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.

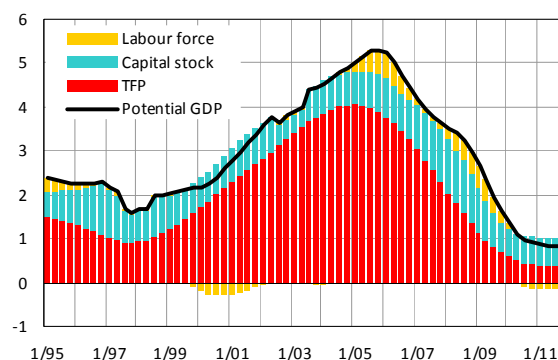*Sources of tables and graphs: CZSO, CNB and Ministry of Finance's own calculations.*

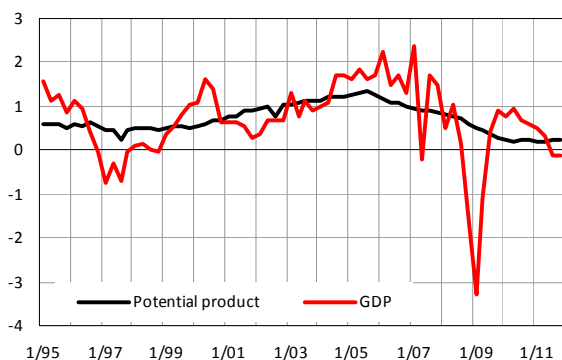Graph B.1.1: **Output Gap**
in % of potential GDP
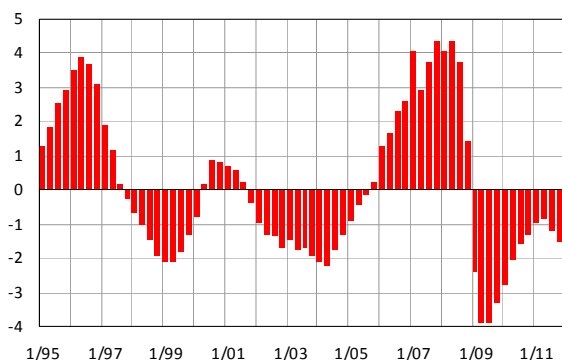
Graph B.1.2: **Potential Product Growth**
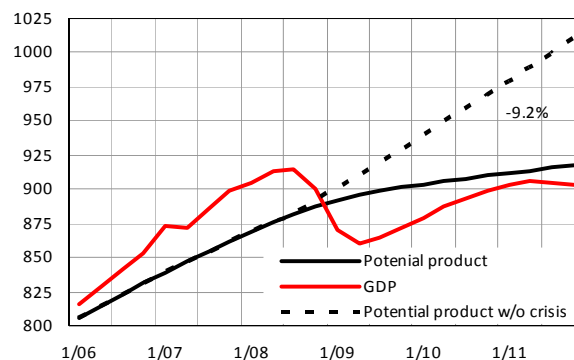*in %, contributions in percentage points*

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

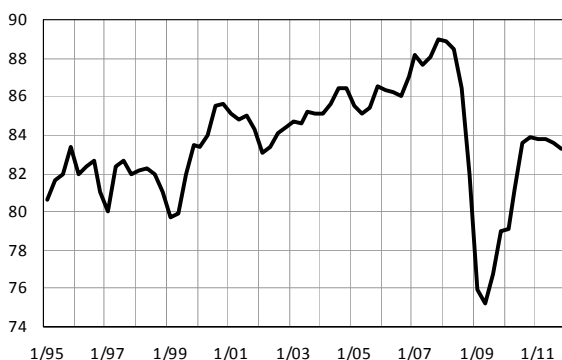Graph B.1.4: **Levels of Potential Product and GDP**
in bill. CZK of 2000

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**
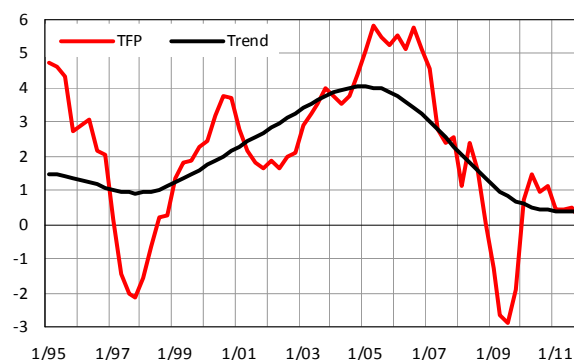*in %*

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
Output gap	*per cent*	-1.3	-1.7	-1.8	-0.3	2.0	3.8	3.4	-3.4	-1.9	-1.1
Potential output	*growth in %*	3.7	4.2	4.7	5.2	4.8	3.9	3.3	2.1	1.1	0.8
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**. With the modest recovery after the end of the recession, the output gap was gradually reduced to −1% in Q2 2011. GDP's subsequent stagnation, however, led to a deepening of the production gap to −1.6% by the end of 2011.

As a result of the Czech economy's lacklustre performance in the last period, 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 is **total factor productivity** (TFP). In Q4 2011, TFP remained 1.4% lower than at the peak of the cycle in Q3 2008, thus resulting in a slowdown in the YoY growth trend for TFP to 0.4% in Q4 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 and 2011.

The labour supply has been markedly affected by decrease in the number of working-age inhabitants, which stems from the process of population ageing as well as from a significant drop in immigration versus the situation recorded during 2006–2008. In 2011, the contribution of demographic development to potential GDP growth was significantly negative, at −0.4 p.p. The continuing positive participation trend, measured as the ratio of labour force to the number of inhabitants aged 15–64, 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 9.2% in the potential product level.
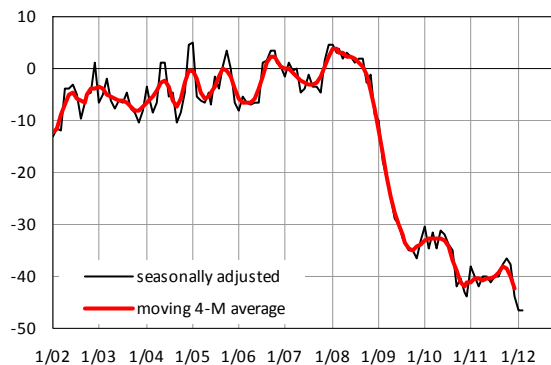
B.2   Business Cycle Indicators

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.[6]
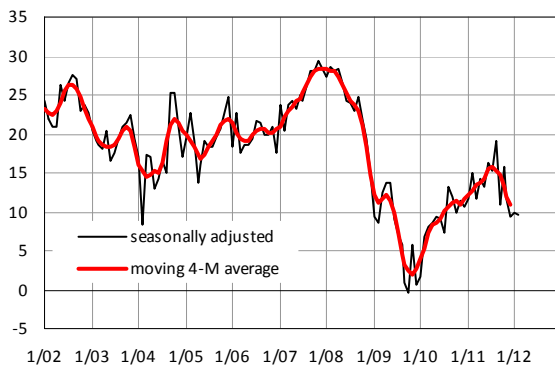
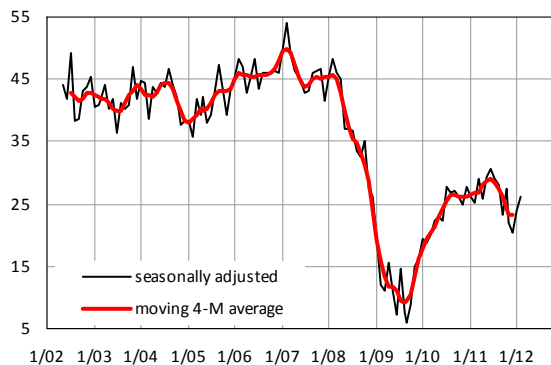Graph B.2.1: **Industrial Confidence Indicator**
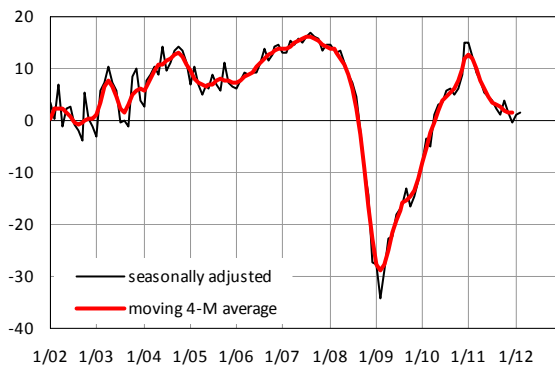
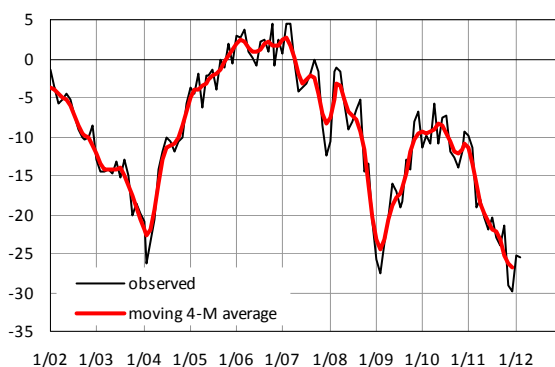Graph B.2.2: **Construction Confidence Indicator**

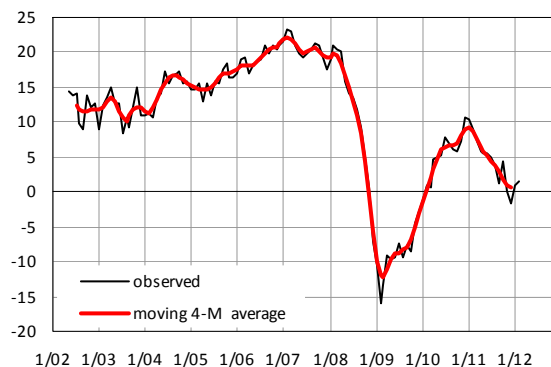
Graph B.2.3: **Retail Trade Confidence Indicator**

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

Industry indicators showed modest improvement in January and February 2012. In other sectors, indicators developed in a manner either clearly negative (construction) or not clear at all (retail and services).

In **industry** the assessment as to total and foreign demand moderately improved in January and February 2012. On the other hand, the evaluation of total demand with a three-month outlook was unchanged, while in the case of foreign demand there was an apparent decline between January and February. The view of the current economic situation and its three-month outlook improved. Following a decline in January, the outlook for the economy in a horizon of six months improved slightly in February. Prospects for employment over a 3-month horizon also clearly improved.

Assessments as to the outlook for total demand in **construction** have been highly volatile in recent months. The outlook worsened in February 2012.

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

The assessment of the current economic situation in selected **services** sectors and evaluation of the economic situation on a six-month horizon both improved moderately in January and February 2012. The expected development for the number of employees in the coming three months shows no clear direction.

The **consumer** confidence indicator in January and February 2012 showed an improvement in consumer sentiment. It continues, however, to fluctuate near historic lows. Concerning this indicator's long-term development, it should be noted that consumers have always been pessimistic – with the exception of 2006 and part of 2007 – and that its relevance for the economic cycle is rather limited.

Likewise, the **composite confidence indicator** rose in the first two months of 2012 and is now just below zero (Graph B.2.6). We used regression analysis to quantify the relationship between development of the composite confidence indicator and the QoQ index of gross domestic product (GDP). The strength of the correlation between the QoQ increments of GDP and lagged values of the composite indicator is rather 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. Because the values for March 2012 were not yet available at the time of preparing the new Macroeconomic Forecast, the same value reached in February is assumed for March. It is clear that for Q1 the composite confidence indicator essentially is signalling stagnation 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)
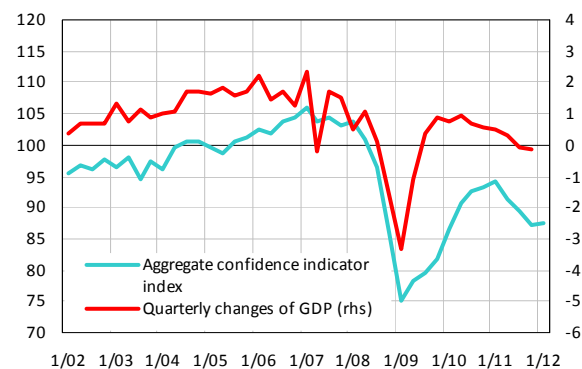
For Q4 2011, the composite leading indicator signalled a drop in the relative cyclical component of GDP, which was then confirmed by data published in March 2012. For Q1 2012, the indicator is signalling a further decline in the cyclical component of GDP. Since the trend dynamics can reasonably be regarded as constant in the short term, the composite leading indicator indicates a QoQ decrease in GDP for Q1 2012. Nevertheless, this is inconsistent with the analysis resulting from the comparison of QoQ changes in GDP and the composite confidence indicator.

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)