5 Comparison with the Previous Convergence Programme and Sensitivity Analysis

5.1 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.
- The timetables for the quarterly and yearly accounts were revised, relating in particular to the manner of expressing the financial intermediation services indirectly measured (FISIM).
- The figures for the annual national accounts for 2004 and the figures for the quarterly national accounts for Q1 and Q2 2005 were updated.
- The exogenous assumptions of the programme were slightly changed, especially for 2006.
- The estimate for the potential GDP growth rate was increased.

The differences between the expected development of the external environment in both programmes relate primarily to 2006. The assumptions of economic growth in the EU-25 and in Germany were increased. A change occurred in the price of oil where the anticipated USD price, according to the current forecast, is USD 7 higher than in the last CP. The differences in the USD/EUR exchange rate are relatively small in comparison. The assumptions for 2007 and 2008 are roughly in line with the previous CP.

	CP 2005		CP 2006			Difference		
2005	2006	2007	2005	2006	2007	2005	2006	2007
3,5	3,3	2,6	3,5	3,4	2,6	0,0	0,1	0,0
1,5	2,0	2,3	1,7	2,7	2,2	0,2	0,7	-0,1
1,0	1,4	1,1	0,9	2,2	1,4	-0,1	0,8	0,3
55,5	60,5	57,8	54,4	67,5	59,8	-1,1	7,0	2,0
1,26	1,24	1,24	1,24	1,25	1,26	-0,02	0,01	0,02
	2005 3,5 1,5 1,0 55,5	CP 2005 2005 2006 3,5 3,3 1,5 2,0 1,0 1,4 55,5 60,5 1,26 1,24	CP 2005 2007 2005 2006 2007 3,5 3,3 2,6 1,5 2,0 2,3 1,0 1,4 1,1 55,5 60,5 57,8 1,26 1,24 1,24	CP 2005 2005 2005 2005 3,5 3,3 2,6 3,5 1,5 2,0 2,3 1,7 1,0 1,4 1,1 0,9 55,5 60,5 57,8 54,4 1,26 1,24 1,24 1,24	CP 2005 CP 2006 2005 2006 2007 2005 2006 3,5 3,3 2,6 3,5 3,4 1,5 2,0 2,3 1,7 2,7 1,0 1,4 1,1 0,9 2,2 55,5 60,5 57,8 54,4 67,5 1,26 1,24 1,24 1,24 1,25	CP 2005 CP 2006 2005 2006 2007 2005 2006 2007 3,5 3,3 2,6 3,5 3,4 2,6 1,5 2,0 2,3 1,7 2,7 2,2 1,0 1,4 1,1 0,9 2,2 1,4 55,5 60,5 57,8 54,4 67,5 59,8 1,26 1,24 1,24 1,25 1,26	CP 2005 CP 2006 2007 2005 2006 2007 2005 3,5 3,3 2,6 3,5 3,4 2,6 0,0 1,5 2,0 2,3 1,7 2,7 2,2 0,2 1,0 1,4 1,1 0,9 2,2 1,4 -0,1 55,5 60,5 57,8 54,4 67,5 59,8 -1,1 1,26 1,24 1,24 1,25 1,26 -0,02	CP 2005 CP 2006 Difference 2005 2006 2007 2005 2006 2007 2005 2006 3,5 3,3 2,6 3,5 3,4 2,6 0,0 0,1 1,5 2,0 2,3 1,7 2,7 2,2 0,2 0,7 1,0 1,4 1,1 0,9 2,2 1,4 -0,1 0,8 55,5 60,5 57,8 54,4 67,5 59,8 -1,1 7,0 1,26 1,24 1,24 1,25 1,26 -0,02 0,01

Table 5.1: Assumptions of the scenario

Source: Ministry of Finance

Real GDP growth recorded for 2005 and the forecast for 2006 are substantially higher than in the previous programme. This was related to an adjustment in data for the first half of 2005 (up by 0.9 of a percentage point) and considerably higher investment activity in 2006. The consistency and composition of use caused an increase of 0.8 of a percentage point in the assumption for the potential GDP growth rate.

However, the more favourable macroeconomic situation has only a limited effect on general government finances. The rise in the nominal GDP growth rate is less than the real growth rate due to the influence of slower GDP deflator growth. From the standpoint of use, the change in the scenario has been concentrated in areas having only a small effect on tax

revenues (gross fixed capital formation, inventory changes), while the growth rate of consumption only moderately increases.

	CP 2005			CP 2006			Difference (p.p.)		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
	Growt	h in real	terms (ir	n %)					
GDP	4,8	4,4	4,2	6,1	6,0	4,9	1,3	1,6	0,7
Households consumption	2,3	3,5	3,6	2,3	3,9	4,2	0,0	0,4	0,6
Government consumption	-0,6	-0,2	-0,5	0,7	-1,0	0,5	1,3	-0,8	1,0
Gross fixed capital formation	2,8	3,4	4,8	3,6	6,5	7,8	0,8	3,1	3,0
Contribution of domestic demand (pp)	0,8	3,2	3,2	2,1	4,9	4,4	1,3	1,7	1,2
Contribution of foreign trade (pp)	4,0	1,2	1,0	4,0	1,1	0,5	0,0	-0,1	-0,5
Potential product	4,3	4,3	4,3	5,0	5,1	5,1	0,7	0,8	0,8
Output gap (%)	0,1	0,1	0,0	-0,1	0,9	0,7	-0,2	0,8	0,7
		Growth	(in %)						
HICP	1,5	2,2	2,0	1,6	2,4	2,6	0,1	0,2	0,6
GDP deflator	0,9	2,2	2,8	0,9	1,4	2,6	0,0	-0,8	-0,2
Employment	0,9	0,8	0,5	0,7	1,6	1,0	-0,2	0,8	0,5
Unemployment rate (level in %)	7,9	7,4	7,1	7,9	7,2	6,7	0,0	-0,2	-0,4
Exchange rate CZK/EUR (level)	29,8	29,2	28,7	29,8	28,4	28,0	0,0	-0,8	-0,7
Balance of goods and services (in % of GDP)	2,1	2,8	4,1	1,9	1,8	2,2	-0,2	-1,0	-1,9
Net lending/borrowing (in % of GDP)	-2,6	-2,2	-0,6	-3,3	-2,8	-1,4	-0,7	-0,6	-0,8

Table 5.2: Change in the indicators of the macroeconomic scenario

Source: Ministry of Finance

Higher energy and food prices and to a limited degree also a change in the view on the economy's cyclical position will result in slightly higher inflation, which, according to our estimates, should remain within the range of the CNB's inflation target. Improved current and future economic performance is also reflected in the basic labour market indicators – higher employment growth and a decline in unemployment. Higher prices of imported fuels and higher investment activity have an effect on reducing the expected results for foreign relations.

5.2 Comparison with the Fiscal Framework of the Previous Convergence Programme

From 2004 to 2006, the Czech Republic has succeeded in meeting the defined fiscal targets. Acceleration of economic growth and the favourable effects of tax changes have helped in reaching these targets. The fiscal outlook for the period 2007 to 2009 has worsened vis-à-vis the previous CP. Additional expenditures approved towards the end of 2005 and the beginning of 2006 have not yet been supplemented with appropriate austerity measures, and so the level of the general government deficit for 2007 and 2008 has shifted approximately 0.7 to 0.8 of a percentage point above the level expected a year ago.

Comparison of the assumptions on the government debt is complicated by the extensive revision carried out in April 2006. The level of debt was reduced at the beginning of 2003¹⁰ by the amount of the non-standard guarantee, i.e. 6.2% of GDP in 2003. The rise in the government debt will be slightly faster than was assumed in last year's CP as a result of the higher expected deficits. However, in addition to the deficit, the debt will also be affected by

¹⁰ See note 10, page 22.

revenues from the sale of financial assets, which will be used, as in the past, to finance a part of the deficit.

% of GDP	ESA code	Year	Year	Year	Year	Year
	LOA COUC	2005	2006	2007	2008	2009
			(1)	(2)	(2)	(2)
	GDP growth					
Previous update		4,8	4,4	4,2	4,3	
Latest update		6,1	6,0	4,9	4,8	4,8
Difference		1,3	1,6	0,7	0,5	
	Actual budget bala	ance				
Previous update	EDP B.9	-4,8	-3,8	-3,3	-2,7	
Latest update	EDP B.9	-3,6	-3,5	-4,0	-3,5	-3,2
Difference		1,2	0,3	-0,7	-0,8	•
	Gross debt levels	s ^(a)				
Previous update		37,4	37,1	37,9	37,8	
Latest update		30,4	30,6	30,5	31,3	32,2
Difference		х	х	х	х	

Table 5.3: Comparison with the previous Convergence Programme

(a) Due to the extensive statistical revision of the gross debt, the figures in the current CP and the previous CP are not comparable.

(1) Estimate

(2) Outlook

Source: Ministry of Finance

5.3 Sensitivity Analysis

The Czech economy is small and open, and to a large degree, dependent on raw materials. In this respect, the prices of mineral resources can be seen as a substantial risk factor for Czech economic development¹¹. Therefore, the sensitivity analysis presented in this section is based primarily on various scenarios of oil price development and related variables. The adverse development of raw material prices, however, does not only have a negative effect on the Czech economy, but it will most likely affect economic development throughout the European Union as well¹². We have, therefore, decided to supplement the sensitivity analysis with two secondary effects, i.e. the effect of foreign demand and foreign inflation¹³.

We have decided to test the sensitivity of the Czech economy in relation to various developments of the above factors 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

¹¹ 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. The model is generated by approximately 20 stochastic equations and 50 identities. This model is a standard Keynesian model supplemented with a neoclassical supply side.

¹² In our case, we have focused exclusively on the probable impact of oil price fluctuations on the economy of the European Union, our largest trade partner. 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.

¹³ In view of the very uncertain development of mineral resource prices, we have decided to specify the symmetric simulation scenarios. We would like to add that the results of the asymmetric scenarios were presented in previous CPs.

contrary, a lower growth rate for foreign industrial prices. On the other hand, the pessimistic scenario is derived from the assumptions of a higher oil price, lower foreign demand dynamics and acceleration of foreign inflation.

	-					
		Year	Year	Year	Year	Year
		2005	2006	2007	2008	2009
	UK Brent					
Optimistic	USD/barrel		62,5	49,8	45,0	42,0
Baseline	USD/barrel	54,4	67,5	59,8	55,0	52,0
Pessimistic	USD/barrel		72,5	69,8	65,0	62,0
	GDP EU 15					
Optimistic	y/y in %		2,8	2,5	2,6	2,5
Baseline	y/y in %	1,5	2,6	2,1	2,3	2,4
Pessimistic	y/y in %		2,4	1,8	2,1	2,3
	PPI EU 15					
Optimistic	y/y in %		3,2	2,9	3,4	3,7
Baseline	y/y in %	3,0	3,9	3,9	3,9	3,9
Pessimistic	y/y in %		4,6	4,9	4,4	4,1

Table 5.4: Scenario of exogenous variables

Source: Ministry of Finance

Optimistic scenario

The settings of the above 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 40 per barrel, we can expect in 2009 a very substantial improvement in the external imbalance measured by the balance of payments current account. A lower price for oil has a very positive income effect. Thanks to the relatively high and, in particular, unchanged energy demands of the Czech economy, firms reduce their production costs, which is reflected positively in lower price dynamics as well as wider profit margins.

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. Thanks to lower raw material prices and lower foreign price dynamics, relatively positive price and wage development can be expected. Inflation and economic activity (or the output gap) will show contradictory development, however, lower interest rates than in the baseline scenario can be expected with the current settings of the central bank's reaction function¹⁴.

¹⁴ We assume that the CNB is more sensitive to inflation developments than to output gap developments. This fact is incorporated into the central bank's reaction function, and therefore, it is more significantly affected by deviations in inflation than in the output gap.

		Year	Year	Year	Year	Year
		2005	2006	2007	2008	2009
	Gross domestic product					
Consumption expenditures	volumes, y/y in %	2,3	3,9	4,3	4,2	4,3
Gross fixed capital formation	volumes, y/y in %	3,6	6,5	7,9	8,1	8,3
Government expenditures	volumes, y/y in %	0,7	-1,0	0,4	-0,4	-0,3
Export of goods and services	volumes, y/y in %	10,6	12,8	11,0	11,0	10,9
Import of goods and serivces	volumes, y/y in %	4,9	11,5	10,5	10,2	10,1
Gross domestic product	volumes, y/y in %	6,1	6,1	5,1	5,2	5,4
	Labour market					
Total employment	y/y in %	1,2	1,6	1,0	0,6	0,3
Unemployment rate	in %	7,9	7,2	6,7	6,4	6,3
Wages and salaries	y/y in %	6,6	7,7	7,7	7,4	7,2
	Prices					
Consumer price index	y/y in %	1,9	2,8	2,8	2,5	2,6
Gross domestic product deflator	y/y in %	0,9	1,6	3,0	2,7	2,6
	Public budget					
Deficit	in % of GDP	-3,6	-3,4	-3,9	-3,3	-2,9
Debt	in % of GDP	30,4	30,5	30,2	30,5	31,1
	Other indicators					
PRIBOR 3M	in %	2,0	2,3	2,7	2,7	2,8
Current account	in % of GDP	-2,1	-3,2	-1,6	-0,7	0,2

Table 5.5: Macroeconomic effects of the optimistic scenario

Source: Ministry of Finance

Thanks to the expected moderate deceleration of inflation and an increase in GDP dynamics, there will only be unsubstantial changes in the nominal volume of wages and salaries. Hence, the revenue increase for income taxes in our scenario is actually negligible. In addition, with respect to the composition of economic growth, even the revenues from consumption (VAT and excise tax) have not really increased. The expenditure side of the budget assumes nominal rigidity of the expenditure frameworks, and for the given simulations, it has actually not changed¹⁵. 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 certain level of improvement in general government finances.

Pessimistic scenario

In view of energy demands and raw material dependency, an immediate impact on the external imbalance would be observed should the pessimistic oil price scenario occur. This fact would cause production costs to rise and in turn affect the price block.

¹⁵ 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.

		Year	Year	Year	Year	Year
		2005	2006	2007	2008	2009
	Gross domestic product					
Consumption expenditures	volumes, y/y in %	2,3	3,9	4,2	4,0	3,9
Gross fixed capital formation	volumes, y/y in %	3,6	6,5	7,7	7,7	7,7
Government expenditures	volumes, y/y in %	0,7	-1,0	0,6	-0,2	-0,3
Export of goods and services	volumes, y/y in %	10,6	12,6	10,2	9,5	9,9
Import of goods and serivces	volumes, y/y in %	4,9	11,4	10,0	9,0	9,3
Gross domestic product	volumes, y/y in %	6,1	6,0	4,7	4,4	4,3
	Labour market					
Total employment	y/y in %	1,2	1,6	0,9	0,4	0,1
Unemployment rate	in %	7,9	7,2	6,8	6,6	6,6
Wages and salaries	y/y in %	6,6	7,7	7,9	7,8	7,4
	Prices					
Consumer price index	y/y in %	1,9	2,9	3,2	3,2	3,2
Gross domestic product deflator	y/y in %	0,9	1,2	2,2	3,0	3,1
	Public budget					
Deficit	in % of GDP	-3,6	-3,6	-4,2	-3,7	-3,5
Debt	in % of GDP	30,4	30,7	30,8	32,1	33,3
	Other indicators					
PRIBOR 3M	in %	2,0	2,3	3,0	3,2	3,3
Current account	in % of GDP	-2,1	-3,7	-3,2	-2,7	-2,2

Table 5.6: Macroeconomic effects of the pessimistic scenario

Source: Ministry of Finance

A secondary effect of high oil prices would be lower foreign demand dynamics, and on the contrary, faster foreign price growth. Lower foreign demand would 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. Efforts to cope with inflation pressures are expected to exceed interest in economic growth, and the central bank would then resort to higher interest rates. Together with lower corporate profitability it will depress investment activity, which will cause both actual economic performance and potential GDP to deteriorate further. Lower economic activity will be connected with lower demand for labour resulting in a slight increase in the unemployment rate.

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 occur¹⁶. With the pessimistic scenario, deterioration of public finance performance could be expected.

¹⁶ In addition, it should be pointed out that a higher inflation rate in our scenario is not related to 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.

