



The process of creating a medium-term prediction at the NBS and basic features of the current prediction MTF-2009Q2

The aim of this article is to shed some light on the basic characteristics of the prediction process at the NBS, which had to be harmonized with the prediction process used at the Eurosystem level at the European Central Bank, both to the professional and to the general public. The second part provides a short presentation of the recent NBS medium-term forecast (MTF-2009Q2).

1 ECB: A Guide To Eurosystem Staff Macroeconomic Projection Exercises, June 2001.

THE FORECASTING PROCESS WITHIN THE EUROSISTEM

By Slovakia's accession to the euro area, the NBS has become a member of the Eurosystem and, as its full member; it participates in all activities and processes within the ECB. That includes the participation of the NBS in the forecasting process. The forecasting process within the ECB is represented by four predictions, which are drawn up on a quarterly basis. Twice a year (in June and December) all central banks of the Eurosystem take part in the preparation of a common prediction of the macroeconomic development within a process called "Eurosystem staff macroeconomic projections for the euro area". The other two predictions (March and September) are the result of the prediction process of ECB employees, the so-called "ECB staff macroeconomic projections for the euro area". Predictions of the macroeconomic development include a prediction of the HICP, of the real GDP growth and its components in the medium run (a two year period). The predictions are also an appropriate analytical tool, which offers a complex view on the current and future economic development. The creation of a forecast is a combination of the use of a model-based approach and the judgment of economic experts. The results of predictions are presented to the Governing Council and serve as one of the source materials in the decision-making on monetary policy settings of the ECB.

The forecasting process¹ includes narrow cooperation between the employees of the ECB and individual national central banks (NCB), which is supposed to guarantee that the resulting forecast for the euro area will be based upon all available expert analyses and will be a consensus within the whole Eurosystem. The entire process is under the charges of the Monetary Policy Committee (MPC), whose members are also responsible for the final draft report on the prediction. The Working Group on Forecasting (WGF), which is one of three working groups (in addition to the WGF, it

is the working group for econometric modeling and the working group for public finance) submitting their materials to the MPC, is responsible for the creation of particular figures of macroeconomic forecasts, as well as for the creation of the first version of the report.

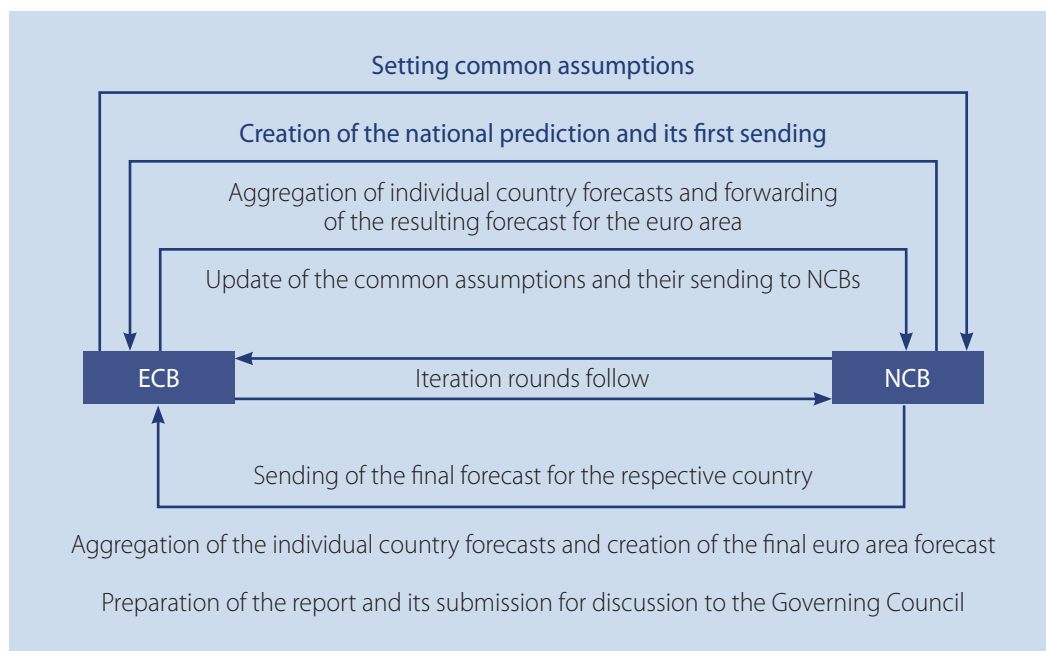
The forecast creation itself usually takes two months and consists of three basic steps. The first step is the setting of assumptions serving as a source for the whole process. The second step is the actual creation and approval of the final figures of the forecast. At this stage, the prediction for the euro area is created as an aggregation of the individual national forecasts, the consistency of the overall prediction is checked and country forecasts on the part of the ECB and a selected national central bank are evaluated. The last step is the preparation of a report for the Governing Council and its publication.

SETTING THE ASSUMPTIONS

Preliminary assumptions related to the interest rates, exchange rates, international environment and fiscal variables are agreed upon at the beginning of the process. These assumptions are revised and change anytime in the course of the process, if they become inconsistent with the actual economic development.

CREATION OF THE PREDICTION

Based on the agreed preliminary assumptions, which are binding for all national central banks, NCB employees and ECB employees separately create the first predictions. These are described in a standard format in reports, which focus mainly on the basic features of the forecasts of individual countries and describe basic economic principles and specific assumptions at the national level (e.g. the development of the labor market and the wage outlook). Each central bank prepares a forecast for its country and the ECB prepares a prediction both for the individual countries and for the euro area as a whole (the prediction is consistent



with the aggregate forecast of the ECB for individual countries). The ECB subsequently aggregates also the forecasts of national banks. In connection with the preparation of the prediction, the ECB and the NCB jointly create many supplementary source analyses, dealing with specific technical or structural issues in detail. Forecasts created this way are discussed in detail within the WGF. The discussion and subsequent agreement on the forecast for the euro area are based on a comparison of figures at the euro area level (when the euro area forecast of the ECB is compared to the aggregate forecast of the individual countries, also with respect to supplementary analyses), on a check of the consistency of the forecasts and on an evaluation of the country forecasts on the part of the ECB and selected central bank. Based on the evaluation of the predictions, the results of the consistency checks, as well as possible consultations at the MPC, a list is set up, containing the agreed adjustments, which have to be performed to the country forecasts and subsequently also in the aggregate forecast for the euro area. Several iterations of this process are usually required to obtain final national forecasts and the final macroeconomic forecast of the euro area, which is the result of aggregation of approved revised forecasts of individual countries.

PREPARATION OF THE REPORT

At the end of the process, the MPC in cooperation with the WGF prepares a report on the prediction, which is then submitted to the Governing Council for discussion – usually at the first meeting in June or December – and subsequently published at the ECB web site. Only after the publication of the resulting euro area prediction, the national central banks can publish predictions for their countries, which have been prepared within the given prediction process.

It depends on the decision of the national central banks, how many predictions they publish in the course of a year. Some national central banks publish only two a year, as a result of the forecasting process of the Eurosystem, other central banks publish two own predictions with a time lag. The NBS publishes its medium-term predictions four times a year in order to maintain continuity with the period before the accession to the euro area and to achieve quarterly updates of predictions just like in the ECB. Two of the four NBS predictions (the spring and autumn prediction) are the result of the above mentioned forecasting process of the Eurosystem and the remaining two predictions, published in the interim periods, are the result of NBS's own prediction process.

BASIC FEATURES OF THE CURRENT MEDIUM-TERM PREDICTION OF THE NBS (MTF-2009Q2)

Since the NBS participates in the prediction process of the Eurosystem, it has been also necessary to harmonize the prediction approach of the NBS. Because predictions are made at quarterly changes of seasonally adjusted economic indicators, the NBS, too, started to monitor and analyze the GDP development that way. That has been a fundamental change against the hitherto drawn up medium-term predictions, which, however, has not influenced the presentation of the prediction in a widely used way in the form of year-on-year dynamics. The NBS has also replaced the original “gap” model by a new macroeconomic model.

The final prediction should contain the “story” behind the economic development and prediction and what has changed compared to the previous prediction (which factors have influenced the economy, and which factors will influence it in the future). To be able to interpret the prediction and make it consistent, it is necessary to

E
T
A
I
B



² In this case, the comparison will be with the April prediction MTF-2009Q1, which is available at the web site of the NBS.

evaluate the current and expected development and compare it to the previous prediction².

COMMON TECHNICAL ASSUMPTIONS OF THE PREDICTION AND THE EXTERNAL ECONOMIC ENVIRONMENT

The common technical assumptions of the prediction and the external economic environment will be prepared by the ECB as of determined cut-off date. The date is fixed and changes only in the case of large fluctuations in fundamental indicators (e.g. the oil price). However, the resulting prediction works with data that do not have to correspond to the current situation on the day of publication or of the deliberation at the meeting, respectively. The recent prediction of the ECB is based on assumption from 13 May 2009 and the Governing Council discussed the prediction on 4 June 2009. The medium-term prediction MTF-2009Q2 has been debated by the NBS Bank Board on 16 June 2009.

WHAT DO RECENT DATA TELL US?

The development of the economy in the first quarter was not favorable, because the seasonally adjusted gross domestic product decreased by 11.2% quarter-on-quarter, which represented a more considerable contraction than expected by the NBS. This was due to a reduction in domestic and foreign demand. Investment and final consumption have been the parameters to decrease most within the GDP structure. Because foreign demand for our products plummeted, the net exports also contributed to a negative GDP growth in the first quarter. Only government consumption had a stimulating effect in the first quarter. During the crisis, when production records a decline as a result of low foreign demand and access to funding is more complicated, firms decrease investments in construction and machines. Such a development predominated during the first quarter of 2009. The negative development of the economy in the first quarter was also reflected in the development of the labor market, which can be observed from the number of unemployed (46.6 ths. as compared to the previous quarter) or from a decrease in the number of hours worked (5.6% quarter-on-quarter). Monthly statistics have also indicated a substantial decline in the number of employed persons, but quarterly data have not shown a significant reduction in the number of employed persons so far (reduction by 2.3% against the 4th quarter of 2008). Due to the current economic crisis, the employers probably dismissed contractual employees first and considerably reduced the number of hours worked by employees (reduction of the working hours, shorter working hours, lower number of shifts), subsequently reduced the number of part-time employees only then dismissed the skeleton staff. A part of the employees dismissed and persons having return from abroad have employed themselves as sole-proprietors. That is also confirmed by data on the number of self-employed

persons, whose number increased by 18 ths. quarter-to-quarter. Due to a deteriorating sentiment of households and fears of the expected development on the labor market, the households started to save more than spend, so that household consumption decreased significantly and savings started to grow. As to the price development, positive tendencies were recorded in first quarter, since the HICP inflation rate was gradually slowing down to 1.1% in May 2009. This was a reflection of the general trend in the world, where commodity prices decreased significantly and consumption demand fell. Two other important factors exerted influence on the price development during this year. The first one was a low imported inflation. The second factor was the reaction of stores – they decreased prices to prevent purchases abroad.

HOW DO WE SEE THE DEVELOPMENT OF THE ECONOMY IN THE MEDIUM-RUN?

The negative development in the first quarter will also influence the predicted indicators for the whole year 2009. Slovakia will record a decrease in the real GDP by 4.2% according to the current prediction. Within domestic demand, the final household consumption should decline only slightly this year, primarily as a result of the introduction of the car scrapping incentive. The slow growth of final consumption will be influenced by a deterioration of the situation on the labor market, where a decrease in the employment rate, and increase in the unemployment rate and a moderate growth of compensation per employee is expected. Another factor associated with the relatively slow growth of consumption should be a tightening of the credit standards and hence also a lower volume of granted loans. This is particularly documented by the current data and the expected development resulting from the bank lending survey. The investment decline from the first quarter should cease in the next period. In the second half of the year, we expect quarter-on-quarter investment increases, which should be associated with the beginning of the implementation of infrastructure projects and with investment in the automotive sector. However, an investment decline is expected for the year as a whole due to a considerable decline in the first quarter. Due to a decreasing foreign demand, production decreased in the first quarter and firms got rid of their inventories. This process is likely to subside in the following period. The change in inventories should have a dampening effect on the GDP growth in 2009. Foreign demand should be considerably weakened all over the year – the decline for the whole year should reach 12.1% as compared to 2008. For that reason, the current prediction for the whole year expects a negative contribution of the net exports to the GDP growth. As to the development of prices, Slovakia should record a positive trend in 2009. The decrease in the growth of the inflation rate should result primarily from a



Table 1 Fundamental macroeconomic indicators

| Indicator | 2008 | 2009 | 2010 | 2011 | 2009 | 2010 | 2011 |
|--|--------|----------|-------|-------|----------------------------|-------|------|
| | Actual | Forecast | | | Difference with MTF-2009Q1 | | |
| Prices (year-on-year dynamics) | | | | | | | |
| HICP inflation (average) | 3.9 | 1.3 | 1.8 | 2.5 | -0.4 | -0.2 | -0.4 |
| CPI inflation (average) | 4.6 | 2.1 | 2.5 | 2.9 | -0.3 | -0.2 | -0.4 |
| ULC (compensation per employee at current prices/ESA 95 labor productivity at constant prices) | 5.3 | 6.0 | 0.0 | 1.6 | 1.7 | -0.9 | -0.8 |
| ESA 95 labor productivity (GDP at constant prices/ESA 95 employment) | 3.5 | -2.7 | 2.5 | 3.7 | -1.6 | 0.6 | 0.6 |
| Compensation per employee at current prices | 9.0 | 3.1 | 2.5 | 5.4 | 0.0 | -0.3 | -0.2 |
| Economic activity (year-on-year dynamics, unless otherwise indicated) | | | | | | | |
| Real GDP | 6.4 | -4.2 | 2.4 | 4.1 | -1.8 | 0.4 | 0.9 |
| Final consumption of households | 6.1 | 1.0 | 0.3 | 3.6 | 0.0 | -1.1 | 0.5 |
| Final consumption of general government | 4.3 | 2.2 | 2.1 | 2.8 | -2.2 | 0.2 | 0.5 |
| Gross fixed capital formation | 6.8 | -8.8 | 3.2 | 2.0 | -8.4 | 0.7 | -1.5 |
| Exports of goods and services | 3.2 | -18.4 | 0.8 | 6.7 | -10.1 | 0.5 | 3.3 |
| Imports of goods and services | 3.3 | -17.0 | 0.3 | 5.2 | -12.2 | 0.4 | 1.9 |
| Real gross disposable household income | 7.2 | 2.9 | 0.8 | 3.2 | -0.4 | -0.3 | 0.5 |
| Output gap (% of the potential product) | 0.5 | -7.6 | -7.3 | -7.1 | -1.7 | -1.0 | -1.0 |
| Labor market | | | | | | | |
| Employment according to ESA 95 (year-on-year growth) | 2.8 | -1.6 | -0.1 | 0.3 | -0.3 | -0.3 | 0.2 |
| Unemployment rate according to the LFS (%) | 9.6 | 11.5 | 12.0 | 12.1 | 0.4 | 0.3 | 0.4 |
| Balance of payments | | | | | | | |
| Openness of the economy (% of GDP) | 166.8 | 137.6 | 134.2 | 135.3 | -11.9 | -11.4 | -9.0 |
| Trade balance (% of GDP) | -1.1 | -3.0 | -2.5 | -1.5 | 0.2 | 0.4 | 1.0 |
| Services balance (% of GDP) | -0.7 | -1.1 | -1.0 | -0.8 | -0.3 | -0.3 | -0.2 |
| Current account (% of GDP) | -6.5 | -7.5 | -6.4 | -4.8 | -0.2 | 0.0 | 0.8 |
| Current and capital account (% of GDP) | -5.3 | -5.9 | -4.3 | -2.8 | -0.2 | 0.1 | 0.8 |

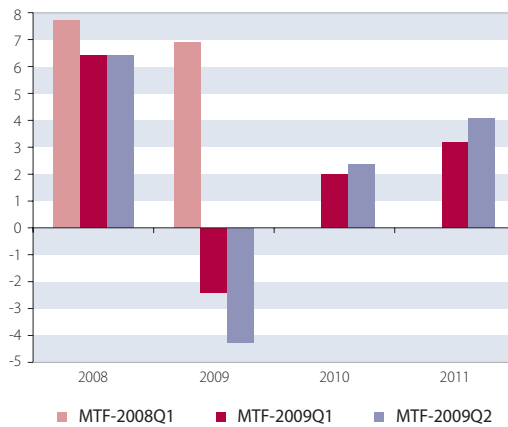
decrease in food prices, industrial goods, as well as the prices of services. The average rate of HICP inflation for the whole year should reach 1.3%. Despite a significant slowdown in the growth of prices, no negative inflation is expected this year. The lowest growth of prices should occur in October – it should be 0.6%. The growth should be further positively influenced by a change in regulated prices during this year.

An end of the decline and a subsequent moderate recovery of world demand is expected in the medium-run. This should also influence the performance of our economy. The moderate rebound of the world economy along with investments and a growth of domestic consumption in

connection with renewed confidence of households should have a stimulating effect on the GDP growth. The negative development from the contraction of the economy in 2009 should continue and subside in labor market in 2010. The employment rate should decrease insignificantly in 2010, which will be reflected in a growth of unemployment rate. This development will dampen pressures on a wage growth; therefore compensation per employee is expected to grow only slightly. The gradual rebound of the economy from 2010 should also be reflected in the development on the labor market in the following period. Therefore the current prediction expects a slight growth of the employment rate in 2011, as well as a moder-

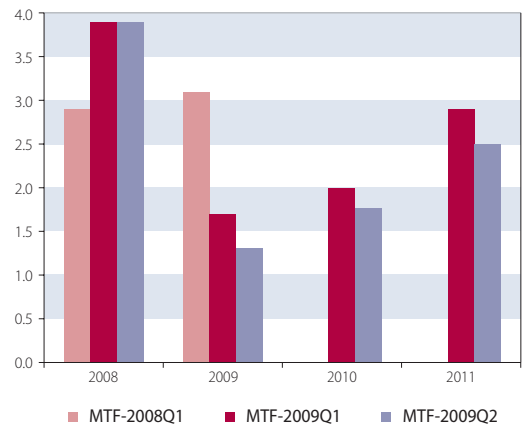


Chart 1 Influence of the economic crisis on GDP prediction at constant prices (in %)



Source: NBS.

Chart 2 Prediction of the average rate of HICP inflation (in %)



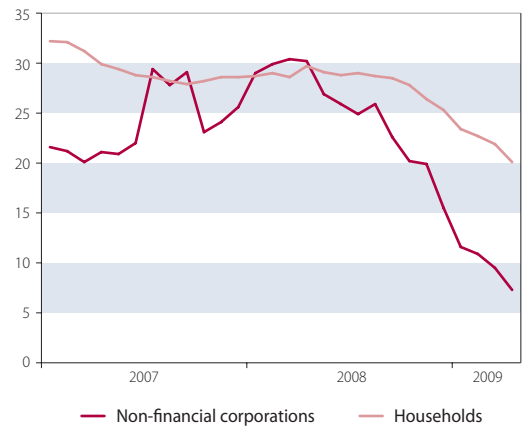
Source: Statistical Office of the Slovak Republic, calculations of the NBS.

ate acceleration of the growth of compensation per employee in the medium-run. The rebound of global economic activity in the medium-run is associated with a growth of commodities prices and imported prices. This should be reflected in a faster rise in prices in Slovakia. The average annual rate of HICP inflation should gradually accelerate from 1.3% in 2009 to 2.5% in 2011.

WHAT HAS CHANGED AGAINST THE PREVIOUS PREDICTION?

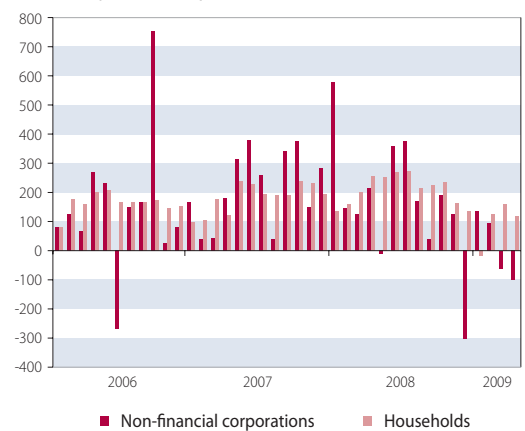
The current prediction expects a lower growth of world demand than in the previous prediction MTF-2009Q1 over the entire forecast horizon. That is the most important factor influencing the current MTF-2009Q2 prediction of the real economy. The most significant change has been the expected world demand for 2009, the deterioration for the following years was only very moderate. That is why a more significant contraction of the economy is expected in 2009 as compared to the MTF-2009Q1. Economic growth should accelerate slightly in the following years as a result of new information on investment plans in the automotive industry. The outlook for the structure of the GDP changed as compared to MTF-2009Q1. The growth of final household consumption should slow down in 2010 against MTF-2009Q1, which should reflect a more considerable slowdown of disposable income growth. The slowdown will result from a faster decrease in employment, a higher growth in the number of unemployed persons and a lower growth of compensation per employee. In 2011, the forecast expects a more positive development on the labor market resulting from a faster recovery of the economy. This should be reflected in a higher than expected growth of final household consumption. In the field of investment, there was a reevaluation of government investment in infrastructure projects as compared to MTF-2009Q1 in that the second PPP project package was explicitly included. Furthermore, a more negative outlook of the economy was taken into account in the form of

Chart 3 Development of the year-on-year dynamics of the growth of loans to households and non-financial corporations (in %)



Source: NBS.

Chart 4 International increases in the credit volume (in m. EUR)

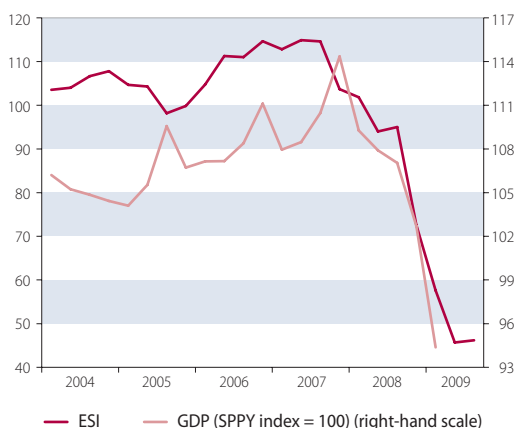


Source: NBS.

a decrease in profitability of businesses and the related decrease in investment in that sector. Those factors have caused an upward shift in investment growth in 2010 and a downward shift

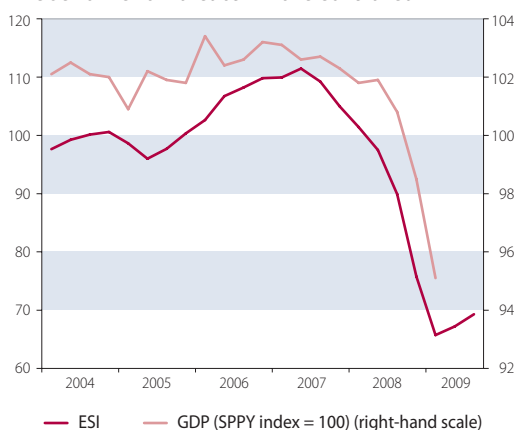


Chart 5 Development of the GDP and the economic sentiment indicator in Slovakia



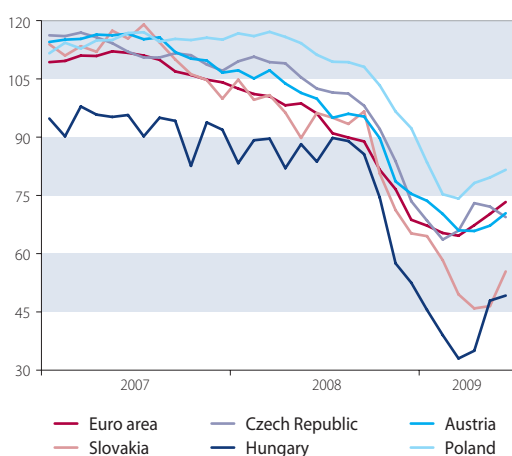
Source: Statistical Office of the Slovak Republic, European Commission.

Chart 6 Development of the GDP and the economic sentiment indicator in the euro area



Source: Eurostat, European Commission.

Chart 7 Development of the economic sentiment index



Source: European Commission.

in 2011 against MTF-2009Q1. The contribution of net exports remained the same in 2010 as in the MTF-2009Q1, but the launch of the production of a new car was taken into account for 2011. That

should increase the export performance of the Slovak economy; therefore net exports should record a more positive contribution to the GDP growth in 2011. As regards inflation, a lower inflation growth is expected compared to the MTF-2009Q1, above all as a result of a slower recovery of the world economy and the resulting lower imported inflation.

From the charts above it is clear that the financial and economic crisis abroad has also become evident in Slovakia, particularly in the outlook for 2009. The world economic crisis has been primarily reflected in a lack of liquidity and contraction of world trade. Slovakia has been particularly influenced by a decrease in world trade. The financial crisis affected Slovakia only marginally, because the Slovak banking sector had sufficient liquidity. The financial crisis hit Slovak households and the business sphere in the form of tightened credit standards demanded by parent banks due to an increase in the perceived risk during the slowdown of economic activity. The lower economic activity influenced not only the loan supply, but also the loan demand on the part of non-financial corporations and households. The loan demand also contributed to a deceleration of the year-on-year dynamics of credit growth to both sectors. Month-on-month increases in loans to non-financial corporations reached negative values, too, in the last months, which means that a greater part of loans was repaid than granted.

RISKS OF THE MEDIUM-TERM PREDICTION

The medium-term prediction MTF-2009Q2 involves risks. In this period, uncertainties are even higher, because it is not sure when the world economy will rebound. For that reason, the most important risks in the current forecast include precisely a more considerable and longer than expected impact of the world crisis by means of lower foreign demand on the export performance of Slovakia, investment and domestic consumption, as well as a more considerable tightening of credit standards. Such a development can be reflected in a deeper GDP decrease or in its more moderate and later rebound. The predominant risk in the GDP growth prediction is a downward risk. Regarding the price development, the risk is more or less balanced downward and upward risk. On the one hand, there is the risk of non-recovery of economic activity, on the other hand the risk of a possible more considerable growth of commodity prices in the world markets.

HAVE WE REACHED THE BOTTOM?

The sharp contraction of economic activity in the first quarter of 2009 does not have to indicate that the Slovak economy has reached its bottom. The recent forecast used recent up-to-date data of March, which already suggested an end to the contraction. However, further published monthly data for April show that the development of the economy could be even worse than presented in the current prediction. On the other hand the de-



velopment of the sentiment not only in the euro area, but also in Slovakia and the neighboring countries indicates the opposite trend (i.e. an end of the decline and a subsequent slight growth). This is documented by charts 5 to 7.

Although monthly economic data indicate tendencies of how the economy could develop in the next period, their development does not always correspond to published quarterly data, because only preliminary data for selected sectors is available on a monthly basis. This was also the case in the first quarter of 2009. High declines in industrial production and sales and a deteriorating development on the labor market have indicated an even worse decline of the GDP than published, but firms have also decreased costs associated with production. Therefore the monthly April data may, but do not have to, indicate a further deterioration of the development of the economy. However, great uncertainty continues and therefore only data for the following months will indicate if the risks outlined in the current prediction MTF-2009Q2 are materializing.

CONCLUSION

The NBS participates in the prediction process within the ECB, where the output is a forecast for the euro area as a whole. The forecast is obtained

by aggregating prediction of individual countries. The basis for this process is the formulation of the prediction on the basis of the same technical assumptions and assumptions on the external economic environment. In the current spring prediction round, the NBS presented the basic tendencies and characteristics of the recent outlook to the public. Based on its communication strategy and for the sake of transparency, the NBS also prepares two other predictions, in which it publishes its predictions in the medium-run. All four predictions of the NBS are published on the web site of the NBS, they are also communicated at press conferences and their primary objective is to inform the public in an independent way on the expected economic development in Slovakia. The current NBS prediction is the medium-term forecast MTF-2009Q2 published in June. The published prediction shows the expected development of fundamental macroeconomic indicators, highlighting the risks of materialization of such a scenario. Only monthly indicators to be gradually published will indicate whether the Slovak economy has already reached its bottom.

*(An article by the staff of the Monetary Policy
Department of Národná banka Slovenska)*