



## 6 ECONOMIC RESEARCH

Economic research at Národná banka Slovenska focuses on in-depth analysis of relations in the domestic and external economy and on addressing difficult economic, monetary and financial issues that require non-standard, wide-ranging solutions. Research work provides functional and substantive support to the analytical activities of the central bank's specialist departments, for whom timeliness and accuracy of information are particularly important. There is an emphasis on applied research, the results of which provide a basis for decisions related to monetary policy and financial stability. Research is conducted by the Research Department, often in cooperation with experts from other NBS departments as well as with researchers from Slovakia and abroad.

The priority areas of research derive from NBS's medium-term research strategy and comprise: monetary policy; fiscal policy; financial stability; the labour market and real economy; economic modelling; and the functioning of monetary union. Specific research topics are selected with regard to NBS's information requirements, recommendations of the NBS Research Committee, informed debate in wider society, and research collaboration at the international level. The Research Committee, comprising experts from Slovakia and abroad, sets the direction of the research agenda by approving the research aims of each NBS researcher and by monitoring their outputs on a regular basis.

To help ensure the current relevance of its research in terms of both subject-matter and methodology, the Research Department engages in international cooperation at various levels and its researchers are involved with international research teams. In 2013 NBS researchers participated in the work of the following four ESCB research networks:

1. The *Household Finance and Consumption Network* (HFCN) – Cooperation on the HFCN project provides new knowledge derived from comparable data on the financial situation and expenditure of euro area households. With such information it is possible to assess how different household cohorts are affected by various macroeconomic shocks and by monetary-policy and institutional changes.
2. The *Macro-prudential Research Network* (MaRs) – NBS cooperation with the MaRs focused mainly on the development of early warning systems and systemic risk indicators.
3. The *Competitiveness Research Network* (CompNet) – The aim of CompNet is to develop a consistent analytical framework for assessing competitiveness, taking into account aggregate measures of competitiveness, firm-level data, and global value chains. In cooperating with CompNet, NBS researchers mainly examine competitiveness using hitherto under-researched firm-level data sets.
4. The *Wage Dynamics Network* (WDN) – The new wave of the WDN survey, prepared by its members, is expected to provide up to date information on how firms have adjusted during the global economic crisis through wage and price formation and employment patterns.

NBS researchers also contribute to informed public debate by their participation in seminars and conferences. The regular research seminars hosted by NBS are particularly appreciated by domestic analysts and economists. Established experts from Slovakia and abroad are invited to speak and debate at the *Bratislava Economic Seminars*, organised jointly by NBS, the Department of Economic Policy at the University of Economics in Bratislava, and the Centre for Economics and Finance at the Faculty of Mathematics, Physics and Informatics at Comenius University in Bratislava.

For the Research Department, the most prestigious event in 2013 was an international research conference entitled *Twenty Years of Transition – Experiences and Challenges*. Held as part of events marking the 20th anniversary of Národná banka Slovenska, this conference on economic, mone-



tary and financial changes in transition countries benefited greatly from the knowledge and experience of several prominent participants, including ECB Executive Board Member Yves Mersch, the governors of the Finnish, Austrian and Italian central banks, and Ottmar Issing, President of the Center for Financial Studies.

The most notable results of NBS research in 2013 were published in academic journals. The topics ranged from the aforementioned financial situation of households and economic convergence to, for example, the relationship between income and life expectancy, debt thresholds of EU countries, and alternative indicators of country performance.

The more extensive works were published as peer-reviewed working papers (WPs), while other analyses were published as policy papers (PPs), occasional papers (OPs) or discussion paper (DPs).<sup>43</sup>

In 2013 the Research Department completed five peer-reviewed working papers and two specialist analyses. Media attention was directed mainly at the results of the first wave of the Eurosystem's Household Finance and Consumption Survey. The paper on these results, published at the beginning of 2013, provides a detailed summary not only of household assets, liabilities and net wealth, but also of the income, consumption and borrowing of households in euro area countries.

The regular analysis of economic convergence assesses the nominal and, in particular, real convergence of the Slovak and other economies to the EU average. Also it provides an overview of the convergence situation in EU candidate and potential candidate countries. The main conclusion is that Slovakia's real economy has converged towards the EU average after growing modestly amidst negative growth in the EU as a whole. In addition, indicators of nominal convergence have also improved. The outlook for coming years does not envisage any significant acceleration in Slovakia's catching-up process, nor fulfilment of conditions for euro adoption in any other new EU Member State.

Compared with previous years, NBS research in 2013 had a greater focus on specific issues relat-

ed to statistics and econometrics. One such issue is time-series asymmetry, which can significantly affect the accuracy of economic and monetary analyses. This is illustrated by, for example, the extent to which developments in the indicator under review are dependent on the phase of the business cycle. An indicator's diverse responses at times of recession and expansion require different settings of monetary or economic policy. The tests so far used to identify time-series asymmetry are deficient in several ways. A key outcome of NBS research in this area has been the proposal of a new, unique and easily applicable test that will make it possible to determine whether the probabilistic distribution of given indicators is symmetric or asymmetric.

Another important issue, particularly in connection with the design and use of macroeconomic models, is the linearity, or non-linearity, of relationships between analysed variables. To estimate non-linear models and produce forecasts on that basis remains a computationally demanding and time-consuming task. It is therefore necessary to have test statistics that can reliably identify non-linear behaviour in economic time series. The reliability of available tests is contingent on the use of a large number of observations. However, the time series used by central banks usually have a very limited length. NBS experts therefore modified two frequently used tests to make them usable for short time series. These modifications enable not only reliable verification of non-linearity, but also the application of a highly specific Markov switching model when using a time series.

The Research Department worked together with the Council for Budget Responsibility on joint research into labour supply, the result of which was a microeconomic model that can be used to analyse the responsiveness of labour supply (demand for work) to changes in taxes or to social and health contributions. According to estimations based on this model, the groups most responsive to changes in taxes and transfers are women, low-skilled people, and people aged over 50 years.

In the area of competitiveness, research focused on how qualitative factors affect the competitiveness of the largest Slovak firms. Referring to an older survey of specific financial and eco-

<sup>43</sup> The Research Department's published reports, papers and analyses are available on the NBS website at: <http://www.nbs.sk/en/publications-issued-by-the-nbs/working-papers>



conomic indicators for certain firms over a multi-year period, the research confirmed, using an econometric approach, the impact of most of the qualitative factors covered by the survey. The most significant qualitative factors in firms' competitiveness appear to be EU membership, energy costs, and the existence of developed consumer sectors.

As well as being published in NBS working papers, several research outputs are published

in papers of other central banks. Noteworthy results of joint research projects conducted in cooperation with other ESCB central banks were disseminated in ECB papers. One such paper examined the transmission of financial shocks to the economy. It addressed a number of pressing questions in this area, from the view of both specific countries and country groups.<sup>44</sup> A further two ECB papers focused on the results of the Europe-wide Household Finance and Consumption Survey.<sup>45</sup>

## 7 EUROPEAN AFFAIRS AND INTERNATIONAL COOPERATION

### 7.1 EUROPEAN AFFAIRS

#### THE EUROSISTEM

On 1 January 2009 NBS became a member of the Eurosystem, which comprises the ECB and the national central banks of all the EU Member States that have adopted the euro. The NBS Governor is, by virtue of his position, a member of the ECB Governing Council, the ECB's highest monetary-policy authority (its main responsibility being to formulate monetary policy for the euro area). The Governor is also a member of the ECB General Council, a transitional decision-making body that will cease to exist once all EU Member States have adopted the single currency. The ECB's decision-making bodies are assisted in their tasks by the committees of the Eurosystem/European System of Central Banks, established for each of the principal areas of central bank activities. During 2013 more than 80 NBS employees participated directly in the work of these committees and their working groups. The participation of NBS departments in Eurosystem tasks constitutes a substantial part of the central bank's activities.

In May 2013, for the first time in its history, Slovakia hosted a meeting of the ECB Governing Council. On that same day the new €5 banknote of the second series was launched into circulation, and ECB President Mario Draghi marked the occasion with an address after the post-meeting press conference.

#### THE EUROPEAN UNION

In 2013 the NBS Governor attended the two informal meetings of the Council of Ministers for Economic Affairs and Finance (ECOFIN), which are hosted by the country that holds the rotating EU Presidency; the first was in Dublin in March and the second in Vilnius in September. A number of NBS staff members were involved in activities of committees, sub-committees and working groups of the European Council and European Commission.

### 7.2 NBS COOPERATION WITH INTERNATIONAL INSTITUTIONS

#### THE INTERNATIONAL MONETARY FUND (IMF) AND THE WORLD BANK (WB)

The main events of the Bretton Woods institutions in 2013 were the IMF/WB Spring Meeting in April and Annual Meeting in October, both held in Washington D.C. The NBS Governor attended each meeting in his capacity as Governor of the IMF for Slovakia.

Slovakia's exposure to the IMF increased in 2013. Under a bilateral loan agreement that entered into force in September 2013, Slovakia pledged €1.56 billion to the IMF as part of a €150 billion commitment by euro-area countries to IMF resources. As at 31 December 2013 Slovakia's commitments to the IMF under the Financial Transactions Plan (FTP) and bilateral loan agreement were, respectively, SDR 137.2 million and SDR 53.9 million.

<sup>44</sup> Occasional Paper 143: *Financial Shocks and the Macroeconomy. Heterogeneity and Non-linearities.*

<sup>45</sup> ECB Statistics Paper 1: *The Eurosystem Household Finance and Consumption Survey: Methodological Report for the First Wave* and ECB Statistics Paper 2: *The Eurosystem Household Finance and Consumption Survey: Results from the First Wave.*