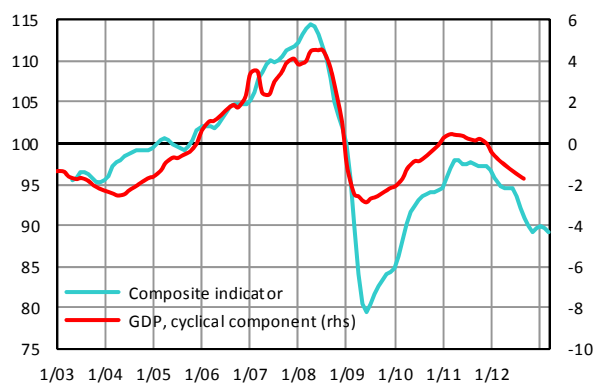
B.3 Business Cycle Indicators in the EU

The composite confidence indicator published by the European Commission stagnated in Q4 2012 for the whole of the EU. A strongly negative sentiment prevailed in all components of the indicator. In a QoQ comparison, respondents' evaluation in the sector of services and retail trade improved; on the contrary, confidence of consumers and industrial businesses slightly deteriorated. For Q4 2012 the composite indicator signals a QoQ drop in real GDP in EU27.

In the Czech Republic's selected trading partner countries, the composite confidence indicator development was differentiated in Q4 2012 (see Graph B.3.2). While in Germany and Italy the indicator

increased slightly after its previous decline, in France its decline rates slowed down considerably. However, this was not the case of Slovakia where a sharp decrease continued.

The composite leading indicator signals stabilization of the relative cyclical component of GDP for Q1 2013 (after its decline in Q4 2012) both in the whole of the EU and in Germany. Considering the stable dynamics of the potential product in the short time, supported by the estimate of output gap for 2013 by the European Commission, the stabilization of the relative cyclical component can be explained by the economic growth in Q1 2013.
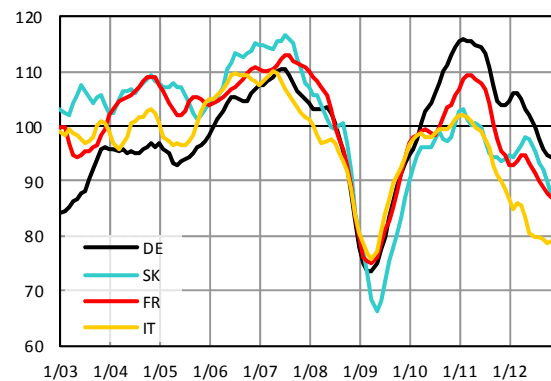
Graph B.3.1: **Aggregate confidence indicator and GDP growth in EU27**
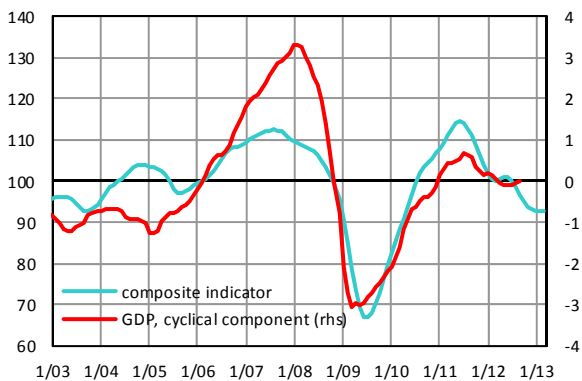*indicator – quarterly averages, QoQ growth in %, sa data*
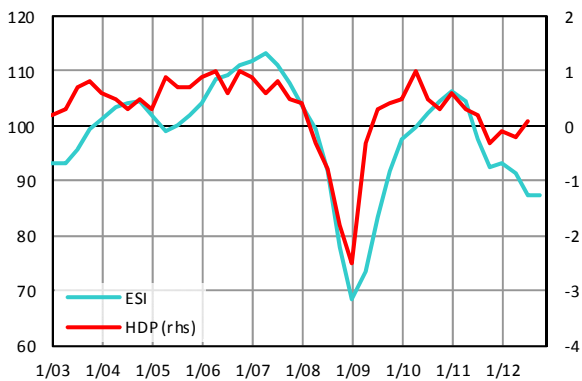
Graph B.3.2: **Aggregate confidence indicator, selected trading partner countries**
3-month moving averages

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