B Economic Cycle

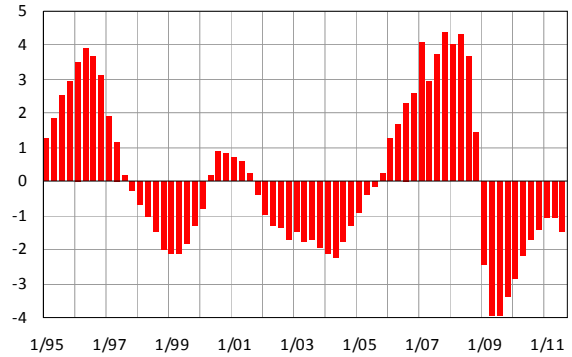
B.1 Position within the Economic Cycle

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.

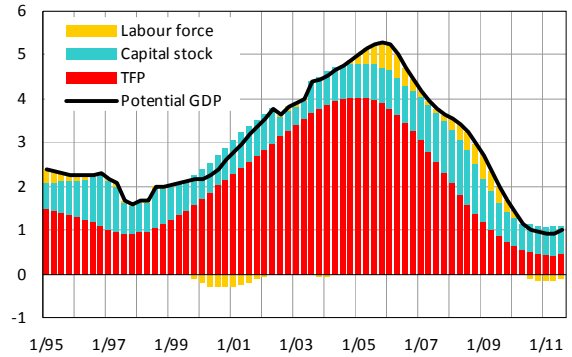
Under current conditions, when abrupt changes in the level of economic output have occurred, it is very difficult to distinguish the influence from deepening of the negative output gap from a slowing in PP growth. The results of these calculations display high instability and should be treated very cautiously.

Sources of tables and graphs: CZSO, CNB and Ministry of Finance's own calculations.

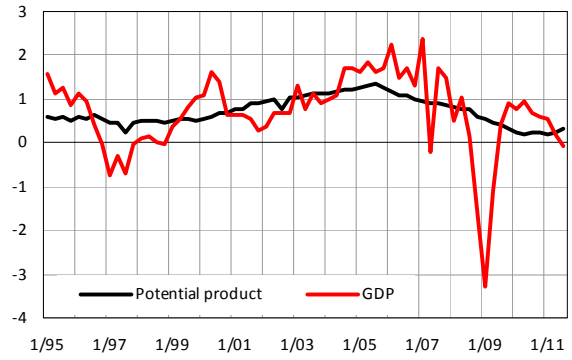
Graph B.1.1: **Output Gap**
in % of potential GDP



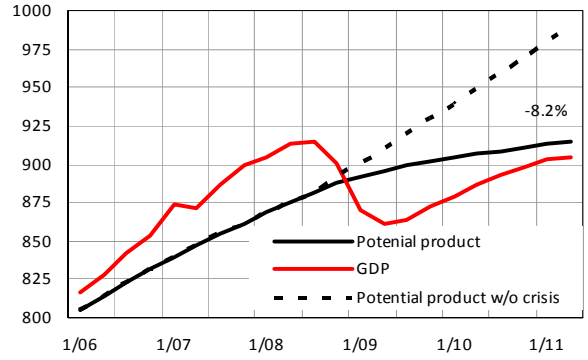
Graph B.1.2: **Potential Product Growth**
in %, contributions in percentage points



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

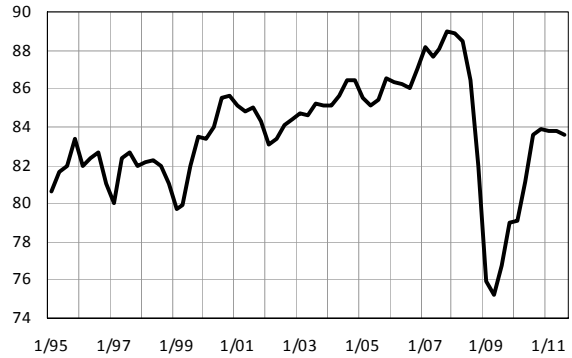


Graph B.1.4: **Levels of Potential Product and GDP**
in bill. CZK of 2000



Note: „Potential product w/o crisis" in graph B.1.4 is a hypothetical level of PP steadily growing from Q4/08 by the average QoQ growth of years 2001–2007.

Graph B.1.5: **Utilisation of Capacities in Industry**
in %



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

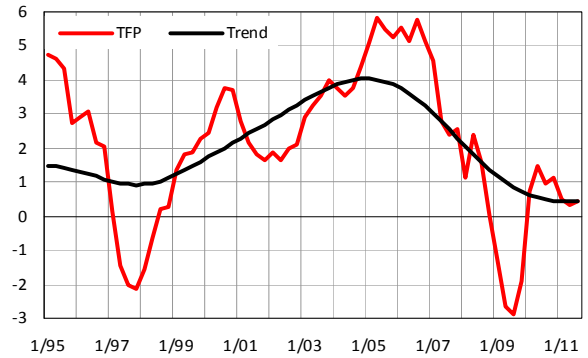


Table B.1: **Output Gap and Potential Product**

		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011 Q1–Q3
Output gap	*per cent*	**-1.3**	**-1.7**	**-1.8**	**-0.3**	**2.0**	**3.8**	**3.4**	**-3.4**	**-2.0**	**-1.2**
Potential output	*growth in %*	**3.7**	**4.2**	**4.7**	**5.2**	**4.8**	**3.9**	**3.3**	**2.2**	**1.1**	**1.0**
Contributions:											
TFP	*perc. points*	**3.1**	**3.6**	**4.0**	**4.0**	**3.5**	**2.7**	**1.7**	**0.9**	**0.5**	**0.4**
Fixed assets	*perc. points*	**0.6**	**0.6**	**0.7**	**0.8**	**0.9**	**1.1**	**1.2**	**0.8**	**0.6**	**0.6**
Participation rate	*perc. points*	**-0.1**	**-0.2**	**-0.2**	**0.2**	**0.2**	**-0.2**	**0.0**	**0.3**	**0.2**	**0.2**
Demography [1)]	*perc. points*	**0.1**	**0.2**	**0.2**	**0.2**	**0.3**	**0.3**	**0.4**	**0.1**	**-0.2**	**-0.4**

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

Economic recession from the turn of 2008 to 2009 gave rise to a deeply negative **output gap.** This, according to the revised data[1], reached almost −4% at the end of the recession in Q2 2009, thus indicating the lowest utilisation of economic potential in the post-transformation period. In the Q1 2011 the output gap eased to just under –1%. In Q2 and Q3, however, GDP was more or less unchanged and the output gap again expanded to –1.5%.

As a result of the deep recession and ensuing slow recovery, the YoY growth of **potential product** fell to as low as 1% in 2010 and 2011. In view of the aforementioned instability in the calculations, however, we believe that this estimate undervalues the reality.

The PP component most seriously affected by the recession was **total factor productivity** (TFP), which dropped by 2.2% in 2009 YoY. In Q3 2011, TFP still remained 1.5% lower than at the peak of the cycle in Q3 2008, thus resulting in a slowdown in the YoY growth trend for TFP to 0.5% in Q3 2011. By comparison, a peak of 4.0% had been reached in 2005.

A deep drop in investment activity led to a decrease in **capital stock's** contribution from 1.2 p.p. in 2008 to 0.6 p.p. in 2010. Capital stock also recorded the same contribution in Q1 to Q3 2011.

The labour supply is beginning to be markedly affected by the decrease in the number of working-age population, which stems from the process of ageing as well as from a significant drop in immigration versus the situation recorded during 2006–2008. During Q1−Q3 2011, the contribution of demographic development to potential GDP growth was significantly negative, at –0.4 p.p. The positive participation trend, measured as the ratio of labour force to the number of inhabitants aged 15–64, which accelerated its growth during the recession in 2009, has thus far compensated the demographic development by approximately one-half.

Graph B.1.4 illustrates that the recession and slow overcoming of its consequences have so far resulted in a loss of ca 8.2% in the potential product level.

[1] *The revision of quarterly national accounts only marginally affected the time series for the output gap. The only exception was a deepening of the negative output gap during the recession. The potential product systematically increased its growth rate during 1999–2005. For example, the growth for 2003 was increased by the revision from 3.7% to 4.2%.*

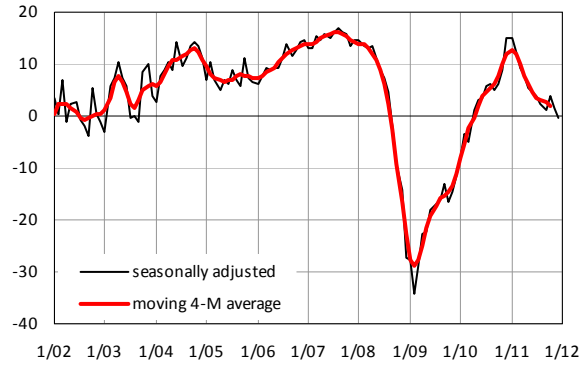
B.2 Individual Business Cycle Indicators

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. The main advantage lies in the quick availability of results reflecting a wide range of influences that shape the expectations of economic entities.

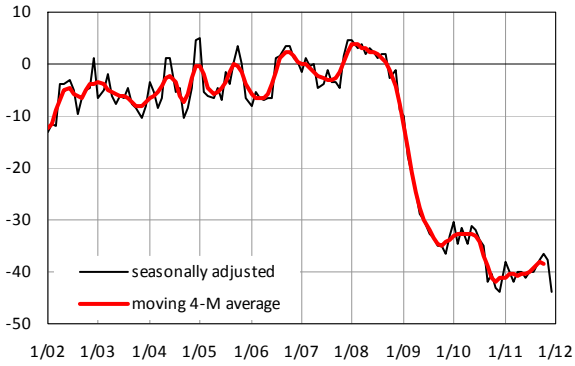
The surveys share a common characteristic in that respondents' answers provide not direct quantification but rather use more general qualitative expressions (such as better, the same, worse, or growing, not changing, falling, etc.). Tendencies are reflected in the business cycle balance, which is the difference between the answers "improvement" and "worsening", expressed in percentages of observations.

The aggregate confidence indicator is presented as a weighted average of seasonally adjusted indicators of confidence in industry, construction, retail trade and selected services sectors as well as of consumer confidence. Weights are established as follows: the indicator of confidence in industry is assigned a weight of 40%, those for construction and retail trade 5% each, that for selected services 30%, and that for consumer confidence 20%.

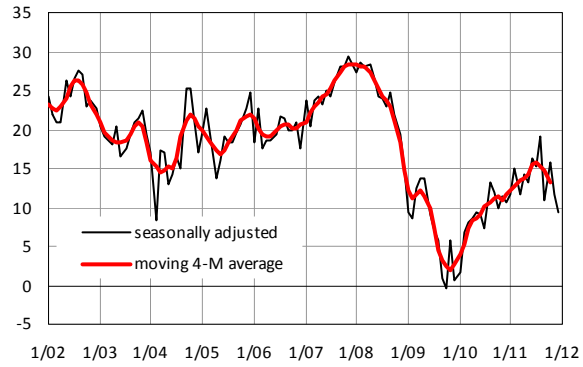
Graph B.2.1: **Industrial Confidence Indicator**



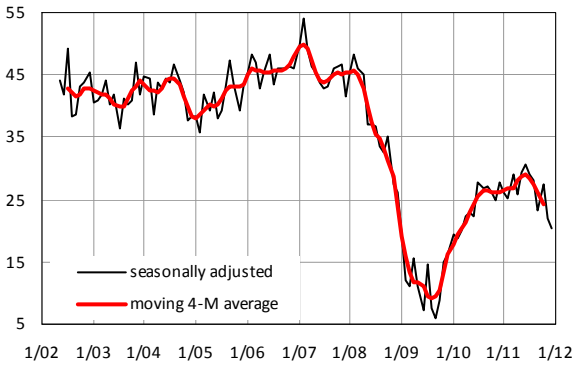
Graph B.2.2: **Construction Confidence Indicator**



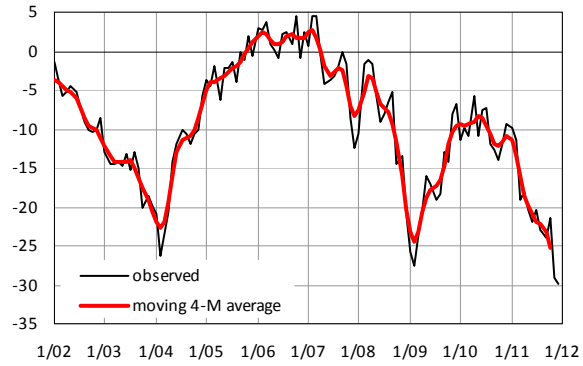
Graph B.2.3: **Retail Trade Confidence Indicator**



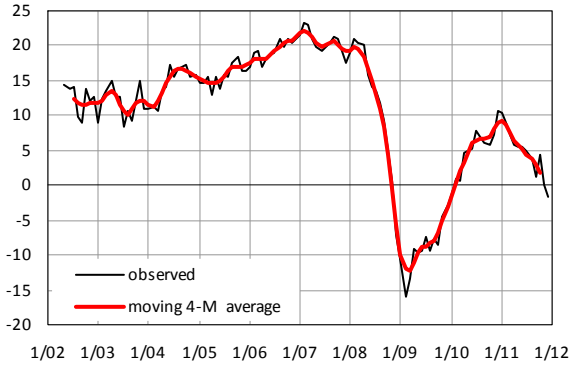
Graph B.2.4: **Selected Services Confidence Indicator**



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



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



Confidence indicators continued to drop in Q4 2011. We comment below on the development especially of those individual indicators which enter the composite leading indicator (see below).

In **industry** the assessment of total and foreign demands clearly deteriorated in Q4. On the other hand, the evaluation of demand with a three-month outlook slightly improved. The view of the current economic situation was unchanging and its three-month outlook improved only very slightly, while the outlook for the economy in a horizon of six months dropped. The expectation for employment continued to decrease.

Evaluation as to the outlook for total demand in **construction** continued in significant decline in Q4. The deteriorating outlook for the economic situation and employment is related to this.

According to respondents in **retail trade**, the view of the current economic situation worsened, as did its six-month outlook.

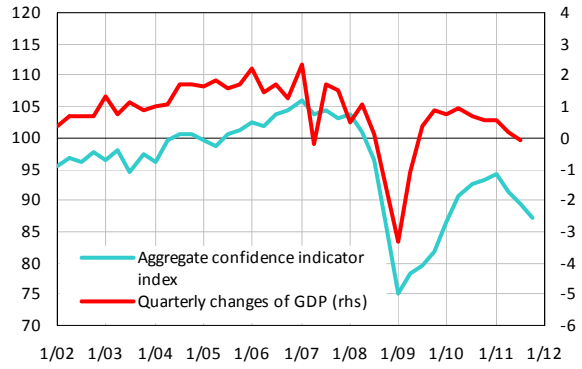
The assessment of the current economic situation in selected **services** sectors was unchanged in Q4 2011, while evaluation of the economic situation on a six-month horizon slightly improved. The expected development for the number of employees in the coming three months decreased.

The **consumer** confidence indicator in Q4 clearly showed a continuing drop in consumer sentiment. Concerning long-term development of this indicator, it should be noted that consumers have always been pessimistic, with the exception of 2006 and part of 2007.

Likewise, the **composite confidence indicator** continued to drop in Q4 and reached a negative value (Graph B.2.6). Using regression analysis, we quantified the relationship between development of the composite confidence indicator and QoQ index of gross domestic product (GDP). The relationship using 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 the QoQ increments of GDP and the composite indicator (without lag) allows using at least the existing composite indicator published in advance of the quarterly national accounts. Below we present only a qualitative graphical appraisal. It is clear that for Q4 the composite confidence indicator was rather signalling a slight drop in the QoQ dynamics of GDP.

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

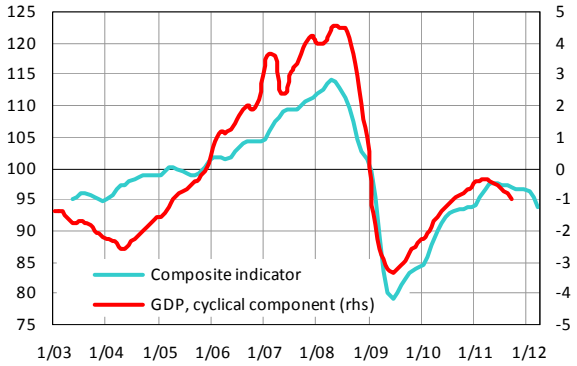
2005 = 100 (lhs), QoQ GDP growth in % (rhs)



B.3 Composite Leading Indicator

The composite leading indicator is compiled from the results of business cycle surveys that fulfil the basic demands made on leading cyclical indicators: that they are economically significant, demonstrate statistically observable leading relationships with regard to the economic cycle, and are regularly available on a timely basis. Since October 2010, the indicator is compiled from those business cycle indicators that have shown a high level of correlation with an average lead time of three months.

Graph B.3.1: **Composite Leading Indicator**
average 2005 = 100 (lhs), in % of GDP (rhs)
synchronized with cyclical component of GDP based on statistical methods (Hodrick-Prescott filter)



For Q3 2011 the composite leading indicator signalled stagnation in the relative cyclical component of GDP which, according to data published in December 2011, fell slightly for the given period. For Q4 2011 the indicator signalled a slight drop in the cyclical component of GDP. As the trend dynamics can reasonably be regarded as constant in the short term, the conclusion for QoQ dynamics of GDP in Q4 2011 is qualitatively identical to the signal from the composite confidence indicator.

For Q1 2012 the composite indicator is signalling another, stronger drop in the relative cyclical component of GDP, and therefore of the QoQ GDP dynamics.