



## **MNB WORKING PAPER**

**2004/4**

Gábor Orbán - György Szapáry

**THE STABILITY AND GROWTH PACT FROM THE PERSPECTIVE  
OF THE NEW MEMBER STATES**

May, 2004

Online ISSN: 15 855 600  
ISSN 14195 178  
ISBN 963 9383 43 0

**Orbán Gábor:** Economics Department, Magyar Nemzeti Bank  
E-mail: [orbang@mnb.hu](mailto:orbang@mnb.hu)

**György Szapáry** Deputy Governor of the Magyar Nemzeti Bank  
E-mail: [szaparygy@mnb.hu](mailto:szaparygy@mnb.hu)

The purpose of publishing the Working Paper series is to stimulate comments and suggestions to the work prepared within the Magyar Nemzeti Bank. Citations should refer to a Magyar Nemzeti Bank Working Paper.

The views expressed are those of the authors and do not necessarily reflect the official view of the Bank.

Magyar Nemzeti Bank  
H-1850 Budapest  
Szabadság tér 8-9.  
<http://www.mnb.hu>

## **Abstract**

The purpose of this paper is to examine the fiscal characteristics of the new members in the light of the requirements of the SGP and the criticisms levelled against the Pact and to see in what ways their initial conditions differ from those faced by the current euro zone countries in the run-up to the adoption of the euro. Overall, because of the lower debt levels and greater yield convergence already achieved, the new members will be able to rely less on gains from yield convergence than the current euro zone members were able to do. EU accession will also have a negative net impact on the budgets of the new members in the early years of membership. We also look at the cyclical sensitivities of the budgets and find that in the new members the smoothing capacity of the automatic stabilizers might be weaker than in the current euro zone members. Beyond these general characteristics, we also emphasize that there are large differences in the starting fiscal positions of the new members. Some of the policy implications of our findings are discussed.

**JEL Classification numbers:** E61, H6, H87

**Keywords:** EU enlargement, fiscal policy, fiscal rules, Stability and Growth Pact

# Table of Contents

<b>I. INTRODUCTION</b> .....	<b>4</b>
<b>II. THE STABILITY AND GROWTH PACT</b> .....	<b>4</b>
1. FEATURES .....	4
2. CRITICISMS OF THE SGP .....	5
3. PROPOSALS FOR IMPROVEMENT FOUND IN THE LITERATURE.....	8
<b>III. FISCAL CHARACTERISTICS OF THE NEW MEMBER STATES</b> .....	<b>9</b>
1. THE ROAD TO THE EURO .....	9
2. THE SGP FRAMEWORK.....	12
3. SUMMARY OF FINDINGS .....	14
<b>IV. POLICY IMPLICATIONS</b> .....	<b>15</b>
<b>REFERENCES</b> .....	<b>18</b>
<b>ANNEX: THE CALCULATION OF CYCLICAL SAFETY MARGINS</b> .....	<b>21</b>
<b>FIGURES</b> .....	<b>23</b>
<i>Figure 1. Deviations from the Maastricht Deficit Criterion of 3 Percent of GDP Prior to euro adoption</i> .....	23
<i>Figure 2. Debt Ratios Prior to euro adoption and in 2003</i> .....	24
<i>Figure 3. Bond Yield Convergence in the Run-Up to euro adoption and Scope for Convergence in the New Member States</i> .....	25
<i>Figure 4. Gains in Interest Payments due to Bond Yield Convergence in the Run-Up to euro adoption</i> .....	26
<i>Figure 5. Required Improvements in the Primary Balances to Reach the Maastricht Deficit Criterion of 3 Percent Taking Account of Gains from Bond Yield Convergence</i> .....	27
<i>Figure 6. Per Capita Income and Government Spending in the EU and the CEEs, 1998-2003 averages</i> .....	28
<i>Figure 7. Average Government Investment Ratios in the EU-15 and the CEEs, 1993-2003</i> .....	29
<b>TABLES</b> .....	<b>30</b>
<i>Table 1. Net Budgetary Effect of EU Accession</i> .....	30
<i>Table 2: Cyclical Budget Sensitivity and Minimal Benchmarks</i> .....	31
<i>Table 3. Dependency Ratios and Fertility Rates</i> .....	32
<i>Table 4. Primary Deficit Gaps to Reach 40 percent Debt/GDP Ratios in Ten Years under Different Assumptions for Growth and Real Interest Rates (In percent of GDP)</i> .....	33

## I. Introduction

The ten new Members States (NMS)<sup>1</sup> of the European Union (EU) have to comply with the budgetary objectives stipulated in the Maastricht Treaty (MT) and the Stability and Growth Pact (SGP), and are subject to the EU budgetary surveillance framework including, where relevant, the activation of the Excessive Deficit Procedure (EDP). However, as long as they have not adopted the euro, the NMS will not be subject to the so-called enhanced budgetary surveillance under the EDP, nor to the sanctions foreseen for the members of the euro zone<sup>2</sup>. The NMS have the obligation to adopt the euro and to meet the Maastricht criteria of public finance, inflation, interest rate and exchange rate. As soon as they meet these criteria, they are supposed to introduce the euro and to become a full participant of the Economic and Monetary Union (EMU).

The purpose of this paper is to examine the fiscal characteristics of the new members in the light of the requirements of the SGP and the criticisms levelled against the Pact and to see in what ways the initial conditions of the NMS differ from those faced by the current euro zone countries in the run-up to euro adoption. The paper is organized as follows. Section II briefly summarizes the main features and criticisms of the SGP, as well as the principal proposals for improvement of the Pact found in the literature. Section III examines the fiscal characteristics of the NMS from the perspective of meeting the Maastricht criteria on the road to euro adoption and from the broader perspective of the SGP framework. This section ends with a summary of our findings. Section IV discusses some of the policy implications of our findings.

## II. The Stability and Growth Pact

### 1. Features

The SGP and its rules are well known and well documented and we briefly recall only its main features and the rationale behind them<sup>3</sup>. A unique feature of the euro zone is that monetary policy is centralized in the hands of the European Central Bank (ECB) while fiscal policy remains decentralized in the hands of the governments of the individual member states. It was therefore recognized that to support the ECB's responsibility to maintain price stability and to prevent free-riding, fiscal policy had to be subject to rules in order to ensure discipline of public finances. These rules consist of two pillars. First, a Members State's general government deficit/GDP ratio cannot exceed 3 percent and its general government debt/GDP ratio cannot exceed 60 percent; in case the latter ratio is exceeded, the country has to demonstrate that its debt is being reduced and approaching the reference value at a satisfactory pace. Second, Member States

---

<sup>1</sup> Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovenia, Slovakia.

<sup>2</sup> For a description of the EDP, see Gros et al. (2004) and Cabral (2001).

<sup>3</sup> A good description of the SGP and how it works can be found in Gros et al. (2004), Fatás et al. (2003), HM Treasury (2004), European Commission (2000, 2002, 2003) and ECB (1999).

have to respect the medium-term budgetary objective of ‘close to balance or in surplus’ in order to allow for normal cyclical fluctuations, while keeping the deficit within the reference value of 3 percent of GDP. The 3 percent reference value for the deficit can be breached only under exceptional circumstances, when the excess results from an unusual event outside the control of the Member State and which has a major budgetary impact, or when it results from a severe economic downturn, defined as an annual fall of real GDP of at least 2 percent. A smaller, at least 0.75 percent decline in GDP, can be considered as exceptional taking into account the abruptness of the downturn and the accumulated loss of output relative to past trends.

It is a legitimate question to ask how the reference values of 60 percent of GDP for the government debt and 3 percent of GDP for the fiscal deficit were chosen. It has been suggested (Thygesen, 2002) that 60 percent was the average debt ratio of the EU members around 1990 (the MT was signed in 1992) and if countries kept their deficit at the 3 percent limit, their debt would converge to 60 percent, assuming that nominal GDP is rising at a trend rate of approximately 5 percent per year: 3 percent real growth (assumed to be the potential output growth in the EU) plus 2 percent inflation (in line with the ECB’s inflation target of 2 percent or less). While these reasonings have not been made officially public as far as we know, it is widely assumed that they lay behind the selection of the reference values.

## **2. Criticisms of the SGP**

The main criticisms levelled against the SGP can be grouped under the following headings on the basis of what the Pact is seen as lacking: strong enough analytical foundations, symmetry, flexibility, incentives for good quality fiscal consolidation, and enforceability<sup>4</sup>. We discuss these in turn below.

### *a) Lack of clear analytical foundation*

A frequently mentioned criticism which seems to have dented the most the credibility of the SGP in the eyes of academics is that its main provisions lack a clear analytical foundation. The rationale behind the ‘close to balance or in surplus’ rule is debt sustainability, which means that the government cannot run a Ponzi scheme where debt grows forever, but it has to satisfy its intertemporal budget constraint, that is to say, the present discounted value of its expenditures must equal the present discounted value of its revenues. However, as pointed out by Perotti et al. (1997), debt sustainability thus defined is of little practical use, since the intertemporal budget constraint has an infinite time horizon that does not sufficiently constrain government policies: anything can be assumed about the future. The intertemporal budget constraint depends on GDP growth, inflation and real interest rates, but the SGP does not take into account the differences in these areas across countries. Typically, catching-up economies such as the NMS have higher potential growth and higher inflation due to the Balassa-Samuelson

---

<sup>4</sup> There is a good review of the criticisms of the SGP in Buti et al. (2003a).

(BS) effect, which is an equilibrium phenomenon<sup>5</sup>. Thus, catching-up economies could, *ceteris paribus*, run higher deficits than more developed countries without jeopardizing the long-term sustainability of public finances.

Furthermore, the SGP does not address the critical issue of what is the optimal level of debt and treats low and high debt countries identically. Implicitly, the ‘close to balance or in surplus’ rule over the cycle means that eventually the debt will be run down to zero. Zero debt may not be an optimal solution since it ignores the benefits of the intergenerational distribution of taxes to finance, for example, infrastructural investments and reforms in the pension and health care systems that will benefit future generations<sup>6</sup>. The optimal level of debt depends, *inter alia*, on whether the interest payments on the debt crowd out worthwhile investments and whether the disincentive effects of higher distortionary taxes to cover the interest payments are important or not (Aiyagari and McGrattan, 1998). From that perspective, low debt countries have more room for maneuver than high debt countries. The uniform deficit rule does not take into account the higher need for infrastructural investments in countries where the initial stock of public capital is insufficient, as in the catching-up NMS. Furthermore, the uniform reference value of the debt does not explicitly take into consideration the contingent liabilities due to population ageing and the state of pension reform that can vary from one country to another.

A further criticism from an analytical standpoint is that the SGP disregards the aggregate fiscal stance of the euro area. In a monetary union, what matters from the point of view of macroeconomic stability is the fiscal stance of the union as a whole and not the fiscal stance of individual countries. The fiscal policies of large countries have a greater impact on the fiscal stance of the union than the fiscal policies of smaller countries.

#### *b) Lack of symmetry*

Two issues are relevant under this heading. First, for countries which have not yet reached the ‘close to balance or in surplus’ position, the requirement that they reduce continuously the deficit may entail procyclical policies in an economic downturn. This problem has been mitigated by the European Council decision of March 2003, specifying that the above requirement will be judged on the basis of the cyclically adjusted budget position. However, countries which have not yet reached the 3 percent deficit level and are therefore outside of the euro zone have to satisfy the Maastricht reference value in nominal and not cyclically adjusted terms in order to be able to adopt the euro. In the run-up to the euro zone, these countries may therefore confront a situation in which they have to follow a procyclical policy. Second, while the SGP sets a limit on the maximum deficit and

---

<sup>5</sup> Kovács (2004) reports estimates in the literature of the BS effect that vary from less than one percent to up to 6.9 percent per year, and von Hagen and Zhou (2004) report estimates varying between about 2 and 4 percent.

<sup>6</sup> Buiters and Grafe (2002) make the intriguing point that the ‘close to balance or in surplus’ rule could possibly mean that the EU governments will become net creditors. This would lead to the ironic result of the (partial) socialization of the means of production in the long-run, as governments will have to invest their cash surpluses in bonds and stocks of the private sector. Here we note that running a surplus in normal times was originally intended for countries with high debt ratios (above 60%) and therefore the government becoming a net creditor in the long-run is more a theoretical possibility than a real threat.

foresees penalties for breaking it, the Pact does not specify surpluses and does not otherwise provide enough incentives for reducing the deficit and/or accumulating surpluses during boom periods. The failure of sufficiently reducing the deficits in the upswing of 1998-2000 is seen as the major reason for the breaking of the deficit criterion by several Member States in 2002 and 2003<sup>7</sup>.

*c) Lack of flexibility*

The loss of independent monetary policy within the euro area calls for the preservation of fiscal flexibility to cope with asymmetric shocks or the asymmetric effects of common shocks. This means that countries should have enough room to let the automatic stabilizers operate fully or, if necessary, to use discretionary policy to respond to shocks. The question then is whether the 3 percent deficit reference value provides the needed flexibility. The answer to this question depends on the starting level of the deficit and the output smoothing capacity of the automatic stabilizers. Some studies have found (Eichengreen and Wyplosz, 1998 and Kiander and Virén, 2000) that the deficit limit might not provide enough flexibility for some of the EU-15 countries.

*d) Quality of fiscal consolidation*

The quality of fiscal consolidation matters because taxes and expenditures affect output differently due to their different impact on income distribution and incentives. Empirical research has demonstrated that consolidation relying on current expenditure cuts rather than tax increases are likely to last longer and are thus more successful (Alesina and Perotti, 1995 and 1997; Perotti et al. 1997; Buti and Sapir, 1998; von Hagen et al. 2001). The SGP, by defining the fiscal target in terms of deficit numbers, neglects the quality of fiscal adjustment. Von Hagen et al. (2001) provide empirical evidence that high debt to GDP ratio and weak domestic and international economy induce governments to undertake expenditure-based rather than revenue-based consolidation strategies. This proves that governments will undertake quality adjustment under economic constraints, but the SGP does not explicitly provide incentives for undertaking quality consolidation.

*e) Enforceability*

The major criticism in this area is that the fines and penalties foreseen within the SGP framework are difficult to enforce, because the decision to subject a country to the penalties lies in the hands of the Economic and Financial Affairs Council (ECOFIN) which is composed of politicians who are more understanding of and therefore more indulgent toward the problems faced by their peers. The decision of November 25, 2003 to hold the EDP for France and Germany in “abeyance for the time being” is an unmistakable sign of such indulgence. The frequent recourse to one-off measures and creative accounting has also undermined the seriousness of the enforcement procedures. Most importantly, the long time lags involved in the enforcement procedure mean that the penalties, even if enforced, will come too late to trigger timely responses. Prior to the third stage of EMU, there was an incentive to adjust in order to join the currency union,

---

<sup>7</sup> See Fatás et al. (2003).



but having adopted the euro that carrot disappeared and the stick remains of dubious efficiency.

### 3. Proposals for improvement found in the literature

There have been many proposals for improvement of the SGP and even its usefulness has been questioned (De Grauwe, 2002)<sup>8</sup>. Nonetheless, there is broad consensus among academics and opinion makers that as long as fiscal policy remains decentralized, there is a need for fiscal rules in the euro area. Buti et al. (2003a) review the EU fiscal rules against the criteria of Kopits-Symansky and Inman<sup>9</sup> and conclude that overall these rules perform quite well with respect to these compliance criteria, except with regard to enforcement. Generally, the proposals for improvement try to address one or several of the criticisms discussed above, although none of the proposals represent a Pareto improvement, in that none of them solve all problems outlined above and may even aggravate some of them (Buti et al., 2003a). Buiter and Grafe (2002) propose the ‘permanent balance rule’ that takes into account different initial positions (debt level, stock of public sector capital, stage of pension reform) and different future development paths (GDP growth, inflation). The rule requires that the inflation-and-real-growth-adjusted permanent government budget is in balance or in surplus. This rule is attractive theoretically, but it requires estimating future growth and inflation which could become a contentious issue and hence would be difficult to enforce. Another analytically attractive proposed rule is the one that would consider the fiscal stance of the euro area as a whole and would allocate “deficit shares” to individual countries. These shares could be assigned by a decision of ECOFIN (the French proposal)<sup>10</sup>, or by the markets through a system of tradable budget deficit permits (Casella, 2001). The main arguments against such a scheme is that the risks of triggering a financial crisis are not uniform across governments (Buti et al. 2003a) and that the allocation of deficit shares, whether by bureaucratic/political decision or by the markets, requires a degree of political coordination and cooperation that seems to be lacking for the time being.

Other proposals aim at applying the “golden rule”, whereby investment expenditure is excluded from the deficit calculation. Blanchard and Giavazzi (2004) propose to exclude net investment (gross investment less depreciation) from the deficit on the grounds that depreciation of public capital is equivalent to current expenditure. The rationale for the golden rule is that borrowing should be allowed to finance investments since their return will occur in the future and hence their cost should be distributed over time. Excluding investment from the deficit would remove the financial constraint on public investment under the SGP and could also help avoid procyclical tightening of fiscal policy in a downturn. Although intuitively appealing, the arguments advanced against the golden rule<sup>11</sup> are that it is difficult to determine what constitutes investment, it could lead to a bias in favor of physical assets, it would provide new incentives for creative

---

<sup>8</sup> There is a review of the various proposals in Buti et al. (2003a) and also in HM Treasury (2004).

<sup>9</sup> Kopits and Symansky (1998) and Inman (1996). See also Kopits (2001).

<sup>10</sup> Proposal put forward by the Minister for Finance of France at the informal Ecofin Council in Dresden in April 1999 (Buti et al., 2003a).

<sup>11</sup> See, for instance, European Commission (2003) and Buti et al. (2003a).

accounting, and that it could undermine the efforts to consolidate the public finances.

A final set of proposals which we would like to mention deals with institutional reforms. Wyplosz (2002) proposes to establish in each country Fiscal Policy Committees entrusted with the responsibility to set annual deficit targets consistent with long-run debt sustainability. Fatás et al. (2003) argue for the creation of a Sustainability Council at the level of the euro area, with the task of monitoring the sustainability of Member States' public finances<sup>12</sup>. The idea behind these proposals is to find in the fiscal area a counterpart to national central banks or the ECB that could bring governments to better adhere to fiscal discipline. The idea is appealing but a lot depends on the political will of elected governments to respect more strictly the recommendations of the proposed national Fiscal Policy Committees or the euro area Council than they currently respect the recommendations of the Commission.

### **III. Fiscal Characteristics of the New Member States**

The fiscal characteristics of the NMS have to be assessed from two perspectives: (1) from the narrower perspective of meeting the numerical deficit and debt Maastricht criteria on the road to euro adoption; and (2) from the broader perspective of the SGP framework in the light of the criticisms of the Pact and the proposed improvements discussed above. Although the issues are linked, it is useful from a policy point of view to approach the assessment separately from the above two perspectives. Such an assessment has to consider the initial conditions faced by the NMS, as well as the challenges lying ahead. We undertake this exercise by comparing the situation of the NMS with the experiences of the current euro zone members.

#### **1. The road to the euro**

On their way toward adopting the euro, the NMS face the task of reducing their fiscal deficits to the Maastricht criteria of 3 percent of GDP. Several NMS have announced that they want to adopt the euro by 2008 or earlier, while others plan to join later. On the whole, a distance of five years from euro adoption appears to be a good benchmark to which to compare the starting positions of the current euro zone members with the starting positions of the NMS. Figures shows the deviation from the 3 percent deficit in 2003 for the NMS and five years prior to the adoption of the euro for the current members (1996 for Greece and 1994 for the others). With the exception of Malta, the deviations for the NMS are about the same or less than were the deviations for the majority of the current euro zone members. The starting deficit conditions of the NMS are thus not worse than the conditions faced by the current members five years prior to adopting the euro. In fact, for the three Baltic states and Slovenia the conditions are significantly more favorable.

As regards government debt, it is generally lower in the NMS than it is in the euro zone countries currently or five years prior to euro adoption (Figure 2.). The

---

<sup>12</sup> Others, for instance Gros et al. (2004), have also made similar proposals.

exceptions are Cyprus, Malta and Hungary. There are several reasons behind the low debt levels in the NMS from Central and Eastern Europe. First, the Baltic States did not inherit any of the liabilities of the former Soviet Union while Poland obtained partial debt forgiveness. Second, some countries (e.g. Hungary) used privatization receipts to reduce the government debt. Third, a part of the social safety net expenditures were borne by state enterprises, most notably in the form of within-the-gate unemployment. When these enterprises were privatized, the new owner often took over their debts, which was then reflected in a lower purchase price. There were also developments in the opposite direction, most notably when the government assumed the debts of state-owned banks and enterprises in order to consolidate them prior to privatization<sup>13</sup>.

The lower level of debt has implications for the way in which the fiscal consolidation needed to reach the 3 percent Maastricht deficit criteria can be achieved. Together with the greater convergence of bond yields already obtained by the NMS (Figure 3.), the new member countries will be able to rely less on the gains from interest rate convergence to reduce the deficit than were the current euro zone countries (Figure 4.). During the last five years prior to euro adoption, such gains represented between 2.4 to 5 percent of GDP in half of the current euro zone members. Among the NMS, using the spot euro bond yield as reference, only Hungary, Malta and Poland will have gains of between 1.3 and 2 percent of GDP, while all the others will have smaller gains. If we use the 2009 forward euro bond yield as reference, the gains will be even smaller<sup>14</sup>. The greater convergence of bond yields in the NMS is a result of the progress with disinflation and the markets' expectations that these countries will adopt the euro in the not too distant future, which have contributed to a reduction of the risk premia. Another factor reducing the potential gains from yield convergence is that in some of the NMS a large portion of the government debt is in foreign currency where the scope for interest rate convergence is limited.

Figure 5. shows the required changes in the primary balance to reach the 3 percent Maastricht deficit limit. A negative value shows the required improvement and a positive value the "permissible" deterioration. For the high-debt NMS (Cyprus, Hungary, Malta) and the Czech Republic, the required improvements are significantly higher than were necessary for most of the euro zone members, owing to the smaller gains from yield convergence in the former. Only high-debt Italy and France, where the yield convergence five years prior to euro adoption was already nearly complete, needed primary balance improvements similar to those of the above mentioned new members. In these latter countries, therefore, most of the adjustment to reach the 3 percent limit will have to be made in the primary balance.

This brings us to examine the size and composition of government spending in the NMS. The adequate size of government spending is difficult to determine since it depends on a country's social preferences. One benchmark that can be used to judge the relative size of government is per capita income: when incomes

---

<sup>13</sup> P. Kiss and Szapáry (2000) review the impact of debt assumptions on Hungary's public finances.

<sup>14</sup> In estimating the gains for the NMS, we assumed that the debt/GDP ratios remain constant. The interest rates used were 5-year eurobond spot and 2009 forward yields. The five year period overestimates somewhat the average maturity of domestic debt of the NMS.

rise, the demand for certain publicly provided services, such as education, R&D, infrastructure services tend to increase so that low income countries might need extra room to accommodate these higher expenditures as per capita incomes rise. Figure 6. plots the level of government expenditure as a ratio of GDP against per capita income on a purchasing power parity basis. What the Figure illustrates is that in the Visegrád countries (the Czech Republic, Hungary, Poland and Slovakia) the spending levels are about the same as in those EU members where the levels of expenditure are the highest, even though the per capita income is much smaller in the Visegrád countries. Thus, using per capita income as a benchmark, the governments in these new member countries appear to be oversized. Von Hagen (2004) comes to the same conclusion using regression analysis where, in addition to per capita income, he also takes into consideration the openness of the economy on the grounds that more open economies are more exposed to external shocks and therefore need larger government sector as a buffer. It is necessary to point out though that both per capita income and openness are imperfect benchmarks to judge the adequacy of the size of the public sector, because they ignore the important question of which sector, public or private, can provide most efficiently the services.

The above findings about the level of expenditure in the NMS have to be looked at in conjunction with the special needs for additional spending in these countries. It is common wisdom that transition economies need to strengthen their infrastructure. Since the early 1990s, average government investment has been consistently higher in the Central and Eastern European transition countries than in the EU (Figure 7.). This is normal, since the social marginal productivity of infrastructural investment will tend to be higher in less developed countries. For the period ahead, the transition countries will need to maintain a relatively high level of public investment expenditure given their relatively low stock of public capital.

Furthermore, EU accession will involve additional government expenditure and some revenue loss for the new members, which will be offset only partly by transfers from the EU. The net effect will be negative in the initial years of membership due to the combination of the following main factors: (1) the new members have to pay immediately after accession their contribution to the EU common budget; (2) a part of the EU transfers to finance projects are channeled directly to private sector recipients with no positive direct effect on the budget; (3) those transfers that are channeled to the budget for project implementation have to be pre-financed by the government; (4) the EU transfers cannot be used to finance projects which, in the absence of the transfers, would have been financed from the budget (the principle of additionality); (5) there is a domestic co-financing requirement of EU-financed projects; (6) there will be increased administrative burden associated with the implementation of EU financed projects; and (7) the removal of custom duties on imports from EU members and the sharing of customs receipts on imports from third countries involve a loss of revenue. These negative effects will be partly compensated by the phasing out of domestic agricultural subsidies which will be replaced by EU subsidies.

Several authors have estimated the net direct budgetary effects of accession (see Table 1.). All the authors have come up with a net negative direct effect on

the budget during the first years of membership. The estimates range between 1 and 4.75 percent of GDP per year. The rather wide range of these estimates reflects the differences in the underlying assumptions regarding absorption capacity and the space and cost of financing the *acquis communautaires*, such as environmental protection and infrastructure. These estimates concern only the direct budgetary effects, which may be mitigated by favorable indirect effects that are difficult to quantify, such as those resulting from accession-driven private sector activity. However, these favorable effects will come on stream only gradually and the assessment that accession will lead initially to a higher burden on the budget is not questioned.

## 2. The SGP framework

Two issues are relevant from the perspective of the SGP framework: the cyclical sensitivity of the budgets and debt sustainability.

### *a) Cyclical sensitivity*

In the SGP framework, the automatic stabilizers are to be allowed to operate fully without breaching the 3 percent deficit limit. The European Commission has calculated cyclical safety margins for each of the EU-15 countries<sup>15</sup>, showing the size of the deterioration in the budget balance in case output falls below potential. Subtracting these safety margins from the reference value of 3 percent, we obtain the so-called “minimal benchmark” which a country should at least achieve over the cycle in order to avoid breaching the 3 percent limit in a downturn.

Using the methodology of the European Commission (2000), we calculated the safety margins for the eight new members from Central and Eastern Europe (CEEs) (Table 2):<sup>16</sup>. Despite somewhat higher output volatilities<sup>17</sup>, the cyclical safety margins are generally lower in the CEEs than in the EU-15, as a result of lower sensitivity of the budgets of the CEEs to the economic cycle. The lower sensitivity is explained essentially by the smaller reliance on cycle-sensitive direct taxes and the significantly lower shares in total spending of cycle-sensitive expenditures on unemployment benefits<sup>18</sup>. One reason for the smaller reliance on direct taxes and the correspondingly higher reliance on indirect taxes is that tax evasion has been a widespread problem in the CEEs and the collection of indirect taxes has proved to be more efficient. Other reasons are tax holidays and the low level of corporate taxes, which have been used as an incentive to attract foreign

---

<sup>15</sup> European Commission (2000, 2002).

<sup>16</sup> As discussed in the Annex, this methodology, which estimates the output gap by an HP-filtered trend approach, has several weaknesses and has been improved by the Commission by using a production function approach (European Commission, 2002). We used the former methodology because of the lack of readily available production function calculations for the CEEs. For Hungary, P. Kiss and Vadas (2004) estimate cyclical sensitivities and output gaps using three different methods: that of the European Commission (2002), the ECB (Bouthevillain et al., 2001) and a methodology developed by the authors to take into account the specific fiscal and economic characteristics of Hungary. For the sake of comparability, we did not use the P. Kiss and Vadas (2004) estimates for Hungary.

<sup>17</sup> See Darvas and Szapáry (2004) for a discussion of output volatilities in the euro area and the CEEs.

<sup>18</sup> Direct taxes as a ratio of GDP averaged 14 percent in the EU-15 and 10 percent in the CEEs in the period 1992-2002. Unemployment benefit payments to GDP averaged 1.73 percent in the EU-15 and 0.68 in the CEEs (Sources: AMECO and Riboud et al. 2002).

investment. The smaller share of expenditures on unemployment compensation is due to the generally less generous benefits.

The lower cyclical safety margins mean that the “minimal benchmark”, i.e. the maximum deficit to be respected over the cycle without running the risk of breaching the 3 percent limit, is higher in the CEEs<sup>19</sup> than in the EU-15<sup>20</sup>. This finding has to be looked at in conjunction with the smoothing capacity of the automatic stabilizers. Many authors have researched and calculated the output stabilization effects of automatic stabilizers in the euro area<sup>21</sup>. Calculating these effects for the CEEs is beyond the scope of this paper and should be the subject of future research. One factor which tends to weaken the smoothing capacity of automatic stabilizers in the CEEs is that they are small open economies (except Poland) where the smoothing capacity is reduced by the leakages through imports. The lower cyclical budget sensitivity together with the openness of the CEEs imply that these countries may have to rely more on discretionary measures to smooth the economic cycle. There are, however, risks involved in using discretionary changes and one has to ensure that the discretionary measures are reversible and do not lead to a deterioration of the underlying budget position (see European Commission, 2002).

#### *b) Debt sustainability*

As seen earlier, the debt levels in the NMS are generally lower than in the euro area. As catching-up economies, they also have a higher potential growth rate, as well as higher BS-induced inflation and hence lower real interest rates once they have adopted the euro and face similar nominal interest rates. The combination of these factors would, *ceteris paribus*, imply that the NMS could run higher deficits and still maintain the long-run sustainability of public finances. However, when assessing debt sustainability, one also has to take into account future liabilities. The most important of these are future pension payment obligations and health care outlays for the elderly due to population ageing.

As can be seen in Table 3., the old-age dependency ratios in the CEEs are somewhat below those of the EU-15, but the fertility rates are also smaller which, combined with an increase in life expectancy that will accompany the growth in per capita income in the CEEs, will sharply raise the dependency ratios. In the Czech Republic, Hungary and Poland these ratios are projected to double or more than double by 2050. The burden that these population trends implies for the government budgets can be reduced by reforming the pension systems, such as introducing a second pillar funded scheme (but the transition cost of exiting from the pay-as-you-go system remains), raising the level of retirement age, tightening

---

<sup>19</sup> Our estimates of the cyclical safety margins of the budgets of the CEEs are fairly close to those calculated by IMF (2004), but are substantially lower than those calculated by Coricelli and Ercolani (2002). These authors estimate the safety margins for Hungary and Poland to be over 3 percent, mainly because they find output to be more volatile. This may be due to the inclusion of the years 1990-94 which were characterized by high transition-induced output volatility. For this reason, we excluded those years from our calculations.

<sup>20</sup> For the EU-15, the output gaps are those calculated by European Commission (2002) using the more sophisticated production function methodology, while for the CEE-8 we used the HP-filtered trend approach. The HP-filter approach yields even smaller minimal benchmarks for the EU-15.

<sup>21</sup> Buti et al. (2003b); Buti and van den Noord (2003 and 2004); Brunila et al. (2002); European Commission (2002); Barrell and Pina (2000); Kiander and Virén (2000); van den Noord (2000)

eligibility for early retirement or reducing the replacement rate. About half of the CEEs have already introduced a multi-pillar system and others plan to do so (European Commission, 2003). A second element of future liabilities that can burden the budgets of the CEEs in the years ahead is the overall stock of guarantees granted mostly for enterprise borrowings in the sectors of public transportation and energy. Although the stock of guarantees has been substantially reduced as a result of privatization, it remains important in some countries.

It is difficult to judge the optimal target for public debt. It depends, as said, on the crowding out effect of interest payments and the negative output effect of distortionary taxes to finance these payments. Furthermore, it also depends on the future rate of return of the expenditures that are financed by borrowing, such as investments and reforms that benefit future generations, or reforms that reduce future liabilities (e.g. pension reforms). IMF (2004) suggests a prudent public debt ratio of around 45 percent of GDP for the CEEs. The UK Government's fiscal policy objective is to maintain net debt below 40 percent of GDP over the economic cycle. Using these numbers as a benchmark for illustrative purposes – but without suggesting that this is an appropriate debt level for all countries under all circumstances – we show in Table 4. the improvement in the primary balances needed to reach a 40 percent debt/GDP ratio within ten years in the CEEs. A positive value in Table 4 shows in percent of GDP the size of the improvement in the primary balance needed now and to be kept constant in order to reduce the debt/GDP ratio to 40 percent in ten years in case the current level of debt exceeds 40 percent, or the improvement needed in order not to exceed the limit in case the current level of debt is less than 40 percent. A negative value indicates the “permissible” deterioration in the primary balance without exceeding the debt limit. As can be seen from Table 4, Cyprus, the Czech Republic, Hungary and Malta need significant improvements in the primary balances in order to avoid that their debt levels exceed 40 percent of GDP by 2013. This is because both the debt levels and the primary deficits are high in these countries. Poland and Slovakia need only a small improvement, while the Baltic countries and Slovenia could in principle let their primary balances deteriorate, since they have low debts and low primary deficits or have surpluses.

### **3. Summary of findings**

Our main findings regarding the fiscal characteristics of the NMS from the perspective of the Maastricht criteria and the SGP can be summarized as follows.

There are large differences among the NMS as to their starting fiscal positions. The budget deficits of the Baltic states and Slovenia were already smaller than 3 percent of GDP in 2003 and these countries have also the lowest debt/GDP ratios among the NMS, well below 60 percent of GDP. Estonia scores the highest, with practically no government debt and an overall budget surplus. Those countries which have recorded the largest deficits in 2003, Cyprus, the Czech Republic, Hungary and Malta, have also the highest debt levels. Clearly, the NMS cannot be regarded as a group but have to be looked at on a case-by-case basis.

The new members, particularly those with less favorable starting fiscal positions, face great challenges on the road to euro adoption because the potential budgetary gains from yield convergence are limited and EU accession will have a

net negative impact on their budgets in the initial years of accession. At the same time, pension and other needed reforms, as well as the necessity to keep up with the higher level of infrastructure investment, imply additional budgetary burdens.

The level of debt is generally lower in the NMS than in the euro area. They also have higher potential growth and will face lower real interest rates within the euro zone due to the higher BS-induced inflation, which improve their prospects of debt sustainability. However, they also face considerable budgetary pressures in the medium to long-run because of the high stock of government guarantees in some countries and ageing related future pension and health care payment obligations.

#### **IV. Policy Implications**

The main ideas that we would like to communicate in this paper which have a policy implication are the following:

1. From a debt sustainability perspective, the lower debt and the prospect of faster growth implies that those NMS where the deficit is significantly below 3 percent could be given a longer period of time to reach the ‘close to balance or in surplus’ position. This would be also justified because the NMS need more infrastructural development and EU accession will put additional burden on the budgets in the initial years of membership. We should remember that in the run-up to euro adoption, the current cohesion countries were the recipients of much larger EU transfers than what the NMS are expected to receive in the coming years. More research should be undertaken to define debt sustainability taking also into account future liabilities, so that more concrete guidelines could be issued for the required speed of adjustment.

It has been sometimes suggested that the SGP or its interpretation need to be modified to take into account the special circumstances of the new Member States. The large differences in the initial conditions of the NMS do not support that argument. Indeed, several current euro zone members have lower debt than some of the NMS and the less developed current euro zone members have also higher potential growth rates than the other members. The improvement of the SGP is needed not because of enlargement, but because it makes good economic sense to take into account the differences in initial conditions for all countries. Enlargement only highlights the need for improvement by widening the differences among countries subject to the provisions of the SGP.

A misconception has to be corrected in this regard. In many documents and declarations reference is made to the “equal treatment” of members when talking about the uniform application of the provisions of the SGP. Equal treatment in an economic sense would mean that one differentiates according to initial conditions and future liabilities. Uniformity in this case is not equal treatment. One can, therefore, support those suggested improvements in the SGP that would take into account more explicitly differences in debt levels, economic growth, demographic trends and reforms that reduce future liabilities.

2. There are good reasons for keeping the 3 percent limit even from the perspective of the NMS, because those new members which exceed that limit are



also those which have the highest debt levels. They have, therefore, an interest in reducing the deficit to below 3 percent earlier rather than later so that they can benefit from a reduction in debt service payments which would free resources for other purposes – and that irrespective of when they plan to adopt the euro.

There is another reason why the high-deficit NMS have to reduce the fiscal deficit. As long as they are not within the euro area, they are exposed to speculative capital movements triggered by market perception about the sustainability of the external payments position<sup>22</sup>. While the rate of investment in the NMS will remain high, they also face the prospect of an erosion of net household savings as a result of credit booms. Household credit is typically very low in the CEEs and one can expect a rapid growth in such credit as a result of the declining interest rates, the prospect of higher permanent income levels, and the greater willingness of banks to lend to households as they move into retail banking, an area which the banks have eschewed so far because of the higher perceived risks. Hungary has already experienced a sharp reduction in net household savings in recent years. Under these circumstances, the burden falls on the budget to maintain an external position which is seen as viable by the markets. If the cyclical upturn that has just started proves to be durable, this would be an ideal time to accelerate the consolidation in the high-deficit NMS, thus reducing the risk of having to pursue procyclical policy in a downturn. Since the government sector in most high-debt NMS is already oversized relative to their per capita income, consolidation should be done through cutting current primary spending, while leaving room for those expenditures that are necessary for the building up of the stock of public capital and for the implementation of reforms that will bring long-term benefits.

3. More emphasis should be placed on improvements in budgetary procedures. Budgetary practices vary a great deal from one country to another: the forecasting, planning, implementing, accounting and monitoring procedures are not the same. Deficiencies in these areas can lead to forecasting errors and *ex-post* revisions of data that make enforcement difficult and eventually undermine credibility. Guidelines for best practices in budgetary procedures could be issued by the Council and included in the monitoring under the SGP.

4. Finally, we have to remind ourselves that the Maastricht-related constraints have led to a significant reduction in the deficits and debt levels of the current euro zone members and there is no evidence that it has impaired the stabilization role of fiscal policy or that it had negatively affected public investment (Gali and Perotti, 2003). While rules are necessary to ensure the proper functioning of the single monetary policy, the need for rules goes beyond that: fiscal rules are justified in their own rights as an instrument to foster budgetary discipline. Markets will eventually penalize the sinners but markets react generally too late, by which time the cost of adjustment is already high. Enlargement strengthens the need for rules, since one can observe in several NMS mounting popular pressure for relaxing fiscal policy as expectations have been heightened with EU accession and the appetite for reforms has weakened. The rules have to be respected by all, however. It will be difficult to muster the critically important political support in

---

<sup>22</sup> Barnhill and Kopits (2003) discuss the fiscal vulnerabilities faced by emerging markets.

the new Member States for the commitment to meet the 3 percent deficit requirement to join the monetary union while current members continue to breach that limit.

## References

- Aiyagari, S. Rao and Ellen R. McGrattan** (1998), "The Optimum Quantity of Debt", *Journal of Monetary Economics*, December 1998, Vol. 42. No. 3., pp. 447-469.
- Alesina, Alberto and Roberto Perotti** (1997), "Fiscal Adjustments in OECD Countries: Composition and Macroeconomic Effects", IMF Staff Papers, June 1997, Vol. 44. No. 2., pp. 210-248.
- Alesina, Alberto and Roberto Perotti** (1995), "Fiscal Expansions and Fiscal Adjustments in OECD Countries", NBER Working Paper No. 5217., August 1995.
- Antczak, Malgorzata** (2003), "Do Acceding Countries Need Higher Fiscal Deficits?", CASE Studies and Analyses No. 260., November 2003.
- Barnhill, Theodore M. Jr. and George Kopits** (2003), "Assessing Fiscal Sustainability Under Uncertainty", IMF Working Paper, WP/03/79, April 2003.
- Barrell, Ray and Álvaro M. Pina** (2000), "How Important are Automatic Stabilizers in Europe? A Stochastic Simulation Assessment", EUI Working Paper ECO No. 2000/2., April 2000.
- Blanchard, Olivier and Francesco Giavazzi** (2004), "Improving the SGP Through a Proper Accounting of Public Investment", CEPR Discussion Paper No. 4220., February 2004.
- Bouthevillain, Carine, Philippine Cour-Thimann, Gerrit van den Dool, Pablo Hernandez de Cos, Geert Langenus, Mathias Mohr, Sandro Momigliano and Mika Tujula.** (2001) "Cyclically Adjusted Budget Balances: An Alternative Approach", European Central Bank, Working Paper No. 77, September 2001
- Brunila, Anne; Marco Buti and Jan in't Veld** (2002), "Fiscal Policy in Europe: How Effective Are Automatic Stabilisers?", *European Economy – Economic Papers*, No. 177, European Commission, September 2002.
- Buiter, Willem H. and Clemens Grafe** (2002), "Patching Up the Pact: Some Suggestions For Enhancing Fiscal Sustainability and Macroeconomic Stability in an Enlarged European Union", CEPR Discussion Paper No. 3496, August 2002.
- Buti, Marco and Paul van den Noord** (2004), "Fiscal Policy in EMU: Rules, Discretion and Political Incentives", *European Economy – Economic Papers*, European Commission, (forthcoming)
- Buti, Marco and Paul van den Noord** (2003), "What is the Impact of Tax and Welfare Reforms of Fiscal Stabilisers? A Simple Model and an Application to EMU", *European Economy – Economic Papers*, No. 187, European Commission, July 2003
- Buti, Marco; Sylvester C. W. Eijffinger and Daniele Franco** (2003a), "Revisiting the Stability and Growth Pact: Grand Design or Internal Adjustment?", CEPR Discussion Paper No. 3692., January 2003.
- Buti, Marco; Carlos Martinez-Mongay; Khalid Sekkat and Paul van den Noord** (2003b), "Automatic Fiscal Stabilisers in EMU: A Conflict Between Efficiency and Stabilisation?", CESifo Economics Studies, Vol. 49, 1/2003, pp. 123-140.

- Buti, Marco and André Sapir** (1998), *Economic Policy in EMU, A Study by the European Commission Services*, Oxford University Press, 1998.
- Cabral, António J.** (2001), “Main Aspects of the Working of the SGP”, in Anne Brunila, Marco Buti and Daniele Franco, eds., *The Stability and Growth Pact*, Palgrave, 2001, pp. 139-157.
- Casella, A.** (2001), “Tradable Deficit Permits” in Anne Brunila, Marco Buti and Daniele Franco, eds., *The Stability and Growth Pact*, Palgrave, 2001, pp. 394-413.
- Coricelli, Fabrizio and Valerio Ercolani** (2002), “Cyclical and Structural Deficits on the Road to Accession: Fiscal Rules for an Enlarged European Union”, CEPR Discussion Paper No. 3672., December 2002.
- Darvas, Zsolt and György Szapáry** (2004), “Business Cycle Synchronization in the Enlarged EU: Comovements in the New and Old Members”, MNB Working Paper, No. 2004/1, February 2004.
- De Grauwe, Paul** (2002), “Europe’s Instability Pact”, *Financial Times*, July 25, 2002.
- ECB** (1999), *Monthly Bulletin*, May 1999.
- Eichengreen, Barry and Charles Wyplosz** (1998), “The Stability Pact: More Than a Minor Nuisance?”, *Economic Policy*, April 1998, No. 26., pp 67-113.
- European Commission** (2000), *Public Finances in EMU – 2000*.
- European Commission** (2002), *Public Finances in EMU – 2002*.
- European Commission** (2003), *Public Finances in EMU – 2003*.
- Fatás, Antonio; Jürgen von Hagen; Andrew Hughes Hallett; Rolf R. Strauch and Anne Sibert** (2003), “Stability and Growth in Europe: Towards a Better Pact”, *Monitoring European Integration* 13, CEPR, 2003.
- Galí, Jordi and Roberto Perotti** (2003), “Fiscal Policy and Monetary Integration”, CEPR Discussion Paper No. 3933., June 2003.
- Gros, Daniel; Thomas Mayer and Angel Ubide** (2004), “The Nine Lives of the Stability Pact”, A Special Report of the CEPS Macroeconomic Policy Group, February 2004.
- HM Treasury** (2004), “The Stability and Growth Pact: A Discussion Paper”, March, 2004.
- IMF** (2004), “Adopting the Euro in Central Europe – Challenges of the Next Step in European Integration”, forthcoming
- Inman, Robert P.** (1996), “Do Balanced Budget Rules Work? U.S. Experience and Possible Lessons for the EMU”, NBER Working Paper Series No. 5838.
- Kiander, Jaakko and Matti Virén** (2000), “Do Automatic Stabilisers Take Care of Asymmetric Shocks in the Euro Area?”, *VATT Discussion Papers* No. 234.
- Kopits, George and István P. Székely.** (2004) “Fiscal Policy Challenges of EU Accession for the Baltics and Central Europe” in Gertrude Tumpel-Gugerell and Peter Mooslechner, eds., *Structural Challenges for Europe*, Edward Elgar, pp. 277-297.
- Kopits, George.** (2001) “Fiscal Rules: Useful Policy Framework or Unnecessary Ornament?”, *Banca d'Italia*, pp. 59-84.

- Kopits, George and Steven Symansky** (1998), “Fiscal Policy Rules”, IMF Occasional Paper No. 162.
- Kovács, Mihály A.** (2004) “Disentangling the Balassa-Samuelson Effect in CEC5 Countries in the Prospect of EMU Enlargement” in György Szapáry and Jürgen von Hagen, eds., *Monetary Strategies for Joining the Euro*, Edward Elgar
- Ministry of Finance, Czech Republic** (2004), “Forecast of Macroeconomic Developments for 2004”.
- OECD** (2003), “Policies for an Ageing Society: Recent Measures and Areas for Further Reform”, Economics Department, Working Paper No. 369, 2003.
- Perotti, Roberto; Rolf Strauch and Jürgen von Hagen** (1997), “Sustainability of Public Finances”, CEPR Discussion Paper No. 1781, November 1997.
- P. Kiss, Gábor and György Szapáry** (2000) “Fiscal Adjustment in the Transition Process: Hungary, 1990-1999”, *Post-Soviet Geography and Economics*, Vol. 41., No. 4, June, 2000.
- P. Kiss, Gábor and Vadas Gábor** (2004) “Mind the Gap – Watch the Ways of Cyclical Adjustment of the Budget”, Magyar Nemzeti Bank, mimeo.
- Riboud, Michelle; Carolina Sanchez-Paramo and Carlos Silva-Jauregui** (2002), “Does Eurosclerosis Matter? Institutional Reform and Labor Market Performance in Central and Eastern Europe”, World Bank, Social Protection Discussion Paper Series No. 202.
- Thygesen, Niels.** (2002) “The Stability and Growth Pact: Any Need for Revision?”, A note for the Economic and Monetary Affairs Committee of the European Parliament, 4<sup>th</sup> quarter 2002.
- van den Noord, Paul** (2000), “The Size and Role of Automatic Fiscal Stabilizers in the 1990s and Beyond”, OECD Economics Department, Working Paper No. 230., January 2000.
- von Hagen, Jürgen** (2004), “Fiscal Policy Challenges for EU Acceding Countries”, prepared for the ECSA Conference in Vienna, February, 2004.
- von Hagen, Jürgen; Andrew Hughes Hallett and Rolf Strauch** (2001), “Budgetary Consolidation in EMU”, *European Economy - Economic Papers*, European Commission, No. 148, March 2001.
- von Hagen, Jürgen and Jizhong Zhou.** (2004) “Exchange Rate Policies on the Last Stretch”, in György Szapáry and Jürgen von Hagen, eds., *Monetary Strategies for Joining the Euro*, Edward Elgar
- Wyplosz, Charles** (2002), “Fiscal Policy: Institutions versus Rules”, CEPR Discussion Paper No. 3238., February 2002.

## ANNEX: The Calculation of Cyclical Safety Margins

The cyclical safety margins show the size of the deterioration in the budget balance in case output falls short of potential output. Subtracting these safety margins from the 3 percent reference value of the Maastricht Treaty, we obtain the so-called “minimal benchmark”, which is the cyclically adjusted deficit consistent with the 3 percent limit. The calculation of cyclical safety margins consists of two steps: the calculation of the largest output gap that a country is likely to encounter and the sensitivity of its budget to the economic cycle. The budget sensitivity indicator is an elasticity of the budget deficit to the output gap, calculated as a weighted average of elasticities of the following budget items: direct taxes, indirect taxes and social security contributions on the revenue side, and unemployment benefits on the expenditure side.

### *The largest value of output gap*

We followed the methodology used in European Commission (2000). The output gap is obtained as the logarithmic difference of actual and trend output:

$$OG_{it} = y_{it} - \hat{y}_{it} \quad (1)$$

where  $OG_{it}$  stands for the output gap for the  $i$ -th country in period  $t$ ,  $y_{it}$  is the log of actual output for country  $i$  in period  $t$ , and  $\hat{y}_{it}$  is the trend of log output  $y$  for the  $i$ -th country in period  $t$ .

The largest output gap that country  $i$  is likely to face ( $GAP_i$ ) is calculated as a combination of three sub-indicators: a) the absolute value of the largest negative output gap recorded in country  $i$  over the whole sample period (1995-2002 in our case); b) the unweighted average of the three largest negative output gaps in all countries studied (the 10 new Member States in our case) over the whole sample period; and c) the average volatility of the output gap in each new Member State, measured as twice its standard deviation. The largest value for the output gap is calculated as the mid-point of the worst two of these three sub-indicators. We excluded from our calculations the years before 1995, a period of a transformation recession when GDP fell sharply in the CEEs.

### *The budget sensitivity indicator*

The sensitivity of the budget ( $SENS$ ) to the output gap is a weighted average of the elasticities of budget items for each country:

$$SENS = \varepsilon_{DT} dt + \varepsilon_{IT} it + \varepsilon_{SC} sc - \varepsilon_{UB} ub , \quad (2)$$

where  $\varepsilon_{DT}$ ,  $\varepsilon_{IT}$ ,  $\varepsilon_{SC}$  are the output elasticities of revenue from direct taxes, indirect taxes and social security contributions;  $\varepsilon_{UB}$  is the output elasticity of unemployment benefits, and  $dt$ ,  $it$ ,  $sc$  are the ratios of revenue received from direct taxes, indirect taxes and social contributions to GDP.  $ub$  is the ratio of unemployment benefits to GDP.

### *Cyclical safety margins and minimal benchmarks*

Cyclical safety margins ( $CSM$ ) are calculated as a product of the largest output gap and the budget sensitivity indicator:

$$CSM_i = GAP_i \times SENS_i \quad (3)$$

The value of *CSM* shows the extent to which the budget balance in a given country is likely to deteriorate in times of severe economic downturn.

Finally, the minimal benchmark (*MB*) is the gap between the cyclical safety margin and the Maastricht reference value of 3 percent:

$$MB_i = 3\% - CSM_i \quad (4)$$

The minimal benchmark shows the cyclically adjusted deficit consistent with the 3 percent reference value.

#### *Sources and description of data*

The Commission uses annual GDP figures since 1960 for the calculation of trend GDP and output gaps. In the Central and Eastern European countries, the sample period is very short due to structural changes and severe transformation recessions in the early nineties, so we took seasonally adjusted quarterly data since 1995 (on constant 1995 prices). For the sources of quarterly data refer to Darvas and Szapáry (2004). Following the methodology of the Commission, we obtained trend output using the Hodrick-Prescott filter with the standard parameter of 1600 for quarterly data<sup>23</sup>.

For the relative weight of each revenue item we used the AMECO database. As for the expenditure side, in the absence of readily available data across countries for a sufficiently long period of time, we used the data for unemployment benefits from Riboud et al. (2002); for the output elasticity of unemployment benefits, we used the estimate for the Czech Republic calculated by the Czech Ministry of Finance which can be regarded as an approximation of the elasticities in the CEEs.

#### *Assumptions and limitations of the methodology*

There are some implicit assumptions in the Commission's methodology of calculating cyclical safety margins which limit its applicability and require caution when interpreting the results, as pointed out also by the Commission itself. Namely, constant values are assumed for (1) the share of the relevant budget items in the total budget (in our case these were 10-year averages); (2) the cyclical elasticities of the relevant budget items; and (3) the structure of GDP so that a 1 percentage point change in output gap is assumed to affect all tax bases in the same way<sup>24</sup>. We did not attempt to estimate the income elasticities of the revenue items due to the shortage of readily available data. Instead, we assumed that they are equal to one. This is very close to the average value estimated for the OECD countries (see van den Noord, 2000).

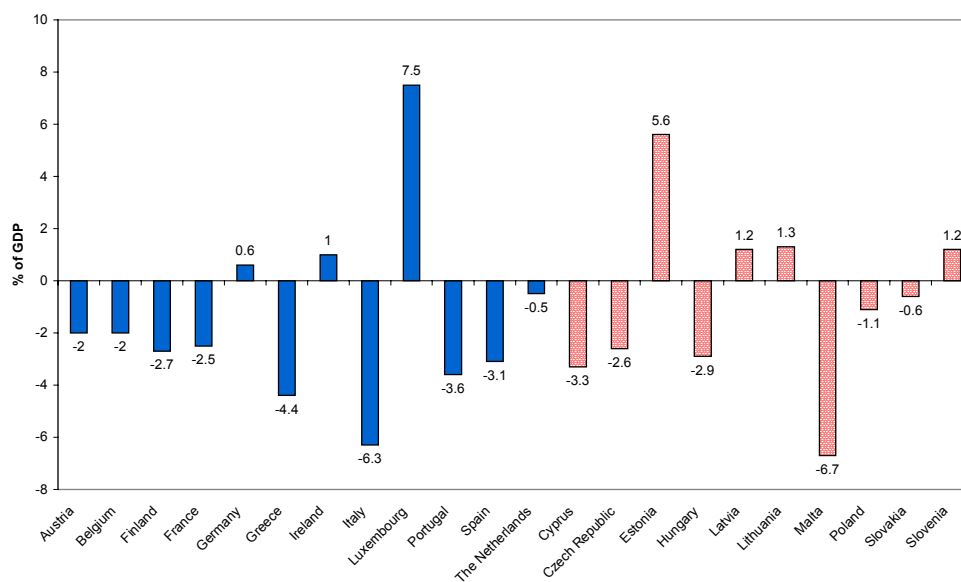
---

<sup>23</sup> European Commission (2000) calculated the output gap as a deviation of output from trend obtained using the HP-filter. However, in its latest calculation (European Commission, 2002), the Commission estimated potential output using the production functions approach.

<sup>24</sup> This assumption was relaxed in the more sophisticated approach of Bouthevillain et al. (2001).

## Figures

Figure 1. Deviations from the Maastricht Deficit Criterion of 3 Percent of GDP Prior to euro adoption\*

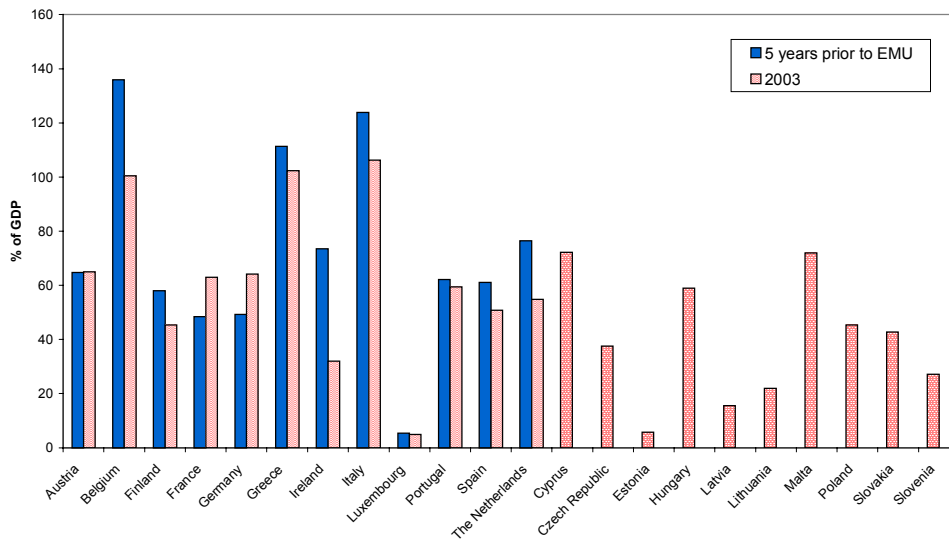


Source: EUROSTAT and Ministry of Finance of the Czech Republic

\* For the euro zone members, five years prior to euro adoption: 1996 for Greece and 1994 for the other members. For the new Member States, the data refer to 2003. General government net borrowing as a ratio of GDP on the basis of ESA95. The figure for the Czech Republic does not include debt assumptions.



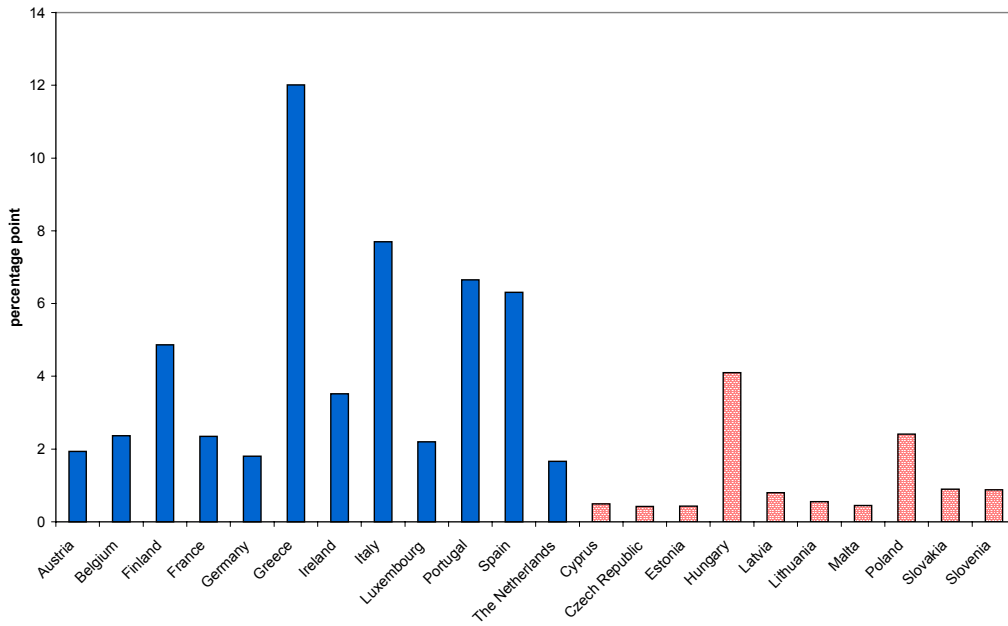
**Figure 2. Debt Ratios Prior to euro adoption and in 2003\***



Source: EUROSTAT

\* For the euro zone members, in 2003 and five years prior to euro adoption: 1996 for Greece and 1994 for the other members. For the new Member States, the data refer to 2003. General government consolidated budget debt as a ratio of GDP.

**Figure 3. Bond Yield Convergence in the Run-Up to euro adoption and Scope for Convergence in the New Member States\***

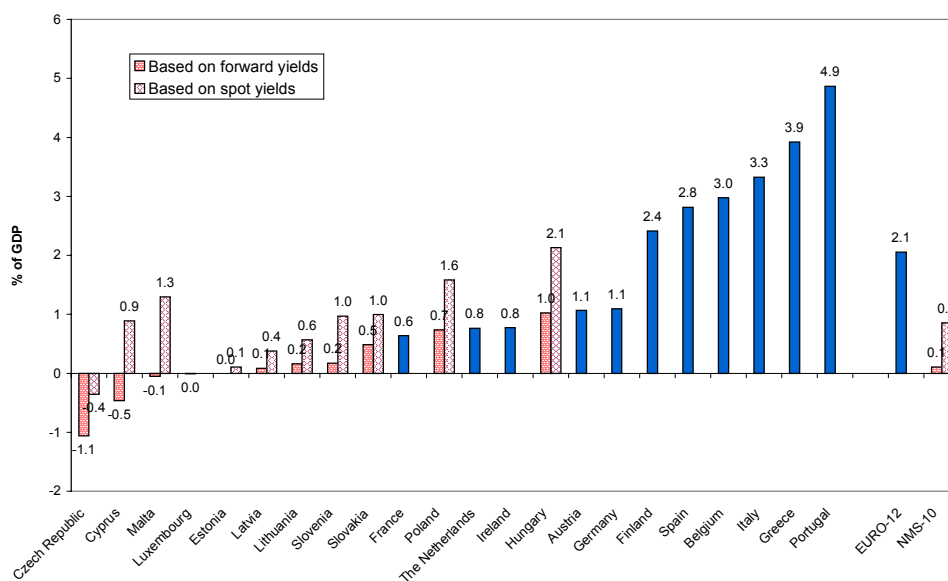


Source: EUROSTAT

---

\* For euro zone countries, convergence criterion bond yields: the difference in yields between March 1995 and March 2000 for Greece and between March 1993 and March 1998 for the other euro zone countries. For new Member States, the difference between domestic convergence criterion bond yields and the convergence criterion euro bond yield in January 2004.

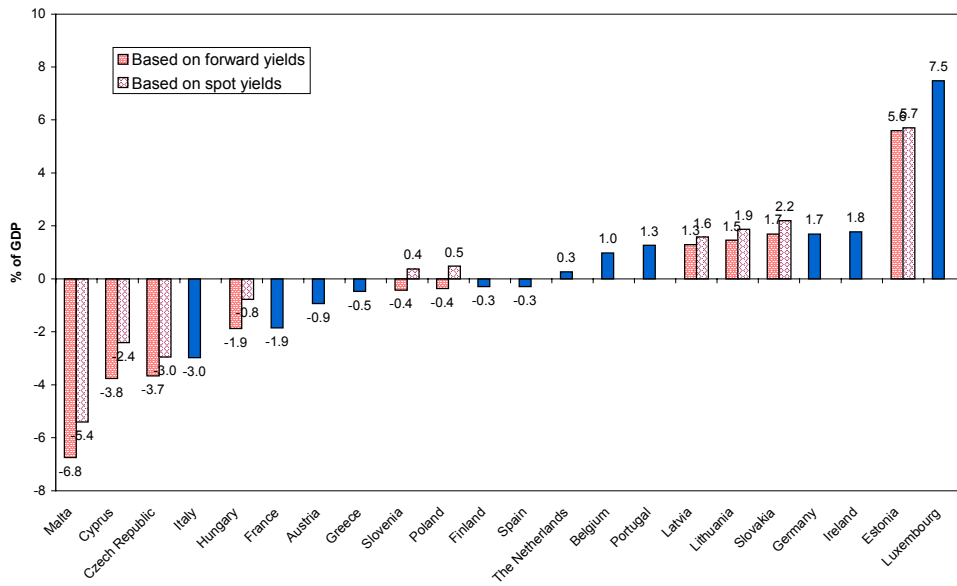
**Figure 4. Gains in Interest Payments due to Bond Yield Convergence in the Run-Up to euro adoption \***



Sources: Authors' calculations using EUROSTAT data for debt ratios and Magyar Nemzeti Bank for euro bond yields

\* For the euro zone countries, interest rate convergence gains during 1995-2000 for Greece and during 1993-1998 for the other euro zone members. The calculations were made on the basis of the end of period debt/GDP ratios. The gains thus calculated do not necessarily correspond to the actual improvements in the interest payment balances because of changes in the debt/GDP ratios during the period considered. For the new Member States, the calculations were based on 5-year euro bond spot and 2009 forward yields; constant debt/GDP ratios were assumed up to 2009.

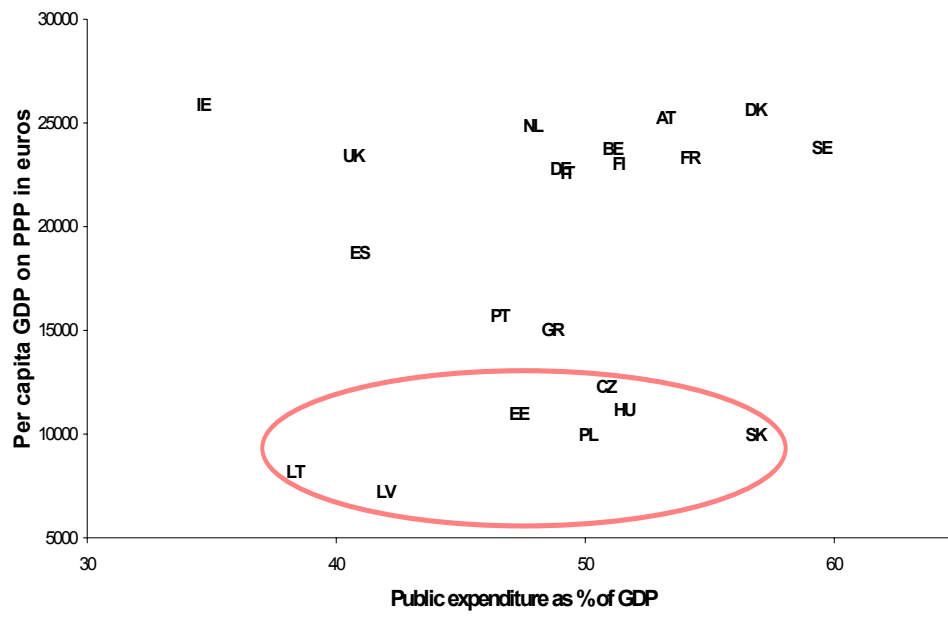
**Figure 5. Required Improvements in the Primary Balances to Reach the Maastricht Deficit Criterion of 3 Percent Taking Account of Gains from Bond Yield Convergence\***



Sources: Authors' calculations using EUROSTAT data for debt ratios and Magyar Nemzeti Bank for euro bond yields

\* See footnote for Figure 4. A negative value shows the required improvement and a positive value the „permissible” deterioration in the primary balance in order to meet the 3 percent deficit limit.

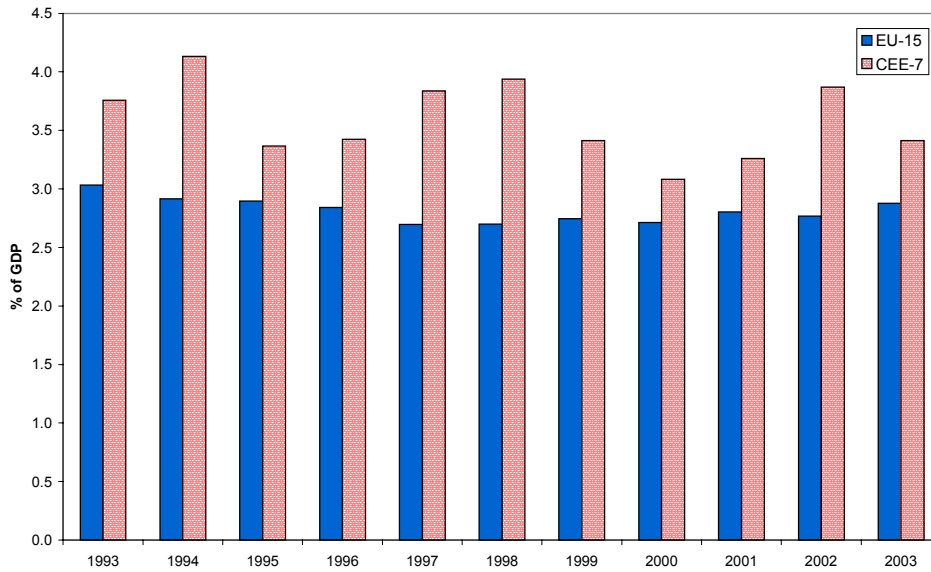
Figure 6. Per Capita Income and Government Spending in the EU and the CEEs, 1998-2003 averages\*



Source: EUROSTAT

\* Luxembourg and Slovenia are not included.

**Figure 7. Average Government Investment Ratios in the EU-15 and the CEEs\*, 1993-2003**



Sources: AMECO database and Magyar Nemzeti Bank

---

\* Slovenia is not included. Figures are unweighted averages. Data for 2003 are preliminary.

## Tables

**Table 1. Net Budgetary Effect of EU Accession**

<b>Authors</b>	<b>Net Annual Negative Effect (percent of GDP)</b>
Kopits and Székely (2004)	3 - 4.75
Antczak (2003)	1.7 – 3.1
IMF (2004)	1.0 – 1.5

**Table 2: Cyclical Budget Sensitivity and Minimal Benchmarks**

	<b>Cyclical Budget Sensitivity</b>	<b>The Largest Value of Output Gap</b> in percent	<b>Cyclical Safety Margin</b> in percent	<b>Minimal Benchmark</b> in percent
<b>EU-15</b>	<b>0.50</b>	<b>3.83</b>	<b>1.97</b>	<b>-1.03</b>
Austria	0.30	5.17	0.90	-2.10
Belgium	0.60	3.83	2.30	-0.70
Denmark	0.80	5.14	2.70	-0.30
Finland	0.70	3.00	3.80	0.80
France	0.40	3.25	1.30	-1.70
Germany	0.50	3.38	1.40	-1.60
Greece	0.40	5.43	1.30	-1.70
Ireland	0.35	3.75	1.70	-1.30
Italy	0.45	3.25	1.50	-1.50
Luxembourg	0.60	4.86	3.10	0.10
Netherlands	0.65	3.33	2.30	-0.70
Portugal	0.35	3.54	1.80	-1.20
Spain	0.40	2.80	1.50	-1.50
Sweden	0.70	3.14	2.20	-0.80
United Kingdom	0.50	3.60	1.80	-1.20
<b>CEE-8</b>	<b>0.41</b>	<b>4.26</b>	<b>1.68</b>	<b>-1.32</b>
Czech Republic	0.40	4.20	1.70	-1.30
Estonia	0.41	4.78	1.95	-1.05
Hungary	0.44	3.65	1.62	-1.38
Latvia	0.33	4.22	1.39	-1.61
Lithuania	0.33	6.05	2.01	-0.99
Poland	0.49	3.87	1.88	-1.12
Slovakia	0.40	3.87	1.55	-1.45
Slovenia	0.45	3.44	1.54	-1.46

Sources: EU-15: European Commission (2002); CEE-8: see Annex.



**Table 3. Dependency Ratios and Fertility Rates\***

	<b>Old-age Dependency Ratios</b> (in percent)		<b>Total Fertility</b>
	2000	2050	Rate
<b>EU-15</b>	<b>25.95</b>	<b>51.40</b>	<b>1.57</b>
Belgium	28.10	49.50	1.62
Denmark	24.20	40.30	1.72
Germany	26.60	53.20	1.31
Greece	n.a.	n.a.	1.25
Spain	27.10	65.70	1.25
France	27.20	50.80	1.89
Ireland	19.70	45.70	1.97
Italy	28.80	66.80	1.26
Luxembourg	n.a.	n.a.	1.63
Netherlands	21.90	44.90	1.73
Austria	25.20	58.20	1.40
Portugal	26.70	50.90	1.47
Finland	25.90	50.60	1.72
Sweden	29.40	46.30	1.65
United Kingdom	26.60	45.30	1.64
<b>NMS-10</b>	<b>22.00</b>	<b>53.30</b>	<b>1.29</b>
Cyprus	n.a.	n.a.	1.49
Czech Republic	21.90	57.50	1.17
Estonia	n.a.	n.a.	1.37
Hungary	23.70	47.20	1.30
Latvia	n.a.	n.a.	1.24
Lithuania	n.a.	n.a.	1.24
Malta	n.a.	n.a.	1.46
Poland	20.40	55.20	1.24
Slovakia	n.a.	n.a.	1.19
Slovenia	n.a.	n.a.	1.21

Sources: OECD (2003) and EUROSTAT

\* Old-age dependency ratio is equal to (persons aged 65+)/ (persons aged 20-64). Total fertility rate is defined as the average number of children who would be born alive to a woman during her lifetime. In more developed countries, a rate of 2.1 is considered to be replacement level.

**Table 4. Primary Deficit Gaps to Reach 40 percent Debt/GDP Ratios in Ten Years under Different Assumptions for Growth and Real Interest Rates (In percent of GDP)**

<b>Cyprus</b>			<b>Czech Rep.</b>		
<i>GDP-growth</i>	<i>Real interest rates</i>		<i>GDP-growth</i>	<i>Real interest rates</i>	
	2%	4%		2%	4%
3%	5.66	6.78	3%	3.08	3.84
4%	5.12	6.22	4%	2.72	3.46
5%	4.59	5.67	5%	2.35	3.09

<b>Estonia</b>			<b>Hungary</b>		
<i>GDP-growth</i>	<i>Real interest rates</i>		<i>GDP-growth</i>	<i>Real interest rates</i>	
	2%	4%		2%	4%
3%	-6.53	-6.12	3%	3.21	4.19
4%	-6.74	-6.32	4%	2.74	3.70
5%	-6.95	-6.52	5%	2.27	3.22

<b>Latvia</b>			<b>Lithuania</b>		
<i>GDP-growth</i>	<i>Real interest rates</i>		<i>GDP-growth</i>	<i>Real interest rates</i>	
	2%	4%		2%	4%
3%	-1.70	-1.12	3%	-1.80	-1.28
4%	-1.99	-1.41	4%	-2.06	-1.54
5%	-2.28	-1.70	5%	-2.32	-1.79

<b>Malta</b>			<b>Poland</b>		
<i>GDP-growth</i>	<i>Real interest rates</i>		<i>GDP-growth</i>	<i>Real interest rates</i>	
	2%	4%		2%	4%
3%	8.64	9.76	3%	1.12	1.96
4%	8.10	9.20	4%	0.72	1.54
5%	7.58	8.65	5%	0.32	1.13

<b>Slovakia</b>			<b>Slovenia</b>		
<i>GDP-growth</i>	<i>Real interest rates</i>		<i>GDP-growth</i>	<i>Real interest rates</i>	
	2%	4%		2%	4%
3%	1.08	1.88	3%	-1.71	-3.93
4%	0.68	1.48	4%	-2.03	-4.10
5%	0.30	1.08	5%	-2.34	-4.27

Source: Authors' calculations based on EUROSTAT data

MNB Füzetek <http://www.mnb.hu/>

MNB Working Papers <http://english.mnb.hu/>

**1995/1**

SIMON, András: Aggregált kereslet és kínálat, termelés és külkereskedelem a magyar gazdaságban 1990-1994  
*Aggregate Demand and Supply, Production and Foreign Trade in the Hungarian Economy, 1990-1994* (available only in Hungarian)

**1995/2**

NEMÉNYI, Judit: A Magyar Nemzeti Bank devizaadósságán felhalmozódó árfolyamveszteség kérdései  
*Issues of Foreign Exchange Losses of the National Bank of Hungary* (available only in Hungarian)

**1995/3**

KUN, János: Seignorage és az államadósáág terhei  
*Seignorage and the Burdens of Government Debt* (available only in Hungarian)

**1996/1**

SIMON, András: Az infláció tényezői 1990-1995-ben  
*Factors of Inflation, 1990-1995* (available only in Hungarian)

**1996/2**

NEMÉNYI, Judit: A tőkebeáramlás, a makrogazdasági egyensúly és az eladósodási folyamat összefüggései a Magyar Nemzeti Bank eredményének alakulásával  
*The Influence of Capital Flows, Macroeconomic Balance and Indebtedness on the Profits of the National Bank of Hungary* (available only in Hungarian)

**1996/3**

SIMON, András: Sterilizáció, kamatpolitika az államháztartás és a fizetési mérleg  
*Sterilization, Interest Rate Policy, the Central Budget and the Balance of Payments* (available only in Hungarian)

**1996/4**

DARVAS, Zsolt: Kamatkülönbség és árfolyam-várakozások  
*Interest Rate Differentials and Exchange Rate Expectations* (available only in Hungarian)

**1996/5**

VINCZE, János — ZSOLDOS, István: A fogyasztói árak struktúrája, szintje és alakulása Magyarországon 1991-1996-ban; Ökonometriai vizsgálat a részletes fogyasztói árindex alapján  
*The Structure, Level and Development of Consumer Prices in Hungary, 1991-1996 — An Econometric Analysis Based on the Detailed Consumer Price Index* (available only in Hungarian)

**1996/6**

CSERMELY, Ágnes: A vállalkozások banki finanszírozása Magyarországon 1991-1994  
*Bank Financing of Enterprises in Hungary, 1991-1994* (available only in Hungarian)

**1996/7**

BALASSA, Ákos: A vállalkozói szektor hosszú távú finanszírozásának helyzete és fejlődési irányjai  
*The Development of Long-term Financing of the Enterprise Sector* (available only in Hungarian)

**1997/1**

CSERMELY, Ágnes: Az inflációs célkitűzés rendszere  
*The Inflation Targeting Framework* (available only in Hungarian)

**1997/2**

VINCZE, János: A stabilizáció hatása az árakra, és az árak és a termelés (értékesítés) közötti összefüggésekre  
*The Effects of Stabilization on Prices and on Relations Between Prices and Production (Sales)* (available only in Hungarian)

**1997/3**

BARABÁS, Gyula — HAMECZ, István: Tőkebeáramlás, sterilizáció és pénzmennyiség  
*Capital Inflow, Sterilization and the Quantity of Money*

**1997/4**

ZSOLDOS, István: A lakosság megtakarítási és portfólió döntései Magyarországon 1980-1996  
*Savings and Portfolio Decisions of Hungarian Households, 1980-1996* (available only in Hungarian)

**1997/5**

ÁRVAI, Zsófia: A sterilizáció és tőkebeáramlás ökonometriai elemzése  
*An Econometric Analysis of Capital Inflows and Sterilization* (available only in Hungarian)

**1997/6**

ZSOLDOS, István: A lakosság Divisia-pénz tartási viselkedése Magyarországon  
*Characteristics of Household Divisia Money in Hungary* (available only in Hungarian)

**1998/1**

ÁRVAI, Zsófia — VINCZE, János: Valuták sebezhetősége: Pénzügyi válságok a '90-es években  
*Vulnerability of Foreign Currency: Financial Crises in the 1990s* (available only in Hungarian)

**1998/2**

CSAJBÓK, Attila: Zéró-kupon hozamgörbe becslés jegybanki szemszögből  
*Zero-coupon Yield Curve Estimation from a Central Bank Perspective*

**1998/3**

KOVÁCS, Mihály András - SIMON András: A reálárfolyam összetevői  
*Components of the Real Exchange Rate in Hungary*

**1998/4**

P.KISS, Gábor: Az államháztartás szerepe Magyarországon  
*The Role of General Government in Hungary*

1998/5

BARABÁS, Gyula — HAMECZ, István — NEMÉNYI, Judit: A költségvetés finanszírozási rendszerének átalakítása és az eladósodás megfékezése; Magyarország tapasztalatai a piacgazdaság átmeneti időszakában  
*Fiscal Consolidation, Public Debt Containment and Disinflation; Hungary's Experience in Transition*

1998/6

JAKAB M., Zoltán — SZAPÁRY, György: A csúszó leértékelés tapasztalatai Magyarországon  
*Hungary's Experience of the Crawling Peg System* (available only in Hungarian)

1998/7

TÓTH, István János — VINCZE János: Magyar vállalatok árképzési gyakorlata  
*Pricing Behaviour of Hungarian Firms* (available only in Hungarian)

1998/8

KOVÁCS, Mihály András: Mit mutatnak? Különféle reálárfolyam-mutatók áttekintése és a magyar gazdaság ár- és költség-versenyképességének értékelése

*The Information Content of Real Exchange Rate Indicators* (available only in Hungarian)

1998/9

DARVAS, Zsolt: Moderált inflációk csökkentése; Összehasonlító vizsgálat a nyolcvanas-kilencvenes évek dezinflációit kísérő folyamatokról

*Moderate Inflation: a Comparative Study* (available only in Hungarian)

1998/10

ÁRVAI, Zsófia: A piaci és kereskedelmi banki kamatok közötti transzmisszió 1992 és 1998 között

*The Interest Rate Transmission Mechanism between Market and Commercial Bank Rates*

1998/11

P. KISS, Gábor: A költségvetés tervezése és a fiskális átláthatóság aktuális problémái

*Topical Issues of Fiscal Transparency and Budgeting* (available only in Hungarian)

1998/12

JAKAB M., Zoltán: A valutakosár megválasztásának szempontjai Magyarországon

*Deriving an Optimal Currency Basket for Hungary* (available only in Hungarian)

1999/1

CSERMELY, Ágnes — VINCZE, János: Leverage and foreign ownership in Hungary

*Tőkeáttétel és külföldi tulajdon* (csak angol nyelven)

1999/2

TÓTH, Áron: Kísérlet a hatékonyság empirikus elemzésére a magyar bankrendszerben

*An Empirical Analysis of Efficiency in the Hungarian Banking System* (available only in Hungarian)

1999/3

DARVAS, Zsolt — SIMON, András: A növekedés makrogazdasági feltételei; Gazdaságpolitikai alternatívák

*Capital Stock and Economic Development in Hungary*

1999/4

LIELI, Róbert: Idősormodelleken alapuló inflációs előrejelzések; Egyváltozós módszerek

*Inflation Forecasting Based on Series Models. Single-Variable Methods* (available only in Hungarian)

1999/5

FERENCZI, Barnabás: A hazai munkaerőpiaci folyamatok Jegybanki szemszögből — Stilizált tények

*Labour Market Developments in Hungary from a Central Bank Perspective — Stylized Facts*

1999/6

JAKAB M., Zoltán — KOVÁCS, Mihály András: A reálárfolyam-ingadozások főbb meghatározói Magyarországon

*Determinants of Real-Exchange Rate Fluctuations in Hungary*

1999/7

CSAJBÓK, Attila: Information in T-bill Auction Bid Distributions

*Az aukciós kínstárjegyhozamok információs tartalma* (csak angol nyelven)

1999/8

BENCZÚR, Péter: A magyar nyugdíjrendszerben rejlő implicit államadósság-állomány változásának becslése

*Changes in the Implicit Debt Burden of the Hungarian Social Security System*

1999/9

VÍGH-MIKLE, Szabolcs — ZSÁMBOKI, Balázs: A bankrendszer mérlegének denominációs összetétele 1991-1998 között

*Denomination Structure of the Balance Sheet of the Hungarian Banking Sector, 1991-1998* (available only in Hungarian)

1999/10

DARVAS, Zsolt — SZAPÁRY, György: A nemzetközi pénzügyi válságok tovaterjedése különböző árfolyamrendszerekben

*Financial Contagion under Different Exchange Rate Regimes*

1999/11

OSZLAY, András: Elméletek és tények a külföldi működőtőke-befektetésekről

*Theories and Facts about Foreign Direct Investment in Hungary* (available only in Hungarian)

2000/1

JAKAB M., Zoltán — KOVÁCS, Mihály András — OSZLAY András: Hová tart a külkereskedelmi integráció? Becslések három kelet-közép-európai ország egyensúlyi külkereskedelmére

*How Far has Trade Integration Advanced? An Analysis of Actual and Potential Trade by Three Central and Eastern European Countries*

2000/2

VALKOVSZKY, Sándor — VINCZE, János: Estimates of and Problems with Core Inflation in Hungary  
*A maginfláció becslése és problémái* (csak angol nyelven)

2000/3

VALKOVSZKY, Sándor: A magyar lakáspiac helyzete  
*Situation of the Hungarian Housing Market* (available only in Hungarian)

2000/4

JAKAB M., Zoltán — KOVÁCS, Mihály András — LÓRINCZ Szabolcs: Az export előrejelzése ökonometriai módszerekkel  
*Forecasting Hungarian Export Volume*

2000/5

FERENCZI, Barnabás — VALKOVSZKY, Sándor — VINCZE, János: Mire jó a fogyasztói-ár statisztika?  
*What are Consumer Price Statistics Good for?*

2000/6

ÁRVAI, Zsófia — VINCZE, János: Financial Crises in Transition Countries: Models and Facts  
*Pénzügyi válságok átmeneti gazdaságokban: modellek és tények* (csak angol nyelven)

2000/7

SZAPÁRY, GYÖRGY: Maastricht and the Choice of Exchange Rate Regime in Transition Countries during the Run-Up to GMU  
Maastricht és az árfolyamrendszer megválasztása az átmeneti gazdaságokban az GMU csatlakozást megelőzően (csak angol nyelven)

2000/8

ÁRVAI, Zsófia — MENCZEL, Péter: A magyar háztartások megtakarításai 1995 és 2000 között  
*Savings of Hungarian Households, 1995-2000*

2000/9

DARVAS, Zsolt — SIMON, András: A potenciális kibocsátás becslése a gazdaság nyitottságának felhasználásával  
*Potential Output and Foreign Trade in Small Open Economies*

2001/1

SIMON, András — VÁRPALOTAI, Viktor: Eladósodás, kockázat és óvatosság  
*Optimal Indebtedness of a Small Open Economy with Precautionary Behavior*

2001/2

ÁRVAI, Zsófia — TÓTH, István János: Likviditási korlát és fogyasztói türelmetlenség  
*Liquidity constraints and consumer impatience*

2001/3

VALKOVSZKY, SÁNDOR — VINCZE, JÁNOS: On Price Level Stability, Real Interest Rates and Core Inflation  
*Arszintstabilitás, reálkamat és maginfláció* (csak angol nyelven)

2001/4

VINCZE, JÁNOS: Financial Stability, Monetary Policy and Integration: Policy Choices for Transition Economies  
*Pénzügyi stabilitás, monetáris politika, integráció: az átmeneti gazdaságok előtt álló választási lehetőségek* (csak angol nyelven)

2001/5

SZAPÁRY, GYÖRGY: Banking Sector Reform in Hungary: Lessons Learned, Current Trends and Prospects  
*A bankrendszer reformja Magyarországon: tanulságok, aktuális folyamatok és kilátások* (csak angol nyelven)

2002/1

TÓTH, István János: Vállalati és lakossági konjunktúra felmérések Magyarországon  
*Cyclical Surveys of the Hungarian Corporate and Household Sectors* (available only in Hungarian)

2002/2

BENCZÚR, Péter: A szuverén kötvényekben rejlő kockázatok azonosítása  
*Identifying Sovereign Bond Risks* (available only in Hungarian)

2002/3

JAKAB M., Zoltán — KOVÁCS Mihály András: Magyarország a NIGEM modellben  
*Hungary in the NIGEM model*

2002/4

BENCZÚR, Péter — SIMON, András — VÁRPALOTAI, Viktor: Dezinflációs számítások kisméretű makromodellel  
*Disinflation Simulations with a Small Model of an Open Economy* (available only in Hungarian)

2002/5

*On the estimated size of the Balassa-Samuelson effect in five Central and Eastern European countries*  
Edited by Mihály András KOVÁCS (available only in English)

2002/6

GYOMAI, György — VARSÁNYI, Zoltán Máté: Az MNB által használt hozamgörbe-becsülő eljárás felülvizsgálata  
*A Comparison of Yield-curve Fitting Methods for Monetary Policy Purposes in Hungary* (available only in Hungarian)

2003/1

BENCZÚR, PÉTER: *The behavior of the nominal exchange rate at the beginning of disinflations*  
A nominálárfolyam viselkedése monetáris rezsimváltás után (csak angol nyelven)

2003/2

VÁRPALOTAI, Viktor: Numerikus módszer gazdasági adatok visszabecslésére  
*Numerical Method for Estimating GDP Data for Hungary* (available only in Hungarian)

2003/3

VÁRPALOTAI, Viktor: Dezinflációs számítások dezaggregált kibocsátási résekre alapzó makromodellel  
*Disinflation Simulations with a Disaggregated Output Gap Based Model* (available only in Hungarian)

**2003/4**

VÁRPALOTAI, Viktor: Dezaggregált költségbegyűrűzés-alapú ökonometria infláció-előrejelző modell  
*Disaggregated Cost Pass-Through Based Econometric Inflation-Forecasting Model for Hungary*

**2003/5**

JAKAB M., ZOLTÁN — KOVÁCS, MIHÁLY ANDRÁS: *Explaining the Exchange Rate Pass-Through in Hungary: Simulations with the NIGEM Model*

Az árfolyam-begyűrűzés meghatározói: szimulációk a NIGEM modellel (csak angol nyelven)

**2003/6**

VADAS, GÁBOR: Modelling households' savings and dwellings investment — a portfolio choice approach (available only in English)

**2003/7**

PULA, GÁBOR: Capital Stock estimation in Hungary: A brief description of methodology and results

Tőkeállomány becslése Magyarországon a PIM módszerrel. Módszertani leírás és eredmények (csak angol nyelven)

**2003/8**

DARVAS, ZSOLT — VADAS, GÁBOR: *Univariate Potential Output Estimations for Hungary* (available only in English)

**2003/9**

BENCZÚR, PÉTER: Nominális sokkok átmeneti reálhatása egy kétszektoros növekedési modellben

*Real Effects of Nominal shocks: a 2-sector Dynamic Model with Slow Capital Adjustment and Money-in-the-utility*

**2003/10**

MÉRŐ, Katalin — ENDRÉSZ VALENTINYI, Marianna: *The Role of Foreign Banks in Five Central and Eastern European Countries* (A külföldi bankok szerepe öt közép-kelet-európai országban) (csak angol nyelven)

**2003/11**

VILÁGI, Balázs: Az optimális euró konverziós ráta meghatározása egy sztochasztikus dinamikus általános egyensúlyi

*The Optimal Euro Conversion Rate in a Stochastic Dynamic General Equilibrium Model*

**2003/12**

MÓRÉ, Csaba — NAGY, Márton: A piaci struktúra hatása a bankok teljesítményére: empirikus vizsgálat Közép-Kelet Európára

*Relationship between Market Structure and Bank Performance: Empirical Evidence for Central and Eastern Europe (available only in Hungarian)*

**2003/13**

BENCZÚR, Péter — SIMON, András — VÁRPALOTAI, Viktor: Fiskális makropolitika és a növekedés elemzése kalibrált modellel

*A Calibrated Model of Growth and Intertemporal Consumption Allocation in a Catching-up Country*

**2004/1**

DARVAS, ZSOLT — SZAPÁRY, GYÖRGY: Konjunktúraciklusok együttmozgása a régi és új EU-tagországokban

*Business Cycle Synchronization in the Enlarged EU: Comovements in the New and Old Members*

**2004/2**

NASZÓDI, ANNA: A sávmódosítások árfolyamhatásának vizsgálata opciós modell keretei között

*Target zone rearrangements and exchange rate behavior in an option-based model*

**2004/3**

TARJÁNI, HAJNALKA: *Estimating the Impact of SBTC on Input Demand Elasticities in Hungary*

**2004/4**

ORBÁN, GÁBOR — SZAPÁRY, GYÖRGY: A Stabilitási és Növekedési Egyezmény az új tagállamok szemszögéből

*The Stability and Growth Pact from the Perspective of New Member States*