4 Comparison with the Previous Convergence Programme and Sensitivity Analysis

4.1 Comparison with the Previous Macroeconomic Scenario

The differences between the macroeconomic scenarios of the current programme and last year's programme are related to the following:

- New observations of the macroeconomic phenomena were included.
- In addition to normal specifications, the timetables for the quarterly and yearly accounts were revised, relating in particular to the change in the method for expressing foreign trade with goods and services.
- The exogenous assumptions of the programme were slightly changed.
- The estimate for the potential GDP growth rate was increased.
- The effects of the measures contained in the Act on Stabilisation of Public Finances were included.

As a part of the assumptions of the programme's scenario, it is assumed that development in EU countries has slightly improved against the previous programme, especially in Germany. The impact of higher expected USD prices for oil from 2008 to 2010 has almost been offset by the weaker USD exchange rate vis-à-vis the EUR and the CZK.

Table 4.1: Assumptions of the scenario

	CP 2006			CP 2007			Difference		
	2006	2007	2008	2006	2007	2008	2006	2007	2008
GDP growth (%)									
USA	3.5	3.4	2.6	2.8	2.1	2.5	-0.7	-1.3	-0.1
EU-25	1.7	2.7	2.2	3.0	2.8	2.5	1.3	0.1	0.3
Germany	0.9	2.2	1.4	2.9	2.7	2.3	2.0	0.5	0.9
Prices of oil									
(USD / barrel)	54.4	67.5	59.8	65.4	67.8	72.5	11.0	0.3	12.8
Exchange rate									
USD / EUR	1.24	1.25	1.26	1.25	1.35	1.34	0.01	0.10	0.08

Source: Ministry of Finance

More favourable macroeconomic development in comparison with the previous programme will occur in 2007. Economic growth is ca 1.0 percentage point higher, while domestic demand's contribution exceeds expectations by 1.6 percentage points. Expansion of domestic demand is non-inflationary in nature (HICP growth of 0.2 of a percentage point). Employment will increase and unemployment will decline at a significantly faster pace. Thanks to the surprising improvement in the terms of trades, the surplus in the balance of goods and services will substantially increase.

The change in the projection for 2008 to 2010 carries with it the persistence of deviations in real and projected development in 2007 and the effects of the approved reform measures. The result is slightly faster anticipated economic growth in nominal and real terms with a higher domestic demand contribution, a one-time increase in inflation in 2008, and a significantly tenser situation on the labour market.

Table 4.2: **Change in the indicators of the macroeconomic scenario**

	CP 2006			CP 2007			Difference (p.p.)		
	2006	2007	2008	2006	2007	2008	2006	2007	2008
Growth in real terms (in %)									
GDP	6.0	4.9	4.8	6.4	5.9	5.0	0.4	1.0	0.2
Households consumption	3.9	4.2	4.1	4.4	6.5	4.2	0.5	2.3	0.1
Government consumption	-1.0	0.5	-0.3	1.1	-0.6	-0.4	2.1	-1.1	-0.1
Gross fixed capital formation	6.5	7.8	7.9	7.6	6.0	9.0	1.1	-1.8	1.1
Contribution of domestic demand (pp)	4.9	4.4	4.1	5.4	6.0	5.1	0.5	1.6	1.0
Contribution of foreign trade (pp)	1.1	0.5	0.7	1.0	-0.1	-0.1	-0.1	-0.6	-0.8
Potential product	5.0	5.1	5.1	5.3	5.2	5.5	0.3	0.1	0.4
Output gap (%)	0.9	0.7	0.4	0.7	1.3	0.9	-0.2	0.6	0.5
Growth (in %)									
HICP	2.4	2.6	2.5	2.1	2.4	3.9	-0.3	-0.2	1.4
GDP deflator	1.4	2.6	2.9	1.1	3.5	3.1	-0.3	0.9	0.2
Employment	1.6	1.0	0.5	1.7	1.5	1.1	0.1	0.5	0.6
Unemployment rate (level in %)	7.2	6.7	6.5	7.1	5.5	4.8	-0.1	-1.2	-1.7
Exchange rate CZK/EUR (level)	28.4	28.0	27.5	28.3	28.0	27.4	-0.1	0.0	-0.1
Balance of goods and services (in % of GDP)	1.8	2.2	3.1	3.2	4.2	4.3	1.4	2.0	1.2
Net lending/borrowing (in % of GDP)	-2.8	-1.4	0.2	-2.7	-2.6	-1.7	0.1	-1.2	-1.9

Source: Ministry of Finance

4.2 Comparison with the Fiscal Framework of the Previous Convergence Programme

The fiscal scenarios for this year's and last year's CP updates are compared in Table 4.3. In view of the more favourable macroeconomic assumptions and the approval of the stabilisation budgetary measures, the outlook for the general government deficit is more optimistic in this year's update.

The share of the general government deficit in GDP, according to the available data in 2006, was 0.6 of a percentage point lower than the prediction in last year's update. Better results than those of the budget deficit will likely be attained in 2007 as well. In 2008 and 2009, the government deficit should be about 0.6 of a percentage point lower than in last year's CP.

Table 4.3: Comparison with the Previous Convergence Programme

% of GDP	ESA code	Year 2006	Year 2007 (1)	Year 2008 (2)	Year 2009 (2)	Year 2010 (2)
Real GDP growth (%)						
Previous update		6.0	4.9	4.8	4.8	.
Current update		6.4	5.9	5.0	5.1	5.3
Difference		0.4	1.0	0.2	0.3	.
General government net lending						
Previous update	EDP B.9	-3.5	-4.0	-3.5	-3.2	.
Current update	EDP B.9	-2.9	-3.4	-2.9	-2.6	-2.3
Difference		0.6	0.6	0.6	0.6	.
General government gross debt						
Previous update		30.6	30.5	31.3	32.2	.
Current update		30.1	30.4	30.3	30.2	30.0
Difference		-0.5	-0.1	-1.0	-2.0	.

(1) Estimate, notifications (October 2007)
(2) Outlook

Source: Ministry of Finance

4.3 Sensitivity Analysis

Czech economic development during the past five years can be considered as favourable. Nevertheless, it should be noted that the economy is affected by a range of conflicting factors. This includes, in particular, the positive impact of the inflow of foreign direct investment over an extended period of time as well as the negative effect of very high oil prices and the prices of other commodities. Considering that any simulation of the effects of the structural changes associated with the inflow of foreign direct investment is very complicated and highly disputable, attention is focused on the macroeconomic effects of oil prices.[9] However, the unfavourable development of raw material prices does not only have a negative impact on the Czech economy, but it also affects economic development in the EU as a whole.[10] We have, therefore, decided to supplement the sensitivity analysis with two secondary effects, i.e. the impact of foreign demand and foreign inflation.

We test the sensitivity of the Czech economy with the help of two scenarios. The optimistic scenario combines positive external supply and demand shocks. It is based on the assumption of a gradual decline in the price of oil, slightly higher foreign demand dynamics, and on the contrary, a lower growth rate for foreign industrial prices. On the other hand, the pessimistic scenario is derived from the assumptions of a higher price for oil, lower foreign demand dynamics and accelerated foreign inflation.

[9] For a quantitative analysis of the effects of the above factors on Czech economic development, the Ministry of Finance employs a medium-term, quarterly calibrated model. This model is a standard Keynesian model supplemented with a neoclassical supply side.
[10] We focus exclusively on the probable impact of oil price fluctuations on the EU economy . The simulation results of the MULTIMOD model, set up and managed by the International Monetary Fund, were used to estimate the sensitivity of the European economy.

Table 4.4: Scenario of exogenous variables

		Year 2006	Year 2007	Year 2008	Year 2009	Year 2010
	UK Brent					
Optimistic	USD/barrel		**62.8**	**62.5**	**51.8**	**50.0**
Baseline	USD/barrel	**65.4**	**67.8**	**72.5**	**66.8**	**65.0**
Pessimistic	USD/barrel		**72.8**	**82.5**	**81.8**	**80.0**
	GDP EU 15					
Optimistic	y/y in %		**2.9**	**2.8**	**2.7**	**2.6**
Baseline	y/y in %	**3.0**	**2.7**	**2.5**	**2.5**	**2.5**
Pessimistic	y/y in %		**2.6**	**2.2**	**2.3**	**2.4**
	PPI EU 15					
Optimistic	y/y in %		**3.4**	**3.1**	**3.5**	**3.8**
Baseline	y/y in %	**3.9**	**3.9**	**3.9**	**3.9**	**3.9**
Pessimistic	y/y in %		**4.4**	**4.7**	**4.3**	**4.0**

Source: Ministry of Finance

Optimistic scenario

The settings of the scenarios are characterised by the primary nominal and secondary real impact on the Czech economy. Thanks to the assumed slow decline in the price of oil to around USD 50 per barrel, we can expect a very substantial improvement in the external imbalance during the simulation measured by the balance of payments current account. A lower price for oil has a very positive income effect. Thanks to the relatively high energy demands of the Czech economy, firms reduce their production costs, which is reflected positively in lower price dynamics.

Higher foreign demand growth will then have a positive impact on acceleration of the export growth rate and in turn on industrial activity. However, thanks to the slowly declining import intensity of the supply side of the Czech economy, the higher export dynamics will also lead to high import dynamics. So the overall positive effect will be partially reduced. The higher dynamics for economic activity should be associated with higher demand for labour as well as higher labour productivity, which reduces the impact on employment growth. Thanks to lower raw material prices and lower foreign price dynamics, positive price and wage development can be expected.

Table 4.5: Macroeconomic effects of the optimistic scenario

		Year 2006	Year 2007	Year 2008	Year 2009	Year 2010
	Gross domestic product					
Consumption expenditures	volumes, y/y in %	4.4	6.5	4.3	4.8	4.4
Gross fixed capital formation	volumes, y/y in %	7.6	6.0	9.2	8.0	7.5
Government expenditures	volumes, y/y in %	1.1	-0.6	-0.4	-0.3	-0.5
Export of goods and services	volumes, y/y in %	15.9	13.3	12.2	13.5	13.9
Import of goods and serivces	volumes, y/y in %	15.2	14.0	12.9	12.8	12.7
Gross domestic product	volumes, y/y in %	6.4	6.0	5.3	5.6	5.9
	Labour market					
Total employment	y/y in %	1.7	1.5	1.2	0.6	0.4
Unemployment rate	in %	7.1	5.5	4.7	4.4	4.4
Wages and salaries	y/y in %	5.7	7.7	6.4	6.8	6.9
	Prices					
Consumer price index	y/y in %	2.1	2.3	3.7	1.9	1.8
Gross domestic product deflator	y/y in %	1.1	3.7	3.5	2.2	2.0
	Government sector					
Deficit	in % of GDP	-2.9	-3.4	-2.7	-2.4	-2.0
Debt	in % of GDP	30.1	30.3	30.0	29.5	29.0
	Other indicators					
PRIBOR 3M	in % p.a.	2.3	3.0	3.5	3.1	2.8
Current account	in % of GDP	-3.0	-2.4	-1.7	-0.4	1.4

Source: Ministry of Finance

Due to the moderate deceleration of inflation and an increase in GDP dynamics, there will only be insignificant changes in the volume of wages and salaries. Hence, the revenue increase for income taxes is actually negligible. In addition, with respect to the composition of economic growth, even the revenues from consumption (VAT and excise tax) have not significantly increased. The expenditure side of the budget assumes nominal rigidity of the expenditure frameworks, and for the given simulations, it has actually not changed.[11] The decline on the expenditure side of the budget is associated with a decline in debt service, which is affected by a lower level of nominal interest rates and lower expenditures for unemployment benefits. The optimistic scenario would lead to a slight improvement in general government finances.

Pessimistic scenario

With the pessimistic scenario, oil price developments would immediately cause the external imbalance to worsen. A secondary effect would be lower foreign demand dynamics, and on the contrary, faster foreign price growth. Lower foreign demand could be reflected in lower export performance and, in turn, lower GDP dynamics. Higher foreign price growth would put additional pressure on import price growth and production cost growth. In addition, higher price dynamics would prompt the acceleration of wage demands, which would cause production costs to increase again with an effect on prices. The central bank could then be expected to react with higher interest rates.

[11] *In reality, positive price development could also be connected to savings on the expenditure side of the budget (e.g. lower indexation of pensions, social benefits, etc.). However, this factor is not accounted for in our simulations, which could cause the deficit or debt to be overestimated in the specific scenario.*

Table 4.6: Macroeconomic effects of the pessimistic scenario

		Year 2006	Year 2007	Year 2008	Year 2009	Year 2010
Gross domestic product						
Consumption expenditures	volumes, y/y in %	**4.4**	**6.5**	**4.1**	**4.4**	**4.0**
Gross fixed capital formation	volumes, y/y in %	**7.6**	**6.0**	**8.9**	**7.6**	**6.9**
Government expenditures	volumes, y/y in %	**1.1**	**-0.6**	**-0.3**	**-0.2**	**-0.5**
Export of goods and services	volumes, y/y in %	**15.9**	**13.1**	**11.5**	**12.4**	**13.0**
Import of goods and serivces	volumes, y/y in %	**15.2**	**13.9**	**12.5**	**12.0**	**12.1**
Gross domestic product	volumes, y/y in %	**6.4**	**5.9**	**4.7**	**4.6**	**4.7**
Labour market						
Total employment	y/y in %	**1.7**	**1.5**	**1.1**	**0.4**	**0.1**
Unemployment rate	in %	**7.1**	**5.5**	**4.8**	**4.6**	**4.7**
Wages and salaries	y/y in %	**5.7**	**7.7**	**6.6**	**7.1**	**7.1**
Prices						
Consumer price index	y/y in %	**2.1**	**2.5**	**4.1**	**2.7**	**2.4**
Gross domestic product deflator	y/y in %	**1.1**	**3.3**	**2.8**	**2.5**	**2.4**
Government sector						
Deficit	in % of GDP	**-2.9**	**-3.5**	**-3.0**	**-2.9**	**-2.6**
Debt	in % of GDP	**30.1**	**30.5**	**30.6**	**30.9**	**31.1**
Other indicators						
PRIBOR 3M	in % p.a.	**2.3**	**3.0**	**3.7**	**3.5**	**3.3**
Current account	in % of GDP	**-3.0**	**-2.9**	**-2.9**	**-2.1**	**-0.5**

Source: Ministry of Finance

Higher inflation acceleration than deceleration of real variables (employment, GDP) causes certain tax revenues to increase, even in the pessimistic scenario. However, a higher inflation rate is associated with higher nominal interest rates and thus higher debt service costs. An increase in the drawdown of unemployment benefits would also occur.[12] With the pessimistic scenario, a deterioration in public finance performance could be expected.

[12] *In addition, it should be pointed out that a higher inflation rate in our scenario is not related to the additional indexation of old-age pensions or other social benefits. This simplification could cause the resulting rise in the deficit or public debt to be underestimated in the pessimistic scenario.*

Chart 4.1: GDP (y-o-y in %)

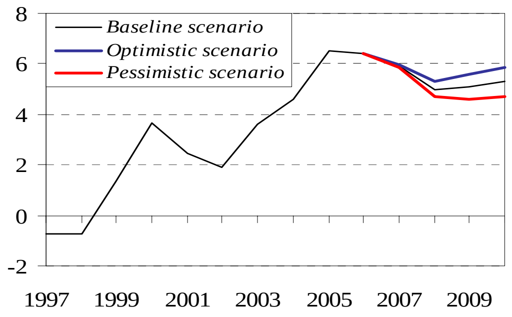


Chart 4.2: Unemployment rate (in %)

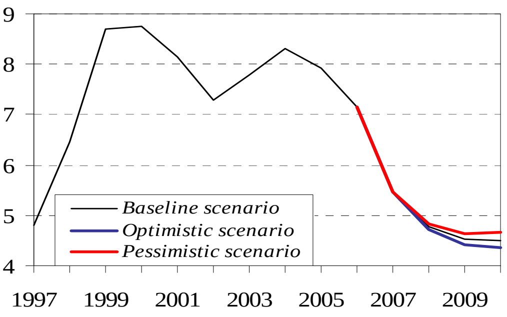


Chart 4.3: Current account (in % GDP)

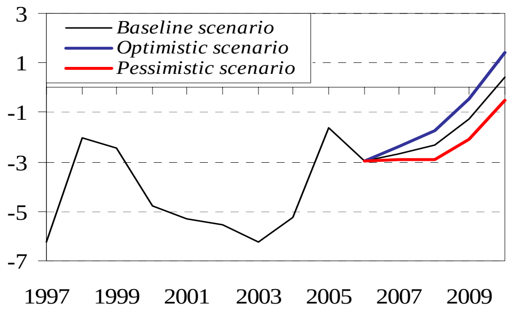
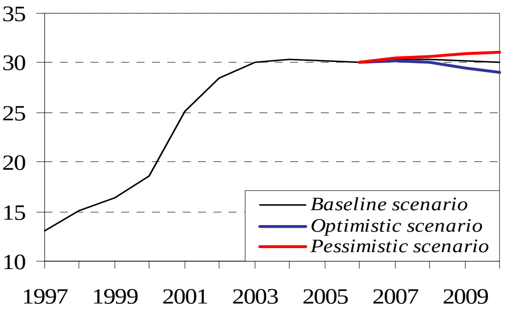


Chart 4.4: Government debt (in % GDP)



Source: Ministry of Finance