

Darvas, Zsolt; Szapáry, György

Working Paper

Euro Area Enlargement and Euro Adoption Strategies

IEHAS Discussion Papers, No. MT-DP - 2008/24

Provided in Cooperation with:

Institute of Economics, Centre for Economic and Regional Studies, Hungarian Academy of Sciences

Suggested Citation: Darvas, Zsolt; Szapáry, György (2008) : Euro Area Enlargement and Euro Adoption Strategies, IEHAS Discussion Papers, No. MT-DP - 2008/24, ISBN 978-963-9796-42-3, Hungarian Academy of Sciences, Institute of Economics, Budapest

This Version is available at:

<https://hdl.handle.net/10419/108143>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

MŰHELYTANULMÁNYOK

DISCUSSION PAPERS

MT-DP – 2008/24

Euro Area Enlargement and Euro Adoption Strategies

ZSOLT DARVAS – GYÖRGY SZAPÁRY

Discussion papers
MT-**DP** – 2008/24

Institute of Economics, Hungarian Academy of Sciences

KTI/IE Discussion Papers are circulated to promote discussion and provoke comments.
Any references to discussion papers should clearly state that the paper is preliminary.
Materials published in this series may subject to further publication.

Euro Area Enlargement and Euro Adoption Strategies

Zsolt Darvas
research fellow
Institute of Economics
Hungarian Academy of Sciences
E-mail: darvas@econ.core.hu

György Szapáry
visiting professor
Central European University
E-mail: gszap@t-online.hu

November 2008

ISBN 978 963 9796 42 3
ISSN 1785 377X

Euro Area Enlargement and Euro Adoption Strategies

ZSOLT DARVAS - GYÖRGY SZAPÁRY*

Abstract

The paper discusses the risks and challenges faced by the new members on the road to the euro and the strategies for and timing of euro adoption. We investigate the real-nominal convergence nexus from the perspective of euro area entry. We argue that the initial level of economic development as measured by per capita income and the speed of real convergence have a bearing on the strategies to follow and on the timing of entry into euro area. This is because the lower is the per capita income, the larger is the price level gap to close and the greater is the danger of credit booms and overheating. We argue that inflation targeting with floating rates is better suited than hard pegs to manage the price level catching-up process. We suggest a modification in the Maastricht inflation criterion which as currently defined has lost its economic logic.

Keywords: euro area, convergence, exchange rate, inflation

JEL: E31, E52, E60, F30

* Darvas: Institute of Economics of the Hungarian Academy of Sciences and Corvinus University of Budapest, former research adviser of Argenta ZRt (darvas@econ.core.hu)
Szapáry: Central European University and former Deputy Governor of the National Bank of Hungary (gszap@t-online.hu).

This paper was commissioned by the European Commission as part of the "EMU@10" project and is forthcoming in: Buti, Marco, Servaas Deroose, Vitor Gaspar and João Nogueira Martins (eds.): Euro-The First Decade, Cambridge University Press, 2009. The longer version of this paper appeared as European Economy - Economic Papers 304, DG-ECFIN, European Commission, Brussels, in February 2008. The authors thank for discussion and useful comments Olivier Blanchard, Marco Buti, Attila Csajbók, Zdeněk Čech, Servaas Deroose, Balázs Égert, Jürgen Kröger, Paul Kutos, Jean Pisani-Ferry, Christopher Pissarides, Zoltán Schepp, Massimo Suardi, and István Székely, as well as participants in workshops at the EU Commission in Brussels, at the Magyar Nemzeti Bank and Corvinus University in Budapest, at the Bank of Estonia in Tallinn, at the University of Münster, at the joint conference of the Banco Central do Brasil and European Commission in São Paulo, and at the Wilfrid Laurier University in Waterloo, Canada. The views expressed are those of the authors and do not necessarily reflect the views of the European Commission. The paper is published in the Discussion Paper series of the Institute of Economics of Hungarian Academy of Sciences under the permission of the European Commission.

Az euróövezet bővítése és euróbevezetési stratégiák

DARVAS ZSOLT – SZAPÁRY GYÖRGY

Összefoglaló

Tanulmányunk azokat a kockázatokat és kihívásokat vizsgálja, amelyekkel az új EU-tagállamok szembesülnek az euróhoz vezető úton, valamint elemzi az euró bevezetésével és a bevezetés időzítésével kapcsolatos stratégiákat is. Megvizsgáljuk a reál- és nominálkonvergencia kapcsolatát az euróövezetbe csatlakozás szemszögéből. Véleményünk szerint a gazdaság egy főre jutó jövedelemben mért kezdeti fejlettségi szintje, valamint a reálkonvergencia sebessége kihatnak a követendő stratégiákra és a belépés időzítésére. Minél alacsonyabb ugyanis egy ország egy főre jutó jövedelme, annál nagyobb az árszínvonalbeli lemaradása (amit be kell hoznia), és az új tagok jelenlegi helyzetét figyelembe véve, annál nagyobb a veszélye annak, hogy a hitelek növekedése túlzottá, a gazdaság túlfűtötté válik. Úgy gondoljuk, hogy az inflációkövetés lebegő árfolyam mellett megfelelőbb az árszínvonal felzárkózási folyamatának kezelésére, mint valamilyen merev árfolyamrögzítés. Elemezzük a maastrichti kritériumokat az új EU-tagállamok gazdasági jellemzőinek szempontjából, és az inflációs kritérium módosítását javasoljuk, amely jelenlegi formájában elvesztette közgazdasági értelmét.

Tárgyszavak: euróövezet bővítése, konvergencia, tőkeáramlás, hitelnövekedés, árfolyamrendszer, infláció, Maastricht-i kritériumok

JEL: E31, E52, E60, F30

1. INTRODUCTION

The twelve new Member States (NMS) which joined the EU since 2004 do not have an opt-out like Denmark and the United Kingdom and have to adopt the euro under the Treaty. The timing of euro adoption depends on satisfying the Maastricht requirements of nominal convergence. The benefits of a currency union, in general, and of the adoption of the euro by the EU Member States, in particular, have been widely discussed in the literature. Suffice here to recall the main ones. By eliminating exchange rate fluctuations and the associated uncertainty and transaction costs, a currency union promotes trade and financial integration. Furthermore, it enhances price transparency and hence competition. For the NMS, membership in the euro area could also permit to import credibility to the extent that the credibility of the single monetary policy is regarded as greater than the monetary policy of the individual country. Finally, the drive towards euro adoption and the attendant desire to make real and nominal convergence sustainable may promote reforms, for instance in the areas of fiscal institutions and transparency, deregulation, incomes policy, etc. All these benefits can lead to higher growth and better living standards for the society as a whole.

The aim of this chapter is to discuss the following issues: (i) given the characteristics and initial conditions of the NMS, what are the risks and challenges on the road to euro and after euro adoption; and (ii) what should be the strategy for and the timing of adoption of the euro.

To this end, we investigate the real-nominal convergence nexus during the catching-up process, as it has a bearing on the strategies to adopt, including the choice of exchange rate regime, and the timing of euro adoption. We demonstrate that the initial level of development of a country measured by its GDP per capita and the speed of real convergence are the main determinants of the price level convergence and hence of the relative inflation in the long-run, which also depends on the exchange rate regime. The countries with the lowest per capita income have the largest initial price level gap to close. The less developed NMS had also the lowest initial level of credit to GDP ratio and hence the greatest potential for credit booms as credit converges toward its equilibrium level. The key issue then is whether, taking into account the initial level of development, the convergence process of the price level can be better managed inside or outside the monetary union and, by implication, whether the transition to the euro can be better managed with a floating or with a fixed exchange rate regime.

What is the most appropriate monetary-cum-exchange rate regime to best manage the catching-up process is a complex issue. We argue in this chapter that the main risks for the NMS with hard pegs is that with no room to let the nominal exchange rate appreciate to

accommodate the price level convergence and with little or no risk premia, the real interest rates become excessively low due to higher inflation. This carries the danger of credit booms and can lead to large external account imbalances. Such developments have taken place in the Baltic countries recently.

For the inflation targeting countries with floating exchange rates, the possibility of letting the nominal exchange rate appreciate provides somewhat more flexibility to control inflation and accommodate price level convergence, but the room for manoeuvre should not be overestimated. This is because owing to the high degree of financial integration of the NMS and euro area entry expectation driven capital inflows, the effectiveness of domestic monetary policy is constrained.

An issue related to the real convergence process is whether the Maastricht criteria of inflation and exchange rate stability laid down 15 years ago or so for a group of countries with less divergent levels of economic development can be reconciled with the lesser degree of real convergence of most of the new members. Or to put it differently, whether these criteria are such that they unavoidably will keep out of the monetary union countries which will have already reached a stage where they could function normally in the euro area and reap the benefits of membership. We suggest a modification of the Maastricht inflation criterion which as currently defined has lost its economic logic.

It is necessary to mention what this chapter does not study. It does not investigate to what extent the NMS satisfy the optimum currency area (OCA) criteria. Satisfying these criteria is a key condition for joining a monetary union. In a longer version of this chapter (Darvas and Szapáry, 2008), we investigated in detail this issue and conclude that the NMS are not in a worse position - and in some cases are even in a better position - to join the monetary union than were the old members when they adopted the euro.

The rest of the paper is organized as follows. Section II reviews some of the most relevant economic features of the NMS from the perspective of euro adoption. Section III discusses the risks, challenges and the long term strategies on the road to euro. In the light of these challenges, Section IV considers the strategies and timing for euro adoption. Section VI concludes.¹

¹ We include among the new member states Cyprus, Malta, Slovenia and Slovakia which already joined the euro area. Therefore, when we talk about the euro area, we refer to the 12 old euro area members (EA12).

2. ECONOMIC FEATURES OF THE NMS FROM THE PERSPECTIVE OF EURO ADOPTION

2.1 THE REAL-NOMINAL CONVERGENCE NEXUS: LARGE DIFFERENCES AMONG THE NEW MEMBERS

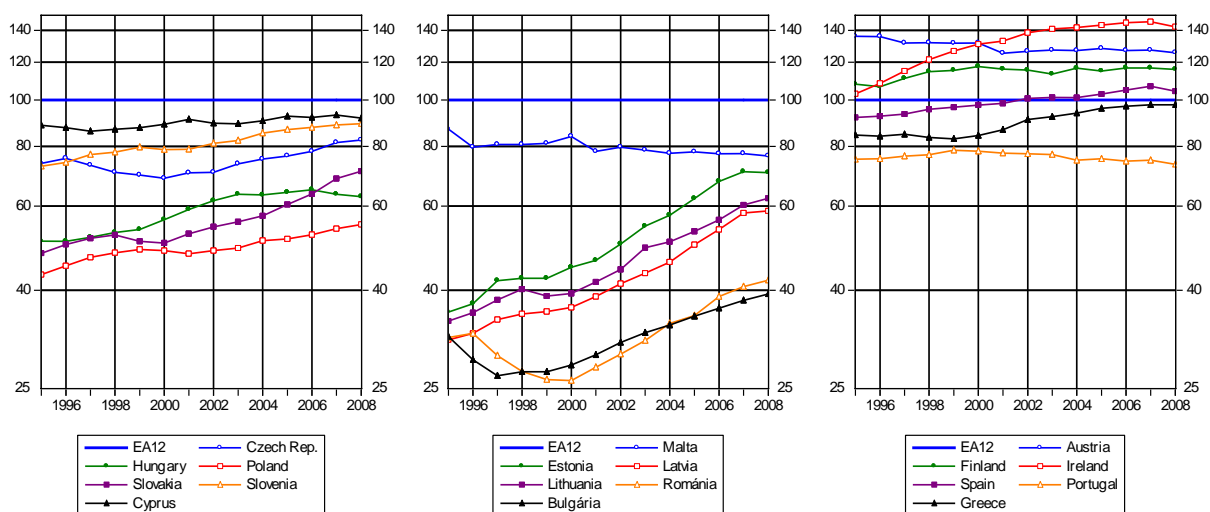
A salient feature of the economic developments of the new members is their catching up in terms of GDP per capita and the associated price level convergence (Graphs 1 and 2). A well established fact in economic theory is that richer countries tend to have higher price levels expressed in a same currency and therefore the overall inflation rate in the catching-up countries is higher and/or their nominal exchange rate appreciates as they close the gap.

The key theoretical underpinning of price level convergence is the Balassa-Samuelson (BS) effect. If the higher inflation is due to the BS effect, i.e., to the faster productivity growth in the NMS, then the implied real appreciation of the exchange rate is competitiveness neutral, an important consideration once a country has adopted the euro. Égert (2007) presents a recent update of the size of the BS effect and finds that *relative to the euro area* the BS effect in the NMS ranges between zero or a negative value and 1.2%. While the BS effect undoubtedly does explain part of the price level convergence between countries of different levels of development, its conventional measurement has a number of weaknesses and there are a number of other factors as well to be considered when assessing the likely influence of the BS effect on price convergence in the years ahead (Darvas and Szapáry, 2008). Furthermore, transitory factors, such as for instance overheating, can also affect the actual speed of price level increases.

Since the price level convergence is inherent to the catching-up process, countries experiencing high growth rates, such as most of the NMS, are unlikely to achieve simultaneously a stable nominal exchange rate and a low level of inflation, at least until a certain degree of price level convergence has already been reached.

Graph 1.

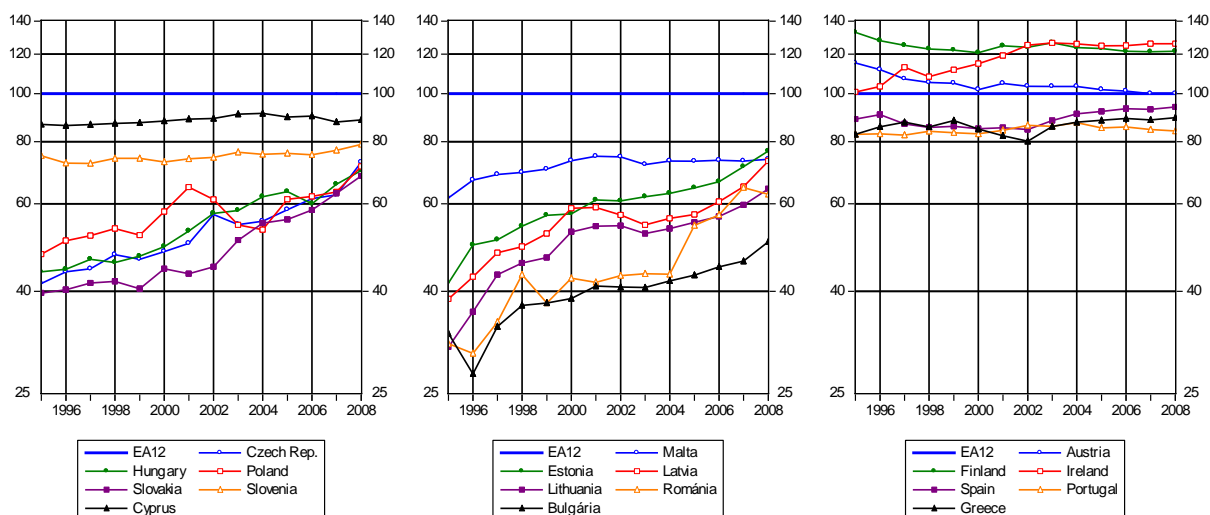
GDP per capita in purchasing power standards (EA12 = 100), 1995-2008



Source: Eurostat.

Graph 2.

Price level of consumption (EA12 = 100), 1995-2008

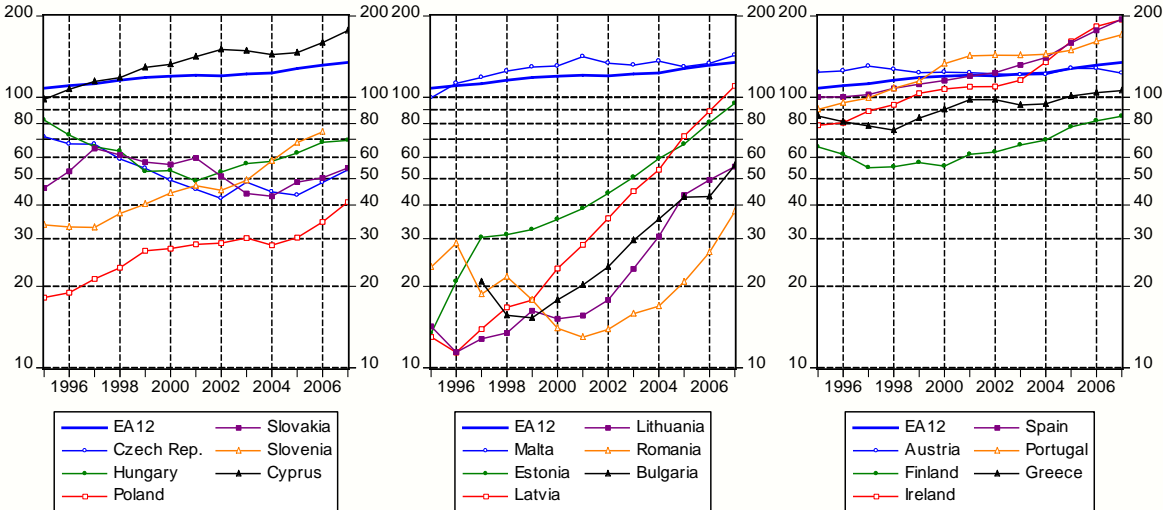


Sources: Eurostat for 1995-2007; 2008 values were calculated by us using domestic and EA12 inflation and euro exchange rate changes. Note: Values shown correspond to comparative price levels of final consumption by private households including indirect taxes (EA12 = 100)

The five countries with the lowest relative per capita GDP in 1995 are the three Baltic States, Bulgaria and Romania. Even in recent years, these countries recorded the fastest annual rates of growth of GDP, the fastest credit growth, the largest current account deficits, the most rapid wage increases and four of them had the highest inflation if we abstract from Hungary where inflation has been recently boosted by tax increases and administrative price adjustment to deal with a runaway fiscal deficit. Those five countries had also the lowest starting price level in the mid-1990s (except Estonia) and the lowest credit/GDP ratios (*Graph 3*). Four of those countries have been operating under fixed exchange rate arrangements, but Romania has had a floating rate.

Graph 3.

Domestic credit (in percent of GDP), 1995-2007



Source: IMF, IFS. Note: Values for 2007 are projections by us using data of 2007Q3 for most of the countries and 2007Q2 for some of the countries.

If we look at the four NMS with the highest relative per capita GDP in 1995, i.e., Cyprus, Malta, the Czech Republic and Slovenia, they recorded lower output growth, slower credit expansion, smaller current account deficits, and lower wage growth and inflation in recent years. Two of these countries, Cyprus and Malta, had fixed rates, the Czech Republic had a floating rate and Slovenia was under a tightly managed float, with practically a fixed rate in more recent years. The three countries in the middle of the rankings in terms of GDP per capita (Hungary, Slovakia and Poland) also recorded, compared to the five countries in the bottom of the rankings, slower output growth (except Slovakia), smaller credit expansion, lower current account deficits and lower inflation (except Hungary as noted). All three countries had floating rates.

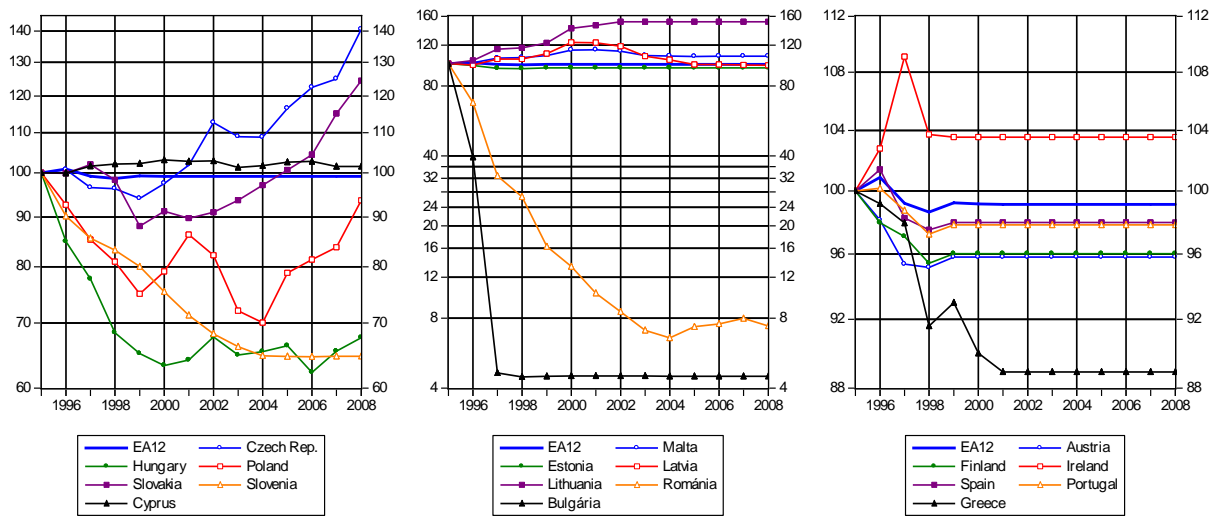
Looking at the evolution of nominal exchange rates since the mid-1990s of those six countries which had floating rates,² we see a mixed picture (*Graph 4*). Only in the Czech Republic and Slovakia has the nominal exchange rate been on a fairly strong appreciating trend since the mid-1990s. These two countries, which had the lowest price levels among the more developed central and eastern European countries (CEEs) in the mid-1990s, are also among the countries which have registered the lowest inflation in recent years.

The economy wide unit labour cost (ULC)-based real effective exchange rates is another representation of the catching-up phenomenon. The three more developed countries have registered much less appreciations between 1995 and 2007 than the less developed ones, with the ULC-based real exchange rate of Slovenia actually stagnating (*Graph 5*). The largest appreciations took place in Romania (180%) and Lithuania (140%). On the other hand, the appreciation was only 20% in Bulgaria. In the rest of the less developed CEEs, the appreciations ranged between 60% and 90%.

² The NMS have maintained different exchange systems over time and have also changed regimes on occasion. The regimes practiced included currency boards, fixed pegs to a basket, crawling pegs, managed float and free float. Currently, three countries are members of ERMII: Estonia and Lithuania with a fixed rate as a unilateral commitment and Latvia with +/-1% fluctuation band as a unilateral commitment. Bulgaria has a currency board arrangement with the euro being the anchor currency. The Czech Republic, Poland, and Romania are under inflation targeting regimes with free floating exchange rates, while Hungary's inflation targeting is conducted in conjunction with an exchange rate band of +/-15% against the euro. Before joining the euro area, the exchange rate of Cyprus fluctuated within relatively narrow margins, Malta had a fixed rate and Slovenia used to practice a more or less managed float.

Graph 4.

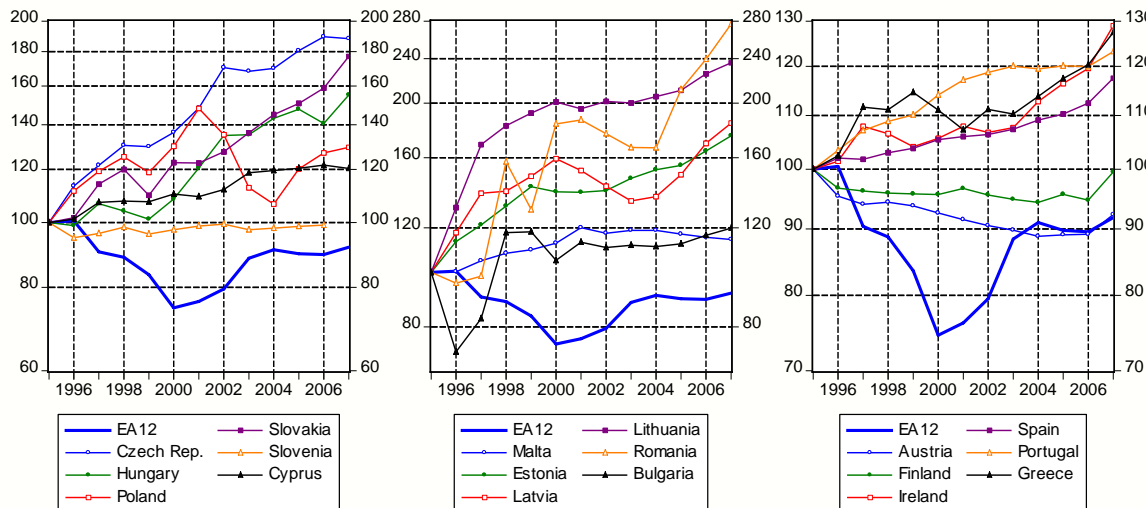
**Nominal exchange rate against the ECU/EUR
(1995 = 100), 1995-2008**



Source: Authors' calculation based on data from Eurostat. Values for 2008 assume unchanged exchange rate from August 2008 till the end of the year. Note: a rise in the index means nominal appreciation.

Graph 5.

**Total economy unit labour cost based real effective exchange rates
(2000 = 100), 2000-2007**



Source: Eurostat. Note: A rise in the index means real appreciation. Values for 2007 are projected using data up 2007Q3.

This bird's eye view of the main economic indicators allows us to make a number of observations. First, the low starting level of per capita GDP and the associated low level of prices, as well as the low initial level of credit are important factors explaining the rapid growth of credit and the high rate of inflation in the countries at the bottom of the rankings.

This applies both to the Baltic countries and Bulgaria with fixed exchange rates and to Romania with floating rate.

To test this hypothesis, we estimated some panel models for the period of 1998-2006 to uncover the determinants of price level convergence in the NMS. The selected specification is the following:³

$$\frac{P_{t,i}}{P_{t,EMU}} = \beta_0 + \frac{\left(\frac{Y^{(PPS)}}{POP}\right)_{t,i}}{\left(\frac{Y^{(PPS)}}{POP}\right)_{t,EMU}} + \beta_1 \left(\frac{DD_{t,i}}{Y_{t,i}} - \frac{DD_{t,i}}{Y_{t,EMU}} \right) + \beta_2 (i_{t,i} - i_{t,EMU}) + \beta_3 FIXED_i + \varepsilon_{t,i}$$

where $P_{t,i}$ is the price level of private consumption at time t in country i , $\left(\frac{Y^{(PPS)}}{POP}\right)_{t,i}$ is per capita GDP at purchasing power standards, $\frac{DD_{t,i}}{Y_{t,i}}$ is the share of domestic demand in GDP at current prices; $i_{t,i}$ is the nominal interest rate; $FIXED_i$ is a time invariant dummy variable for six countries (Bulgaria, Cyprus, Estonia, Latvia, Lithuania, and Malta), and $\varepsilon_{t,i}$ is the error term.

We found – in line with the literature – that per capita income is indeed the key explanatory variable of the price level, and we restricted its parameter to one because we could not reject the null hypothesis that it is equal to one. Domestic demand in excess of GDP is also a significant explanatory factor. To the extent that credit expansion influences domestic demand, and further that the credit expansion is influenced by the initial level of credit, the latter is an important factor determining the price level.

Higher real (and nominal) interest rate compared to the euro area interest rate, which influences the inflow of interest rate sensitive capital, is also a factor having significant positive effects on the price level, since it can appreciate the nominal exchange rate, leading to a rise in the price level relative to the euro area (if the exchange rate pass-through is less than perfect). We also found that the fixity of the nominal exchange rate is an additional explanatory factor of the price level, but that its significance declines over time, in parallel with the convergence of per capita income. This confirms the principle that under fixed exchange rate, the price level convergence takes place via higher inflation and as the real convergence proceeds, this influence diminishes. However, if the peg contributes to excess domestic demand growth, for instance via lower real interest as we discuss it later, then of course the peg itself has an (indirect) effect on price level increases and inflation, since the parameter of domestic demand is found to be significantly positive.

³ For details, see Darvas and Szapáry (2008).

Under fixed exchange rate conditions, the price level convergence translates into higher domestic inflation. Under floating exchange rates, the price level convergence can be accommodated either by higher inflation or by an appreciation of the nominal exchange rate, or by a combination of the two. The results of the model calculations also show that the interest rate sensitive capital inflows can temporarily appreciate the nominal exchange rate in excess of what would be required by price level convergence implied solely by the catching-up of GDP per capita.

We used the estimated model described above to offer some quantitative prospects of future price level convergence and its effect on inflation. To this end, we assumed various catching-up scenarios in terms of GDP per capita, and assumed that domestic demand and the interest rate converge to EA12 levels as the catching-up process levels out. We further assumed that the catching-up, that is, the excess growth of GDP compared to EA12, is fast when a country has a much lower per capita GDP than the EA12, but that the speed decreases with the advance of the catching-up process.

The long run level of per capita GDP was set either at 90 percent of EA12 level (roughly the average of Greece, Portugal and Spain) or at 100 percent. The initial speed of catching-up was set equal to actual excess growth in 2000-2007. Projections of domestic demand per GDP were derived on the basis of an empirical relationship between excess growth and domestic demand. We assumed that the interest rate differential will be zero by 2015 and declines (increases in the case of the Czech Republic where the interest rate is currently below euro level) linearly in time till then. For illustrative purposes, *Table 1* shows the inflationary consequences of the price level convergence under these assumptions. For instance, assuming a price level convergence of 90% in the long run, the excess inflation over EA12 inflation ranges between 1,2% and 3,6% per year during 2008-20012. This excess inflation can be also accommodated by a nominal appreciation of the exchange rate of the same magnitude, or by a combination of excess inflation and appreciation.

Table 1.

Projected annual average price level convergence

	Catching-up to 90% of EA12			Catching-up to 100% of EA12		
	2008-2012	2013-2017	2018-2022	2008-2012	2013-2017	2018-2022
Bulgaria	1.2	1.8	1.8	1.2	2.0	2.0
Cyprus	n.a.	n.a.	n.a.	0.4	0.3	0.2
Czech Republic	2.5	0.9	0.3	3.0	1.6	0.8
Estonia	3.3	0.0	-0.3	4.3	0.9	0.0
Hungary	3.2	1.9	1.3	3.3	2.2	1.6
Latvia	2.3	0.5	-0.1	2.6	1.3	0.5
Lithuania	3.4	1.2	0.3	3.8	1.9	0.9
Malta	0.4	0.4	0.3	0.4	0.4	0.4
Poland	1.8	1.5	1.3	1.9	1.6	1.4
Romania	2.7	2.6	2.2	2.8	2.8	2.5
Slovenia	n.a.	n.a.	n.a.	1.6	0.4	0.1
Slovakia	3.6	1.6	0.7	3.8	2.2	1.2

Note: The interpretation of the values shown is the following: either inflation will exceed the EA12 inflation rate by the magnitudes shown, or the nominal exchange rate should appreciate by these same magnitudes, or a combination of these two factors should occur.

A second observation is that the significant appreciation of the real effective exchange rates inherent in the catching-up process is not dependent on the exchange rate regime, although the regime can determine the risks of overshooting of the real exchange rate as it will be discussed later.

A third observation is that in the Czech Republic, Slovakia and, more recently, in Poland and Romania, the real exchange rate appreciation has been accompanied by a significant appreciation of the nominal exchange rate. The first three countries are also among those which have had the lowest average inflation rate in the more recent period of 2004-2007, and Romania has seen its inflation rate decline rapidly. In other words, the price level convergence has been accompanied by a lower inflation rate when the nominal exchange rate was let to appreciate, a finding which is confirmed by the above mentioned model calculations.

Fourth, the faster rate of growth in the less developed NMS except Bulgaria has been largely driven by consumption rather than productivity gains which, together with investment growth and despite rapid increase in exports, has led to large current account deficits. This means that the catching up of these countries has been largely at the cost of accumulating foreign debt. Fiscal looseness has not been the source of the large current account deficits of these countries. These countries have recorded surpluses or deficits of less

then one per cent of GDP per year on average during 2004-2007. Only Romania had an average deficit of 2% per year in that period.

Finally, the Baltic countries and especially Estonia are fast catching up to the countries in midfield in terms of per capita GDP, but Bulgaria and Romania, which started the catching-up process only in around 2000, are still farther behind. This suggests that the price level convergence due to the catching up-process should moderate in the Baltics, but that it will be still a significant source of future inflationary pressure in Bulgaria and Romania.

These observations indicate that the starting level and the speed of real convergence, as well as the exchange rate regime have a bearing on the challenges facing the new members in meeting the *nominal* convergence criteria for euro adoption and, as a consequence, on the choice of strategies to adopt on the road to the euro and on the timing of euro adoption.

2.3. MONETARY TRANSMISSION: LIMITS ON THE EFFECTIVENESS OF DOMESTIC MONETARY POLICY

The relevance of the monetary transmission mechanism from the perspective of euro adoption is that when the effects of domestic monetary policy on inflation and output are large and very different from the effects observed in the euro area, then the cost of losing monetary policy independence might be significant. In the opposite case, the loss is less important.

There are characteristics of the NMS that limit the effectiveness of monetary policy in general, and factors that limit the effectiveness of domestic monetary policy in particular.

Two characteristics limit the effectiveness of monetary policy *in general*. First, the ratio of credit to GDP is still low in these countries, ranging between around 41% for Poland and less than 76% for the other CEEs except in Latvia (110%) and Estonia (95%), compared with an average of about 135% in the euro area (*Graph 3*). In the latter two Baltic countries, the credit to GDP has increased very sharply in recent years. Second, stock market capitalization is low and holdings of financial assets by households is small, which both weaken the channels through balance sheets and wealth effects.

More relevant from the perspective of euro adoption and the surrender of monetary policy independence are the factors that already constrain the effectiveness of *domestic* monetary policy. The main factor is the large and growing share of foreign currency loans (*Table 2*), which weakens the effectiveness of domestic interest rate policy. Among the countries with floating exchange rates, the share of foreign currency loans reached 45% in Hungary and 48% in Romania in 2006 due to the high positive spreads between the

domestic and the relevant foreign interest rates. In the Czech Republic, on the other hand, where the interest rate spreads are negative, the share is only 10%.

The shares are highest in the Baltic States, ranging between 52% in Lithuania and 77% in both Estonia and Latvia. In the latter country, the interest rate spreads have widened recently and 100% of the recent growth of loans has been in euro. In Bulgaria, at 44%, the share is also high. Since these countries have pegged exchange rates, the high share of foreign currency loans does not any more add significantly to the loss of monetary policy independence, but does represent a substantial risk if the exchange rate will depreciate for some reason.

Another factor circumventing the domestic monetary policy is the borrowing by firms from their mother companies abroad or from other sources of external lending. According to World Bank (2007b), the foreign debt stock of enterprises exceed the level of their domestic bank loans in Poland, the Czech Republic, Slovakia, Bulgaria and Estonia. Since foreign-owned firms have easier access to external sources of lending and since they contribute considerably to output in the NMS, the share of external financing is a significant limiting factor on the effectiveness of domestic monetary policy, which is also one reason why the level of domestic credit is low.

Table 2.

Share of foreign currency loans (in percent of total loans), 2004-2006

	Households		Non-financial corporations		Total	
	2004	2006	2004	2006	2004	2006
Bulgaria	12	17	n.a.	n.a.	47	46
Czech Republic	0.3	0.2	18.7	18.6	11.2	10.2
Estonia	64.9	77.8	78.7	75.6	72.1	76.7
Cyprus	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Latvia	65.1	77.1	56.3	77.0	59.8	77.0
Lithuania	42.8	43.9	64.8	58.2	58.0	52.3
Hungary	12.9	42.7	43.4	45.7	31.9	44.5
Malta	1.0	1.4	6.7	16.1	4.3	9.4
Poland	27.2	30.9	23.7	22.1	25.4	27.1
Romania	47	40	n.a.	n.a.	61	48
Slovenia	3	43	n.a.	n.a.	32	57
Slovakia	0.6	1.7	33.5	33.5	21.5	20.1

Sources: ECB, World Bank (2007b).

Note: Calculated on the basis of outstanding amounts at the end of the period.

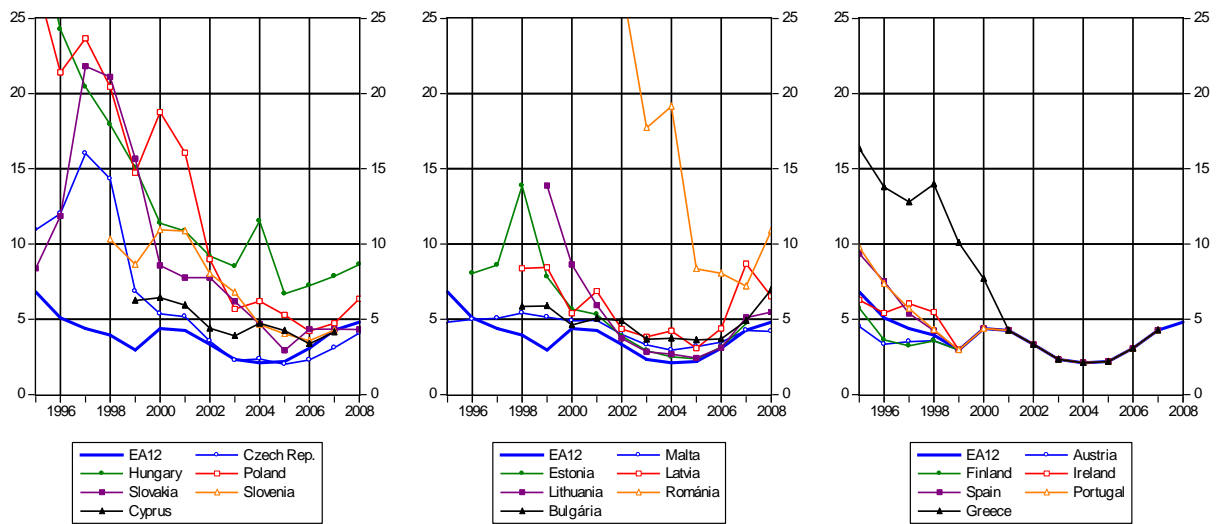
2.4. FINANCIAL INTEGRATION

Financial integration enhances risk pooling and consumption smoothing, improves the effectiveness of the transmission of the common monetary policy and, through the pooling and channelling of resources to investment opportunities, improves the allocation of resources. Hence, it promotes growth and helps adjust to idiosyncratic shocks. Financial integration is usually measured by the integration of money, bond and equity markets, cross-border holdings of financial assets, the cross-border integration of banking systems, and whether the institutional setups ensure a common set of rules and provide equal access and treatment of market participants (Ferrando et al, 2004). By adopting the *acquis communautaires*, the NMS by and large satisfy the institutional requirements.

Regarding the integration of money and bond markets, *Graphs 6 and 7* show, respectively, the 3-month money market rates and the ten-year bond market interest rates. There has been a substantial convergence of the nominal interest rates in the NMS towards the lower levels prevailing in the euro area. This convergence has been driven in part by the decline in risk premia, reflecting the more stability oriented macroeconomic policies in the NMS and market expectations that they will adopt the euro following a relatively short period of time after their entry into the EU. In addition, the search for yields in the environment of abundant global liquidity has increased the markets' risk appetite, generating substantial portfolio capital inflows into many of the NMS. The spreads are particularly low in Estonia, Lithuania and Bulgaria which operate fixed exchange rate regimes. In the Czech Republic, the spreads are actually negative, consistent with the appreciating exchange rate and expectations for further appreciations.

Graph 6.

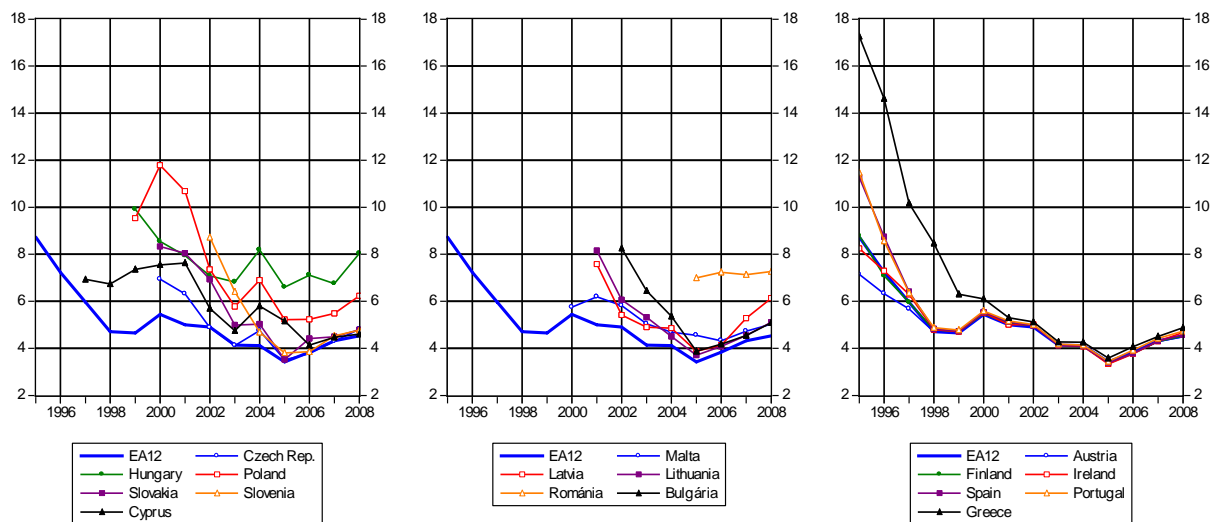
Three-month interbank interest rates, 1995-2008



Source: Eurostat. Values for 2008 assume unchanged interest rate from July 2008 till the end of the year.

Graph 7.

10-year government bond yields, 1995-2008



Sources: Eurostat and ECB. Values for 2008 assume unchanged interest rate from July 2008 till the end of the year.

With respect to the cross-border integration of the banking systems, it is substantial in the NMS, owing to the very important share of foreign-owned banks in the total assets of the banks, except in Slovenia, Cyprus and Malta. In the other countries, it ranges from about 60% in Latvia and Romania to over 90% in Estonia, Slovakia and the Czech Republic (World Bank, 2007b). The high shares in the CEEs are a result of the privatization of banks to strategic foreign investors and of letting in foreign banks to set up new banks. This was a way of infusing capital into the domestic banking system and was seen as transferring management know-how, especially in risk analysis and risk management, as well as bringing in new financial products.

3. RISKS, CHALLENGES AND LONG TERM STRATEGIES⁴

3.1 CAPITAL FLOWS: SEVERAL RISKS

The NMS have experienced considerable net capital inflows in the form of foreign direct investment (FDI), portfolio capital, and capital of other nature. FDI has gone into these countries to exploit profitable investment opportunities. The intensity of FDI has depended on such factors as the pace of privatization, the evolution of the legal and institutional environment and the absorbing capacity in the individual NMS. It has been also influenced by the macroeconomic situation and prospects in both the originating and recipient countries. Although at times FDI inflows can experience big swings from one year to another, from a macroeconomic stability point of view these swings constitute less of a risk, since they can mostly be anticipated and thus better handled.

The more serious risks lie in the non-FDI capital flows which are sensitive to risk premia and interest rate differentials. Most NMS have experienced strong non-FDI capital inflows which have been driven by the initially higher domestic nominal interest rates and the expectation of yield convergence ahead of euro adoption, as well as by the favourable growth prospects. In the countries with floating exchange rates, the inflows have been at times reinforced by expectations that policy makers will not fully counteract the nominal appreciation of the exchange rate caused by these very capital inflows because of their concern with inflation. In many NMS, the problem has been compounded by the foreign currency borrowings driven by strong domestic demand for credit. Boosted by such

⁴ In this Chapter, we analyze the challenges and strategies of euro adoption from a long term perspective. We do not examine the possible effects of the current sub-prime crisis on euro adoption strategies. While this crisis can of course affect the size and direction of capital flows, the magnitude of exchange rate fluctuations, the extent of credit growth and therefore the speed of real convergence, it does not basically change the long-term challenges and strategies of euro adoption during the catching-up process as analyzed in this Chapter.

borrowings, the non-FDI net capital inflows have been especially large in countries with fixed exchange rates, representing about 30% of GDP in Latvia, over 15% in Lithuania and about 20% in Estonia in 2006-2007. In the Czech Republic, Poland and Slovakia with floating rates, these inflows have been significantly smaller. Romania, in contrast, had large yield differentials which boosted capital inflows. In Hungary, where the yield differential has been also large, the non-FDI capital inflows mostly took the form of portfolio investment into government securities.

The danger in such large inflows of capital is that they boost domestic demand and lead to large current account deficits and high inflation. They can also put undue upward pressure on the exchange rates of countries with floating rate regimes, threatening an erosion of competitiveness that might force the authorities to lower interest rates to levels inconsistent with the goal of price stability and/or forcing them to undertake costly interventions.

Another danger of large portfolio capital inflows is that they can have the pervasive effect of making policy makers believe that the willingness of investors to buy and hold domestic financial assets is a vote of confidence, delaying needed reforms and letting the authorities indulge in policies that are clearly unsustainable. A case in point is that of Hungary, where despite fiscal deficits ranging between 6% to 9.2% of GDP and similarly high current account deficits during 2002-2006, non-resident holdings of government securities have increased. By virtue of the mere size of the potential portfolio shifts relative to the small size of the capital markets of the NMS, a reversal of capital, due to loss of confidence or contagion, can trigger large destabilizing movements in the exchange rates and domestic interest rates. Hungary has experienced such sudden shifts in 2003 and again in 2006 when doubts arose about the policy intentions of the authorities.

3.2 DANGER OF CREDIT BOOMS AND OVERHEATING: THE GREAT CHALLENGE

The rapid expansion of credit and the consequent danger of overheating and inflation is one of the greatest challenges facing the NMS, irrespective of whether they are members or not of the euro area. Both demand and supply factors combine to boost credit expansion.

On the demand side, the initial low level of credit and of indebtedness, the rapid output growth, the rise in income expectations and the stronger confidence boosted also by EU entry have led to a greater willingness of economic agents to take on debt. This has been particularly true for households. The demand for credit has been fuelled by the sharp decline in real interest rates. The fall in risk premia and the convergence of domestic interest rates toward euro levels driven by the inflow of convergence capital buoyed by euro area entry expectation, together with higher inflation owing to the BS effect or other reasons, have

produced very low or even negative domestic real interest rate⁵. This environment of low borrowing cost has been compounded in several countries by the use of foreign currency and external loans as mentioned above.

On the supply side, the development of the banking sector after privatization and the predominance of foreign banks increased the lending capacity of banks. At the same time, rising competition among banks to expand their activity in the household sector once the corporate sector has been saturated, together with the narrowing of margins due to the fall in interest rates, have constituted strong incentives for banks to lend to households to maintain profitability.

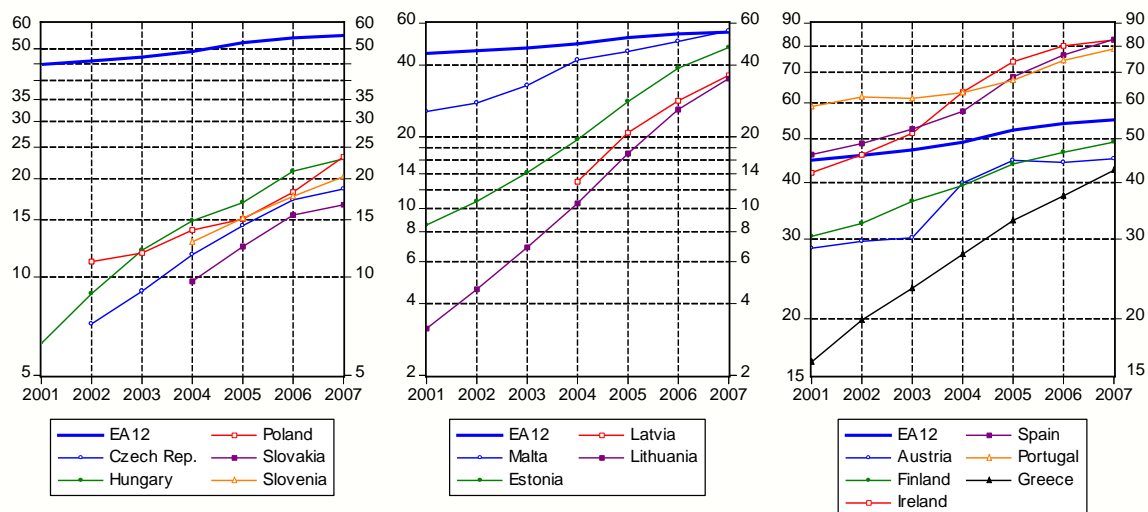
The fastest growing segments of the credit market have been household loans, in particular mortgage loans (*Graph 8*). The latter have been also encouraged by deregulation in the property market and by the rapid rise in property prices and the expectation of further price increases which have encouraged speculative buying, including by non-residents. Just like total domestic credit, the credit to households has also risen the fastest in the five less developed NMS, i.e., the Baltic countries, Bulgaria and Romania, where the starting levels of credit were the lowest.

Several studies have made estimates of the equilibrium level of credit in the CEEs looking at explanatory variables, such as per capita GDP, real interest rate, inflation, a proxy for financial liberalization, etc (Schadler et al 2005; Kiss et al., 2006; Égert et al., 2006; World Bank, 2007b). A common finding of these studies is that credit in the CEEs is generally below equilibrium levels, highlighting the potential for further rapid expansion of credit. However, the *speed* at which the equilibrium level of credit is reached matters for macroeconomic stability.⁶ From the perspective of inflationary pressure, it is not the level but the rate of growth of credit that matters.

⁵ Relevant data are provided in Darvas and Szapáry (2008).

⁶ Égert et al. (2006) estimate that credit in Bulgaria, Estonia, Hungary, Latvia and Slovenia have approached the estimated equilibrium level.

Bank loans to the household sector, 2001-2007 (in percent of GDP)

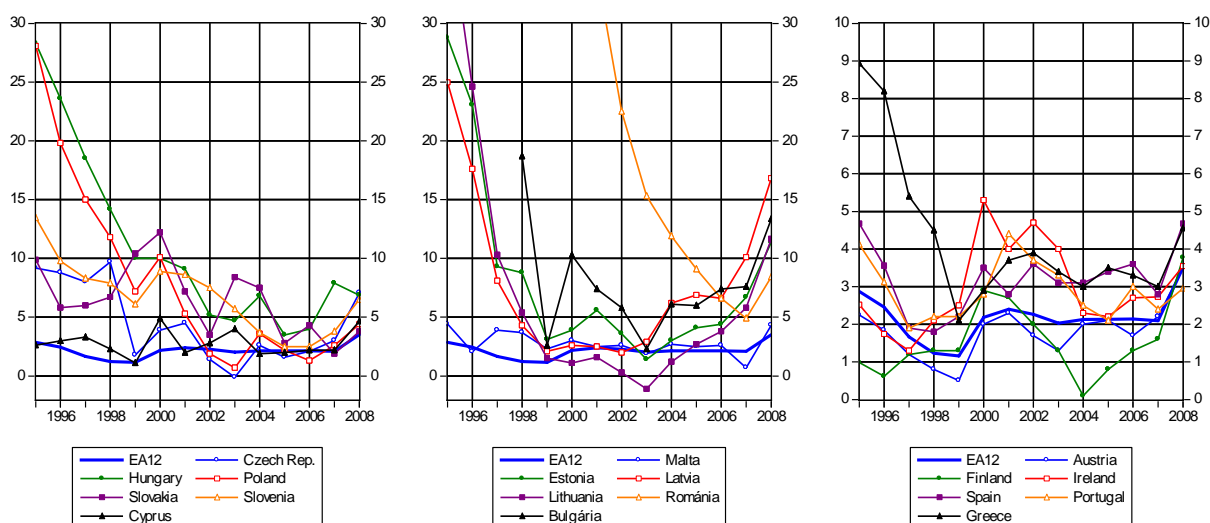


Source: Eurostat.

Note: Data is available till June 2007. Values shown for 2007 assume that the growth rate of loans from June to December 2007 is the same as from December 2006 to June 2007.

Several dangers emanating from excessive credit growth must be reckoned with. First, it feeds inflation and wage growth that can erode competitiveness not only in countries with fixed exchange rates, but also in countries with floating rates, if the demand for credit generated external capital continues to flow in and place upward pressure on the exchange rate. The rates of inflation, after falling in all new members since the mid-1990s, have picked up speed in recent years, in particular in the Baltic States and Bulgaria, and also in Hungary for the specific reasons mentioned earlier (*Graph 9*). In the four former countries, nominal wage growth has also risen significantly and unit labour costs, particularly in Latvia, have increased at a very rapid pace in recent years.

Inflation rate (in percent), 1995-2008



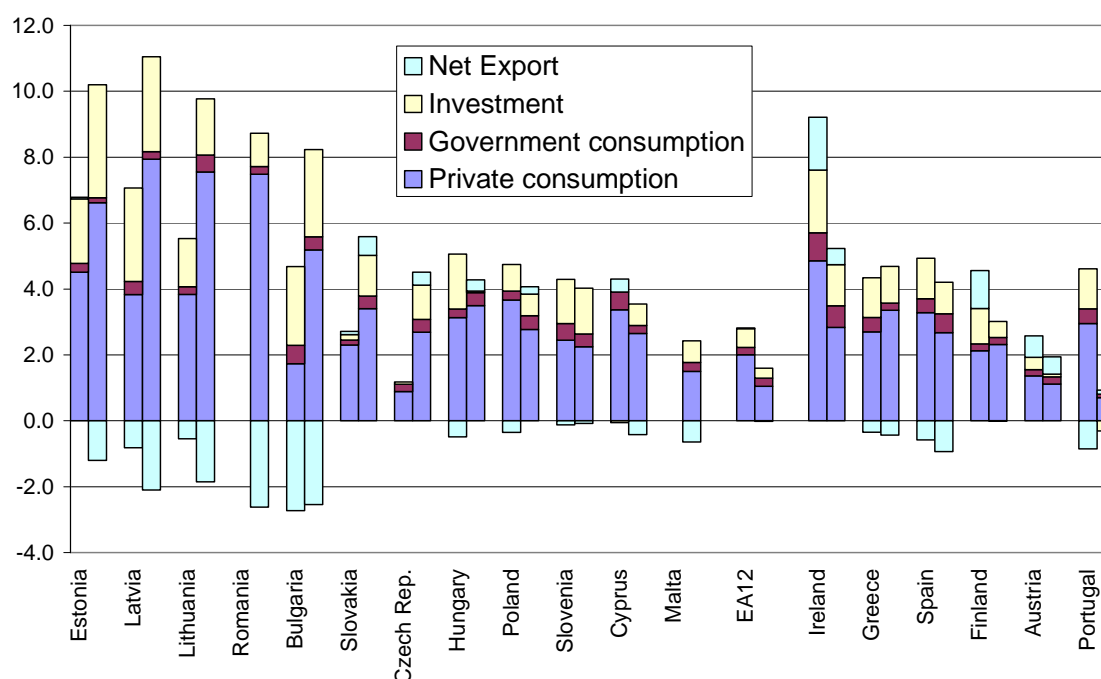
Sources: Eurostat (HICP) and IMF, IFS (CPI).

Note: Annual average change in Harmonized Indices of Consumer Prices (HICP) since 1997, CPI for 1995-1996. For Bulgaria, change in HICP is available only since 1998. Values for 2008 are the average of January-July 2008 over the average of January-July 2007

A point to emphasize here is that if the risk premium is not rising, either because a hard peg is credible, such as may be under currency boards in the Baltics and Bulgaria, or because of the perspective of euro area entry in the case of floating exchange rates, then the credit boom and the consequent rise in inflation further lower the level of real interest rates. In this way, the interest rate acts in a pro-cyclical fashion, giving further impetus to credit expansion. Since the higher inflation takes place essentially in the non tradable sector, the lowest real interest rates will prevail in that sector, channelling the resources away from the tradable sector. This mechanism will continue to apply also once a country has joined the euro area.

Second, the rapid growth in mortgage credit can lead to sharp rises in house prices in real terms. Égert and Mihaljek, (2007) report real house price increases of between 20% and 30% per year in Estonia and Lithuania during 2000-2006. In the other NMS for which they report data, the house price increases have remained more modest, but if mortgage credit continues to expand at a fast rate, housing price bubbles might well develop. Such bubbles might further boost credit expansion by increasing the value of collaterals. During credit booms, the risks generally rise because banks become willing to lend to less creditworthy customers, exposing the banks to heavy losses when the bubbles burst.

Contribution to GDP growth, averages of 1997-2001 and 2002-2006 (in percentage point)



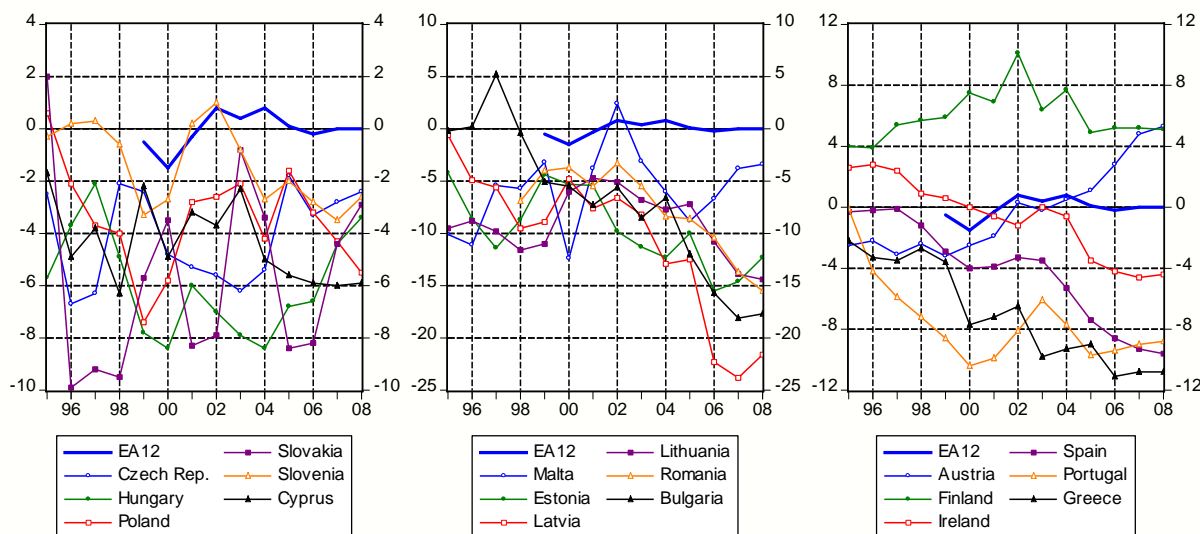
Source: Authors' calculation based on data from Eurostat.

Note: there are two columns for each country (except Romania and Malta): the left one refers to 1997-2001 and the right one to 2002-2006. Countries are ordered (within both country groups) according to their average GDP growth rates in the 2002-2006 period. The average GDP growth rate is the sum of the four components shown.

Third, the rapid expansion of credit has fuelled consumption. As can be seen from *Graph 10*, the contribution of private consumption to GDP growth has increased in all NMS between 1997-2001 and 2002-2006, except in Poland and Slovenia. The problem with the rapid growth of consumption is that it keeps savings low and increases the investment-saving gap. The five less developed NMS where credit expansion has been the fastest have recorded very large current account deficits, ranging from about 15% in Estonia to about 24% in Latvia in 2007 (*Graph 11*). In Bulgaria and Romania, a large part of the deficits have been financed by FDI, as these countries have attracted foreign investment with the prospect of EU entry. In contrast, in the Baltic countries, most of the deficits have been financed by debt, principally foreign borrowing by banks and enterprises. External debt levels have increased sharply, especially in Latvia where it reached over 110% of GDP in 2006. When the counterpart of indebtedness is consumption and housing loans, it means that resources are diverted away from investment in the tradable sector, which is bound to negatively affect competitiveness and growth down the road.

Graph 11.

Balance of the current account (in percent of GDP), 1995-2008

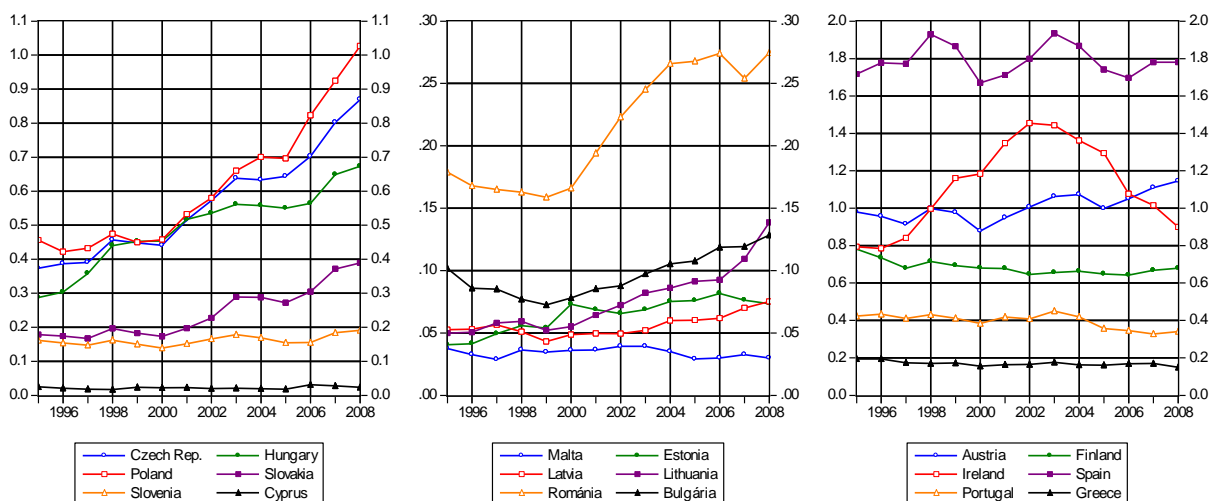


Sources: 1995-2006 Eurostat, 2007-2008 EC Economic forecast autumn 2007.

Note: the scaling of the vertical axis is different for the three panels.

Graph 12.

Export market shares in total imports of the world (in percent), 1995-2008



Source: Authors' calculation based on data from IMF: Direction of Trade Statistics.

Note: 2008 values refer to January-April 2008.

External competitiveness has become a cause for concern in countries where wages and unit labour cost have risen sharply in recent years and where, as a result, the real effective exchange rates have also increased considerably. Competitiveness could be an issue in Estonia, where the export market share has been slightly declined in recent years (*Graph 12*) and the current account deficit has ballooned. In Romania, after very rapid growth between

2000 and 2004, the market share stagnated in 2005-2006 and temporarily fell in 2007. In Slovenia, the market share has been stagnating over the past decade, but Slovenia has recorded only modest current account deficits. The fact that export volume growth has been robust and export market shares have increased in most of the NMS would indicate that the main cause of the large current account deficits is excessive domestic demand rather than any significant loss of competitiveness.

It is not known at what level of current account deficit foreign capital will retrench in the current environment of weakening but still relatively high risk appetite and euro area entry expectation. Such high deficits clearly increase the exposure of countries to capital flow reversal. EU membership and euro area entry prospects have so far provided a protective shield, allowing countries to finance current account deficits of a size that would have not been possible without such shield. Surely there are limits to the indulgence of the markets. Financial crises have often been preceded by rapid credit growth to the private sector, strong real effective exchange rate appreciation and large current account deficits.

The banking sectors in the NMS are in a relatively healthy position currently: the non-performing loans (NPL) are low, the capital adequacy ratios are relatively high (Word Bank, 2007b) and ownership of local banks by internationally renowned foreign banks is considerable. However, none of these is insurance against a crisis occurring. The low level of NPLs today does not mean that the current loan portfolio will not worsen in the future, particularly in view of the large share of foreign currency loans. If there is a reversal of capital, borrowers in foreign currency will face higher payment obligations due to a depreciation of the domestic currency. While companies producing for exports have a natural hedge, firms producing for the domestic market and households do not possess such safety net. Local currency borrowers will also face higher payment obligations due to a rise in interest rates. In the household sector, defaults on mortgage loans could occur and consumption would be negatively affected. Through balance sheet effects, banks would tighten credit, further impacting negatively growth.

For this scenario to happen, the depreciation of the exchange rate would have to be significant and durable, an event that cannot be altogether excluded if there was a shift in global market sentiment. If many defaults occurred, the stability of the banking system could ultimately be affected. Capital adequacy ratios could rapidly deteriorate if there were a significant growth in NPLs and there is no guarantee that the foreign mother banks will want to inject additional capital, especially if they themselves face difficulties back home, such as many do now in the wake of the sub-prime debacle.

All these militate in favour of raining in the growth of credit and reducing the excessive current account deficits before it is too late. At the same time, the bank regulatory and supervisory structures should be strengthened as much as possible. The NMS have made

great progress in this area over the years, but experience shows that the vigilance is never enough. In particular, the cooperation between home and host country supervision should be improved and strengthened for which the EU framework provides good opportunity.

3.3 FOREIGN CURRENCY LOANS: HOW TO DEAL WITH THEM?

Several old and new EU members have applied administrative and regulatory measures to slow down the growth of credit and to limit unhedged foreign currency loans. World Bank (2007b) provides a list of such measures introduced. Administrative measures may include limits on the growth of foreign currency loans or on the ratio of such loans to the banks' own capital. Regulatory measures typically aim at raising the cost of borrowing by imposing tighter rules on foreign currency loans. These may include special reserve requirements and lower interest rate paid on those reserves, tighter provisioning and assets qualification rules, stricter non-price requirements (e.g., higher down payment, additional collateral), higher capital requirement or other measures applied to foreign currency borrowings.

The problem with such measures is that if they are maintained for a long time, they will distort markets and weaken competition. Furthermore, they can be evaded by switching from domestic to direct borrowing from abroad, a technique made easier in countries where foreign owned banks play a dominant role. They can also reroute financing from bank to non-bank channels, such as leasing, and can encourage foreign banks to switch from subsidiaries to branches, a channel less supervised by the local authorities. On the whole, the effectiveness of such measures is questionable in the long run and can best serve as a short term expedient to slow excessive credit expansion when the economy overheats. The authorities may also use moral suasion on banks, although its effectiveness is uncertain.

There are other ways that can slow down the growth of household mortgage credit which are less distorting overall because they would be specifically aimed at this fast expanding market in the NMS. The most effective would be a tax on interest payment on mortgage credit and a comprehensive real estate tax on housing, which could be reinforced by a mandatory reduction in the loan to value ratio. Where they exist, the tax deduction on the interest paid on mortgage debt should be eliminated. Such measures have been successfully used in Denmark to slow down a consumption boom in 1986 (World Bank, 2007b).

3.4 FISCAL POLICY: NOT A FULL SUBSTITUTE TO DEAL WITH THE MONETARY POLICY SHOCK

In view of the loss of monetary policy autonomy in the NMS under fixed exchange rate arrangement and the constraints on monetary policy independence in the countries operating under floating rate regimes, fiscal policy plays a key role as a stabilizing policy during the run-up to euro and thereafter. There is no uniform yardstick of what the level of budget deficits should be in the new members. From a strictly analytical point of view, it is fundamentally a question of debt sustainability. From that perspective, the new members with very low debt would have more room for manoeuvre. In addition, as catching up economies, the new members have a higher potential growth rate, which implies that to maintain the long-run stability of public finances, the NMS with very low debt could run higher deficits.

From a short- to medium-term policy perspective, however, these long term analytical considerations will have to take a back seat in circumstances where fiscal policy needs to be in a position to counteract the demand pressures emanating from the interest rate shock. The appropriate fiscal stance will depend on the intensity of inflationary pressures and the degree of overheating. One must be realistic though about the extent to which fiscal policy can be used to counteract inflationary pressures due to excessive credit expansion and price level convergence. Lags in the impact of fiscal measures,⁷ the difficulty of assessing the right timing of policy intervention, the irreversibility of some actions and the reluctance of politicians to cut back on discretionary public spending all inhibit the effectiveness of fiscal policy as a tool to cool overheating. Furthermore, because of the import leakage, large fiscal contractions would be needed in small open economies to get a significant impact on output or inflation.

The situation is compounded in the NMS by the fact that despite higher output volatilities, the cyclical sensitivity of the budgets is lower in the NMS than in the EU15 (European Commission, 2006b). This is because of the smaller share of cycle sensitive direct taxes and unemployment expenditures. The low share of direct taxes is due in part to tax holidays and the low level of corporate taxes which have been used to attract FDI. The relatively large share of the black economy and tax evasion are contributing factors. The smaller share of expenditures on unemployment is generally due to the less generous benefits. This means that these countries would have to rely on even more discretionary changes to affect output and inflation. The same situation will apply after euro area entry, increasing the burden on other policies.

⁷ Deroose et al. (2004) find that counter-cyclical budgetary policy actually disrupts the adjustment process when the policy lag is 4 quarters.

3.5 INCOMES POLICY: SHOULD BE PART OF THE ARSENAL

The factors limiting the use of fiscal policy as a counter-cyclical policy tool heighten the role of other instruments to control inflation, namely incomes policy. Wage developments have to be supportive of the goal of price stability and consistent with the gains in productivity in order to maintain competitiveness. If real wage growth exceeds productivity gains and a devaluation of the nominal exchange rate is no more a policy option, the resulting rise in unit labour costs and loss of competitiveness will entail a painful adjustment period.

There are examples of social “pacts” or social “consensus” which have worked well. A good example is Austria where the social consensus has been an important pillar of the hard currency policy adopted in the early 1970s. Many other countries have resorted with more or less success to such pacts in the run-up to euro (Boeri, 2005b). One should not underestimate, though, the difficulty of reaching such common understandings in the NMS, taking into account the heightened expectations for “wage convergence” and “fair wages” accompanying the integration into the EU. What is certain is that governments have a leading role to play in promoting wage moderation by clearly communicating to the public the costs of excessive wage increases and by signalling through their own public sector wage policy the importance they attach to wage moderation. The best solution would be to forge social consensus around the goal of entering the euro area that could pave the way for a lasting practice after adoption of the euro.

3.6 STRUCTURAL POLICES: FLANKING INSTRUMENTS

Structural reforms are essential in many NMS for achieving lasting fiscal consolidation. One of the most important challenge stems from the aging of the population in the CEEs, which calls for reforms in the pension and health care systems. It is common wisdom that labour and product market flexibility improves the ability to adjust to shocks. Employment protection tend to be lower in the NMS than in the euro area (OECD, 2004), but demands for greater protection could emerge in the new members, owing to the demonstration effect coming from old members with higher employment protection. Governments would be well advised to resist such demands. Product market flexibility increases the benefits of labour market flexibility and wage moderation. Conway et al. (2005) identify the main areas where regulation is high in the ‘Visegrád countries’ and where improvements should be made. These are different state controls and barriers to entrepreneurship and investment.

There are many other areas where reforms may be needed, such as the provision and financing of education, the downsizing of public employment or measures to reduce the losses of and the budgetary subsidies granted to state enterprises. What reforms are needed and how they should be implemented vary according to countries and there is no uniform recipe.

It does not seem to be indispensable to start, let alone finish all the necessary structural reforms prior to euro adoption, since these reforms take many years to be implemented. However, a country preparing for euro adoption should at least have a clear agenda of reforms and display a strong commitment to carry them out. Reforms in the pension and health care systems need the broad support of the society and mustering such support might be easier prior to entering the euro area if there is support in the society in favour of euro adoption. On the other hand, if there is strong resistance to such reforms, pushing them as a requirement for euro adoption might trigger a backlash against the euro. Each country will have to work out its own approach to reforms in light of its circumstances. It is advisable to at least initiate some of the most important reforms needed prior to euro adoption because once in the euro area, the political will to reform may falter.

4. STRATEGIES AND TIMING FOR EURO ADOPTION

The strategy and timing for euro adoption has to be assessed from two perspectives: (i) what does it take to meet the Maastricht nominal convergence criteria, and (ii) whether the convergence process can be better managed inside or outside of the euro area. This has to be then weighed against the well known benefits of being a member of the monetary union.

4.1 CHOICE OF MONETARY-CUM-EXCHANGE RATE POLICY: WHICH WAY IS BETTER?

The globalization and integration of financial markets, together with euro area entry expectations, have fundamentally altered the environment in which the catching-up process has to be managed and in which monetary policy can be operated in the new members. This is largely an unprecedented situation. In the initially less developed Western European countries, the catching-up proceeded over the years in a less globalized world and a more progressive liberalization of capital movements, without the impetus to capital flows fed by the anticipation of an early entry into a monetary union. This has provided vastly more room for pursuing an independent monetary and exchange rate policy, even as efforts were made to eliminate exchange rate fluctuations by various arrangements (snake, EMS).

A key issue is how best to tackle the inflationary pressures stemming from the combined impact of price level convergence associated with the catching-up process and the strong boost to domestic demand due to the financial integration-cum-interest rate shock. A hard peg exchange regime such as a currency board arrangement can shield against speculative exchange rate fluctuations and provide a more stable environment for small open economies, although the recent experience of Latvia is a warning sign that this is not necessarily the case even within ERMII. But as long as the peg is credible and there is little or no exchange risk premia, the low domestic interest rates heighten the danger of credit booms and overheating. Since countries with hard pegs do not have the possibility of letting the nominal exchange rate appreciate to moderate inflation, the price level convergence associated with the catching-up process translates into higher domestic inflation, which pushes the real interest rates down into very low or negative level, further fuelling credit expansion and domestic demand.

The inflation targeting regime with floating exchange rates provides more flexibility to deal with the inflationary pressures, as the risk premia can give some room for manoeuvre and there is the possibility of letting the nominal exchange rate appreciate. The flexibility should not be overestimated. As seen, the risk premia might be small due to euro area entry anticipation driven capital inflows and expectations of exchange rate appreciation. Furthermore, the tightness of domestic monetary policy can be circumvented by the foreign currency loan and the direct external borrowing channels as discussed earlier. Letting the exchange rate appreciate to fight inflation might in any case only give a temporary respite if the credit boom persists. Once within the euro area, appreciation is not available any more and if the underlying inflationary pressures have not been brought under control, inflation will raise its head again.

Furthermore, the risk of capital flow reversal remains significant if strong capital inflows driven by interest rate differential places undue upward pressure on the floating exchange rate. For instance, in Romania, where the current account deficit exceeds 10% of GDP, the capital inflows have strongly appreciated the nominal exchange rate, rendering the country vulnerable to capital flow reversal. In Hungary, when macroeconomic imbalances emerged because of inappropriate policies, the sudden outflow of capital led to a sharp depreciation of the exchange rate and an increase in interest rate spreads in 2003 and 2006.

Among the inflation targeters, the Czech Republic has been quite successful so far in maintaining high growth, modest inflation and low current account deficit, although inflation has picked up recently. Part of the success may lie in the fact that following the exchange rate crisis in 1997 and the subsequent recession, inflation expectations got anchored at a low level. The appreciation of the nominal exchange rate, which has been driven mostly by FDI inflows since the interest rate spread is negative, has also helped to keep the level of inflation low.

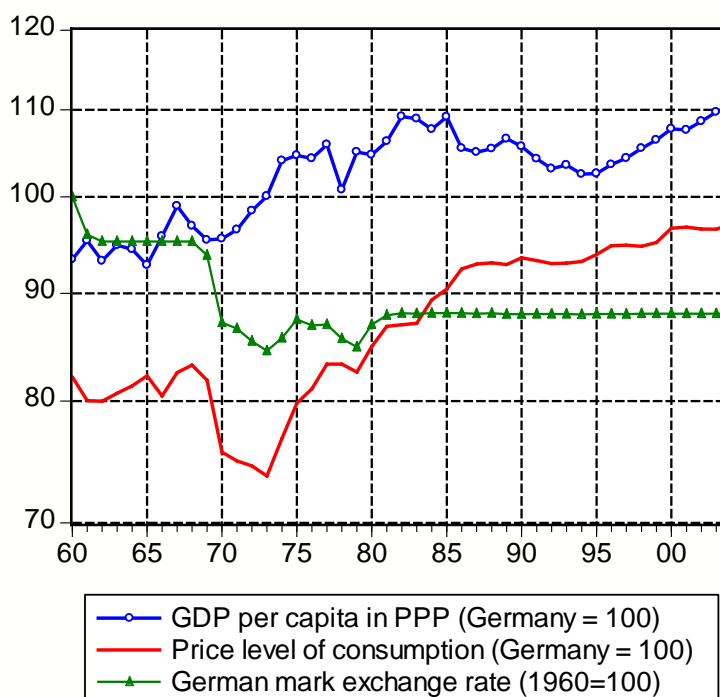
The growth of credit has been moderate despite the low level of interest rates. However, the Czech Republic is also among those countries where the ULC based real exchange rate has appreciated considerably. In this country, the initial level of prices was low compared to its level of per capita GDP, so that the strong appreciation of the real exchange rate can be regarded in part as a “correction” of the initial discrepancy. Nevertheless, if the rapid trend appreciation persists, it can undermine competitiveness. In Poland and Slovakia, the real exchange rates have also appreciated considerably. In the latter country both growth and inflation are somewhat higher, while in both countries the current account deficit is larger than in the Czech Republic.

On the whole, these three inflation targeters have managed to record high growth, while keeping inflation and the current account deficit under reasonable control. It remains to be seen if these achievements can be preserved.

It may turn out to be a paradox of history that four out of the five new members with the lowest initial per capita GDP, i.e., the Baltic countries and Bulgaria, which started out with the largest price level gaps to close and the lowest financial depth and hence the greatest potential for credit booms, have opted for a fixed exchange rate arrangements on the road to euro. These countries do not have the freedom of letting the nominal exchange rate appreciate to moderate inflation and have to manage the price convergence with higher inflation. This is a difficult task when the price gap to close is large, because it feeds inflation expectations and can lead to rapid loss of competitiveness. In fact, market forces have already triggered adjustments in the Baltic countries, leading to sharp drops in output growth from the high levels of the earlier years. At this point it is still unclear how such boom-bust cycles might negatively affect the long-term convergence process of these countries..

Price level convergence can nevertheless be successfully managed with fixed exchange rate under certain circumstances. The hard currency policy adopted in Austria in the early 1970s, whereby the schilling was fixed to the German mark, is a good example (see Hochreiter and Tavlas, 2004). The price level gap to close back then was about 25% in Austria (*Graph 13*), roughly the gap still to be closed in most of the CEEs, but much less than the gap that had to be closed when the CEEs started their catching-up process in the mid-1990s (*Graph2*). In Bulgaria, Romania and Latvia, however, the gap to be closed is still 50-30%. The key to success in Austria was a social pact that kept wage growth more or less in line with productivity gains and a fiscal policy that was supportive of the hard peg. It is also true that Austria’s task was facilitated by the fact that capital liberalization proceeded more progressively than in the CEEs and it did therefore not experience the kind of capital inflows that has been feeding the credit booms in some of the CEEs. Also, Austria’s banking system was more regulated than those in the present day CEEs.

Catching-up of Austria to Germany, 1960-2004



Source: Penn World Tables.

Note: downward movement in the exchange rate indicates nominal depreciation.

What conclusions can be drawn from the above discussion regarding the monetary framework best suited to manage the real and nominal convergence on the road to the euro? The most important one in our view is that inflation targeters seem to have a better set of tools at their disposal than peggers to manage the convergence process on an equilibrium path toward euro adoption. The main risk for the targeters is excessive exchange rate fluctuations, but if policies are geared to macroeconomic stability, the likelihood of this happening is reduced. The more likely danger then is rather excessive appreciation of the nominal exchange rate, which can force a country into costly intervention or a lowering of domestic interest rate that can fuel credit expansion.

For the peggers, the options are limited. Exiting from the hard peg before euro adoption carries the danger of a loss of confidence and a depreciation of the currency, which could create a deep recession via negative wealth effects on the debt of households and firms in countries where the debt is highly euroized as in the Baltic States. If the exit is well communicated as a transitional step toward earlier euro adoption, the recession might not occur or would be mild, after which the country would become better positioned to control inflation. The danger here is that the nominal exchange rate appreciation could overshoot and lead to a loss of competitiveness, or exacerbate an already weak competitive position.

Therefore, the risks of exiting from the hard peg should be carefully weighted before contemplating such action. A well timed and well prepared step revaluation of the peg could be an other option to consider if competitiveness is not at stake. The risks here are the positive wealth effects on the euroized debt which would boost demand precisely at a time when the current accounts are already very large in these countries.

4.2 MAASTRICHT CRITERIA: ARE THEY SUITABLE FOR THE NEW MEMBERS?

4.2.1 Inflation criterion: why it should be modified

The inflation criterion states that the inflation rate of the country wishing to join the euro area can not exceed by more than 1.5 percentage point the average inflation of the three best performing EU Member States in terms of price stability. This criterion will prove hard to meet in the near term, especially for the Baltic countries and Bulgaria which have fixed exchange rates. Countries might be tempted to resort to techniques - such as a freezing of administered prices, a reduction of consumption taxes or a tightening of credit growth by various short term expedients - to squeeze in under the reference value. Such behaviour would be tantamount to what Szapáry (2000) labelled as the “weighing-in” syndrome: like the boxer who refrains from eating for hours prior to the weighing-in to satisfy the weight limit only to consume a big meal thereafter, the candidate country would resort to all sorts of techniques in order to squeeze in under the inflation criteria, only to shift gears after it has joined the euro area. This can turn out to be counter productive if inflation accelerates after euro adoption, due to the relaxation of credit conditions, the unavoidable upward adjustment of administered prices and/or because of a reversal of the reduction in consumption taxes for budgetary reasons. Such policy would not help the smooth path of convergence.

There are few options available. One is to postpone euro adoption until a greater degree of real and nominal convergence has been achieved. While this might be unavoidable for countries with the largest price level gaps and pegged exchange rate, it would deprive some others from the benefits of being a member of the monetary union. A way to ease entry into euro area for countries which already have achieved the conditions permitting them to operate normally in the monetary union would be to change the criterion. It is understandable that the inflation criterion was originally defined in terms of the three best performers among the potential candidate countries at the time when there did not yet exist a European monetary union. It was also natural that the principle of equal treatment was laid down since it would have been difficult to negotiate an agreement in any other way. Now that the euro area exists, the criterion based on the three best performers including those which are not member of the euro area is more difficult to justify on economic grounds. This is true

even though it is the policy to exclude from the three best performers the countries where the low inflation level is due to special factors and is therefore judged as not sustainable (so far only countries with negative inflation have been excluded).

A reasonable solution would be to define the criterion as the euro area inflation plus 1.5 percentage points. The economic justification to use the euro area inflation is that this is the relevant indicator that contributes to the imported inflation of the new members whose trade is essentially with the euro area. Furthermore, this is the indicator that the ECB tries to control and it is not logical that the basis for the reference value for the new members should be different. The margin of 1.5 percentage points would constitute the room for accommodating the “equilibrium” forces of price level convergence. Such modification of the inflation criterion would free the decision makers from weighing which best performer country’s inflation is sustainable and which best performer’s is not, an exercise that is bound to be a source of friction. To discourage “weighing-in” practices, such modification of the reference value could be accompanied by increasing the period from one year to two years during which the inflation criterion has to be respected. It could be complemented with a stricter interpretation of the allowable exchange rate appreciation within this period, which also corresponds to the compulsory length of stay in ERMII. The close to 25 percent appreciation of the exchange rate in Slovakia in ERMII may well turn out to be a practice of weighing-in if inflation can not be kept in check by improvements in productivity after euro adoption. The modifications proposed would also provide a better perspective for judging whether a candidate country can maintain the low level of inflation in a sustainable way when an exchange rate appreciation is no more available for moderating inflation.

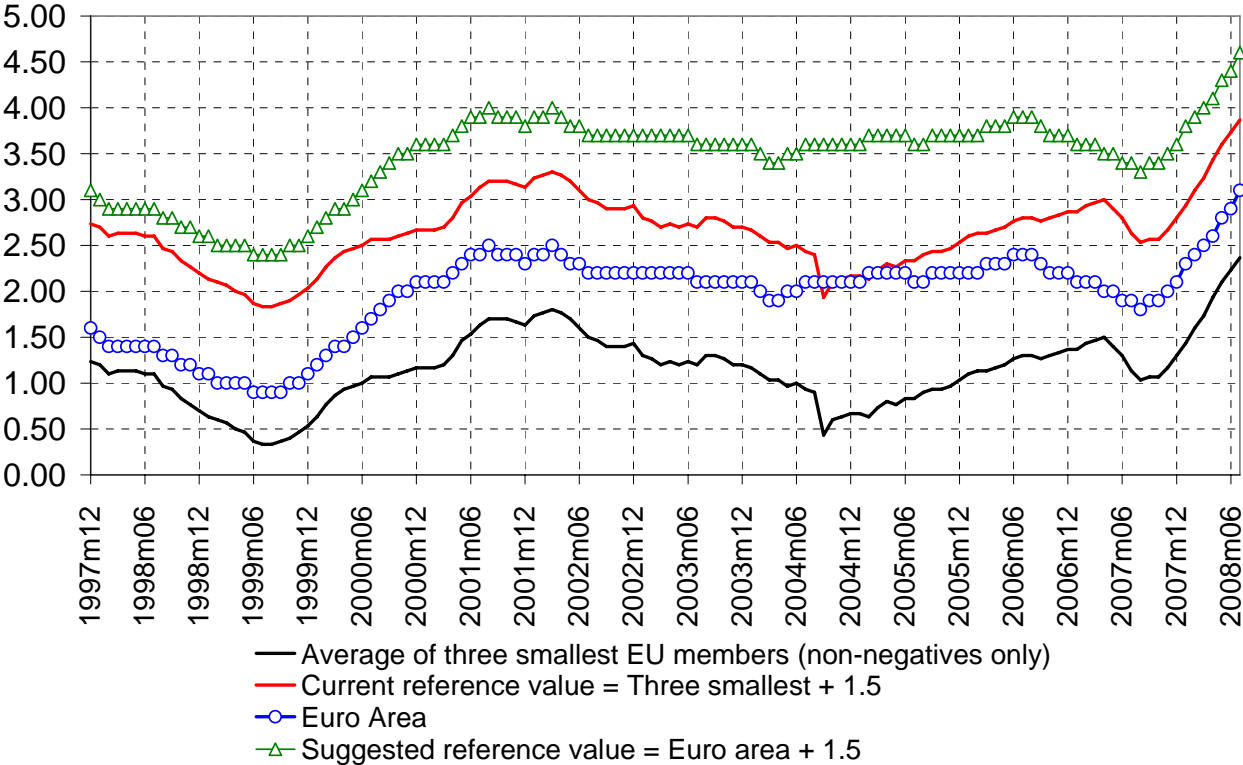
With the enlargement of the European Union, the reference to “equal treatment” as the rationale for not changing the inflation criterion is also questionable. Between 1970 and 1990, the lowest inflation rates among the then members of the EU were recorded by Germany, the Netherlands and Luxemburg. In the early 1990s when the Maastricht criteria were formulated, policy makers presumably wanted the inflation in the other countries to converge to the low level of German inflation, while the decision to take the average inflation rate of the three countries with the lowest inflation was meant to provide some flexibility. Germany was the major trading partner of the then EU members, so that the criterion meant that the other countries’ inflation had to converge to the inflation of the major trading partner. This made good sense economically. With enlargement, however, the likelihood that the three lowest inflation countries will be minor trading partners has considerably increased. For March 2008, for instance, the criterion was based on the inflation rates of Malta, the Netherlands and Dania, which were the three countries recording the lowest inflation during the reference period. The major trading partners were thus left out of the definition of the reference value. Because of this, if the criterion is left unchanged, chances

are that the principle of equal treatment will not be upheld in many cases. Our proposal to take as a reference value the euro area inflation would eliminate this discrimination.

The impact on the overall inflation of the euro area of the above modification would be limited. The total GDP of the 12 new members represented about 8.8% of the combined GDP of the 12 old euro area members plus the 12 new members in 2007. With Cyprus, Malta and Slovenia already members of the euro area, the share of the other nine countries represents 7.6%. If in all nine countries the inflation rate would be exactly 1.5 percentage points above the euro area HICP, then this would add a mere 0.1 percentage point to the overall inflation of the euro area. This has to be compared to the effect when the current rule is applied, which is around 0.05. The impact of the proposed modification would thus be only an additional 0.05. In fact, the actual impact will be less, since the entry of countries is spread out over time and it is unlikely that all countries will have the maximum 1.5 percentage points extra inflation. The relative importance of the new members' GDP will rise with the catching-up, but the higher inflation associated with the price level convergence will also diminish. *Graph 14* illustrates the difference between the current reference value and our suggestion for modification.

Graph 14.

Inflation criterion: Current and suggested reference values, December 1997 – July 2008



Source: Authors' calculation based on data from Eurostat.

Note: Values shown correspond to '12-month average rate of change' as required by the Treaty for assessing the inflation criterion.

4.2.2 Long-term interest rate criterion: not an obstacle

The criterion stipulates that the 10-year interest rate can not exceed by more than 2 percentage points the average of such interest rates in the three best performing countries in terms of price stability. This is meant to test the durability of price stability and its economic rational is clear. The only point worth making is that with euro area entry expectation driven capital inflows, the convergence of the long-term interest rates has been much stronger than the convergence of inflation. For instance, in Bulgaria, Lithuania and Romania where the inflation exceeds the reference value by wide margins, the interest rate criterion is met.

4.2.3 Exchange rate criterion: it makes sense

This criterion stipulates that a candidate country must enter ERMII for at least two years and respect the normal fluctuation bands of +/-15% without severe tensions and without devaluing against the currency of any other Member State. Countries may choose a smaller band or no band at all as a unilateral commitment. This criterion serves as a test of the ability of a country to handle shocks with exchange rate stability.

The commonly formulated criticism in respect of this criterion is that it is inconsistent to have both inflation and an exchange rate target. Theoretically this is a correct view. If the candidate country is committed to sound macroeconomic policies and it meets or is firmly on a path to meet in a sustainable manner the other Maastricht criteria, the most likely scenario is that market forces will push toward an appreciation, as was seen in a number of current euro area member countries during the run-up to euro. Some appreciation could be accommodated even with the above suggested stricter interpretation of the allowable appreciation.

The real issue concerns the choice of the ERMII central rate. Ideally it should be set at an equilibrium level, but model calculations would at best give a very wide range of the equilibrium exchange rate. The equilibrium exchange rate is a dynamic concept which changes over time, particularly in catching-up economies and, unless the misalignment is clearly unsustainable, countries are able to adjust to temporary misalignments by ways that the equilibrium exchange rate derived from statistical models is not capable of capturing. Given these uncertainties, there are good reasons to set the ERMII central rate at

the prevailing market rate. Setting it at a depreciated level compared to the market rate could jeopardize meeting the inflation target. Such step should be contemplated only if competitiveness were so weak and the current account deficit so large that devaluation was clearly needed.

Setting the central rate at a stronger level than the market rate might make sense under circumstances where competitiveness is not seen as a problem, since it can ease inflation pressures and also the pressure for appreciation beyond the central rate, if markets expect that there will be no further revaluation. The risk in this strategy is that markets may come to a different conclusion, namely that the central rate was set at an appreciated level to fight inflation and that in order to make sure that the inflation target is met, the authorities will resort to a further revaluation. This then would stimulate capital inflows and require costly sterilization. Consequently, whether setting an appreciated central rate is the right strategy will depend on where inflation and competitiveness stands at the time of ERMII entry and what are the prospects.

If reasonable macroeconomic stability has been achieved, the best bet is to set the central rate at the prevailing market rate. It is not surprising that all new members which entered ERMII have done so with a central rate set at the rate prevailing at the time of entry.

The timing of entering ERMII must be carefully chosen. A country should join ERMII only if demand management policies are on a firm path toward sustainable price stability and a large degree of nominal convergence – in inflation, interest rate and budget deficit – has already occurred. A main benefit of ERMII participation is that it can anchor inflation expectations so that the latter can work toward stability, relieving the burden on policies. For that to take place, markets have to be convinced that the fundamentals of the economy are strong and that the authorities are committed to maintain price stability.

There is also the question of the optimal length of stay in ERMII. The strongest argument in favour of not staying longer than the minimum two years required is the risk of an undue upward pressure on the exchange rate owing to inflows of convergence capital when policies are on a credible path toward euro adoption. The risks are that the markets will speculate on an appreciation of the final euro area entry rate, particularly in view of the precedents of Ireland, Greece and Slovakia where revaluations took place within ERMII. If the appreciation is excessive, it could require costly interventions as was the case for instance in Greece.

A longer stay is some times suggested on the grounds that it can serve as a discipline multiplier helping countries to learn to pursue stability oriented policies and live with exchange rate stability. However, ERM's role of anchoring expectations would only work if a country entered it with strong policies in place, which then obviates the need for a longer stay. Another argument advanced for a longer stay is that it would allow more time for the

exchange rate to find its “equilibrium” level. Under the circumstances of speculative capital inflows driven by expectations of convergence or the lack of it, the prospects that the exchange rate will find its equilibrium level better by a longer stay in ERMII are not very promising. Some current ERMII members may well have to stay much longer in it because they will be unable to meet the inflation criterion as fast as they have originally anticipated. This is not a strong reason for choosing at the outset to stay in ERMII longer than required. Rather, it is an indication that the authorities may have misjudged the speed at which they could tame inflation.

4.2.4 Fiscal criteria: the rationale is valid for the new members as well

According to these criteria: (i) the government debt should not exceed 60% of GDP, unless the ratio is sufficiently diminishing and approaching the reference value at a satisfactory pace; and (ii) the government budget deficit should not exceed 3% of GDP. We have discussed earlier the considerations that need to be taken into account when assessing the sustainability of the debt. The 60% of GDP debt criterion is hard to argue with. If anything, it is too high if one takes into account the contingent liabilities due to the ageing of populations. Some academics have argued that the 3% of GDP deficit criterion should be relaxed because the stock of public capital is insufficient in the new members and they need to spend more on infrastructure development (see for instance Blanchard and Giavazzi, 2004). Another argument advanced some times is that the implementation of structural reforms, such as for instance health care reform, requires to be supported with additional spending.

While it is true that the NMS need to develop their infrastructure and have to undertake structural reforms, they need the room for using the fiscal tool to counteract if necessary the overheating coming from strong credit expansion, irrespective of when they adopt the euro. Where the debt is high as in Cyprus, Malta and Hungary, they also have to worry about debt sustainability. Now that EU provides grants to help finance infrastructure investment, and given the constraints on absorptive capacities, there seems to be little justification of not meeting the fiscal criterion on the grounds of the need for infrastructural development. Moreover, as catching-up economies, the new members have higher potential growth rate and do in fact grow faster than the old members, hence the 3% criterion is less stringent for them.

4.3 TIMING OF EURO ADOPTION: PUSH FOR EARLY DATE OR WAIT FOR MORE REAL CONVERGENCE?

Last but not least, the question of optimal timing of euro adoption has to be addressed. The potentially most difficult nominal convergence criterion to satisfy is the inflation criterion. This is because the catching up itself means price level convergence that can be achieved by either higher inflation or exchange rate appreciation. The authorities' control in both of these areas is limited due to the unrestricted flow of capital and the associated constraints on domestic monetary policy.

Giving up the tool of exchange rate policy can present problems. If the catching-up related factors feeding inflation, i.e., the structural price level convergence and the low level of financial deepening that drives the demand for credit, are still forcefully present in an economy, the loss of the exchange rate policy can lead to boom-bust cycles and derail the smooth process of catching up, as the difficulties currently faced by Latvia to cool down an overheated economy testifies to it. This is because it seems easier to keep the appreciation of the real exchange rate inherent in the catching-up process on a more or less equilibrium path by letting the nominal exchange rate to appreciate than by keeping inflation on an equilibrium path after giving up all flexibility, however limited it is, of monetary policy independence. If an overheated economy leads to a loss of competitiveness and slow growth, it is difficult to regain it by wage and price disinflation after the surrender of monetary policy independence within the euro area, as the experience of Portugal has shown.⁸

This is not to say that it is easy to keep the nominal exchange rate on an equilibrium appreciating path in the current conditions of free movement of capital and globalized financial markets. As shown in Darvas and Szapáry (2008), for the small open economies of the CEEs, the exchange rate has been more a propagator of shocks than a shock absorber. The issue therefore evolves around a proper assessment of the pros and cons of (i) pushing for an early euro adoption and face the risks of higher inflation and the need to regain competitiveness without the disposal of the exchange rate tool, or (ii) postponing euro area membership and its benefits and face the risks of exchange rate instability. Based on our analysis, this dilemma can be approached from the perspective of where a country is situated in the catching-up process. If the gaps to close in per capita GDP and price level are still fairly large and the speed of catching-up is fast, a country will have difficulty in controlling inflation

⁸ The adjustment experiences of the euro area countries and the lessons for the NMS to learn from these experiences are analyzed in detail in European Commission (2006a) The experience of Portugal is, in particular, interesting because it has had limited success in adjusting to the interest rate shock. When a country loses competitiveness due to high price and wage inflation, it is difficult to regain it by increases in productivity (see Blanchard, 2006).

once in the monetary union. Consequently, it might be advisable to postpone euro adoption until the gaps have narrowed.

5. CONCLUSIONS

The objective of this paper was to assess the risks and challenges facing the new members on the road to the euro and to discuss the strategies for and the timing of euro adoption. The starting level of development measured by the per capita GDP and the speed of real convergence have important bearings on the challenges faced on the road to the euro and on the strategies to be adopted. They also have a bearing on the choice of the timing of euro adoption. This is because the countries with the lowest per capita income have the largest price level gap to close. They also have the lowest initial credit to GDP ratio and hence the greatest potential for credit booms and overheating as credit converges toward its equilibrium level.

What is the optimal level of real convergence prior to joining the monetary union is hard to judge *ex ante*. To an extent, it will depend on the size of the GDP per capita and price level gaps remaining. If the gaps to close are still fairly large and the speed of catching-up is fast, a country will have difficulty in keeping inflation low once within the euro area. Consequently, it might be advisable to postpone euro adoption until the gaps have narrowed. The timing of euro adoption will also depend on how successful the country in question has been in taming the forces driving credit expansion, in implementing structural reforms that help increase productivity and the overall efficiency of the economy, and in consolidating the fiscal position in a sustainable manner.

It follows from the above that inflation targeting with floating rates is better suited than hard pegs to manage the price level convergence for *fast* catching-up economies. This is because in pegged regimes, the price level convergence associated with the catching-up process translates into higher domestic inflation, which pushes the real interest rate into very low or negative territory, fuelling credit expansion and domestic demand and adding to the inflationary pressure. Under floating exchange rate regime, the real appreciation of the exchange rate inherent in the catching-up process can be accommodated by an appreciation of the nominal exchange rate rather than solely by higher inflation.

The difficulties to manage the convergence process under inflation targeting with floating exchange rate should not be underestimated either. To keep the nominal appreciation on an equilibrium path is a challenging task, given the euro area entry expectation driven convergence capital inflows and the risk of capital flow reversal if there is a shift in market sentiment. The risks are either undue appreciation if confidence is buoyant or excessive

exchange rate fluctuations if confidence falters. Furthermore, the room for manoeuvre of monetary policy is constrained by such channels as foreign currency loans and direct borrowing from abroad, which circumvent the effectiveness of domestic monetary policy. These arguments would militate in favour of earlier rather than later euro adoption for countries where the degree of real convergence is more advanced.

Whether under fixed or floating exchange rate regime, the need to implement structural reforms which increase the efficiency of the economy as well as those which contribute to the long term consolidation of the fiscal accounts can not be enough emphasized. A core challenge is to secure robust productivity growth indispensable for the real convergence to proceed in a sustained way. Measures which increase the flexibility of labour and product markets and increase the ease of doing business are key ingredients of success.

Social pacts have been successfully used in some countries to keep wage growth in line with productivity gains. The new members could forge such social pacts as a policy to facilitate euro adoption, which could then form the basis of a more permanent feature of policy once inside the monetary union.

The inflation criterion as currently defined has lost its economic logic and can prevent the adoption of the euro by countries which have already satisfied the conditions permitting them to function normally within the monetary union and reap the benefits of euro area membership. We suggest that the reference value be defined as the euro level HICP plus 1.5 percentage points to accommodate the equilibrium price level convergence. This could be accompanied by increasing the period from one year to two years during which the inflation criterion has to be respected and could be complemented with a stricter interpretation of the allowable exchange rate appreciation within this period. Such modifications would provide a better perspective for judging whether a candidate country can maintain the low level of inflation in a sustainable way once monetary independence has been surrendered. The impact of the suggested modification on the overall inflation rate of the euro area would be minimal. Furthermore, leaving the inflation criterion unchanged violates the principle of “equal treatment” in an economic sense, since for the countries that introduced the euro in 1999 the criterion had meant convergence to the inflation rate of the major trading partner, while after enlargement the chance that minor trading partners will define the criterion has increased substantially.

REFERENCES

- Blanchard O. and F. Giavazzi (2004), "Improving the SGP Through Proper Accounting of Public Investment", CEPR Discussion Paper, No. 4220.
- Blanchard, O. (2006), "Adjustment Within the Euro Area. The Difficult Case of Portugal", paper presented at the Banco de Portugal in Lisbon and at the Magyar Nemzeti Bank in Budapest.
- Boeri, T. (2005), "Euro Adoption and the Labor Market", in S. Schadler ed., Euro Adoption in Central and Eastern Europe: Opportunities and Challenges", IMF.
- Conway, P., V. Janod and G. Nicoletti, (2005), "Product Market Regulation in OECD Countries: 1998 to 2003", OECD Economics Department Working Papers, No. 419.
- Darvas, Zs. and Gy. Szapáry (2008), "Euro Area Enlargement and Euro Adoption Strategies", European Economy, Economic Papers, number 304, EU Commission.
http://ec.europa.eu/economy_finance/publications/publication_summary12103_en.htm
- Deroose, S., S. Langedijk and W. Roeger (2004), "Reviewing Adjustment Dynamics in EMU: from Overheating to Overcooling", European Economy, No. 198.
- Égert, B., P. Backé and T. Zumer (2006), "Private Sector Credit in Central and Eastern Europe: New (Over) Shooting Stars?"? Comparative Economic Studies, 49, (201-231).
- Égert, B. (2007), "Real Convergence, Price Level Convergence and Inflation Differentials in Europe", Oesterreichische Nationalbank Working Paper No. 138.
- Égert, B. and D. Mihajek (2007), "Determinants of House Prices in Central and Eastern Europe", Bank of International Settlements Working Paper No. 236.
- European Commission (2006a), The EU Economy 2006 Review, Adjustment Dynamics in the Euro Area, Experiences and Challenges.
- European Commission (2006b), Public Finances in EMU 2006.
- Ferrando, A., L. Baele, P. Hördahl, E. Krylova and C. Monnet (2004), "Measuring Financial Integration in the Euro Area", ECB Occasional Paper, No. 14.
- Hochreiter, E. and G. Tavlas (2004), "On the Road Again: An Essay on the Optimal Path to EMU for the New Members States", Journal of Policy Modeling, 26 (2004).
- Kiss, G., M. Nagy and B. Vonnák, (2006), "Credit Growth in Central and Eastern Europe: Trend, Cycle or Boom?", Paper presented at the conference 'Finance and Consumption Workshop: Consumption and Credit in Countries with Developing Credit Markets', Florence, June 16-17.
- OECD (2004), Employment Outlook.
- Schadler, S., P. Drummond, L. Kuijs, Z. Murgasova and R. van Elkan (2005), "Euro Adoption in the Accession Countries: Vulnerabilities and Strategies", in S. Schadler ed., Euro Adoption in Central and Eastern Europe: Opportunities and Challenges", IMF.
- Szapáry, G. (2000), "Maastricht and the Choice of Exchange Rate Regime in Transition Countries During the Run-Up to EMU", National Bank of Hungary Working Paper, No. 7.
- World Bank (2007), "Credit Expansion in Emerging Europe: A Cause for Concern?", Regular Economic Report, Part II: Special Topic, January

Discussion Papers published since 2006

2006

- Krisztina MOLNÁR – Sergio SANTORO: Optimal Monetary Policy When Agents Are Learning. MT-DP. 2006/1
- András SIMONOVITS: Social Security Reform in the US: Lessons from Hungary. MT-DP. 2006/2
- Iván MAJOR - Why do (or do not) banks share customer information?. A comparison of mature private credit markets and markets in transition. MT-DP. 2006/3
- Mária LACKÓ: Tax Rates with Corruption: Labour-market Effects. Empirical Cross-country Comparisons on OECD Countries. MT-DP. 2006/4
- György MOLNÁR – Zsuzsa KAPITÁNY: Mobility, Uncertainty and Subjective Well-being in Hungary. MT-DP. 2006/5
- Rozália PÁL - Roman KOZHAN: Firms' investment under financing constraints. A euro area investigation. MT-DP. 2006/6
- Anna IARA: Skill diffusion by temporary migration? Returns to Western European working experience in the EU accession countries. MT-DP. 2006/7
- György MOLNÁR - Zsuzsa KAPITÁNY: Uncertainty and the Demand for Redistribution. MT-DP. 2006/8
- Péter BENCZÚR - István KÓNYA: Nominal growth of a small open economy. MT-DP. 2006/9
- Gábor VIRÁG: Outside offers and bidding costs. MT-DP. 2006/10
- Péter CSÓKA - P. Jean-Jacques HERINGS - László Á. KÓCZY: Coherent Measures of Risk from a General Equilibrium Perspective. MT-DP. 2006/11
- Norbert MAIER: Common Agency with Moral Hazard and Asymmetrically Informed Principals. MT-DP.2006/12
- CSERES-GERGELY Zsombor – CSORBA Gergely: Műkincs vagy működő tőke? Gondolatok a kutatási célú adatok hozzáférhetőségéről. MT-DP.2006/13
- Dr. SERES Antal: Koncentráció a hazai kereskedelemben. MT-DP.2006/14
- Balázs ÉGERT: Central Bank Interventions, Communication and Interest Rate Policy in Emerging European Economies. MT-DP.2006/15
- Gábor BÉKÉS - Jörn KLEINERT - Farid TOUBAL: Spillovers from Multinationals to Heterogeneous Domestic Firms: Evidence from Hungary. MT-DP.2006/16

2007

- Mirco TONIN: Minimum Wage and Tax Evasion: Theory and Evidence. MT-DP.2007/1
- Mihály LAKI: Evolution on the market of foreign language teaching services in Hungary. MT-DP.2007/2
- VINCZE Péter: Vállalatok tulajdonosi irányításának változatai. MT-DP.2007/3
- Péter CSÓKA - P. Jean-Jacques HERINGS - László Á. KÓCZY: Stable Allocations of Risk. MT-DP. 2007/4
- Judit TEMESVÁRY: Signal Extraction and Hyperinflations with a Responsive Monetary Policy. MT-DP. 2007/5
- Péter KARÁDY - Ádám REIFF: Menu Costs and Inflation Asymmetries. Some Micro Data Evidence. MT-DP. 2007/6
- Mária LACKÓ: Interrelationships of the Hidden Economy and Some Visible Segments of the Labour Market. MT-DP. 2007/7
- HERMANN Zoltán: Iskolai kiadási egyenlőtlenségek, 1992-2005. MT-DP.2007/8

2008

- CSERES-GERGELY Zsombor - MOLNÁR György: Háztartási fogyasztói magatartás és jólét Magyarországon. Kísérlet egy modell adaptációjára. MT-DP.2008/1
- JUHÁSZ Anikó – KÜRTI Andrea – SERES Antal – STAUDER Márta: A kereskedelem koncentrációjának hatása a kisárutermelésre és a zöldség-gyümölcs kisárutermelők alkalmazkodása. Helyzetelemzés. MT-DP. 2008/2
- Ákos VALENTINYI – Berthold HERRENDORF: Measuring Factor Income Shares at the Sectoral Level. MT-DP.2008/3
- Pál VALENTINY: Energy services at local and national level in the transition period in Hungary. MT-DP.2008/4
- András SIMONOVITS: Underreported Earnings and Old-Age Pension: An Elementary Model. MT-DP.2008/5
- Max GILLMAN – Michal KEJAK: Tax Evasion and Growth: a Banking Approach. MT-DP.2008/6
- LACKÓ Mária – SEMJÉN András: Rejtett gazdaság, rejtett foglalkoztatás és a csökkentésükre irányuló kormányzati politikák - irodalmi áttekintés. MT-DP. 2008/7
- LACKÓ Mária: Az adóráták és a korrupció hatása az adóbevételekre - nemzetközi összehasonlítás (OECD országok, 2000-2004). MT-DP. 2008/8
- SEMJÉN András – TÓTH István János – FAZEKAS Mihály: Az EVA tapasztalatai vállalkozói interjúk alapján. MT-DP. 2008/9
- SEMJÉN András – TÓTH István János – FAZEKAS Mihály: Az alkalmi munkavállalói könyves foglalkoztatás munkaadói és munkavállalói interjúk tükrében. MT-DP. 2008/10
- SEMJÉN András – TÓTH István János – MAKÓ Ágnes: Az alkalmi munkavállalói könyves foglalkoztatás és a rejtett gazdaság kapcsolata (Elemzés az AM könyves munkavállalók kérdőíves megkérdezése alapján). MT-DP. 2008/11
- FAZEKAS Mihály: A rejtett gazdaságból való kilépés dilemmái
- Esettanulmány - budapesti futárszolgálatok, 2006-2008. MT-DP. 2008/12
- TÓTH István János – SEMJÉN András – MEDGYESI Márton – CZIBIK Ágnes: Egy rejtett gazdasággal kapcsolatos lakossági felmérés tapasztalatai. MT-DP. 2008/13
- BÍRÓ Anikó - VINCZE János: A gazdaság fehéritése: büntetés és ösztönzés. Költségek és hasznok egy modellszámítás tükrében. MT-DP. 2008/14
- Imre FERTŐ - Károly Attila SOÓS: Marginal Intra-Industry Trade and Adjustment Costs - A Hungarian-Polish Comparison. MT-DP. 2008/15
- Imre FERTŐ - Károly Attila SOÓS: Duration of trade of former communist countries at the EU. MT-DP. 2008/16
- FERTŐ Imre: A magyar agrárexport kereskedelmi előnyei és versenyképessége az EU piacán. MT-DP. 2008/17
- Zsolt BEDŐ - Éva OZSVALD: Codes of Good Governance in Hungary. MT-DP. 2008/18
- DARVAS Zsolt - SZAPÁRY György: Az euróövezet bővítése és euróbevezetési stratégiák. MT-DP. 2008/19
- László Á. KÓCZY: Strategic Power Indices: Quarrelling in Coalitions. MT-DP. 2008/20
- Sarolta LACZÓ: Riskiness, Risk Aversion, and Risk Sharing: Cooperation in a Dynamic Insurance Game. MT-DP. 2008/21
- Zsolt DARVAS: Leveraged Carry Trade Portfolios. MT-DP. 2008/22
- KARSAI Judit: "Az aranykor vége" - A kockázati- és magántőke-ágazat fejlődése Közép- és Kelet-Európában. MT-DP. 2008/23