# Medium-term forecast

***(P2Q-2005)***

**Introduction**

In accordance with the Monetary Programme of the NBS until 2008 the National Bank of Slovakia will replace the Monetary Programmes published to date by medium-term forecasts, which the NBS shall issue on a quarterly basis. These medium-term forecasts shall primarily be based on the results of the quarterly projection model, the characteristics and structure of which have been published[1]. In brief however, it may be said that it is an inflation model, the basic purpose of which is to set, using the identified transmission mechanism, monetary policy instruments so that an inflation target is met within a certain time horizon while minimising a possible negative impact on the real economy.

The medium-term forecast result itself is preceded by setting exogenous variables and estimating values and trajectories in the development of equilibrium variables. Another important factor is the estimation of the current state of the economy within the cycle.

The aim of the medium-term forecast is to provide a consistent and comprehensive view of macroeconomic development in the coming years. Such picture should help the central bank to implement its monetary policy in order to meet the inflation targets.

The model simulation is based on the assumption of active monetary policy aimed at achieving a target level of inflation. Active monetary policy in this sense is understood to mean that the central bank changes the monetary policy setting by means of a change in short-term interest rates in the event of a deviation of forecast inflation from a pre-set target, or an estimated output gap as a possible indicator of future inflationary pressures.

The medium-term forecast focuses primarily on evaluating the period relevant for the monetary policy conduct, i.e. that period when we can expect the most significant influence of monetary policy on the economy. With regard to the fact that the estimated transmission of monetary policy is four to six quarters, the forecast for the period 2007-2008 should be considered as indicative. Therefore, this text will cover the period of the following two years in the field of the main economic indicators, while however the table in the annex will present a more detailed outlook, also until 2008.

The medium-term forecasts will be discussed by the Bank Board of the NBS along with the Monetary Surveys and will be published as a rule at the end of January, April, July and October on the NBS website[2]. The tabular annexes to the April and October forecasts will be more extensive.

**Equilibrium variables, development of the potential output**

[1] The banking journal BIATEC No. 4/2005: Gavura, Reľovský, "A Simple Model of the Transmission Mechanism of Slovakia's Economy, its Structure and Properties" and the NBS website at Publications/Other NBS Documents/Monetary Policy related Publications
[2] The NBS website at Monetary Policy/Medium-term Forecast

Identifying trajectories in the development of equilibrium variables is an important input factor of the presented medium-term forecast. They are important for the evaluation of the monetary policy conditions, (i.e. the interest rate and exchange rate components).

The model simulation is based on an assumption of the long-term real convergence of the Slovak economy. For this reason it presumes a long-term trend of growth in the potential output, a real equilibrium exchange rate appreciation and gradual convergence of real equilibrium interest rates towards those estimated for the euro area. Due to the expected commencement of production at two significant investment sites – PSA and KIA – acceleration in the potential output growth is forecast for 2006 through 2008.

The premise of real equilibrium exchange rate appreciation is based on meeting the prerequisites of both internal and external equilibrium. In other words, in the conditions of a faster growing economy with a higher labour productivity growth, room is created for the real exchange rate appreciation without the emergence of macro-economic imbalances. The current development of the exchange rate is then evaluated in relation to the level of the estimated equilibrium.

**Current position of the economy**

Over the course of 2004 a gradual recovery was seen in all components of GDP, in particular in final consumption of households and gross investment formation. The dynamic growth in domestic demand reflected the growth in real wages (higher than NBS expectations), the reduction in direct taxes, the influence of foreign direct investment, as well as the development of monetary conditions. The continuing trend of GDP growth in 2004, in particular in the last quarter, was reflected in a gradual closing of the output gap. In the first quarter of 2005 we expect a slight slowdown in GDP growth, in consequence of which the closing of the output gap will stop at the level of -0.6%.

Over the course of 2004 a gradual loosening of real monetary conditions (the RMCI) occurred, which was related to the NBS interest rate cuts, as well as to the stabilised development of the exchange rate in particular in the third quarter of 2004. Overall the setting and effect of monetary policy in 2004 maybe viewed as being from slightly restrictive to neutral, where this was caused by a loosening of the interest rate component for the purpose of eliminating the restrictive effect of the exchange rate component of monetary conditions. In consequence of the faster than equilibrium appreciation of the exchange rate in 2004, the NBS reduced the base rate by 2 percentage points. At the same time the NBS intervened on the foreign exchange market with a view to dampening the exchange rate's rapid appreciation against the reference currency, the euro.

With regard to the fact that the appreciation of the nominal exchange rate began to accelerate only in the last month of 2004, the restrictive effect of the exchange rate component may appear over the course of 2005. As a result, monetary conditions, despite the reduction in NBS interest rates in the first months of the year, will again become restrictive. This will influence the development of the output gap in the coming period.

The development of monetary conditions, where the loosened interest rate component compensated for the restrictive exchange rate component, created room for the economic growth without inflationary pressures in 2004 and in the first quarter of 2005 (on the basis of NBS estimates), as well as for a gradual closing of the output gap. Given the estimated negative output gap in 2004 and in the first quarter of 2005, there were not and are not present any demand-side pressures on the price level. In comparison with the programmed level, the development of inflation in 2004 remained in the lower part of the corridor, where this was influenced both by the exchange rate appreciation, as well as growing competition in the retail sector, primarily in foodstuffs. The effect of these factors also continued in the first months of this year, as seen by the decrease in price growth.

From the above it is clear that the conduct of monetary policy and the NBS's decisions on interest rate cuts in 2004 and at the beginning of 2005, together with the central bank's efforts to slow the exchange rate appreciation, were adequate to macroeconomic development. This means that the central bank loosened monetary policy in order to avoid an unreasonably rapid fall in the inflation rate through undermining the economic growth.

The current position of the economy implies that the macroeconomic prediction for 2005 will be influenced by the restrictive effect of the exchange rate component (in consequence of its significant nominal appreciation in December 2004 and in the first two months of 2005), which will affect the pace at which the output gap is closed, since the exchange rate represents the strongest transmission channel.

**External environment**

The forecast of the external environment is based on the Consensus Forecasts (a survey of forecasts of international economic and financial institutions, from which an average is calculated). This method ensures the most unbiased estimate of the development of the relevant indicators of the foreign sector. The current prediction is based on the March publication of the Consensus Forecasts[3]. The development of oil prices, which represents a direct influence on the development of domestic prices, is based on the March spot rates of oil on world markets and futures until the end of 2008.

| | 2005 | 2006 |
|---|---|---|
| **Euro area inflation (%)** | | |
| CF 03/05 (annual average) | 1.8 | 1.7 |
| **GDP euro area (%)** | 1.6 | 2.0 |
| CF 03/05 | | |
| **Exchange rate USD/EUR** | 1.33 | 1.32 |
| CF 03/05* | | |
| **Oil prices USD/b** | 51.4 | 48.1 |
| March 2005 | | |
| | | |

*exchange rate in the 1st quarter of the following year (i.e. Q1 2006 and Q1 2007)

In comparison with the forecast for the external environment, published in the Monetary Programme until 2008, there has been a slight slowdown in the estimated growth of the euro area economy. As a result, in 2005 the output gap should slightly widen with subsequent moderation in the price development. The modest recovery in the economic

[3] With regard to the course and schedule of forecasts in the NBS, projections of external environment were taken from the Consensus Forecasts of March 2005 and fixed on the basis of these levels throughout the course of the whole forecasting process. All new items of information will be taken into account in future medium-term forecasts.

activity in the euro area in 2006 should not significantly affect the closing of the output gap. Euro area inflation in 2006 is expected to be below 2%.

In comparison with the Monetary Programme, the current forecast is based on the assumption of the significantly appreciated USD/EUR exchange rate. The expected level of oil prices throughout the whole forecast period has increased, though a falling trend is still expected to continue.

The gradual acceleration of economic growth in the euro area after 2005 should have a favourable effect on Slovakia's export performance. With regard to the expected development of euro area inflation, import prices should not represent any significant impulse to price development in Slovakia over the forecast period. Despite the increased estimate of the level of oil prices in comparison with that considered in the Monetary Programme until 2008 (the difference results primarily from the growth in oil prices in the fourth quarter of 2004 and the first quarter of 2005, while they should gradually fall in the subsequent period), oil prices are expected to follow a declining trend and thus should not have within the medium term a negative impact on price growth. The forecast development of the USD/EUR exchange rate should then have a neutral effect on domestic price development.

**Medium-term forecast**

The state of the economy in 2004, the prediction of the external environment, taken from the Consensus Forecasts, and the estimated equilibrium trajectory of the exchange rate, interest rates and potential output, form the springboard for the medium-term model forecast.

**Forecast for 2005 and 2006**

GDP growth is expected to be close to the forecast presented in the Monetary Programme until 2008. Domestic demand will continue to drive economic growth. The most dynamic growth should be seen in the gross fixed capital formation, due primarily to expected foreign direct investments in the automotive industry, which should result in the worsening of trade balance. As production commences at these foreign direct investment sites, from the second quarter of 2006 the GDP growth should begin to accelerate significantly.

Although the Monetary Programme forecast in the field of nominal wage development is unchanged, with regard to the falling inflation rate, higher growth in real wages in 2005 is highly probable. At the same time preliminary data from the first months of this year indicate that nominal wages will also have a higher rate of growth than that forecast in the Monetary Programme until 2008. However, we are aware that this fact, as well as subsequent impacts on the real economy, should be confirmed on the basis of quarterly figures and over a longer time period, for example in the trade balance. For this reason (i.e. on the basis of faster real wage growth influenced by lower price dynamics), final consumption of households should record faster growth compared to that expected in the Monetary Programme until 2008. This should reflect itself primarily in the development of trade balance, in a slightly higher deficit. In nominal terms the deficit of trade balance will be worsened also through the effect of higher oil prices.

Overall GDP growth in 2005-2006 will be stimulated also by higher estimated final consumption of government, where, based on adjusted basic framework of the general government budget for the years 2006-2008, we can expect increased expenditure by municipalities and the Social Insurance Company.

With regard to the fact that higher domestic demand will be offset by the worsening of trade balance of goods and services, the overall GDP growth is unlikely to differ from that in the Monetary Programme until 2008. In connection with the restrictive effect of the exchange rate component and overall monetary conditions prevailing from the first quarter of 2005, as well as in connection with the slowdown in the year-on-year GDP growth in 2005 and in the first quarters of 2006, the negative output gap should first widen and subsequently stabilise at -0.9%.

In the first two months of 2005 consumer prices continued to show a slowing trend in their year-on-year dynamics.

At the end of 2004 and in the first months of 2005 consumer prices were influenced primarily by prices of foodstuffs and tradable goods excluding fuels, as well as by prices of fuels, in the case of which a slowdown in a year-on-year growth, or an acceleration in a year-on-year decline, was recorded (under the influence of the exchange rate appreciation, expanding competition, as well as the situation on international oil markets).

In comparison with the inflation target for 2005 in the Monetary Programme until 2008, which was set at 3.5 percent ±0.5 percentage points, the predicted level of inflation was achieved at a level below the lower margin. We expect that growth in the price level will be considerably dampened by the continuing influence of low imported inflation, the slowdown in energy price growth (oil) and competition on the retail market. These factors should be reflected primarily in prices of foodstuffs and tradable goods, which should both record a year-on-year decline.

In the first quarter of 2006 we should see a fall in the inflation rate, in consequence of the slower growth in regulated prices. This factor will also compensate for the pro-growth influence on the price level due to the increase in indirect taxes (the Monetary Programme until 2008 was drawn up with the expectation of these changes occurring in 2007 and 2008). The current forecast is based on the basic framework of the general government budget for the years 2006-2008, which expects an increase in excise duty on cigarettes to the level of SKK 1.70 per cigarette (from the current level of SKK 1.40 per cigarette), which should represent a contribution to the year-on-year rate of headline inflation of 0.24 percentage points. In 2006 a slowdown in price growth is forecast in almost all components of the consumer basket. In comparison with 2005, a decline in the prices of fuels and foodstuffs should slow.

In the last quarter of 2006 inflation will, particularly under the influence of the base effect of foodstuff prices, start to increase and approach its target. This development may influence the monetary policy setting already this year. The monetary policy response in the coming months will thus begin to influence more the period of the following year. Therefore, over the coming period the Bank Board, within the monetary policy decision-making process, will pay increasing regard to expected development in 2006, and more specifically to the gradual approaching of predicted inflation to its target (i.e. 2.5%), as well as to the expected development of real wages.

In the conduct of monetary policy in the field of interest rates the NBS must also take into consideration the development of the exchange rate component of monetary conditions, since the exchange rate represents the strongest and fastest transmission channel. Even despite the fact that the exchange rate development changed at the end of March and its appreciation slowed, even halted in the following month, the course of its appreciation over the preceding months was so strong that the restrictive effect of the exchange rate will continue to persist. At the same time we expect that the development of the exchange rate in 2006 will, in comparison with equilibrium appreciation, be slightly slower. The exchange rate component will thereby not deepen, but mitigate its restrictive effect. The expected trajectory of the exchange rate is based on the assumption that over the longer term the economy and individual indicators will return to equilibrium.

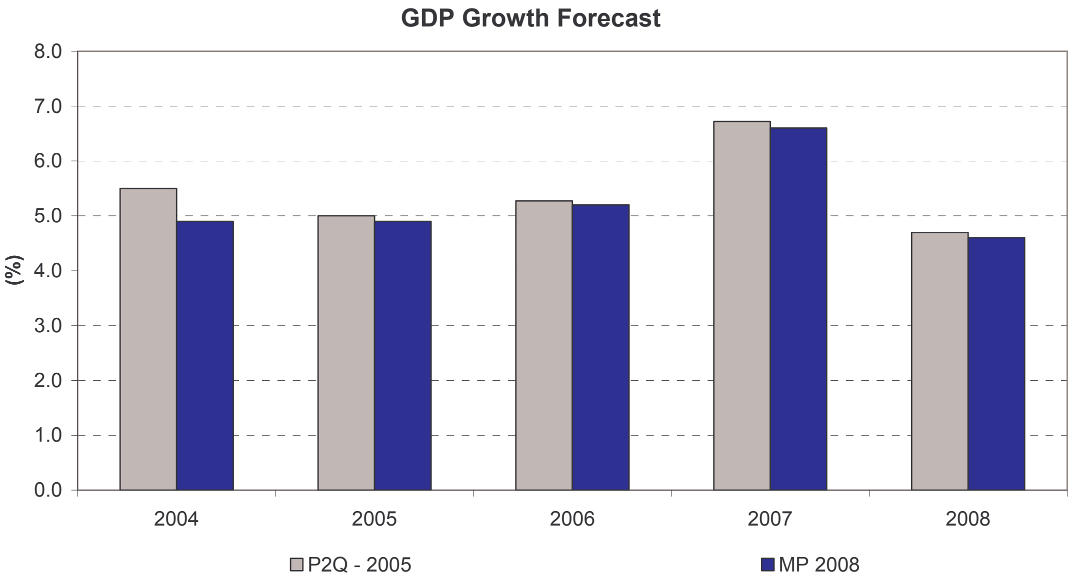
After taking account of this factor and of the predicted course of inflation in 2006, where it is necessary to take into consideration also the increase in the weight of market services in the consumer basket, as well as after considering indications concerning a further possible acceleration of real wages especially this year, the setting of monetary conditions should be rather restrictive. This means, ceteris paribus, that the NBS should not significantly loosen the interest rate component.

This is also connected with potential risks in the development of prices, including in particular oil and gas prices, which alongside fuels would also be reflected in the development of regulated prices. Growing world demand for oil, mainly in countries with rapid economic growth (China, India), and the unclear position of oil-exporting countries as regards the possible growth in crude oil output may lead to a growth in oil prices. Political and economic instability in producer countries (Venezuela, Nigeria, Iraq, Russia) may likewise complicate the situation on the oil market. Foodstuff prices also represent a risk, where the course of their development will depend on seasonal influences, continuation in the reform of the Common Agricultural Policy and progress in liberalising world trade in food products. A risk in the form of demand-side pressures may also result from inadequate wage growth greatly exceeding NBS expectations. On the other hand, a more significant appreciation of the exchange rate compared to its forecast may result in a stronger decline in tradable goods prices, which may shift the headline inflation to even lower levels.

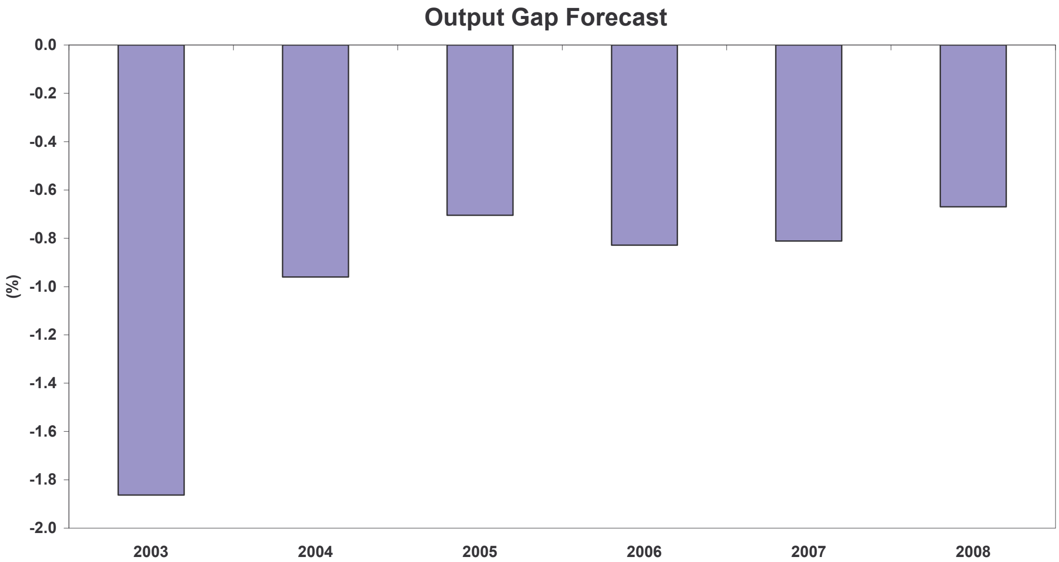
**Medium-term forecast (years 2007 and 2008)**

In connection with the inflow of foreign direct investment we expect the Slovak economy's faster real convergence in the medium term, based on growth in the economy's competitiveness and potential. The real growth of the economy should be driven by both domestic and foreign demand.

Foreign trade will influence the development of GDP over the medium term in two ways. In 2007 the net export in connection with the expected commencement of production at PSA and Kia-Hyundai should significantly contribute to GDP growth. The strong growth of production and exports is not expected to continue in 2008, which will result in a slowdown of GDP growth through a decline in net export contribution.

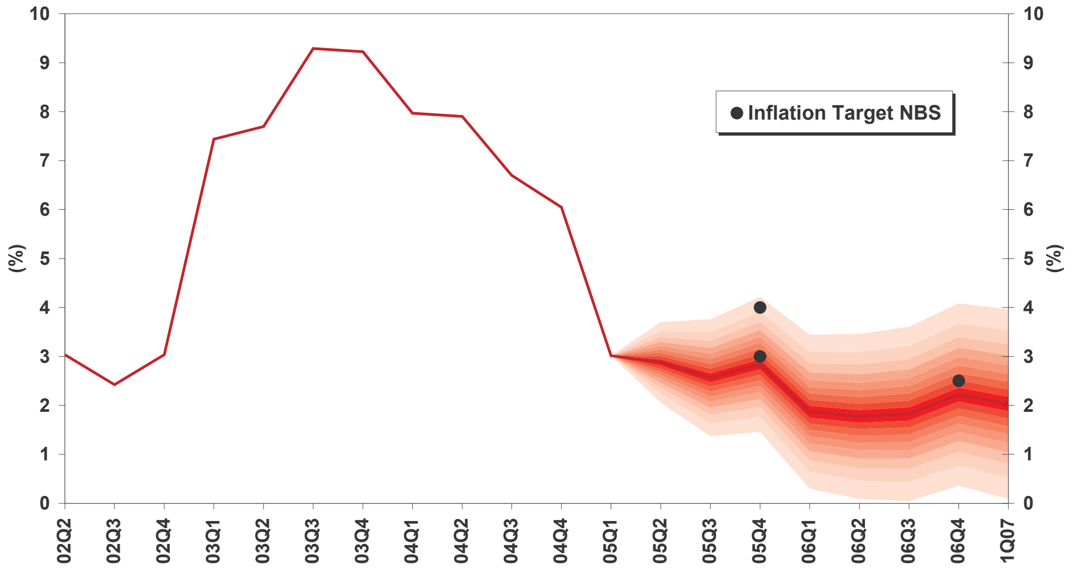



With regard to the dynamic growth of the real economy, the negative output gap will gradually close.




In the field of price development from 2006 onwards we do not expect significant adjustments to regulated prices, whereby the trajectories of headline and core inflation should converge. At the same time there should be no swings in the development of prices as happened in previous years, under both the influence of regulated prices and indirect taxes. Inflation should move around the set inflation target (i.e. around 2%). Consumer prices will be influenced on the one hand by rising foodstuff prices, while on the other hand these consumer prices will be dampened by slow growth in fuel prices and a low level of net inflation excluding fuels.

As there are some uncertainties connected with inflation forecast, the chart below represents one of the possibilities of the presentation of the medium-term inflation forecast together with its possible risks, depicting the projected probability distribution of its prediction (a fan chart).




The chart above broadens the point forecast by an estimate of the degree of uncertainty and prediction risk, where these are represented by the width of the interval. The darkest part of the chart represents the most probable development of inflation for the given period, i.e. the point forecast. The progressively spreading fan depicts the growth in risks of the central projection, highlighting the fact that the degree of uncertainty increases over time. Each two equally shaded bands (above and below the central projection) represent the widening of the interval for the inflation prediction corresponding to an increase in confidence in the prediction of 10% against the preceding interval. These are termed confidence intervals. The last two bands represent the increase in confidence to the 90%, meaning that by the end of 2006 inflation will fall to the 0.2%-4% interval with 90% probability, while it is most likely to be around 2%[4].

The NBS expects that the development of the exchange rate will not differ, or be more moderate compared to the equilibrium level, since the NBS is not aware of any reasons or indices why the exchange rate should deviate over the long term from its equilibrium. As a result of this, the restriction of the exchange rate component of monetary conditions should be mitigated throughout the whole medium-term period (from the second half of 2006). In connection with this and with regard to the predicted development of inflation, the interest rate component should, conversely, decrease its loosening, moving towards a neutral effect in 2008. Monetary conditions should, however, throughout the period remain moderately restrictive so as to avoid the complete closing of the output gap, which relates to an ambitious inflation target set for 2007 and 2008. The negative output gap is however minimal and, given the projected growth in GDP and real wages, the expected restriction of monetary conditions is not limiting for, or harmful to, macroeconomic development

At the same time the Bank Board of the NBS has also discussed alternative scenarios for the medium-term forecast, namely potentially higher oil prices compared to the assumptions for the medium-term forecast. An increase in oil prices in the medium term to

[4] More detailed information can be found in BIATEC No. 5/2005

almost double the price assumed in the forecast would influence inflation in a pro-growth manner from as early as 2005. In the event of such a development the NBS would have to consider tightening monetary conditions, which would be subsequently reflected in a slowdown in the economic growth. The intensity of such monetary conditions tightening would take into account compliance with the inflation target as well as the defined escape clauses.

**Medium-term forecast (P2Q 2005) of main economic indicators**

| Indicator | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|
| | Actual | Forecast | | | |
| **Prices (y-o-y change)** | | | | | |
| HICP inflation (average) | 7,4 | 2,7 | 1,9 | 2,0 | 1,9 |
| CPI inflation (average) | 7,5 | 2,8 | 1,9 | 2,0 | 2,0 |
| PPI (average) | 3,4 | 2,6 | 1,3 | 1,3 | 1,2 |
| **GDP (y-o-y change)** | | | | | |
| **Nominal GDP** | **10,3** | **7,6** | **6,9** | **8,3** | **6,4** |
| Domestic demand | 10,9 | 9,8 | 6,8 | 5,1 | 6,0 |
| Final consumption of households | 10,7 | 7,5 | 6,5 | 6,5 | 6,3 |
| Final consumption of general government | 7,4 | 5,5 | 5,2 | 4,2 | 3,8 |
| Final consumption of non-profit institutions | 12,4 | 11,0 | 8,3 | 7,0 | 7,0 |
| Gross fixed capital formation | 6,1 | 12,5 | 10,5 | 7,0 | 5,0 |
| Exports of goods and services | 9,1 | 6,2 | 6,6 | 12,8 | 7,4 |
| Imports of goods and services | 10,8 | 8,7 | 6,5 | 8,3 | 6,9 |
| Real GDP | **5,5** | **5,0** | **5,3** | **6,7** | **4,7** |
| Domestic demand | 5,5 | 6,7 | 3,9 | 1,7 | 3,8 |
| Final consumption of households | 3,5 | 5,1 | 4,7 | 4,9 | 4,7 |
| Final consumption of general government | 1,2 | 3,0 | 3,2 | 2,4 | 2,0 |
| Final consumption of non-profit institutions | 5,8 | 8,3 | 6,5 | 5,0 | 5,0 |
| Gross fixed capital formation | 2,5 | 8,3 | 8,6 | 5,5 | 4,0 |
| Exports of goods and services | 11,4 | 10,1 | 8,8 | 14,5 | 8,7 |
| Imports of goods and services | 12,7 | 10,9 | 7,5 | 10,0 | 8,1 |
| **Labour market** | | | | | |
| Nominal wages (average, y-o-y change) | 10,2 | 6,5 | 5,3 | 5,2 | 5,2 |
| Real wages (average, y-o-y change) | 2,5 | 3,6 | 3,4 | 3,1 | 3,1 |
| Compensation per employee (ESA 95, curr.p., y-o-y change) | 10,8 | 7,2 | 6,5 | 6,5 | 5,9 |
| Real disposable household income (y-o-y change) | 3,0 | 5,0 | 4,6 | 4,7 | 4,4 |
| Household saving ratio (% of disposable income) | 6,2 | 5,9 | 5,8 | 5,6 | 5,5 |
| Employment (LFS) | 0,3 | 0,6 | 0,7 | 0,8 | 0,6 |
| Employment (registered employment) | 0,3 | 0,7 | 0,8 | 0,9 | 0,7 |
| Employment (ESA 95) | -0,3 | 0,5 | 0,6 | 0,7 | 0,4 |
| Unemployment rate (LFS, %) | 18,1 | 17,1 | 16,5 | 15,5 | 15,0 |
| Labour productivity (Real GDP/Employment, y-o-y change) | 5,2 | 4,3 | 4,5 | 5,7 | 4,0 |
| Labour productivity ESA 95 (Real GDP /Employment ESA 95, y-o-y change) | 5,8 | 4,5 | 4,6 | 6,0 | 4,2 |
| ULC (Compensation per employee curr.p./ Labour productivity ESA 95 const.p., y-o-y change) | 4,7 | 2,7 | 1,8 | 0,5 | 1,6 |
| **Balance of payments** | | | | | |
| Import of goods | 14,0 | 8,2 | 7,0 | 9,0 | 7,5 |
| Export of goods | 11,5 | 5,8 | 7,1 | 14,2 | 8,0 |
| Trade balance (bil. Sk) | -47,0 | -72,4 | -76,0 | -30,9 | -26,7 |
| Trade balance (% GDP) | -3,5 | -5,1 | -5,0 | -1,9 | -1,5 |
| Balance of services (bil. Sk) | 8,6 | 10,0 | 10,5 | 10,8 | 11,0 |
| Balance of services (% GDP) | 0,6 | 0,7 | 0,7 | 0,7 | 0,6 |
| Income balance and current transfers (bil. Sk) | -7,6 | -29,4 | -27,4 | -30,4 | -32,5 |
| Income balance and current transfers (% GDP) | -0,6 | -2,1 | -1,8 | -1,8 | -1,9 |
| Current account (bil. Sk) | -46,0 | -91,8 | -92,9 | -50,5 | -48,2 |
| Current account (% GDP) | -3,5 | -6,4 | -6,1 | -3,1 | -2,7 |
| Current and capital account (bil. Sk) | -41,6 | -84,8 | -85,9 | -43,5 | -42,2 |
| Current and capital account (% GDP) | -3,1 | -5,9 | -5,6 | -2,6 | -2,4 |
| FDI inflow (bil. USD) | 27,1 | 121,0 | 138,5 | 86,7 | 86,1 |
| FDI inflow (% GDP) | 2,0 | 8,5 | 9,1 | 5,3 | 4,9 |
| Portfolio investment (bil. Sk) | 9,3 | 9,6 | 5,9 | -8,2 | -8,5 |
| Portfolio investment (% GDP) | 0,7 | 0,7 | 0,4 | -0,5 | -0,5 |
| Other long.term investment (bil. Sk) | 24,1 | -38,9 | -11,6 | -1,9 | 0,6 |
| Other short-term invsetment (bil. Sk) | 38,3 | 117,6 | 3,4 | -10,4 | -10,8 |
| Financial account (bil. Sk) | 97,7 | 208,3 | 135,1 | 63,7 | 64,9 |
| Financial account (% GDP) | 7,4 | 14,6 | 8,9 | 3,9 | 3,7 |