

ASSESSMENT OF THE 2001-2002 RESEARCH PROGRAMME

1. REVIEW OF RESEARCH ACTIVITIES

The Economic Research Department (ERD) of Czech National Bank (CNB) was established in mid-2001 to facilitate in-house research output. In November 2001 the Bank Board of CNB approved the first Research Programme 2001-2002 of project-based research. Assessing by mid 2003 this first round of project-based research we can conclude that the chosen approach was successful in building a coherent research agenda within the CNB.

Individual project proposals - following a Bank-wide call for projects in five research areas - were submitted for approval to the Research Advisory Committee (RAC) and Bank Board. Their implementation was supervised and coordinated by the ERD staff. Papers were discussed in in-house seminars, assessed by a panel of reviewers, disseminated through various channels and eventually published as CNB Working Papers and Internal Research and Policy Notes.

The call for projects included four specified priority areas but allowed also for other themes of interest under the heading of special studies. The priority areas were as follows: monetary policy and forecasting, convergence, financial markets and financial stability, real economy.

Total of 22 projects were selected and their topics matched fairly well those set in the initial call. All four areas have roughly equal coverage in terms of number of projects, though some projects, such as those in the area of monetary and fiscal policy tend to involve more researchers than projects in other areas. Since more than half of the projects were collaborative, the approved research programme engaged a total of 50 economists, both senior and junior staff members as well as those from academia, and other public and private institutions.

The role played by the RAC in the selection process has been instrumental in setting and focusing individual research areas and project proposals. Some of the important contributions included narrowing the scope of the research agenda, with the view of focusing it on policy relevant issues. Also, ERD aimed at shifting the balance of projects from author-driven topics to topics relevant for economic policy and the CNB decision making, typically by an early exchange of views regarding research priorities with the CNB management and the RAC members.

Projects generally proceeded as planned and the fallout rate (unfinished/total projects) has been acceptable. One project has been entirely cancelled owing to the principal researcher having left CNB. Of the total of 21 projects the individual review committees eventually agreed to publish as yet 17 Working Papers and 2 Internal Research and Policy Notes.

Needless to say, the progress of individual projects was available in real time on the CNB intranet and the information on the CNB research was disseminated through its website. We also saw gradual improvement in external presentation of individual papers. As documented in attached Table 2 most of them were presented at academic conferences and external seminars as well as submitted to external journals, including foreign ones. Though there is always some time lag, we are pleased with an encouraging acceptance rate of finalised papers for external publication. It is one of the primary goals of the applied research system to motivate the researchers towards extending the reach of their papers.

The Research Programme 2001-2002 has been seen – both by the top management of CNB and by outside observers - as cultivation of applied economic research with direct relevance for Czech economic and monetary policies. The goal of getting this type of research activity into existence has been achieved. Its institutional framework has been standardised and based on approved documents and procedures the sequence of which is as follows: identification of research priorities, call for projects, elaboration of project proposals by researchers in interaction with ERD coordinator, evaluation of project proposals by RAC and by the Bank Board, project implementation in co-operation with co-ordinator, final review by three referees (including one outside of the CNB and one from abroad), publication and other forms of project outcomes dissemination, and finally assessment of the results and conclusions for further research.

In this way we have succeeded in creating an effective system of organising research activities, balancing demand (the CNB needs) with supply (researchers' interests) ensuring quality outputs (Working Papers, Internal Research and Policy Notes), and promoting the elaboration and discussion of research outputs in English. Moreover, visits and lectures by distinguished foreign speakers provided welcome opportunity to discuss research results.

2. THE OUTCOMES OF RESEARCH

RESEARCH AREA: MONETARY POLICY AND FORECASTING

I. STRATEGIC ISSUES OF MONETARY AND FISCAL POLICIES

Projects have been focused on strategic issues of monetary policy that have been important for improving the Czech inflation targeting framework and fiscal policy issues that have in the Czech context important implications for monetary policy.

The major contributions of the projects in this part can be seen in the following areas. First two projects have provided high-quality background for strategic decisions about improvements of the existing inflation targeting framework. The outputs have been related to the comparisons of using conditional and unconditional forecast and to methods of dealing with uncertainty. In addition, these projects have helped to present the CNB as a central bank that is on the strategic frontier among other inflation targeting central banks and that is able to participate fully in the international debate about the related topics such as the role of the forecast or uncertainty in inflation targeting.

Secondly, the large-scale fiscal project has developed a consistent analytical background for the claims by the CNB about unsustainable path and low transparency of fiscal policy. Moreover, a major step forward in the area of co-ordination of fiscal and monetary policy has been done due to the team work of experts from the CNB and MF during this project. Outcomes of the fiscal project related to analysis of transitional data, estimates of structural deficit, and implications of ageing have been already used in public debate about the future look of the Czech fiscal reform.

Finally, two research workshops have been organised with an open access for all CNB experts. The workshop "*Selected aspects of fiscal policy analysis*" was held on 18–19 April 2002 and the workshop "*Forecasting process in the CNB*" was held on May 13-17 2002.

II. MACROECONOMIC POLICY ANALYSIS AND FORECASTING

The main priorities have been identified in deepening the microeconomic foundations and forecasting ability of the core macroeconomic model currently used in the CNB with a special attention to incorporating a more detailed labour market block. In addition, the study of second-round effects arising from shocks to selected supply side shocks on CPI inflation and the desired reaction of the central bank to these shocks has been approved by the CNB Board.

In order to improve the forecasting ability of the CNB's macroeconomic model, a reduced-form technique for estimating sample moment properties of transitory components of multivariate time series has been developed. The technique provides an estimate of the business cycle of the Czech economy and as such it is regularly used in internal forecasting rounds. The priorities related to the improvement of the microeconomic foundations of the core macroeconomic model have been addressed within a study concentrating on the staggered wage and price dynamics and their effects on real economic activity. The corresponding labour market block is based on a micro-optimising framework, and as such it is an important input for further development of the core macroeconomic model.

The issue of second-round effects of selected shocks on inflation has been addressed in a paper that provides a quantification of those second-round effects depending on alternative assumptions made regarding wage-contracting specifications. In addition, optimal reaction functions of the central bank are derived to mitigate the negative impact of these supply side shocks on inflation and on the real economy. The priority regarding the reaction function of the central bank has also been partially addressed within this research project, since the derivation of optimal policy rules helps to develop benchmark rules for evaluating monetary policy rules. The research project, addressing the question of monetary policy rules is in progress.

Finally one learning project has been designed to obtain quantitative evidence and econometric estimation describing determinants and impacts of FDI in the case of the Czech economy in order to support macroeconomic analysis and the entire forecasting process within the CNB. The obtained results are being used to support the analytic tools for situation report. In addition, the econometric methodology (advanced cointegration techniques) acquired during the work on the project is expected to deepen the analytic skills of the author.

RESEARCH AREA: CONVERGENCE

The process of convergence towards the EU and EMU standards entails a wide range of dimensions, of which nominal and real convergence and their interaction represent the key problems. The projects approved in this area for the 2001-2002 programme addressed issues which were directly or indirectly related to the real exchange rate. They discussed trends, causal factors and impact of its development in the course of convergence. The themes of individual projects were long-term trajectories of key macroeconomic variables, the identification of trends in the equilibrium exchange rates, relative price adjustment and the role of Balassa – Samuelson effect, the impact of relative sector productivity and of capital flows, optimum currency area criteria and ERM II membership.

All the projects envisaged, and in the course of implementation actually applied, some version of comparative approach, identifying common features as well as differences in the convergence process across accession countries. Project No.10, e.g., which applied the concept of the fundamental real exchange rate to identify the real exchange rate misalignment

came to the conclusion for the group of five accession countries that there were signs of overvaluation in four of them at the end of 2001.

The logic of convergence required to use ratios and standards of the EU and EMU members as a benchmark. Project No. 11 made cross-country comparisons of the differences in the structures of relative prices in the accession countries compared with the EU members. This served as a basis for predictions of the course and time dimensions of price structure convergence. The conclusion suggested that it may take about 15 years for the Czech relative price structure to converge to the ratios of the relatively least developed EU countries. The experience of the EMU members compared to the conditions of catching-up process of accession countries was also used in discussing compliance with the ERM II criteria (project no.12).

The use of model approach has been another characteristic feature of the elaborated studies. This enabled to identify and quantify the alternative scenarios and trajectories of the studied variables on the basis of a few underlying assumptions (e.g. project No.9) Thanks to this, the outcomes of the projects were relevant for the modelling and forecasting activities in the area of monetary policy, in particular within the quarterly prediction model.

The elaborated projects made important contributions to the on-going discussion within CNB and their conclusions provided a basis for the drafting of policy documents, on the ERM II membership and the EMU entry strategy in particular. The results of the project No.13 signalled, contrary to some previous assessments, a more modest role of Balassa-Samuelson effect in the real exchange rate appreciation experienced in the Czech economy. It was shown, however, that there may be some other sources of equilibrium real exchange appreciation such as terms of trade changes (project No.11). In identifying the „non-traditional“ factors of real appreciation, some interesting results have been achieved with the concept of quality adjusted real exchange rate, which accounts for the impact of quality changes on real exchange rate and terms of trade (project No.9).

Summarising, the research products in the field of convergence succeeded in providing an analytical contribution to the decision making in the area of policy importance. The applied content dominated, nevertheless some papers demonstrated theoretical and academic aspirations as well. The work on the projects within the 2001-2002 programme has provided a good starting point for the next research stage. The expertise acquired was expected to facilitate the linkage of in-house research with the outside activities.

RESEARCH AREA: FINANCIAL MARKETS

I. FINANCIAL MARKETS AND CENTRAL BANK

Projects have been focused on interaction of financial markets, financial sector and central bank. It is worth recalling that the main priority of the projects in the first CNB research program has been to create an environment in which experts from different departments and from outside the CNB can begin with research in these areas that had not been covered by the CNB research before.

Both financial projects have sent an important signal that the financial issues are equally important to the CNB as monetary policy issues. These two research projects should be seen as two pilot studies that allow for the follow-up work in this area. To emphasise one interesting output, it should be said an indicator has been developed of the current market consensus on future monetary conditions that is available for the CNB experts on intranet.

II. FINANCIAL MARKETS AND FINANCIAL STABILITY

Projects concentrate on those aspects of financial markets that are applicable in monetary policy analysis or that can be utilised in some other activities of the central bank. The small number of highly specialised experts in this field within the CNB limited the scope for announced research topics, they were supply rather than demand determined.

The first priority concerned the foreign exchange microstructure literature with an emphasis on the Czech koruna market. A continuous time model of an FX market for the Czech koruna based on a multiple dealership has been developed. The model is used to explain the country, or risk premium in the uncovered national return parity equation for the koruna/euro exchange rate. The results of the study suggest that foreign exchange intervention tactics by the CNB might have an impact on the herding behaviour of the market makers. The next topic within the same area concentrated on the transmission of macroeconomic factors into the price-setting behaviour of a specific dealer in the market for the Czech koruna. The results suggest that the central bank should monitor the more transparent of the two FX trading institutions (i.e. *brokers*) to extract information about the market as a whole and executing interventions in the direct inter-dealer segment.

Financial stability related issues have been addressed within the project which put emphasis on the analysis of the impact of different credit risk-based capital requirement implementations on banks' need for capital. The capital requirements for an artificially constructed risky loan portfolio were calculated by applying various approaches. The models developed in the paper are used for testing of how the monetary policy changes are being reflected in the term structure of interest rates. The last area of interest related to the field of financial stability concentrates on the movements of the commercial bank ratings in the Czech Republic by using a number of financial indicators. The Standard & Poor's and the CAMELS ratings for the three biggest banks have been analyzed. The results show that the regulatory knowledge of the variables appearing in the CAMELS valuation, together with the publicly observed bank deposit rate policy, is sufficient to predict the external rating (such as S&P) change rather accurately.

The significance of the financial stability related projects lies in the close co-operation between the Monetary and Banking Regulation and Supervision Departments which has been acknowledged during the final review of the papers. Especially the representatives of latter departments emphasized the benefits arising from the co-operation.

RESEARCH AREA: REAL ECONOMY

Within the 2001-2002 Programme, two main areas of real sector research were considered, namely (1) the issues directly linked to macroeconomic performance; and (2) selected microeconomic and structural issues. The projects accepted were generally aimed at supporting the routine macroeconomic analysis and forecasting work, especially by highlighting the micro-foundations of the real economy developments (projects No.18 and 20) and examining the link between external influences (shocks) and macroeconomic performance (projects No. 21 and 22). In addition, the aim was to deliver such research outcomes that could receive international attention (recognition) and represent the Czech National Bank in such a way (see detailed comments to projects No. 18 and 20).

Contributions to the CNB's predictive and analytical apparatus can be illustrated by project No. 18, which investigated the relationship between unemployment and wages on the regional

and individual level - the local unemployment elasticity of wages. This helps us to understand the process of the wage formation and the causal dependence between unemployment and wages. As a result, findings on micro-foundations of the relationship between unemployment and wages should improve the quality of macroeconomic models and techniques for forecasting wage inflation. Besides, they should contribute to more accurate predictions of private consumption, price inflation, and the gross domestic product. In such a way, applying the labour market micro-foundations contributes to improving the quality of the drafting process for monetary policy decisions as a whole.

Another example is project No. 20. In this case, the basic objective was to discover the microeconomic foundations of Czech trade growth, in order to show which parameters cause the trade balance deficit to increase (decrease) and how efficient the measures could be for bringing the balance back to equilibrium. The model involving export and import functions was based on panel data for 29 Czech industrial branches and dealt with a number of explanatory variables. It led to the conclusion that the dependency of Czech trade flows on foreign demand or real exchange rate is crucial, but variables such as changes in factor endowments, inflows of FDI, product quality, competitiveness and intra-industrial complementarities should also not be overlooked. As in the case of project No. 18, this brings new (micro-founded) insights into the process of macroeconomic analysis and predictions. One should note that this is likely one of the most comprehensive research papers ever written on the dynamics of Czech trade.

The other projects provide a deeper understanding of the impact of terms-of-trade changes on foreign trade, relative prices and economic activity (project No. 21) or of the impact of a currency crisis on real variables, respectively (project No. 22). As far as project No. 21 is concerned, this is likely to be a first attempt aimed at providing detailed information on the effects of Czech terms-of-trade shifts and their impact on the current account and relative prices. The latter project (No. 22) also focuses on external influences on real economy developments, in this case especially on costs connected with eliminating a currency crisis.

Considering the above, the projects in the *Area D: Real Economy* attempted to deliver not only a research output of high academic quality and novelty (which generally means the ability to represent the CNB internationally *via* participation in high-profile research conferences and journal publications), but especially policy-relevant, empirically-founded findings of practical use.

3. HITHERTO EXPERIENCE AND FUTURE CHALLENGES

The recent experience shows that the role of research and of analytical work has been growing within central bank activities. This trend will be further accentuated due to the future membership in the ESCB as the evidence from the ESCB member banks suggests.

Future challenges to the meeting of which the research activities should increasingly contribute are, in particular,

- further up-grading of the expertise and of professional level of Bank's employees
- enhancement of the quality of analytical procedures and instruments
- application of those instruments and procedures to the new areas of interest, such as financial stability and financial sustainability
- meeting of the demands arising from partnership within the ESCB activities.

In this context we are assessing the current system of project-based research, its potential as well as limitations. As follows from the review, its introduction brought with it an enhancement of research activities at the CNB, a focus on identified priorities and a substantial improvement in the professional standard of the work performed. A team of qualified researchers from CNB staff has been attracted to work on projects together with a group of external collaborators. These are positive achievements within a relatively short time span.

Nevertheless, there are some limitations experienced as yet:

- the accepted projects were mostly oriented to the field of macroeconomics and monetary policy, but we have been only partially successful in extending research activities to the other areas of central bank activities, such as banking supervision and payment systems
- the researchers participating on the projects constitute only a limited (and mostly stable) segment of the Bank's professional staff, while the available pool of the Bank's experts to draw upon seems to be much wider, especially among young generation of employees. This points at the need of more frequent use of „learning project“ framework compared to the past. Learning projects are envisaged to have an increasing role in extending the CNB's research base and in covering new areas of research. Experience showed, however, that the success of such projects hinges on intensive supervision and cooperation from the co-ordinator
- the research outcomes should be more widely disseminated, shared and in particular, effectively applied. Towards this aim the incentives discussed in this document are expected to contribute. On the side of ERD we envisage, among other, to launch CNB research bulletin.

Building on the progress achieved so far, the orientation to be followed in the next stage of research activities therefore seems to require:

- to focus on the increasing professional standard of research outputs. This refers both to their practical relevance and use, as well as to their „competitiveness“ in the international context, and, at the same time
- to engage a wider circle of professional staff in research activities and to promote their orientation also on areas which were not analytically covered before and which are of increasing importance (e.g. financial stability issues).

In what follows some suggestions are made how to proceed within the bank with the cultivation of environment for research activities. We expect that steps along these lines could provide a desirable impact. In particular, they should help in reconciling the above mentioned requirements, the parallel implementation of which may appear controversial. Some operational improvements are concern of ERD itself, but those of more profound character are addressed for the assessment outside ERD. We start with latter ones.

Motivation to the Participation in Research Activities

The employees' interest to participate in research activities is closely related to the status which research enjoys in the bank and to the motivation which is applied (both financial and non-financial). In this respect we suggest that more importance be attributed to the participation in research. This should be reflected especially in the procedures derived by the Human Resources Department and in the implementation of management and personnel

policies by department heads. In particular, as for the professional staff members (of course, only in relevant CNB departments)

- to include involvement in research in the annual review of employees' activities ,
- to include research experience among qualification requirements for specified positions,
- to establish regime making for the professional staff the study stay in the ERD a feasible possibility.

Department heads should act accordingly, attributing a specific attention and importance to the research activities of their employees. There are various ways and incentives they could apply, including assignment of individual employees to attend seminars and reviews of the projects and to report on their outcomes relevant for the department.

Forms of Participation in Research Activities

At present, the project-based research can be performed in two alternative ways. Either in combination with the current duties in the lineal department or in the form of a study stay in the ERD, i.e. given employee is temporarily relieved from the mentioned duties. Unlike the initial intentions and expectations, the latter form has been used only exceptionally as a number of barriers seems to limit its feasibility. Nevertheless, this option could provide for an efficient way how to gain or refresh contact with the theoretical and analytical background in a particular problem area and to elaborate a given theme in a research project. This form, mediated through ERD, would enable at least some degree of employee mobility among individual bank's departments with the positive impact on the dissemination of expertise. A concerted endeavour of relevant bodies should therefore aim at lifting its barriers.

Economic Research Department

ERD is set as a relatively small unit with 5 research and 1 assistant positions. This proved to be an efficient arrangement and staff structure in the hitherto stages. However, for the future ERD faces some new challenges (to cover new areas of research, to extend the range of learning projects). Moreover, the volume of work of the ERD's assistant has increased substantially, in particular due to the editing of Working Papers and Internal Research and Policy Notes. As a consequence, the research assistance to project co-ordinators and other researchers could be only limited. From this perspective, some capacity constraint on the extent of research activities which can be effectively managed and coordinated through the current ERD staff is increasingly felt. It is obvious that the orientation on the higher quality of research outcomes and, at the same time, the aim to widen the number of researchers and to tackle the issues not yet extensively studied could make the capacity constraint pressing.

Ways to alleviate capacity constraint:

- provided the options of study stay in ERD are made more feasible, the experienced researchers going through the stay could assist in guiding and management of learning projects
- in order to cope with the discussed demands and to increase the efficiency of research activities a new position of research assistant in ERD would be of much help. If allocated, more of capacity and of working time of research co-ordinators and other project researchers would be relieved from administration and from preparatory work with data collection and organisation

- a special concern is the study stays by foreign experts. They would be highly desirable to cultivate our internal research environment, to generate new impulses and, in particular, to provide professional guidance in those areas where we lack our own expertise. Such areas are currently especially financial markets and financial stability. The study stay of Mr. Aleš Bulíř who joined ERD in the period August 2002-July 2003 was of great help. However, this took place only thanks to specific circumstances of his sabbatical leave from the IMF. The task remains to create conditions for such study stays on a routine basis and to set the framework of a remuneration package which could be offered to potential candidates.

Amendments in the Implementation of Project-based Research Effected by ERD

- The experience seems to justify a two-year cycle chosen for the formulation of our Economic research programme and of its projects. Nevertheless, the experience has also revealed a need for some leeway to address new issues of interest. Such needs are arising especially with respect to policy documents and their background. To accommodate for these needs ERD decided to undertake an additional call for projects in the second year of the two-years research programme cycle on a routine basis. This solution is complementary to the previous decision to launch a special series of Internal Research and Policy Notes beside CNB Working Papers to accommodate for policy papers in particular.
- To react to the experience with learning projects we are going to incorporate more precise and transparent rules for this class of projects into the next call for projects. It implies, in particular, the requirement of a narrowly defined theme and shorter time profile, in principle not exceeding 6-8 months.
- With the aim to promote the dissemination of the CNB's research results and to support their marketing, a proposal is submitted for consideration to launch a research bulletin. Its „zero version“ is attached.

RESEARCH PROGRAMME 2001–2002

Table 1: Research Projects

Project No.	Title	Authors	Status
1	<i>Inflation Projections in Inflation Targeting: To Forecast or to Simulate?</i>	<i>Kotlán, Skořepa</i>	Finalised: IRPN 1/2003
2	<i>Uncertainty, the Inflation Forecast and CNB Monetary Policy</i>	<i>Šmídková</i>	Finalised: IRPN 2/2003
3	<i>Fiscal Policy and its Influence on Monetary Policy Financial Markets</i>	<i>Bezděk, Dybcak, Krejdl</i>	Finalised: WP 7/2003
4	<i>Monetary Policy and Business Cycle Transmissions in a Small, Open Economy</i>	<i>Beneš, Vávra, Kotlán</i>	Approved for publication as WP
5	<i>Measuring the Business Cycle Position: the Monetary Policy Perspective</i>	<i>Beneš, Vávra</i>	Approved for publication as WP
6	<i>What Reaction Function for the Czech National Bank?</i>	<i>Hlédik</i>	In progress
7	<i>Quantifying Second-Round Supply Side Effects on Inflation</i>	<i>Hlédik</i>	Finalised: WP 12/2003
8	<i>Identification and Measurement of Relationships between Foreign Direct Investment and Selected Macroeconomic Variables</i>	<i>Král</i>	Approved for publication as WP
9	<i>Convergence Trajectories in Transitional Environment: a Model Approach</i>	<i>Vávra, Cincibuch, Kejak, Podpiera</i>	Approved for publication as WP
10	<i>Estimating Fundamental Equilibrium Exchange Rates for the Five Accession Countries</i>	<i>Šmídková</i>	Finalised: WP 3/2002
11	<i>Price Convergence to the EU: What Do the 1999 ICP Data Tell Us?</i>	<i>Holub, Čihák</i>	Finalised: WP 2/2003 WP 8/2003

12	<i>Macroeconomic Convergence Process of the Czech Economy to the EU/EMU countries</i>	<i>Komárek, Čech, Horváth</i>	Finalised WP 10/2003 WP 11/2003
13	<i>Interactions between Real and Nominal Convergence</i>	<i>Flek, Marková, Podpiera, Jonáš</i>	Finalised: WP 4/2002 Intranet present.
14	<i>Financial Market Regulation and Forward-looking Risk Management</i>	<i>Cincibuch</i>	Finalised: Intranet present.
15	<i>Modelling a Market Consensus Forecast of Central Bank Behaviour</i>	<i>Hlušek</i>	Finalised: WP 2/2002
16	<i>The Microstructure of the Czech Koruna Market and its Impact on Exchange Rate Risk in the Financial Sector</i>	<i>Derviz, Benová, Peřina, Mochán, Silberová</i>	Finalised: WP 4/2003 WP 6/2003
17	<i>Macroeconomic and Monetary Policy Determinants of the Banking Sector's Asset-side Risks</i>	<i>Derviz, Kadlčáková, Jaroňová, Babouček, Špaček, Kobzová</i>	Finalised: WP 9/2003
18	<i>Using the Wage Curve Approach in the Analysis of Wage Inflation</i>	<i>Galuščák, Munich</i>	Finalised: WP 1/2003
19	<i>Financial Performance and Competitiveness of the Czech Enterprise Sector</i>	<i>Buchtíková et al.</i>	Cancelled
20	<i>Determining Factors of the Czech Foreign Trade Balance: Structural Issues in Trade Creation</i>	<i>Prokop, Benáček, Víšek</i>	Finalised: WP 3/2003
21	<i>The Impact of Terms-of-Trade Changes on Foreign Trade, Relative Prices and Economic Activity in the Czech Economy</i>	<i>Benda</i>	Finalised: Intranet present.
22	<i>The Cost of Eliminating the Currency Crisis</i>	<i>Komárek, Melecký, Pečonka</i>	In progress

RESEARCH PROGRAMME 2001-2002

Table 2: Project Outcomes

1 Inflation Projections in Inflation Targeting: To Forecast or to Simulate?	
CNB	Results used when the CNB introduced unconditional forecast in July 2002. The process was documented in July 2002 Inflation report of the CNB.
Publication	IRPN 1/2003- Michal Skořepa, Viktor Kotlán: Inflation targeting: To forecast or to simulate? Synopsis in Finance a Úvěr, 11, 2002. Explanatory box in the CNB book "Czech national bank's forecasting and policy analysis system". Proceedings from the Autumn 2002 Central Bank Economists' Meeting, BIS.
Conferences	2 nd annual Czech Economic Society Conference, VŠE Praha, 23.11.2002. Autumn 2002 Central Bank Economists' Meeting, BIS, Basle, 15.10.2002. Workshop on Macroeconomic Policy Research, Budapest, 4.10.2002.
Notes	IRPN was sent to economists in other central banks and domestic financial institutions for discussion.
2 Uncertainty, the Inflation Forecast and CNB Monetary Policy	
CNB	One of the inputs for the forthcoming internal discussion about a suitable methodology to deal with uncertainty for the CNB inflation-targeting strategy. Some methods employed in the assessment of economic development prepared by monetary advisers.
Publication	IRPN 2/2003- Kateřina Šmídková: Targeting inflation under uncertainty: Policy maker's perspective Proceedings for the Bank of England Conference „Forecasting in a central Bank“, August 29, 2003 (forthcoming). IRPN was requested for reprint by the Journal of Applied Economics, ICFAI (forthcoming).
Conferences	CCBS Research workshop, June 2-6 2003, Bank of England. Conference „Forecasting in a central Bank“, Bank of England August, 29 2003.
Notes	Short summary of results was presented to policy makers in the Bank of England. IRPN was used for discussion with the ECB, RBNZ and BoE experts.

3 Fiscal Policy and its Influence on Monetary Policy Financial Markets	
CNB	Results of the project available to the CNB experts (cyclically-adjusted fiscal analysis, indirect (quasi-fiscal) deficit and debt analysis). Authors co-operate with team preparing the Czech PEP 2003 that is co-authored by the CNB.
Publication	WP7/2003 – Vladimír Bezděk, Kamil Dybczak, Aleš Krejdl: Czech Fiscal Policy: Introductory Analysis All project papers are forthcoming in Finance a úvěr (probably No. 11/2003). Articles in media: Euro 24.3.2003 – Dvě roviny reformy; Ekonom 20.2.2003 – Je reforma aktuální; Respekt 9.6.2003 – Škrábnutí teď, nebo amputace potom.
Conferences	2 nd annual Czech Economic Society Conference, VŠE Praha, 23.11.2002. Public Finance Reform Conference, VŠE Praha, 28.3.2003. 59 th Congress of the International Institute of Public Finance, VŠE Praha, 25.-28.8.2003.
Notes	Results of the project were used by the External Advisory Team of minister of finance (V. Bezděk and A. Krejdl are members of the Team) when working on the fiscal reform in the CR. Results used for lectures at the University of Economics in Prague (VŠE) devoted to public finance. Papers were introduced to George Kopits (Assistant Director of the IMF Fiscal Affairs Department) and their level has been appreciated.
4 Monetary Policy and Business Cycle Transmissions in a Small, Open Economy	
CNB	The research outcome will be used for structuring further empirical investigation of the Czech transmission mechanism in the monetary policy section of the monetary and statistics department and incorporated into the new-generation core model.
Publication	
Conferences	Workshop on Transmission and Modelling, Prague, March 2003 IMF Technical Assistance Mission, Central Reserve Bank of Peru, Lima, March 2003 Inflation Targeting Workshop, Helsinki June 2003
Notes	

5 Measuring the Business Cycle Position: the Monetary Policy Perspective	
CNB	The project provides more structured support for assessing the current business cycle position in quarterly prediction exercises of the Monetary and Statistics Department. At the same time the results serve as an important input for calibrating the new-generation core macroeconomic model of the CNB.
Publication	
Conferences	IMF Technical Assistance Mission, National Bank of Colombia, Bogota, April 2003 Inflation Targeting Workshop, Helsinki June 2003 JVI Seminar, Inflation Targeting, June 2003
Notes	
6 What Reaction Function for the Czech National Bank?	
CNB	Work in Progress
Publication	
Conferences	
Notes	
7 Quantifying Second-Round Supply Side Effects on Inflation	
CNB	The model developed in the paper is prepared to be used for generating an inflation forecast in the advisor's assessment of monetary policy stance. The results derived in the paper were used in internal discussions concerning the assessment of the second-round effects of indirect taxes on inflation.
Publication	WP12/2003 – Tibor Hlédik: Second-Round Effects of Supply-Side Shocks on Inflation in a Dynamic Structural Model of the Czech Economy Proceedings of the ECB Research Seminar for Accession Countries, ECB, Frankfurt.
Conferences	ECB Research Seminar for Accession Countries, Frankfurt 10 December 2002, Masaryk University, Department of Applied Mathematics, Brno 13 February 2003, VŠE, Department of Monetary Theory and Policy, Prague
Notes	

8 Identification and Measurement of Relationships between Foreign Direct Investment and Selected Macroeconomic Variables	
CNB	The results presented in the paper are utilized in analyses and forecasting procedures connected to the preparation of the Situation Reports.
Publication	
Conferences	
Notes	
9 Convergence Trajectories in Transitional Environment: a Model Approach	
CNB	Project outputs have been regularly used in the quarterly prediction process of monetary department (long term trajectories, portfolio investment flows) and for the assessment of the Czech economy's competitive position (the quality adjusted real exchange rate concept).
Publication	Paper „The Czech economic transition: exploring options using a macrosectoral model“ was submitted to Economics of Transition (in review) Paper „Factor accumulation story: any unfinished business“ was rejected by the Journal of Economic Growth, then revised for submission to the Quarterly Journal of Economics Paper „Real appreciation in the Czech Republic: Assessing Sectoral Disparities“ is currently finalised for CNB Working Papers series.
Conferences	Extended version of the paper on real exchange rates was presented on the Global Development Network (GDN) conference held at CERGE in Prague in July 2003.
Notes	Thanks to the interest raised the work on real exchange rate and sectoral disparities has been further extended and discussed in the seminars held in monetary department.
10 Estimating Fundamental Equilibrium Exchange Rates for the Five Accession Countries	
CNB	Results used in 2002 by the expert group of the CNB and MFCR as one of the inputs for discussion about the Czech Euro-strategy (author is the member of this working group). The CNB Monetary Division uses the method occasionally when preparing robust scenarios of equilibrium values for the CNB inflation forecast.
Publication	WP3/2002 - Kateřina Šmídková, Ray Barrell, Dawn Holland: Estimates of fundamental real exchange rates for the five EU pre-accession countries Šmídková, K, R Barrell and D Holland, (2003) Estimating Fundamental Real Exchange Rates for the Five Pre-Accession Countries, Prague Economic Papers (forthcoming). Šmídková K. (2002) Hledání rovnováhy, Euro č. 43.

Publication	Proceedings from the ECB Research Meeting, Equilibrium Exchange Rates of the Acceding Countries, September 5, ECB.
Conferences	2 nd annual Czech Economic Society Conference, VŠE Praha, 23.11.2002. ECB Research Meeting, Equilibrium Exchange Rates in Acceding Countries, September 5.
Notes	Methodology recommended by experts of the EC and IMF during the ECB research meeting as one of the bests presented during the meeting.
11 Price Convergence to the EU: What Do the 1999 ICP Data Tell Us?	
CNB	Contribution to the material of the monetary and statistical department "Přehled vybraných empirických modelů vzniklých na půdě ČNB pro účely analýz reálněekonomických souvislostí kurzu koruny" + related discussion; Seminar of the real economy division on the price implications of EU accession, 6 March, 2003; presentation "Price Implications of the EU Accession: Lessons from the 1999 ICP".
Publication	WP2/2003 - Martin Čihák, Tomáš Holub: Price convergence to the EU: What do the 1999 ICP data tell us? WP8/2003 - Martin Čihák, Tomáš Holub: Price convergence: What can the Balassa-Samuelson model tell us? Čihák, M., Holub, T. (2002): "Cenová konvergence k EU: nové poznatky z Mezinárodního srovnávacího projektu 1999", Finance a úvěr – Czech Journal of Economics and Finance, Vol. 52, No. 11/2002, pp. 608-610 (a synopsis of the presentation given at the CSE conference); Čihák, M., Holub, T. (2003): "Price Convergence: What Can the Balassa-Samuelson Model Tell Us?," Finance a úvěr – Czech Journal of Economics and Finance, Vol. 52, No. 7-8/2003, pp. 333-355.
Conferences	Second Bi-Annual Conference of the Czech Economic Association, Prague, 23 November 2002; Workshop "Economic consequences of European enlargement", Vienna, 14 March 2003, CEPR le Club+WIIW.
Notes	
12 The Nominal and Real Macroeconomic Convergence Process of the Czech Economy to the EU/EMU countries	
CNB	CNB Project's conclusions were utilized as one of the inputs for drafting of the CNB documents related to the ERM 2 and EMU membership
Publication	WP 10/2003 – Luboš Komárek, Zdeněk Čech, Roman Horváth: Optimum currency area indices- how close is the Czech Republic to the Eurozone WP 11/2003 – Luboš Komárek, Zdeněk Čech, Roman Horváth: EMR II membership – the view of the accession countries Frait, J. – Komárek, L. (2003): <i>Exchange Rate and Monetary Developments in Accession Countries</i> (chapter 6). In: Poloucek, S. <i>Reforming the Financial Sector in central European Countries</i> . Palgrave (to be published at the end of 2003). Komárek, L. (2003): <i>The Exchange Rate Regimes in the New EU Member States – the Case of ERM II Accession</i> . Economic Policy,

Publication	<p>European Commission, Brussels. (review process)</p> <p>Komárek, L. - Čech, Z. (2002): Exchange Rate Convergence and the Entrance to Eurozone (I) – Do Alternative Choices Exist For the Candidate Countries? <i>Finance a úvěr – Czech Journal of Economics and Finance</i>, No. 6. (in Czech)</p> <p>Komárek, L. - Čech, Z. (2002): Exchange Rate Convergence and the Entrance to Eurozone (II) – A comparison of experiences from member states of the Eurozone. <i>Finance a úvěr – Czech Journal of Economics and Finance</i>, No. 9. (in Czech)</p> <p>Komárek, L. - Čech, Z. (2003): Exchange Rate Convergence and the Entrance to Eurozone (III) – A comparison of experiences from selected candidate countries. <i>Finance a úvěr – Czech Journal of Economics and Finance</i>, No. 6. (in Czech, forthcoming)</p>
Conferences	<p>Komárek, L. - Čech, Z.: Exchange Rate Convergence and the Entrance to Eurozone. 2nd Conference of the Czech Economics Association. Prague, November 2002.</p> <p>Komárek L. - Horváth R.: Theory of Optimal Currency Area: a Framework for Monetary Policy Integration. 2nd Conference of the Czech Economics Association. Prague, November 2002.</p>
Notes	
13 Interactions between Real and Nominal Convergence	
CNB	The outcomes of the project made an important contribution to the assessment of the extent and factors of real exchange rate appreciation in CNB.
Publication	<p>WP 4/2002 - Vladislav Flek, Lenka Marková and Jiří Podpiera (2002): Sectoral Productivity and Real Exchange Rate Appreciation: Much Ado about Nothing? Czech National Bank Working Paper No 4/2002. Prague: Czech National Bank.</p> <p>Vladislav Flek, Lenka Marková and Jiří Podpiera (2003): "Sectoral Productivity and Real Exchange Rate Appreciation: Much Ado about Nothing?" <i>Finance a úvěr – Czech Journal of Economics and Finance</i>, Vol. 53, No. 3-4, pp. 130-152.</p> <p>Intranet presentation – Jiří Jonáš: EMU accession: capital flows and policy issues</p> <p>Jiří Jonáš "Economic and Monetary Union Accession and Capital Flows", Prague Economic Papers 3/2003</p> <p>Jiří Jonáš "Original Sin and the Exchange Rate Regime Debate: Lessons From Latin America and Transition Economies", (forthcoming), Comparative Economic Studies</p>
Conferences	2 nd Conference of the Czech Economic Association, Prague, November 2002.
Notes	

14 Financial market regulation and forward-looking risk management	
CNB	Report of the results, including technical difficulties with the solutions, available to the CNB experts from the intranet presentation.
Publication	Intranet presentation - Martin Cincibuch: Modelling of asset price dynamics with value-at-risk constrained traders.
Conferences	
Notes	After technical problems are solved, the work on the project may continue.
15 Modelling a market consensus forecast of central bank behaviour	
CNB	Programme that allows for regular calculations of the consensus indicators is available to the CNB experts from the intranet of the research department.
Publication	WP2/2002 - Martin Hlušek: Estimating market probabilities of future interest rate changes
Conferences	Results presented during the regular seminar, Standardbank, London, 2002.
Notes	
16 The microstructure of the Czech koruna market and its impact on exchange rate risk in the financial sector	
CNB	The results of the paper are utilised when the zero-iteration reference scenario for the CZK/EUR rate is set during the inflation forecasts in the Czech National Bank.
Publication	WP 4/2003 - Alexis Derviz: Components of the Czech koruna risk premium in a multiple-dealer FX market WP 6/2003- Alexis Derviz: FOREX microstructure, invisible price determinants, and the central bank's understanding of exchange rate formation Accepted for publication in the European Economic Review
Conferences	5. April 2003, Workshop on FOREX Microstructure and International Macroeconomics, Stockholm Inst. for Financial Research, Stockholm, Sweden September 18 2003, Research Workshop on Financial Markets, ECB-Deutsche Bundesbank, Frankfurt,
Notes	

17 Macroeconomic and monetary policy determinants of the banking sector's asset-side risks	
CNB	The first paper is one of the first steps within the CNB towards a theoretically sound and technically demanding methodology for assessing the lending behaviour of banks in relation to the business cycle and the CNB interest rate policy obtained by a team of economists from both the Monetary and Statistics and Banking Regulation Departments. The second paper provides a basis for predicting commercial bank lending during the implementation process of the New Basel Capital Accord recommendations within the Czech banking sector.
Publication	WP9/2003 – Alexis Derviz, Narcisa Kadlčáková, Lucie Kobzová: Credit risk, systemic uncertainties and economic capital requirements for an artificial bank loan portfolio
Conferences	6.-7.03.2003, AEA Conference, Marseille, 10.10.2003, BIS Conference of Young Central Bank Economists, Basel
Notes	
18 Using the Wage Curve Approach in the Analysis of Wage Inflation	
CNB	The project's main findings could be (or already are) explored in both <i>Inflation</i> and <i>Situation Reports</i> , as well as in <i>ad hoc</i> policy documents (such as the regular <i>EU Convergence Position Reports</i> of the Czech National Bank and the Ministry of Finance). Concretely, a higher emphasis is put on regional and short-term unemployment in analysing and predicting the determination of wage levels.
Publication	WP1/2003 - Kamil Galuščák, Daniel Münich: Microfoundations of the wage inflation in the Czech Republic
Conferences	2 nd Conference of the Czech Economic Association, Prague, November 2002. 18 th Annual Congress of the European Economic Association, Stockholm, August 20-24, 2003 The EALE Annual Conference, Seville, Spain, 18.-21.9.2003 (European Association of Labour Economists)
Notes	
19 Financial Performance and Competitiveness of the Czech Enterprise Sector	
CNB	project cancelled
Publication	
Conferences	
Notes	

20 Determining Factors of the Czech Foreign Trade Balance: Structural Issues in Trade Creation	
CNB	The empirical results of the project indicate their high relevance for the process of predicting external balance developments and that some of the conventional views on the dynamics of Czech trade should be reconsidered.
Publication	WP3/2003 - Vladimír Benáček, Ladislav Prokop, Jan Á. Víšek: Determining factors of the Czech foreign trade balance: Structural Issues in Trade Creation
Conferences	Conference on Exchange Rate Strategies During EU Enlargement, 27-30/11/02, Budapest
Notes	
21 The Impact of Terms-of-Trade Changes on Foreign Trade, Relative Prices and Economic Activity in the Czech Economy	
CNB	The analysis of terms-of-trade developments provides the analytical work at the CNB with an improved understanding of the factors underlying deteriorations/improvements in the foreign trade balance
Publication	Intranet presentation – Vojtěch Benda: The impact of terms-of-trade changes on foreign trade and economic activity in Czech economy
Conferences	
Notes	
22 The Cost of Eliminating the Currency Crisis	
CNB	Work in progress
Publication	Frait, J. – Komárek, L. - Melecký, M. (2003): Financial Crises in Central and Eastern Europe (chapter 5). In: Poloucek, S. Reforming the Financial Sector in Central European Countries. London: Palgrave (to be published)
Conferences	The Costs of Eliminating the Currency Crises- the Impact on Real Variables (preliminary results), the 2 nd Conference of the Czech Economic Association, Prague, November 2002. Martin Melecky, Lubos Komarek, Zlatuse Komarkova “Have the Currency Crises Been Costly? The Case of Central and Eastern Europe: 1993 – 2000. Macromodels and Modelling Economies in Transition. December 2002, Cedzyna, Poland.
Notes	

SURVEY OF INDIVIDUAL RESEARCH AREAS

SYNOPSIS AND ASSESSMENT OF INDIVIDUAL PROJECTS 2001-2002

1 INFLATION PROJECTIONS IN INFLATION TARGETING: TO FORECAST OR TO SIMULATE?

Authors: M. Skořepa, V. Kotlán

Coordinator: K. Šmídková

SYNOPSIS

The project has been designed to anchor the discussions on the role of monetary policy in central banks' inflation forecasts and to provide policy recommendations for the CNB. The paper differentiates between two types of projection: the forecast (the most likely picture of the future) and the simulation (the picture of the future if the behaviour of one or more agents is adjusted), and concentrates on the behaviour of the monetary authority within each type. The focus of the paper is in discussing the pros and cons of using the two types of projection on three levels: construction, decision-making and communication. Special emphasis has been put on the constant interest rate assumption and its role in decision-making process.

ASSESEMENT

The outcome of the project has been an important document in the history of the Czech inflation targeting. In line with the recommendations resulting from the project, the Board of the Czech National Bank decided to change the forecasting framework of its inflation targeting strategy in July 2002. The CNB has started to use a forecast with endogenous monetary policy in its decision-making and its communication towards general public instead of the previously used expert forecasts based on assumption of the constant interest rates. Furthermore, some of the results have generated interest among several foreign central banks, and the subsequent policy debate related to the paper still continues.

2 UNCERTAINTY, THE INFLATION FORECAST AND CNB MONETARY POLICY

Author: K. Šmídková

Coordinator: K. Šmídková

SYNOPSIS

The project has been designed to provide policy recommendations for the CNB. The paper suggests to policy makers as to which methods could be used to assess uncertainty. It is illustrated that that monetary policy makers need to build two pillars for their inflation targeting strategy - a methodology for producing the central forecast and a methodology for dealing with uncertainties - since a poor evaluation of uncertainties can significantly reduce the quality of monetary policy decisions. Suggestions take into account the findings of surveys of three very distinct sources – the economic literature on monetary policy under uncertainty, the managerial literature on decision analysis, and the real-life strategies of five central banks.

ASSESEMENT

The outcome of the project reflects the further progress of the methodological debate inside the CNB as far as the role of the forecast in the inflation targeting strategy is concerned. The intention to cover with the two policy projects two important interrelated issues – the forecast and the uncertainty – has been fulfilled. The paper has attracted a lot of attention inside the CNB because it provides an excellent overview of the issues related to dealing with uncertainty and these are issues that are going to be discussed in the CNB in the near future. Some mechanisms – such as a voting of experts about policy decision prior to the Board meeting – have been already systematically implemented during the work on the project.

3 FISCAL POLICY AND ITS INFLUENCE ON MONETARY POLICY AND FINANCIAL MARKETS

**Authors: V. Bezděk, K. Dybczak, A. Krejdl,
Coordinator: K. Šmídková**

SYNOPSIS

The large-scale project consists of three parts. The aim of the project has been to provide an introductory analysis of the fiscal policy issues important in the Czech context. The three major issues have been selected that all have serious implications for monetary policy:

- the impact of quasi-fiscal operations during transition on fiscal balance, public debt and fiscal stance
- derivation of indicators of cyclically-adjusted fiscal balance
- illustration of a serious threat to fiscal stability imposed by the ageing of the Czech population poses in the long-term future.

ASSESEMENT

The project has improved the co-ordination between experts from the CNB and the Ministry of Finance (MF). The output of the project has been used by both institutions to assess the fiscal stance internally. The project has been also an input to the material of the MF related to the forthcoming fiscal reform and an input to materials for the European Commission. In addition, outcomes of the project have attracted attention from external experts, and have been presented on conferences and in media.

SYNOPSIS PART I

The first part of the project deals with off-budget fiscal transactions. It is argued that, although the “transformation institutions“ have become an important quasi-budgetary instrument of the government, the quasi-fiscal transactions have not been satisfactorily reflected in the official fiscal statistics. In the paper, the fiscal deficit resulting from the off-budget transactions has been estimated and included in the officially reported public budget balance. The main finding is that fiscal policy in the Czech Republic has been implemented in a dualistic way. The “official“ fiscal records do not send the same signals as the aggregated fiscal stance. The amount of the quasi-fiscal deficit is on average about 1.5% of GDP a year.

ASSESEMENT PART I

In the Czech case, past fiscal data impose a considerable uncertainty on monetary policy decisions due to the significant size of the off-budget transactions. This study has been the first one done by Czech experts with the aim to provide the Czech authorities a better estimate of the past fiscal policy stances. The only other source that could be used for this purpose is

the study by the World Bank that did not however work with the whole set of data. The results show that in the past the central bank might have been misled by the official fiscal data when judging the degree and timing of the fiscal expansion, or restriction respectively. For the purpose of the CNB inflation forecasts that are based on the analysis of economic cycle, this is a very important information.

SYNOPSIS PART II

The second part of the project explores the impact of the business cycle on the Czech fiscal balance in the last decade. In particular, two different methods have been employed - the OECD approach and the ECB approach. Despite “philosophical“ differences, both methods lead to the same conclusion that rising fiscal deficits have a structural character. The second conclusion is that the Czech fiscal policy has predominantly exhibited unwarranted pro-cyclical features. These crucial assessments hold true even if the estimate of the indirect (or quasi-fiscal) deficit that are result of the first part of the project are included. These findings send a warning signal that the Czech fiscal policy has been following an unsustainable path.

ASSESEMENT PART II

The major outcome of the project is a toolbox that is used by the CNB and also Ministry of finance to assess the Czech fiscal position. The major signal that cyclically-adjusted fiscal deficits are rising has been subject to policy debate inside the CNB as well as on various conferences. Since the paper works with two different methodologies that yield similar conclusions, the CNB can consider this signal to be a robust one. As a result, the fiscal shock analysis is quite frequent part of the inflation forecast. It is worth emphasising that two methodologies have been employed in order to develop fiscal indicators that can be used in communication with the European institutions. Specifically, the outcome of this study has been used in the Czech PEP.

SYNOPSIS PART III

The third part of the project looks at the likely long-run fiscal implications of the process of population ageing in the Czech Republic. The attention is devoted not only to public pension outlays, but also to health care spending, education expenditures and child/family allowances. Results are comparable from an international perspective, since the methodology developed by the OECD in recent years has been closely followed. The findings fully reflect that the Czech Republic belongs to the group of countries with the most pronounced population ageing. In addition, the high primary deficits contribute to the rapid rise in the debt irrespective of population ageing. Therefore, to cope with the expected fiscal pressures, it is necessary not only to overhaul the pension and health care systems in the medium-term but also to immediately start an intense strategy of consolidation aimed at significant primary deficit reduction.

ASSESEMENT PART III

This study has produced a very good background for the CNB as far as co-ordination of monetary and fiscal policies is concerned. The standard methodology has been applied in order to illustrate that the fiscal consolidation is an extremely important issue in the Czech case. The fiscal surpluses will be needed in the future in order to compensate the consequences of ageing of the Czech population that is dramatic, even by the European standards. The CNB has already claimed that the fiscal reform is a precondition of realising all potential benefits of the eurozone membership. However, the warning analysis based on data that would support this message has not yet been available.

4 MONETARY POLICY AND BUSINESS CYCLE TRANSMISSIONS IN A SMALL OPEN ECONOMY

Authors: D. Vávra, J. Beneš, V. Kotlán

Coordinator: T. Hlédik

SYNOPSIS

The authors develop microfoundations for the price and wage Phillips curves (as the key elements of monetary policy transmission) that are capable to account for observed persistence in inflation rates and meet the monetary superneutrality requirement. The underlying specification combines Calvo-style staggering with full backward indexation. Putting these elements into a simple SOE SDGE model the authors investigate implied cyclical model properties and recognise their potential for explaining observed inertia in both nominal and real (relative) prices. They also provide a nontechnical insight into the mechanics of their Phillips curves using the log-linearised versions.

ASSESEMENT

The price and wage behaviours laid out within the project aspire to become a new standard in the practical monetary business cycle SDGE modelling. The research outcome will be used for structuring further empirical investigation of the Czech transmission mechanism (roofed currently by 411) and incorporated into the new-generation core model.

5 MEASURING THE BUSINESS CYCLE POSITION: THE MONETARY POLICY PERSPECTIVE

Authors: D. Vávra, J. Beneš

Coordinator: T. Hlédik

SYNOPSIS

The already finalised project focuses on empirical evidence of the cyclical behaviour of inflation and real economic activity in the Czech economy. The authors investigate the relevance of real marginal cost indicators for domestic inflation dynamics and contrast it with a more common practice based solely on the output gap. Their empirical evidence builds upon an advanced reduced-form identification of common stochastic cycles using canonical correlation theory. The paper concludes that the cyclical fluctuations in inflation, real output and real marginal cost correspond with theory of structural models and anecdotal evidence for the Czech economy.

ASSESEMENT

Combining microfounded sticky-price theory and advanced common cycles methods the project provides more structured support for assessing the current business cycle position in prediction exercises. At the same time the results serve as an important input for calibrating the new-generation core macroeconomic model of the CNB.

6 WHAT REACTION FUNCTION FOR THE CZECH NATIONAL BANK?

Author: T. Hlédik

Coordinator: T. Hlédik

SYNOPSIS

The project aims at answering a practical policy question that is important for the CNB both in terms of the efficient conduct of monetary policy and in terms of communicating monetary policy decisions to the general public. More concretely, the key question is what kind of reaction function (policy rule) should the CNB use to minimise the volatility of some selected macroeconomic variables around their targeted (or equilibrium) value, or what is a plausible inflation-forecast feedback horizon for setting short-term interest rates in the Czech Republic. The finish of this research project is delayed due to more than initially expected time necessary for completing the author's first research project regarding the quantification of second-round effects of import and regulated prices. The two projects, however, are closely connected. The successful completion of the first research project enables the author to utilise the model set-up from the previous project and the methodology of deriving optimal policy rules within that framework. In addition a set of simple rules that will be compared with the optimal rules from the previous paper has been selected.

ASSESEMENT

A work is currently under way to derive analytically the unconditional variance for key model variables that is conditional on the variance-covariance matrix of an expected future shock to the economy and on the structure of the model. As soon as this methodology will be in working mode, the examination and evaluation of the various classes of policy rule will be a straightforward exercise. Based on the agreement of the director of economic research the project is expected to be completed by the end of this year.

7 QUANTIFYING SECOND-ROUND SUPPLY-SIDE EFFECTS ON INFLATION

Author: T. Hlédik

Coordinator: T. Hlédik

SYNOPSIS

The main goal of the approved research project has been to quantify the second-round effects of shocks to import prices, nominal exchange rate and administered prices on inflation depending on alternative assumptions made regarding wage-contracting specifications. The two alternatives included Fuhrer-Moore-type wage-setting behaviour, with real wages being defined in the first case in terms of the CPI and in the second case in terms of the GDP deflator.

The calibration technique used in the paper has been evolving over time. For the purposes of the interim seminar, the calibration has been done by means of a complicated econometric technique where theoretically derived restrictions were artificially imposed on the estimated parameters. This methodology has been replaced after that by a constrained optimisation technique that is applicable in a simple Excel spreadsheet.

The results presented in the paper suggest that the second-round effect of shocks to the exchange rate and import (or administered) prices do have significant effects on inflation. The

model simulations included in the paper show, that the relative magnitude of these second-round effects on inflation and output is positively related to the weight of these variables in the loss function of the central bank. The derived optimal policy rules answer also the question what should be the reaction of the central bank to the shocks.

ASSESEMENT

The results derived in the paper are based on empirical research and as such they are highly applicable for quantifying the impact of above mentioned shocks to CPI inflation. In addition, the paper derives monetary policy reaction functions that are useful benchmark rules for evaluation the optimal monetary policy reaction to these shocks should they occur. Therefore, the applicability of the results in practical policy making is straightforward. The results are going to be utilised in the author's assessment of monetary policy stance for the Bank Board.

8 IDENTIFICATION AND MEASUREMENT OF THE RELATIONSHIP BETWEEN FDI AND SELECTED MACROECONOMIC VARIABLES

Author: P. Král

Coordinator: T. Hlédik

SYNOPSIS

The ultimate goal of this learning project is to obtain quantitative evidence and econometric estimation describing determinants and impacts of FDI in the case of the Czech economy in order to support macroeconomic analysing and forecasting process in the Czech National Bank.

The already finalized paper focuses is in more detail on the determinants of FDI inflow which are closely related to the theory and practise of a multinational company. Furthermore, micro- and macroeconomic characteristics of a potential host country playing a significant role in decision making process of a MNC are being examined both theoretically and empirically. The assessment of the role of government investment incentives and promotion in attracting foreign direct investors and providing information on the Czech economy environment is an integral part of the analysis.

To reach those objectives cointegration analysis and error-correction models are being used to evaluate statistical significance and size of influence of possible theoretically relevant factors and to develop econometric model serving for both in-sample analysing and out-of-sample forecasting FDI inflow.

ASSESEMENT

There are two clear objectives that have been achieved during the realization of this project. First, the author of the paper made a significant progress by improving his analytical capabilities in terms of the econometric methodology being applied in the paper. Since the project has been defined as a learning project, the probably most important goal of the project has been thus fulfilled. Second, the results presented in the paper can be directly utilized in analyzing and forecasting procedures connected to preparation of regular monetary policy documents. In accordance with the presented empirical results, the paper formulates policy recommendations. The final review committee approved the project and at the same time made some recommendations to sharpen the focus of the paper. The author is currently incorporating these recommendations and preparing the final version of the paper.

9 CONVERGENCE TRAJECTORIES IN TRANSITIONAL ENVIRONMENT

Authors: D. Vávra, M. Cincibuch, M. Kejak, J. Podpiera

Coordinator: M. Hrnčíř

The project has been split into four parts

PAPER: REAL AND NOMINAL CONVERGENCE

Authors: Cincibuch, Vávra

SYNOPSIS

Though monetary policy takes place in the framework of monetary transmission mechanism within a business cycle, the cycle itself is influenced by long term trajectories of the real variables. Using a simple theoretical framework of Balassa-Samuelson and Obstfeld and Rogoff the authors quantify long term trajectories of GDP, real exchange and interest rates on the basis of a few underlying assumptions.

ASSESEMENT

Evaluation of long term trajectories is an important input for medium term macroeconomic predictions. These trajectories find their use in the Quarterly Prediction Model (QPM) which is the core model for the quarterly forecast at the CNB. The output in terms of programs computing long term trajectories had been used regularly in the quarterly prediction process until mid 2002 when large nominal and real appreciation of CZK cast doubts on the importance of the BS effect in accounting for real appreciation.

PAPER: REAL APPRECIATION IN THE CZECH REPUBLIC: ASSESSING SECTORAL DISPARITIES

Authors: Cincibuch, Podpiera

SYNOPSIS

The relationship between real exchange rate and external competitiveness is in the economies in transition influenced by systematic changes in quality, which are inherently unobservable. The paper developed a simple framework to analyse quality related movements in the real exchange rate and terms of trade and applied it to Czech data.

ASSESEMENT

The paper suggested how to work systematically with quality differences, which are notoriously difficult to measure, and to quantify their effects, making thus legitimize the use of the quality adjusted PPP in the sectoral perspective. The approach combining domestic and foreign markets allowed to determine the development of the Czech production's total market share. The quality adjusted real exchange rate concept is used in CNB as input for the assessment of the Czech economy's competitive position. In addition, it is a component of the investment real portfolio share model applied for prediction of the portfolio investment flows in the course of the quarterly prediction process.

PAPER: THE CZECH ECONOMIC TRANSITION: EXPLORING OPTIONS USING A MACROSECTORAL MODEL

Authors: Vávra, Kejak (Barry, Bradley)

SYNOPSIS

Long term convergence of the Czech economy depends on a number of institutional factors such as wage bargaining process. Drawing on previous modelling research authors explore some key policy issues facing CEE-country decision makers: labour market reforms, disinflation and industrial development in a model framework.

ASSESEMENT

The analysis suggested what could be learned from the experience of EU peripheral countries, which have converged substantially towards EU average standards.

PAPER: FACTOR ACCUMULATION STORY: ANY UNFINISHED BUSINESS?

Authors: Kejak, Vávra

SYNOPSIS

The authors construct a new measure of knowledge capital as an aggregate production factor in endogenous growth model of the Lucas type. Majority of empirical research, on the other hand, does not employ growth in human capital as an important determinant of productivity growth, favouring the role of a level of human capital instead.

ASSESEMENT

Using their measure of knowledge capital in decomposing postwar growth record in a large set of countries the authors find that surprisingly little is left for technology, once the accumulation of physical and knowledge factors of production have been accounted for.

10 ESTIMATING FUNDAMENTAL EQUILIBRUM EXCHANGE RATES FOR THE FIVE ACCESSION COUNTRIES

Authors: K. Šmídková

Coordinator: M. Hrnčír

SYNOPSIS

The project applied the concept of fundamental real exchange rate (FRER) to assess whether stability of real exchange rates, required by two Maastricht criteria, will be in line with economic fundamentals of pre-accession countries in the forthcoming period and whether a currency misalignment can cause difficulties when introducing the ERM II. The FRER model approximates the integration gain of the impact of foreign direct investment on trade and allows for larger current account deficits if external debt is below safety limit. Model coefficients have been calibrated according to the authors' previous econometric work. Sensitivity tests have been used to deal with uncertainty related to baseline assumptions. Compared to the calculated FRERs, there were signs of overvaluation for all pre-accession economies, with the exception of Slovenia, in the end of 2001. The second main finding relates to the feasibility of stable real exchange rates in the pre-EMU period. The stability of real exchange rates will not be automatically in line with economic fundamentals in the forthcoming period and, moreover, FRERs do not move in one direction in all pre-accession

countries. This finding suggests that certain flexibility of exchange rates will be needed in the forthcoming period.

ASSESEMENT

Since the working paper has been published the outcomes of the project have been widely drawn upon. The computed trajectory of the Czech FRER has been applied by the Monetary and Statistics Department for robustness checks of assumptions of the CNB inflation forecasts. The group of experts working on the Czech Euro-strategy has also used the project's results as input in their discussions. The paper will be published in Prague Economic Papers. It was also presented during the ECB Research meeting on Equilibrium Exchange Rates in Accession Countries: Macroeconomic and Methodological Issues in September 2003. In the concluding session of this meeting, panellists from EC and IMF recommended the methodology to be used in the policy debate on euro-strategies of the acceding countries.

11 PRICE CONVERGENCE TO THE EU

Authors: T. Holub, M. Čihák

Coordinator: M. Hrnčíř

Based on a referee's recommendation, the output of the project has been split into two working papers. The first one deals with the theory of price convergence, the second one presents an empirical analysis.

PAPER: PRICE CONVERGENCE: WHAT CAN THE BALASSA-SAMUELSON MODEL TELL US ?

Authors: T.Holub, M.Čihák

SYNOPSIS

The authors derive a „nested“ model integrating the Balassa-Samuelson model of real equilibrium exchange rate with a model of capital accumulation and with the demand side of the economy. They show how the model can be generalized to a case of numerous commodities with different degrees of tradability. The predictions of the model are shown to be consistent with the empirical findings for Central and Eastern European (CEE) countries.

ASSESEMENT

The theoretical model is used to present consistent simulations of the future convergence process in a transition economy driven by accumulation of non-tradable capital and/or declining risk premium. The results were used within the discussions of the long-run block of the CNBs' forecasting model, complementary to the research done by the staff responsible for the model's development.

PAPER: PRICE CONVERGENCE TO THE EU: WHAT DO THE 1999 INTERNATIONAL COMPARISON PROJECT DATA TELL US

Authors: Martin Čihák, Tomáš Holub

SYNOPSIS

The paper makes cross-country comparisons based on the International Comparison Project (ICP 1999). Using a detailed breakdown of commodities the authors find that no clear distinction can be made between tradable and non-tradable goods, the „degree of non-

tradability“ varying between 10 and 85 percent. The implications of this setting for differences in the structures of relative prices in the CEE countries compared with the EU are analysed. Using additional explanatory variables besides the GDP in terms of PPP, the authors dispute the often made conclusion that the Czech price level is „too low“ in an international comparison.

ASSESEMENT

Apart from the external publication and presentation at conferences, the results of the project were used at CNB internal discussions surveying alternative empirical models of real impacts of the exchange rate. According to the authors, in a benchmark convergence scenario the equilibrium real exchange rate appreciation of the Czech koruna (CZK) may reach roughly 1.5-2.0 percent a year, but there may be some additional sources of real appreciation such as terms of trade changes or price deregulations, which could lead to a higher pace in the medium run. It may take about 15 years for the Czech relative price structure to converge to the ratios of the least developed EU countries.

12 THE MACROECONOMIC CONVERGENCE PROCESS OF THE CZECH ECONOMY TO THE EU/EMU

Authors: L. Komárek, Z. Čech, R. Horváth

Coordinator: M. Hrnčíř

PAPER: OPTIMUM CURRENCY AREA INDICES- HOW CLOSE IS THE CZECH REPUBLIC TO THE EUROZONE?

Authors: Zdeněk Čech, Roman Horvath, Luboš Komárek

SYNOPSIS

The authors employ standard OCA criteria to assess whether locking the koruna into Eurozone should be suggested on the basis of the mentioned theoretical background. Paper provides a survey of the optimum currency area theory in relation to the potential entry of the Czech Republic into the EMU. The explanatory power of the optimum currency area criteria is discussed and the optimum currency area index is calculated for the Czech Republic.

ASSESEMENT

The paper represents an attempt to assess the cost-benefit ratio of adoption of a common currency. The results tend to suggest that within the logic of optimum currency area theory the costs of adopting the euro may be relatively small for the Czech Republic in comparison with some other countries, including EMU members.

PAPER: ERM II MEMBERSHIP – THE VIEW OF THE ACCESSION COUNTRIES

Authors: Zdeněk Čech, Roman Horvath, Luboš Komárek

SYNOPSIS

With the aim to provide an answer to the open issues of ERM II for candidate countries the authors first look at the experience of the EMU members. For some of them the participation in the mechanism coincided with their strategy of exchange rate stability vis-a-vis German mark and none faced a considerable challenge to the criterion of exchange rate stability in the evaluation period. However, the catching-up process of candidate countries can make the compliance with ERM II criteria rather demanding.

ASSESEMENT

The paper identifies factors which may influence exchange rate trajectory in the run-up to eurozone membership in candidate countries as well as the setting of the central parity for the entry into ERM II relative to the market exchange rate. Paper's conclusions were utilized in the drafting of the CNB documents related to the ERM II and EMU membership.

13 INTERACTIONS BETWEEN REAL AND NOMINAL CONVERGENCE

Authors: V. Flek, L. Marková, J. Podpiera, J. Hurník, J. Jonáš

Coordinator: M. Hrnčíř

PAPER: SECTORAL PRODUCTIVITY AND REAL EXCHANGE RATE APPRECIATION: MUCH ADO ABOUT NOTHING?

Authors: V.Flek, L.Marková, J.Podpiera

SYNOPSIS

The paper estimates relative price changes stemming from fluctuations in sectoral productivity using panel data for a group of national economies. Taking into account country-specific weights of nontradables in consumption (value added) and assuming there are no adjustments in nominal exchange rates, the cross-country CPI inflation differentials implied by sectorally unbalanced productivity growth are calculated.

ASSESEMENT

Contrary to the prevailing view, the estimation results question the role of

Balassa-Samuelson effect as one of the key explanatory variables of equilibrium real exchange rate appreciation in the Czech economy. Sectoral productivity developments are found to have a statistically significant impact on relative prices in the EU countries and in the Czech Republic, its magnitude has been, however, weaker than what would B-S effect predict. The final impact of relative productivity on inflation (real exchange rate) has been even weaker, for the Czech economy appeared almost negligible. Moreover, provided productivity growth in the traded sector does not accelerate dramatically, the same conclusion seems to be relevant also for the future. The outcomes of the paper made an important contribution to the on-going discussion within CNB on the extent and factors of equilibrium real exchange rate appreciation. In the documents, including policy ones, the earlier expectations assuming substantial impact of B-S effect appear to be modified.

PAPER: EMU ACCESSION: CAPITAL FLOWS AND POLICY ISSUES

Author: J. Jonáš

SYNOPSIS

The focus of the paper is capital flows in the process of economic convergence of the Czech Republic to the eurozone. Two specific forms of capital inflows are analysed in detail: foreign direct investment and portfolio capital related to the „convergence play“ in particular. The actual capital inflows have appeared as yet to be much less than could be predicted on the basis of theoretical models given the more profitable opportunities for investment than in developed countries. The causal factors of this discrepancy are identified as well as the likely sources of changes in the run-up to EMU entry.

ASSESEMENT

Paper contributed to the assessment of the impact of capital inflows on exchange rate appreciation and its sustainability which represents a major policy concern in the course of convergence. Further, arguments were developed for disciplined fiscal policies to cope with large and volatile capital flows.

14 PROJECT TITLE: FINANCIAL MARKET REGULATION AND FORWARD-LOOKING RISK MANAGEMENT: ENDOGENETY ISSUES

Authors: M. Cincibuch

Coordinator: K. Šmídková

SYNOPSIS

The project has responded to the transition from Basle Capital Accord from 1988 to the New Basle Accord. This transition implies that the financial market regulation shifts from simple rules towards more market-sensitive and model based approach. The aim of the project was to use a simple general equilibrium model and to build on the previously published results pointing out that widespread use of backward-looking VaR models might induce more market instability. The introduced partially rational expectations and endogenous gross pay-off system changed the numerical properties of the model significantly. In order to overcome technical difficulties, a further study is required.

ASSESEMENT

The topic of the project is relevant for the CNB. The Final report gives a sufficient background for the interested readers about the relevant literature and model framework. Due to technical difficulties, it has been agreed with the author that if the numerical solutions are developed for the above-described model and the study thus proceeds further, the project will be re-submitted.

15 PROJECT TITLE: MODELLING A MARKET CONSENSUS FORECAST OF CENTRAL BANK BEHAVIOUR

Authors: M. Hlušek

Coordinator: K. Šmídková

SYNOPSIS

The project aimed at producing an indicator of the money market reaction to verbal interventions by the Board. The paper illustrates that the probability structure of expected interest rate changes could serve this purpose. The paper presents estimates of the market consensus forecast of future monetary policy development and quantifies the priced-in probability of interest rate changes for different future time horizons. The proposed model uses the current spot money market yield curve and available money market derivative instruments, and estimates the market probability of interest rate changes up to a 12-month horizon. The estimated probabilities and possible interest rate scenarios are consistent with the observed money market and FRA interest rates.

ASSESEMENT

For the purpose of the final presentation, several policy decisions by the CNB in 2002 were illustrated with estimates. The participants, two of them being chief economists of large private financial institutions, in subsequent debate about their interpretation concluded that the estimates produced an indicator measuring to which the extent the Czech monetary policy is predictable and that the indicator can be used to quantify the surprise effects of unexpected monetary policy changes. The model's output has to be interpreted as a description of the current market consensus on future monetary conditions rather than a tool for predicting or setting the correct level of interest rates. The files necessary for reproducing the estimates for new data regularly, are available to the CNB experts on the intranet site of the SOEV.

16 THE MICROSTRUCTURE OF THE CZECH KORUNA MARKET AND ITS IMPACT ON EXCHANGE RATE RISK IN THE FINANCIAL SECTOR

Authors: A. Derviz, J. Benová, Z. Silberová, M. Peřina, L. Mochán
Coordinator: T. Hlédik

PAPER: COMPONENTS OF THE EXCHANGE RISK PREMIUM IN A MULTIPLE DEALER FX MARKET

Author: A. Derviz

SYNOPSIS

The already finalised paper proposes a continuous time model of an FX market organised as a multiple dealership. The model reflects a number of salient features of the spot market with the Czech koruna. It assumes that dealers have costly access to best available quotes and they interpret signals from the joint dealer-customer order flow. Each dealer uses the observed order flow to improve the subjective and uncertain estimates of relevant aggregate variables. One of the risk factors is the size of the cross-border dealer transactions in the FX market. The model is used to explain the country, or risk, premium in the uncovered national return parity equation for the koruna/euro exchange rate. The two country premium terms identified in excess of the usual covariance term are: the dealer heterogeneity-induced inter-dealer market order flow component and the dealer Bayesian learning component. The model links the exchange rate to both the “fundamental” factors represented by the differential of the national asset returns and microstructural factors.

ASSESEMENT

The results of the paper are utilised when the zero-iteration reference scenario for the CZK/EUR rate is set during the inflation forecasts in the Czech National Bank. The evidence on the cross-border order flow impact on the Czech koruna risk premium, in accordance with the model prediction, is directly applied. The cross-border order flow in the Czech koruna/euro spot market can be proxied by certain posts in the financial account describing the banking sector spot FX operations with non-residents. The model predicts that the cross-border order flow can be a source of self-fulfilling beliefs and herding behaviour by the dealers. An appropriate adjustment of the forex intervention tactics by the CNB can be able to mitigate the negative impact of herding behaviour of the market makers on the koruna's exchange rate.

PAPER: DEALER QUOTES, ORDER FLOW AND INDIRECT FOREIGN CURRENCY UTILITY IN A MULTIPLE DEALERSHIP MARKET

Author: A. Derviz

SYNOPSIS

The finalized paper investigates the transmission of macroeconomic factors into the price-setting behaviour of a specific dealer in the market for the Czech koruna. The analysis is based on a model of multiple dealer market under two organisations: direct inter-dealer and brokered. It is shown that under the studied trading mechanisms, the marginal valuations of foreign currency holdings across market participants determine the equilibrium exchange rate by means of different trade patterns. Specifically, the brokered market is inferior to the direct one in terms of welfare improvement through trade. It takes a higher inter-dealer trade volume in the brokered market to absorb a new price impulse.

ASSESEMENT

The paper argues that the central bank should *monitor the more transparent* of the two FX trading institutions (i.e. *brokers*) to extract information about the market as a whole, and overcome undesired asymmetry in the dispersed information in the forex by designing *interventions in the direct inter-dealer segment*.

17 MACROECONOMIC AND MONETARY POLICY DETERMINANTS OF THE BANKING SECTOR'S ASSET-SIDE RISKS

Authors: A. Derviz, N. Kadlčáková, L. Jaroňová, J. Mašatová, I. Babouček, E. Špaček, L. Kobzová

Coordinator: T. Hlédik

PAPER: CREDIT RISK, MARKET RISK AND THE ECONOMIC CAPITAL REQUIREMENTS FOR AN ARTIFICIAL BANK LOAN PORTFOLIO

Authors: A. Derviz, N. Kadlčáková, L. Kobzová

SYNOPSIS

The paper analyses the impact of different credit risk-based capital requirement implementations on banks' need for capital. The capital requirements for an artificially constructed risky loan portfolio are calculated by applying the BIS approach, the two widespread commercial risk measurement models, CreditMetrics and CreditRisk+, and, finally, an original synthetic model. To rate private firms, a simplified version of Moody's methodology is applied. The author's own model combines the elements of the structural and the reduced form methods of risky debt pricing, and the possibilities of its numerical solution are outlined. Economic capital requirements for the CreditMetrics and the author's own synthetic model are obtained by means of Monte Carlo simulations. In addition, a Monte Carlo-based stress testing of the monetary policy changes reflected in the term structure of interest rates are performed in the context of CreditMetrics.

ASSESEMENT

The study is one of the first steps towards a theoretically sound and technically demanding methodology for assessing the lending behavior of banks in relation to the business cycle and the CNB interest rate policy. It is important to note, that the results were obtained by a team

that includes economists from both the Monetary and Statistics and Banking Regulation Departments.

PAPER: PREDICTING BANK DOWNGRADES USING CAMEL AND S&P RATINGS: THE CASE OF THE CZECH REPUBLIC

Authors: A. Derviz, J. Podpiera

SYNOPSIS

The paper investigates the possibility to explain the movements of the commercial bank ratings in the Czech Republic by a number of financial indicators. The Standard&Poor's and the CAMELS (standing for Capital, Assets quality, Management, Earnings, Liquidity, and Market Risk) ratings for the three biggest banks have been analyzed. An ordered response logit model was applied to the S&P rating, a panel data approach – to the CAMELS rating predictions. The paper finds that the predictors with explanatory power in the S&P case are capital adequacy, cost of funds (the distance between the deposit rate of the bank and the money market rate), total loans to total assets ratio and the Value-at-Risk for total assets. The results suggest, that the regulatory knowledge of the variables appearing in the CAMELS valuation, together with the publicly observed bank deposit rate policy, is sufficient to predict the external rating (such as S&P) change rather accurately. That is why the regulatory information advantage over the public can be used to pre-empt a destabilizing development in the banking sector.

ASSESEMENT

The application of results is expected in the Monetary and Statistics and Banking Regulations Departments. The application is related to the prediction of the commercial bank lending policies during the implementation process of the New Basel Capital Accord recommendations within the Czech banking sector.

18. USING THE WAGE CURVE APPROACH IN THE ANALYSIS OF WAGE INFLATION

Authors: K. Galuščák, D. Münich

Coordinator: V. Flek

SYNOPSIS

The aim was to examine one of the most important equilibrating channels in the economy—the relationship between wages and unemployment. Since the scale and scope of this relationship emanates primarily from the micro-level, the authors estimated the regional unemployment elasticity of wages for Czech districts. The purpose was to test whether such a disaggregated approach could improve the predictive power of wage inflation explained by unemployment. According to the results, the elasticity is negative at about the level observed in other countries. In particular, the elasticity is significant for the short-term unemployed, in districts of low unemployment rates, and in districts of a low share of employment in the public sector.

ASSESEMENT

This is probably the first paper on this topic written and presented by Czech authors. The main policy conclusion is that the unemployment rate calculated for districts of prevalently low unemployment has robust implications for predicting wage inflation—the predictive power of wage inflation explained by unemployment is increased when the unemployment rate of these districts is used. These findings could be (or already are) explored in both *Inflation and Situation Reports*, as well as in *ad hoc* policy documents (such as the regular *EU Convergence Position Reports* of the Czech National Bank and the Ministry of Finance). Concretely, a higher emphasis should be put on regional and short-term unemployment in analysing and predicting the determination of wage levels. At the same time, the results of this research have received international attention (recognition) - the authors were invited to present their research paper in Stockholm at the *Annual Conference of the European Economic Association* (August 2003) and also in Sevilla at the *Annual Conference of the European Association of Labour Economics* (September 2003). The authors intend to submit a refined version of the project paper to the *Economics of Transition*.

19. FINANCIAL PERFORMANCE AND COMPETITIVENESS OF THE CZECH ENTERPRISE SECTOR

Authors: A. Buchtíková et al.

Coordinator: V. Flek

The work on this project could not be launched - the principal researcher left the Czech National Bank.

20. DETERMINING FACTORS OF THE CZECH FOREIGN TRADE BALANCE: STRUCTURAL ISSUES IN TRADE CREATION

Authors: L. Prokop, V. Benáček J.A. Víšek

Coordinator: V. Flek

SYNOPSIS

The balance of trade is fundamentally influenced by the exchange rate, aggregate demand and tariff changes. The underlying fundamental factors relevant for a sustainable trade balance and an equilibrium exchange rate rest, however, on supply-side characteristics such as changes in factor endowments, inflows of FDI and growing competitiveness of domestic production. Appreciation of the real exchange rate is a handicap to Czech exports, especially to exports to non-EU countries. Nevertheless, in the EU case, the appreciation is countervailed by tariff concessions, improved quality, switchover to commodities with higher contents of value added, gains associated with FDI and growing foreign demand absorption. Appreciation of the real exchange rate has significantly opened the Czech market to imports but the unconstrained import penetration remains blocked by the growing competitiveness of Czech products in costs, prices and quality.

ASSESEMENT

The empirical results of the project indicate that they could be of high relevance for the process of predicting external balance developments and that some of the conventional views on the dynamics of Czech trade should be reconsidered. The results of the project were also

presented internationally (presentation at the *Vienna Institute for Comparative Economic Studies - WIIW* in June 2002 and at the international conference on *Exchange Rate Strategies during the EU Enlargement* in Budapest, November 2002). Based on the results achieved so far, the project was renewed, with the aim of delivering a model suitable for predictions, including simulations of future trade developments.

21. THE IMPACT OF TERMS-OF-TRADE CHANGES ON FOREIGN TRADE, RELATIVE AND ECONOMIC ACTIVITY IN THE CZECH ECONOMY (LEARNING PROJECT)

Author: V. Benda

Coordinator: V. Flek

SYNOPSIS

The analysis of terms-of-trade developments was intended to provide the analytical work at the CNB with an improved understanding of the factors underlying deteriorations/improvements in the foreign trade balance. Initially, the project focussed on choosing the appropriate concept for the terms-of-trade-gain calculation. The subsequent analysis dealt both with the aggregate level and with selected commodity groups such as fuel products and manufactured goods. The results document a negative impact of fuel prices on the trade balance, as opposed to the export/import prices of manufactured goods. In general, the author observes a constant positive contribution of the terms of trade to real income between 1994 and 1998 and a decline during 1999–2000.

ASSESEMENT

Considering the learning project framework, the results presented by the author can be accepted as fulfilment of the project proposal and presented internally. However, the public presentation of the project and its subsequent publication as a working paper would require further effort, both in data collecting and in deepening the analytical framework.

22. THE COST OF ELIMINATING THE CURRENCY CRISIS

Authors: L. Komárek, M. Melecký, J. Pečonka, Z. Komárková

Coordinator: V. Flek

SYNOPSIS

The project summarises the experience from currency crises which are most relevant for the real variables and main fundamentals of the Czech economy. Greatest attention is paid to the link between the exchange rate (quantification of the undervaluation/overvaluation of the exchange rate and the exchange rate market pressure index) and the primary indicators of the economy. Furthermore, the project concentrates particularly on the costs that are associated with currency crises and the link between currency crises and developments in the real economy.

ASSESEMENT

At this stage, the authors have succeeded in formulating theoretical background, collecting data and providing basic descriptive statistics, while still experimenting with choosing an appropriate econometric framework.