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MANAGING VOLATILITY IN TRANSITION ECONOMIES: THE EXPERIENCE OF THE CENTRAL AND EASTERN EUROPEAN COUNTRIES

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ABSTRACT

Managing Volatility in Transition Economies: The Experience of the Central and Eastern European Countries*

We discuss sources of volatility and vulnerability in the CEECs during the transition and leading up to EU accession. The Paper emphasizes the role of the transition shock as a source of extreme volatility on a much larger scale than the one observed during crises in emerging markets. The low degree of financial and institutional development, which lagged behind the opening of domestic markets to foreign trade, was of paramount importance for the severity of the economic contraction. Pro-cyclical fiscal policy and institutional uncertainties amplified output volatility. Many factors will contribute to more stability in the CEECs in the years ahead. EU integration has given a credibility bonus to the reform efforts of the CEECs, has driven the process of institutional convergence to EU structures, and has led to improvements in the functioning of markets, protection of property rights, contract and law enforcement. Convergence to EU macroeconomic targets has also taken place, reflecting remarkable progress in economic reform, while the deepening of real integration with other EU countries will sharply reduce the magnitude of idiosyncratic shock to CEECs. EU accession criteria will facilitate trade by reducing transaction costs and introducing common standards, and continue to attract capital flows. Still, as long as financial markets in the CEECs remain much less developed than those in the EU, output volatility is bound to remain higher in the CEECs than in the EU. Although our analysis indicates that at present the risk of capital flow reversal is low, with their complete liberalization financial capital flow volatility in the CEECs may increase, and if not adequately regulated, financial markets may become more vulnerable to turbulence in international markets. Greater openness of the capital account will constrain the flexibility of the CEECs in using macroeconomic and monetary policy, leaving fiscal policy as the only additional instrument to deal with conflicting domestic and external priorities. The adoption of existing rules in the EU is unlikely to overcome the pro-cyclical stance of fiscal policy displayed by CEECs during the transition period. Off-budgetary expenditures and contingent liabilities that may become explicit government liabilities also pose a risk to state finances.

JEL Classification: F15, F36, H60 and P20
Keywords: accession countries, pro-cyclical fiscal policy, under-developed financial markets and volatility

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1. Introduction

Transition from planned to market economy in Central and Eastern European Countries (CEECs) represents a unique experience for the magnitude of the structural and institutional changes that occurred during the 1990s. These enormous changes make it difficult to identify clear patterns of behavior of macroeconomic variables over the 10 year period that followed market reforms. Nevertheless, the experience of these transition countries with extreme volatility as a result of economic and institutional collapse during the early years of reform,[2] and the heterogeneity in the subsequent policy response and paths to recovery provides a unique opportunity to evaluate the impact of a host of macroeconomic policies and institutional reforms that took place simultaneously in a large group of countries in the nineties. Cross country data may partially compensate for the lack of long time series, however, such a short period of observations impedes the application of sophisticated econometric techniques. Although in some cases we use comparisons with countries of the Former Soviet Union, the paper focuses on the countries in Central and Eastern Europe (CEE) that are candidates for accession to the European Union.

As discussed in previous chapters, volatility of macroeconomic variables may have adverse effects on welfare, as it reflects inability to smooth consumption over time, temporary disruption in economic activity, rising unemployment, and financial crises. High volatility may arise from large and recurrent exogenous shocks. However, the impact of such shocks depends on the structural characteristics of the economy and policies. The degree of openness of the economy affects the exposure to terms of trade shocks, while the size of external debt and its structure imply different degree of exposure to shocks in international capital markets. Real and financial shocks interact, as the capability of servicing external debt depends on the real resources a country can raise, while economic activity depends on the flow of external funds. Moreover, economic policies play a key role, as they could in principle smooth the impact of shocks. This crucially depends on the scope and effectiveness of counter-cyclical policies, both monetary and fiscal. Lack of credibility of policies may increase volatility.

Transition economies in Central and Eastern Europe experienced substantial disruption in economic activity at the start of their transition from centrally planned to market economy in the early 90s. Although at the beginning of transition, the main concern *ex-ante* was not extreme volatility, but the adjustment costs associated with transition, the failure to establish appropriate

[2] It is this extreme volatility (e.g. crises) that matter from policy perspective, and not optimal volatility, caused by fluctuations during the business cycle.

institutions to manage the transition (e.g. ensure adequate financing for firms) and the institutional uncertainty (e.g. ensure adequate legal and regulatory framework for businesses) led to a transition in the early 90s that was accompanied by extreme volatility. This period coincided with a considerable increase in capital flows to emerging markets, although only a small portion of these flows were directed to the CEECs and only a small portion of the flow to the CEECs were private capital flows. By the second half of the 90s the CEECs had recovered to varying degrees from the transitional recessions and managed to remain relatively unscathed by the financial crises in East Asia and Russia in the mid-nineties.[3] In more recent years, private capital inflows to CEECs have grown rapidly as EU integration became a possibility for the near future and reform efforts led to economic gains. This poses questions about the vulnerability of the CEECs to economic shocks as they prepare to accede to the EU.

Individual countries in Central and Eastern Europe (CEE) followed different paths to recovery, implemented reforms at a different pace, and were subject to varying degrees of economic turbulence in the 1990s. For example, while Bulgaria and the Czech Republic experienced some form of serious crisis, Poland recovered without further collapses in economic activity, although its rate of growth slowed down considerably in the period 2000-2002. As they prepare for EU membership, the CEECs will need to continue implementing structural and institutional reform, and economic policy consistent with the process of catching up with income levels in the EU and satisfying the EU and the Economic and Monetary Union (EMU) accession criteria.

Given the CEECs' uniqueness[4] and diversity[5], their experiences during transition, and their ultimate goal of joining the EU, the objectives of this paper are to provide a set of lessons for managing volatility in these and other transition countries with similar characteristics and a discussion of the likely sources of vulnarability during the period leading to EU membership. We would like to stress at the outset that this paper does not aim at predicting any possible crises in the CEECs. The recent experience with the Asian financial crisis and the fact that the sources of extreme volatility tend to vary and change overtime, suggests that any such attempts may prove extremely difficult, if not impossible. While the transition literature touches on many of

[3] This reflects partly the fact that private capital inflows were relatively low in the majority of CEECs in the mid nineties.

[4] A combination of features such as close geographical proximity to the EU member countries, potential to join the EU, abundance in high skilled labour, and small size set the CEECs apart from other emerging economies.

[5] The CEECs are a diverse group. Per capita income based on PPP valuation of country GDPs in 2002 in Romania ($US 6,326) was more than two and a half times lower that that in Slovenia ($US 17,748). Even within the Visegrad countries and the Baltic states differences in per capita incomes on PPP basis in 2002 were large. For instance, in Poland per capita income was US$10,187, while that in Hungary was US$15,148. The degree of openness to trade (measured as the sum exports and imports) in 2001 differed as well, from 62 percent of GDP in Poland to 185 percent of GDP in Estonia.

the issues discussed here, the paper makes a contribution by emphasizing the transition shock as a source of extreme volatility on a much larger scale than the one observed in emerging markets during financial and economic crises.[6] It also provides a comprehensive discussion of sources of volatility in the CEECs during the transition period and vulnerability during the period leading to EU membership.

We approach the topic of shocks and volatility in the CEECs from three main perspectives. The first, studied in the transition literature,[7] relates to the dynamics of the main macroeconomic variables associated with the specific process of economic transformation. In this respect, one can talk about a "transition shock", associated with the implementation of policies of liberalization, internal and external (opening up to trade), and privatisation. The initial impact of policy reforms may have a more general implication for the analysis of volatility, as it highlights the relationship between market institutions and the magnitude of the reaction of the economy to macroeconomic and liberalization policies. This relationship has been recently emphasized by Acemoglu et al. (2003), who indicate weak market institutions as one of the main causes of higher volatility in emerging markets.

Contrary to initial expectations the transition shock led to a collapse in output in the CEECs, followed by a sustained recovery. Looking at the whole period following market liberalization and reforms, one can observe a high degree of volatility of main macroeconomic variables, reflecting the highly non-linear behavior of such variables. The literature on transition offered three, possibly complementary, interpretations of this pattern. One argues that volatility results from a Schumpeterian process of creative destruction, in which efficient firms and sectors replace over time old state firms. According to this view, observed volatility is an efficient and thus desirable phenomenon (see Campos and Coricelli (2002) for a survey of the literature). A second interpretation relates volatility to the underdevelopment of markets, especially financial markets (Calvo and Coricelli, 1993). Underdevelopment of credit markets amplifies credit cycles, creates credit chains among firms, often resulting in large inter-enterprise arrears, that increase the instability of the economy. A third interpretation specific to transition economies relates volatility to the failure to establish appropriate institutions that facilitate transition and support the new market system. Such institutions range from bankruptcy laws to rules defining property and contract rights. According to Brunetti et al. (1997) the

[6] Recent evidence in Hnatkovska and Loayza (2003) suggest that volatility in emerging markets tends to depend on crisis episodes, and it is not simply a regular fluctuation of variables around a trend.

[7] The cross-country empirical literature on growth in transition economies includes papers by Anders, Boone and Johnson (1996), de Melo, Denizer, and Gelb (1996), de Melo and Gelb (1996), de Melo, Denizer, Gelb and Tenev (1997), Hernandez-Cata (1997), Fischer, Sahay and Veight (1998), Selowsky and Martin (1998), Popov (1999),

transition process itself produces institutional uncertainties that impede private business development. They identify market institutions and the speedy enactment of new laws and regulations along with them as a crucial precondition for successful transition.

The second perspective on volatility in transition emphasizes aspects typical of emerging markets, related to the process of opening up of the economies to international trade and international capital movements. When small economies open to foreign trade, output volatility tends to increase as the scope for diversification in production is low.[8] In such a context, economies are exposed to large effects of terms of trade changes. Output volatility does not result necessarily in consumption volatility if countries can smooth consumption by accessing international capital markets. As most emerging markets, CEECs have had imperfect access to international markets and thus limited instruments for smoothing consumption over time. In addition, capital flows tend to be volatile.[9] In this respect, volatility of output and consumption can be associated with exogenous shocks to the capital account. Since some types of capital flows are more volatile than others,[10] the structure of capital flows and country's external debt is a crucial determinant of the vulnerability to such shocks.[11] The literature also suggests that countries are likely to have currency crisis if they hold low reserves, and that high inflation raises the probability of crisis when in combination with low reserves and capital inflows tilted to short term capital flows (Frankel and Wei, 2004).

The high volatility of output observed in the early years of reform can thus be explained by the initial conditions in the CEECs, including the low degree of financial and institutional development, which slowed down the emergence of efficient firms that could compete effectively with foreign companies after domestic markets opened up quickly to foreign trade.[12] Initial reliance on self-financing for most firms and the presence of tight trade credit chains tended to magnify shocks to these economies, and thus tended to amplify output fluctuations. Institutional uncertainties also amplified output volatility. More recently, capital inflows, in

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Heybey and Murrell (1999), Berg, Borensztein, Sahay, and Zettelmeyer (1999), Campos and Coricelli (2002) among others.

[8] The opening up to foreign trade also exposed the fact that prior to 1990 total factor productivity (TFP) growth in the CEECs was inhibited, and the economies grew due to heavy investment in fixed capital, which stimulated a shift from agriculture into industry. The low TFP growth reflected misallocation of labour and capital, and other deep distortions in the economy.

[9] Griffith-Jones (1998) reviews the theoretical literature on financial volatility, systemic risk, and financial crisis; explores the volatility of different sources of flows, reviews the broad issues facing developing and transition countries in their management of surges of capital inflows, particularly those that are more short-term and potentially volatile and recommends regulatory measures to encourage smooth capital flows.

[10] Capital flows can be grouped by destination or source (public versus private), by type (long term versus short term, FDI, portfolio). Short term debt and portfolio flows are more volatile than long-term debt and FDI flows.

[11] Frankel and Rose (1995) provide evidence suggesting that the composition of capital inflows is a more useful predictor of currency crises than the overall level.

particular from private capital sources, into the CEECs have grown rapidly as progress is made on economic reform geared toward meeting the requirements for entering the EU.[13] However, domestic credit as a share of GDP is still low in the CEECs[14] and the institutional development in areas critical to financial integration – the legal system and the financial sector – is still ongoing in many of the CEECs.[15]

Finally, volatility can result from policy shocks, linked to monetary, exchange rate and fiscal policies. Fiscal policy, as in other emerging economies, has been pro-cyclical, which shows that CEECs had little room to smooth negative shocks through fiscal stimulus since the governments of CEECs were subject to a tight external constraint and their ability to finance public deficits in the domestic market was limited. Fiscal policy of the CEECs was also affected by the choice of monetary policy, which was the main instrument of adjustment in a number of CEECs during the nineties.[16] By the end of the 1990s all CEECs achieved low inflation – some achieved it as part of a Currency Board (CB) arrangement, others through inflation-targeting policy. While the countries in the CB arrangements achieved also an impressive fiscal discipline, inflation-targeting countries had much higher deficit levels than CB countries. Official balance figures, however, do not account for activities financed outside the budgetary system, and many contingent liabilities, such as those arising from the restructuring of the banking sectors and the burden of state-owned enterprises.

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[12] Most developing and even some industrial countries took several decades to achieve the same degree of openness achieved by the CEECs in just several years (Feldman and Watson, 2002).

[13] During the first half of the 1990s, the European Community and its Member States signed association agreements with the ten CEECs in this study and the European Commission established the so-called Copenhagen criteria for EU accession. The agreements committed the EU to admitting the CEECs into the EU, while the criteria established a number of benchmarks for assessing their progress towards economic and political compatibility with the EU. The criteria comprise the following items (i) the existence of stable institutions ensuring democratic government, the rule of law, human rights, and the protection of minorities; (ii) the existence of a functioning market economy and the capacity to cope with competitive pressure and market forces within the Union; (iii) the ability to take on the obligations of membership, including adherence to the aims of political, economic and monetary union.

[14] In 2002 domestic credit as a share of GDP was just 28 percent, compared to 103 percent in the EU and 118 in the East Asia and Pacific region (Source: World Bank/WDI).

[15] Progress with respect to banking sector privatization and financial sector reform varies widely among the CEECs, with the Baltic and Visegrad countries nearly finishing the transition, while the rest having further to go (Lannoo, 2000). Estonia was most successful in restructuring its banking system, followed by Poland and Hungary, and to a lesser extent Slovenia, the situation in the Czech Republic worsened (Nabli, 2000).

[16] In each of the CE5 (Czech Republic, Hungary, Poland, Estonia and Slovenia), governments intervened in the foreign exchange market to prevent appreciation and accumulation of large amounts of foreign reserves. This intervention was often accompanied by sterilization, which limited the downward movement in domestic interest rates (Nabli, 2000).

2. Volatility in transition

Measuring volatility is not an uncontroversial matter. Economic series can be highly volatile, but in a predictable way, as oscillations are regular. In other cases, series can show very low volatility in normal times, although they are characterized by infrequent, but extremely large changes. Crises are often characterized by this second type of volatility. Furthermore, in the case of transition countries, economic series have been subjected to large one-off changes associated with reform and structural change. Measures of volatility have to take into account these different cases.

Volatility of macroeconomic variables is generally measured by their standard deviation.[17] As economic series are characterized by long term trends, one should control for different trends when comparing volatility of variables for different countries. Moreover, one time shocks affect the standard deviation of the whole series. These observations are particularly relevant when comparing CEECs with EU countries. Indeed, CEECs were characterized by an initial large drop in output, followed by a strong upward trend (Figure 1). If we measure volatility of output as standard deviation of GDP levels, or first differences, they will be much larger for countries with high trend growth than those of countries with low trend growth (see also Hnatkovska and Loayza 2003).[18]

This section discusses external volatility (TOT), policy volatility (money supply, interest rates,[19] real effective exchange rates), and outcome volatility (GDP,[20] trade, inflation) during the transition period in the CEECs. Tables 1A and 1B below present the measures of the different types of volatility for the CEE region, individual CEECs, and comparators (East Asia and the developed countries), based on time series covering 1991-2002. The comparison is useful not only because it helps to identify the sources of volatility in the CEECs, but because it also

[17] To account for different mean values of the series, it is often useful to compute the coefficient of variation, that is the standard deviation divided by the mean of the series.

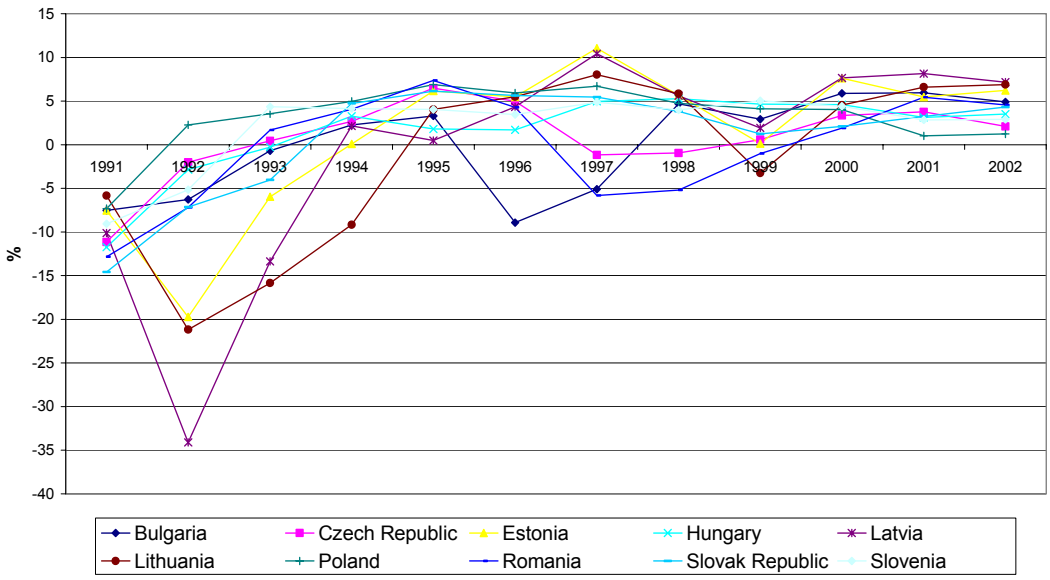
[18] This will not arise if we consider rates of change (percentage changes, or equivalently, log differences). However, the presence of higher standard deviations has important economic implications. Compare two countries suffering a fall in the rate of growth of output which is the same in percent. The larger decline in percentage points implies a much larger effect on the debt burden and on fiscal accounts.

[19] Volatility in real interest rate is measured as the standard deviation of the level of real interest rate or of the change (not percentage change) in real interest rates.

[20] Volatility in output is measured as the standard deviation in growth rates. To ensure that volatility is not due simply to fluctuations around an upward trend in the output time series, we should look for a presence of a trend in the series. To control for this possibility, we also compute standard deviations of output gaps, measured as deviations from trend, and shown on Figure 2. The latter is calculated with the Hodrik-Prescott filter applied to monthly industrial production series.

allows us to draw lessons from the experience of the East Asian countries,[21] which in the mid-90s also experienced extreme macroeconomic volatility as a result of the Asian financial crisis.

Figure 1: Annual GDP per capita growth in CEECs (1991-2002)



The volatility measures for CEE for the period 1991-2002 and 1995-2002 illustrate the relationship between transition on a massive scale and excessive volatility. The initial shock has induced higher volatility in variables measured over the whole post-liberalization period 1991-2002 than over the period 1995-2002 for the CEE region (Tables 1A and 1B). CEECs went through the transitional recessions[22] and saw the aggregate real GDP for the group dip from its 1990 levels by nearly 15 percent.[23]

The within group variations were substantial. Poland had a cumulative decline in real GDP of 6 percent over a two-year period, while Latvia, Lithuania and Estonia had recessions over 5-6 year periods and an output contraction of 35-51 percent. Job losses continued long after the immediate post-transition recessions, as it took time for new firms (especially in service sectors) to absorb the steady outflow of labor from old enterprises (Feldman and Watson, 2002). It is important to point out that Poland, which has continuously insisted on the importance of a

[21] We focus on the following group of dynamic economies in East Asia: China, Taiwan, China, Indonesia, Korea, Malaysia, Philippines, Singapore, and Thailand.
[22] The transitional recessions in CEECs are consistent with Schumpeterian selection which is associated initially with a recession, as growing firms emerge slowly while the decline of old firms occurs immediately.
[23] World Bank (2002).

gradual and well-managed transition, has had a much smaller output volatility than other CEECs.

Table 1A: Volatility of main macroeconomic variables 1991-2002

	Terms of trade	M2/GDP	Real effective exchange rate (REER)	Real interest rate	GDP per capita growth	Inflation CPI	Trade/ GDP
CEECs	**8.02**	**5.91**	**14.03**	**7.39**	**5.14**	**25.48**	**16.35**
Bulgaria	6.10	15.93	22.18	28.25	5.58	298.56	12.48
Czech rep.	7.40		17.09	2.98	4.55	3.48	14.50
Estonia	4.22	5.96	Na	26.73	8.59	27.69	21.99
Hungary	3.42	2.93	10.58	2.98	4.80	8.66	24.44
Latvia	28.53	3.49	Na*	2.99	12.72	73.98	22.34
Lithuania	7.22	3.40	Na*	19.24	9.85	126.49	33.33
Poland	6.83	5.48	18.44	5.18	3.82	21.43	6.98
Romania	6.42	5.18	17.00	n.a.	6.20	87.21	11.04
Slovakia	5.16	2.68	6.07	7.20	6.33	3.30	18.59
Slovenia	4.84	11.04	Na*	4.55	4.46	8.03	13.17
Emerging Asia	**6.20**	**15.90**	**7.06**	**3.64**	**3.77**	**3.01**	**12.70**
Developed countries	**1.15**	**Na***	**Na***	**1.84**	**0.93**	**1.23**	**3.72**

Sources: World Bank: SIMA-GDF, GFS & WDI central

Notes:

1/ Computed as standard deviations of the stated variables.

2/ Emerging Asia includes China, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan, Thailand.

3/ Developed countries includes: Austria, Australia, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Italy, Japan, Luxemburg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United kingdom, United States.

*Data are not available.

Table 1B: Volatility of main macroeconomic variables 1995-2002

	Terms of trade	M2/ GDP	Real effective exchange rate (REER)	Real interest rate	GDP per capita growth	Inflation CPI	Trade/ GDP
CEECs	**3.42**	**3.46**	**10.31**	**4.22**	**2.56**	**11.04**	**10.46**
Bulgaria	6.59	12.48	16.96	30.23	5.58	364.96	10.92
Czech rep.	2.87		10.29	1.81	2.76	3.47	13.56
Estonia	3.41	6.17	Na	5.48	3.01	9.71	16.23
Hungary	1.33	3.69	9.85	2.41	1.40	7.91	20.12
Latvia	2.73	3.63	Na	3.09	3.33	8.68	7.56
Lithuania	7.22	0.66	Na	7.12	3.48	14.42	10.57
Poland	7.26	2.48	12.90	3.06	2.25	8.43	6.68
Romania	5.69	7.52	14.43	Na	4.95	42.07	8.10
Slovakia	1.91	1.27	3.75	3.66	1.75	2.89	16.72
Slovenia	1.64	5.16	Na	2.36	0.83	2.16	4.48
Emerging Asia	**4.67**	**10.98**	**6.15**	**3.51**	**3.65**	**2.68**	**9.96**
Developed countries	**1.45**	**1.70**	**Na**	**1.41**	**0.92**	**0.85**	**2.79**

Sources: World Bank/SIMA-GDF, GFS & WDI central.

The aggregate volatility measures also hide much of the sectoral variations. Since the CEECs started the transition process with a much larger industrial sector and a much smaller services sector than market economies of similar development level, during the transitional recession the industrial output shrank by more than the aggregate fall in real GDP, while the production of services expanded.

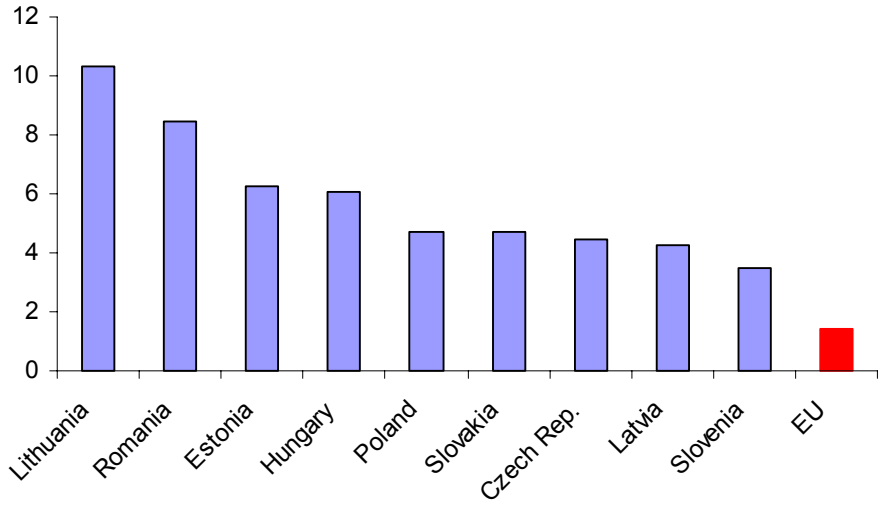
A comparison of the volatility measures for the CEE and East Asia regions for 1991-2002 suggests that the transition shock resulted in macroeconomic volatility on a much larger scale than the one observed during financial crises in emerging markets. For example, output volatility as a result of the transition shock in the CEECs was twice the output volatility in East Asia during the nineties – a period during which the Asian crisis led to substantial turmoil in the

emerging economies of East Asia (Table 1A). In addition to output volatility, compared to emerging Asia, the CEECs displayed higher volatility of other main real variables (Table 1A).[24]

Even excluding the initial adjustment phase (1991-1994), volatility of aggregate output has been high in the CEECs (Table 1B). Considering the close links through foreign trade and FDI with countries of the European Union, it is striking that the output volatility in the CEECs is two and a half times larger than the output volatility in the EU and other developed countries, higher than that in Latin America,[25] and lower, yet not by much, than the one of emerging Asia. This volatility partly reflects the continuing process of reallocation of resources towards more productive sectors, but the high volatility of industrial production in CEECs in the last five years of transition remains puzzling and may be indicative of the role of policies for output volatility (Figure 2).

However, the volatility of all macroeconomic indicators, shown in Tables 1A and 1B, have declined as recovery took place and the CEECs proceeded with the successful implementation of stabilization policies, the development of market institutions and financial markets into the second half of the nineties. The process of preparing for EU accession also provided a powerful stimulus for the CEECs to undertake painful reform and build institutions similar to those in the EU.

Figure 2. Volatility* of industrial production , 1994-2002



*Standard deviation of de-trended series of monthly industrial production data, obtained using Hodrick-Prescott filter.

[24] Volatility of broad money as a share of GDP is an exception.
[25] The standard deviation of per capita GDP for Latin America over the period 1995-2002 is 1.8.

3. Sources of volatility in transition

A comparison of statistics on volatility for 1995-2001 and 1991-2001 (Tables 1A and 1B) suggests that the transition shock was the single largest contributor to output volatility in the CEECs during the 1990s and that after 1995 many of these countries were less volatile than other developing economies. The comparison also reveals that some CEECs were much more volatile than others.

Initial conditions, external economic shocks and policy response[26] may explain why transition led initially to aggregate output volatility and the variability of output growth across countries. The initial conditions that affected the magnitude of volatility during the transitional recessions in different CEECs were grouped by de Melo, Denizer and Gelb (1996) into three categories: structure, institutions and distortions. Structure referred to natural resource endowments, trade dependence, the extent of over-industrialization, the size of the military sector, the initial size of the economy. Institutions included such indicators as experience with market economy and proximity to Western Europe that signal whether the country has developed institutions that can cope better with competition from the West. Distortions referred to repressed inflation, black market premiums, terms of trade distortions, degree of stagnation and extent of reform prior to transition.[27] Of the three conditions, initial distortions are found to be most closely associated with high volatility in output during the transitional recession.[28]

External shocks included the collapse of the centrally planned system for the supply of inputs and the delivery of outputs within the trading block which included the CEECs and the FSU, the loss of subsidized energy imports and transfers from the center, and financial crisis, while the policies had to accommodate social and economic transformation on an unprecedented scale, and therefore had to encompass multiple aspects of the socio-economic environment. There was a broad consensus that the reforms had to include macroeconomic stabilization, price and trade liberalization, fiscal, legal, private and public sector reforms. However, there was a lot less agreement regarding the speed and timing of reforms.

Statistical analysis suggests that initial conditions explain 51 percent of the variation in the average decline in output across countries during 1990-94 and are more important than policies in explaining differences across countries in the initial period of output decline (1990-94) than over the full 10 years of transition.[29] Good policies,[30] however, reduce output volatility

[26] Policies themselves are endogenous and depend on initial conditions (de Melo et al., 1997).
[27] For more detail see de Melo, Denizer and Gelb (1996).
[28] World Bank (2002).
[29] See World Bank (2002).

during the transitional recession. Empirical tests suggest that output in each year is significantly and positively associated with the cumulative policy reform,[31] i.e. the speed of reform reduce the length of the transitional recession.

The transition period coincided with a considerable increase in capital flows to emerging markets, although only a small portion of these flows were directed to the CEECs. In 1996 capital flows to the CEECs and the countries in the Former Soviet Union accounted for just one-eighth of the aggregate new flows to all developing countries, whereas these countries accounted for about one-fifth of all developing countries' GDP and exports (Claessens, Oks, and Polastri, 2000). The CEECs and the FSU republics attracted only 15 percent of total private capital flows to all developing countries in 1996. This relatively low level of capital flows, especially from private sources, reflects the special nature of economic development processes during transition. Market reforms did not start until the beginning of the nineties (Hungary and Poland are exceptions). At that time, many of the CEECs lost financing and aid from the Soviet Union, and capital flows were mainly fiscally driven and often from official sources. As these countries lacked creditworthiness and their financial sectors were underdeveloped, private flows were low[32] (Claessens, Oks and Polastri, 2000) and credit depth was much lower in CEE than in emerging Asia. This implies that the CEECs were less vulnerable to external shocks in international capital markets and may explain partly why the CEECs remained relatively unscathed by the financial crises in East Asia and Russia in the mid-nineties.

Still a couple of CEECs experienced extreme volatility in the second half of the 90s. Bulgaria went through a banking and currency crisis in 1996-1997, while the Czech Republic dealt with a currency crisis in 1997. Some of the reasons for the 1996-97 crisis in Bulgaria were stop and go stabilization policies, slow pace of structural reform, the prevalence of soft budget constraints, widespread rent-seeking, failure to regulate a liberalized banking sector, which by 1996 became plagued with non-performing loans to SOEs, weaknesses in governance and unsound credit policies. About half of the private banks were technically bankrupt and eventually one-third of the banking system (17 banks) closed. Open market operations to support the exchange rate resulted in interest rate hikes, worsening the servicing of the domestic debt, depletion of foreign exchange reserves, and soaring inflation that wiped out the savings of a significant proportion of the population. In the Czech Republic, the speculative attack on the

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[30] Although there is still a debate about the specific design of policies, their sequencing, and their speed of implementation, a consensus was reached that reforms should include macroeconomic stabilization, price and trade liberalization, price and trade liberalization, imposition of had budget constraints on banks and enterprises, enabling environment for private sector development, reform of the tax system, public expenditure restructuring, legal, judicial and public sector institutions reform.

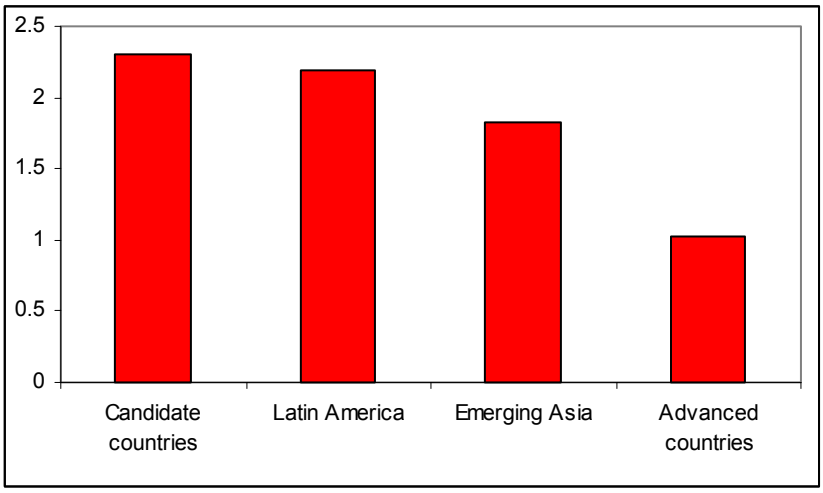
[31] See World Bank (2002).

crown - driven in part by the perception of an unsustainable current account deficit equivalent to 7.1 percent of GDP in 1996, forced the authorities to abandon the exchange rate policy regime maintained since 1991 and to introduce tight fiscal and monetary policy.

Fiscal policy in the CEECs has provided little scope for smoothing shocks during the transition period since a large component of expenditure has been rigid. Pressures to contain budget deficits resulted in variability in tax revenue, which combined with frequent changes in the tax systems, explain the high degree of volatility of revenue-to-GDP ratio observed in CEECs (Figure 3). Indeed, for CEECs and Latin American countries, the volatility of revenue-to-GDP ratios during the 1990s has been much higher than in advanced economies (Figure 3).

Figure 3. Volatility of Government revenue, 1991-2000*

(Standard deviation of revenue-to-GDP ratio)



**1993-2001 for Candidate countries*

Source: Our calculations for candidate countries; IMF(2002) for the others.

During the 1990s, the positive effects of economic growth on the budget have been more than compensated by an increasing deficit in the structural budget. Figure 4B shows that cyclically adjusted budget deficits have been on average well above 3% of GDP[33] and clearly illustrates the pro-cyclical stance of fiscal policy in CEECs during the 1990s. Figure 4A displays an inverse relationship between the structural budget as a ratio to GDP and output gaps, indicating that in periods of growth below trend fiscal policy was tightened, and the opposite for periods of growth above the trend. Figure 4B confirms the above result, by linking structural budgets to the rate of growth of GDP. The structural deficit has remained high during periods of

[32] Earlier and faster reformers such as Hungary, Poland, Czech Republic and Estonia were exceptions.
[33] Slovenia is an exception.

growth, while during the sharp economic downturn of the early 1990s, lack of access to borrowing induced a significant tightening of fiscal policy.[34]

In measuring pro-cyclical behaviour of fiscal policy we have followed the approach used among others by Gali and Perotti (2003). This approach tries to isolate the discretionary component of the budget, eliminating the automatic effects associated with the cyclical fluctuation of the budget. Indeed, if we take the cyclical component of the budget deficit it is almost by construction pro-cyclical. This is due to the fact that, at unchanged tax rates, revenues follow perfectly the cycle, while expenditures have only a small component that is automatically pro-cyclical (the so-called automatic stabilizers associated with unemployment benefits). The pro-cyclicality of revenues tend to induce the pro-cyclicality of the budget deficit (see also Fiorito 1997 on this point).

Another approach to measure the pro-cyclical behaviour of fiscal policy is the one followed by Talvi and Vegh (2000). As the automatic component of expenditure is rather small, one can take the cyclical fluctuations of expenditure as the short-term discretionary changes in fiscal policy. The correlation of such cyclical fluctuations with the cyclical movements of output is a measure of pro-cyclical stance of fiscal policy. We computed these correlations and displayed them in Table 2.

Table 2. Correlation between cyclical variations of government consumption and GDP, 1995-2003

	Czech Republic	Estonia	Hungary	Latvia	Lithuania	Poland	Slovakia	Slovenia
Correlation(*)	0.80	0.03	-0.06	0.30	0.63	0.84	0.34	-0.58

Source: authors' calculations on data from IMF, International Financial Statistics

Results are mixed, but we found either lack of correlation, with coefficients close to zero (Hungary, Estonia), or higher and positive coefficients, indicating a pro-cyclical fiscal policy in several CEECs, such as the Czech and Slovak Republic, Latvia and Lithuania. The only exception is Slovenia, that displays a counter-cyclical fiscal policy. However, the interval of observation for Slovenia is only 1999-2003 and thus it is too short for drawing any robust

[34] For countries like Slovenia, in which there has been little cyclical fluctuations of GDP, the latter figure seems more relevant.

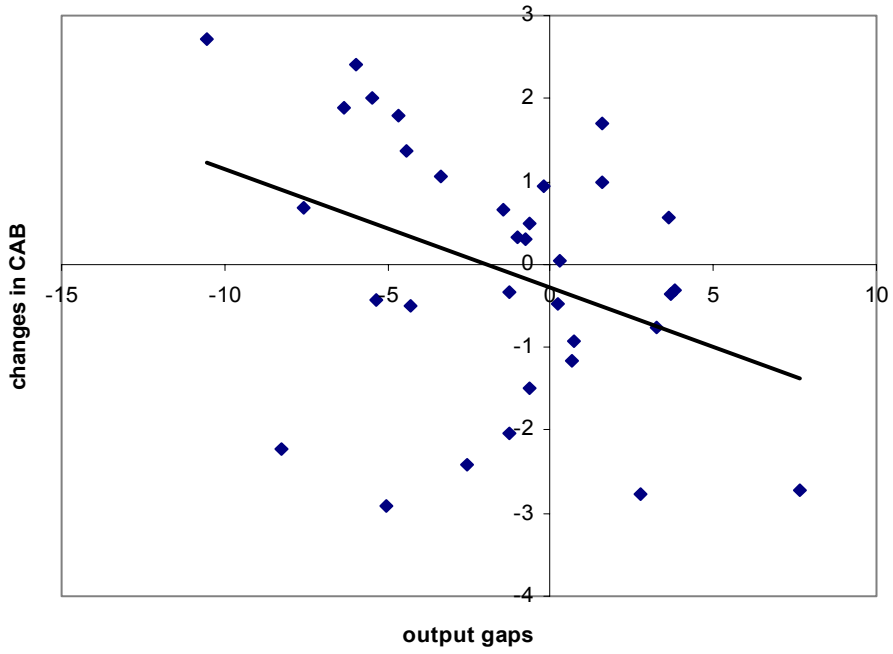
conclusions. These findings imply that output changes can get magnified by a behaviour of public expenditure that reinforces the autonomous cyclical forces in output, or for those countries with lack of any type of correlation, that fiscal policy has not provided a cushion for smoothing cyclical fluctuations of output.

A pro-cyclical stance has also been found for other emerging countries, especially for Latin America (IMF 2002). By contrast, industrial countries seem to have had a counter-cyclical stance. However, according to some studies a pro-cyclical stance has characterized EU countries at least during the period 1970-1995 (Buti, Franco, Ongena 1997). This effect seems due to the presence of an expansionary fiscal policy during periods of positive output gaps, more than compensating the positive effects of automatic stabilizers (Buti and Sapir 1998). Less clear-cut are the views for the stance during recessions. Nevertheless, a robust result seems to be that developing and emerging economies display a pro-cyclical stance during bad times, as their possibility of financing deficits disappears.

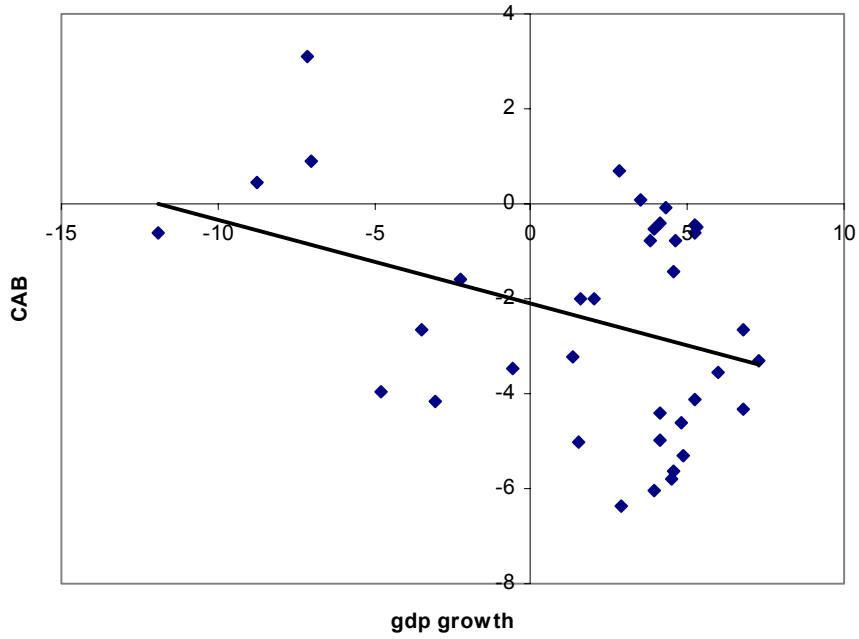
Finally, official balance figures, do not account for activities financed outside the budgetary system, and many contingent liabilities, such as those arising from the restructuring of the banking sectors and the burden of state-owned enterprises. Hungary, unlike the Czech Republic, internalised most fiscal risks in the government debt and constrained off-budget fiscal activities. Therefore, while Czech Republic enjoyed “budget balances”, Hungary faced high budget deficit and debt levels. As hidden liabilities in the Czech Republic came to light in 1998, the government faced pressure to impose discipline in resolving old and taking new fiscal risks (Brixi, Schick and Zlaoui 2002). In Bulgaria, non-performing loans to state owned enterprises among other weaknesses related to financial sector regulation, bank governance, loose fiscal and monetary policies, led to the massive banking and currency crisis in 1996-97. The fiscal cost due to the banking crisis in Bulgaria amounted to 22 percent of GDP (World Bank, 2001).

Figure 4 . Discretionary Fiscal Policy in the CEECs, 1990-2000[35]

(A)



(B)



[35] CAB stands for cyclically adjusted budget. It is computed following the methodology used by the European Commission, see Coricelli and Ercolani (2002) for details. The relationship summarized by the regression lines in fig. 8 (a) and (b) is statistically significant at the 3% in both cases.

4. Sources of vulnerability in the period leading to EU Accession

Discussing vulnerability to shocks in the period leading to EU membership is a difficult task. One approach is to learn from the experience of Portugal, Greece and Spain (SM3), which acceded to the EU in the 1980s, and compare indicators of vulnerability in the CEECs with those in SM3 and in East Asia (Nabli 2000). Another approach is to focus more narrowly on individual elements of the economy and discuss in depth sources of vulnerability as a result of capital flow liberalization (Claessens, Oks and Polastri 2000), macroeconomic policy (Ems 2000, Feldman and Watson 2002), and financial sector regulation (Lannoo 2000). This paper presents an overview of the findings in the literature, but goes further by offering original analysis on a number of issues – vulnerabilities due to underdevelopment of financial markets, real interest and exchange rate changes, capital flow reversals, fiscal policy, and terms of trade shocks. We find that, whereas there will be forces acting in both directions, volatility is likely to reduce in the period leading to EU membership, yet vulnerability to economic shocks are likely to remain higher in the CEECs than in the current EU member countries.

The benefits to the CEECs of full EU membership are undisputed. Further integration with the European Union is likely to reduce output volatility in the CEECs. Membership in the European Union, and especially the European Monetary Union, would sharply reduce the vulnerability from macroeconomic policies and business environment. While monetary policy will be determined by the European Central Bank, fiscal policy will be subject to the rigours of the Stability and Growth Pact. Furthermore, participation in the Euro-zone will eliminate the volatility in capital flows affected by swings in exchange and interest rates. The deepening of real integration with other EU countries will sharply reduce the magnitude of idiosyncratic shocks to CEECs. EU accession criteria will facilitate trade by reducing transaction costs and introducing common standards, and ensure favourable business environment based on the EU system of laws.[36] The institutional uncertainties, which during the transition amplified the business cycle, will be eliminated, and output volatility will be further dampened. Given their greater trade integration with the EU than that of the SM3 at the time of their accession in the 80s, the CEECs are likely to continue to attract capital flows during the pre-accession period.

However, the road to full membership may not be smooth. Testimony to that are the financial crises in some current EU member states in the beginning of the nineties. These crises had their roots in monetary expansion in the wake of financial deregulation and capital

[36] Prospective EU membership is found to be positively correlated with private capital flows (Claessens et al. 2000). Other important determinants are reform efforts and creditworthiness.

liberalization, which in a period of strong growth led to asset price bubbles.[37] The subsequent economic downturn, accompanied by substantive increases in interest rates induced banking crises, followed by currency crises, in several EU member states. Moreover, the SM3 countries experienced large FDI and private portfolio investment inflows during late 1980s, only to see the flows reversed as investors started pulling out in the early nineties (Nabli 2000). And as long as financial markets in the CEECs remain much less developed than those in the EU,[38] output volatility is bound to remain higher in the CEE region than in the EU. These experiences of form candidate states suggest that it is extremely important to study the different sources of vulnerability in the stage leading to EU accession. Next, we turn to a review of the sources of vulnerability in the pre-accession stage.

Vulnerability due to Underdeveloped Financial Intermediation

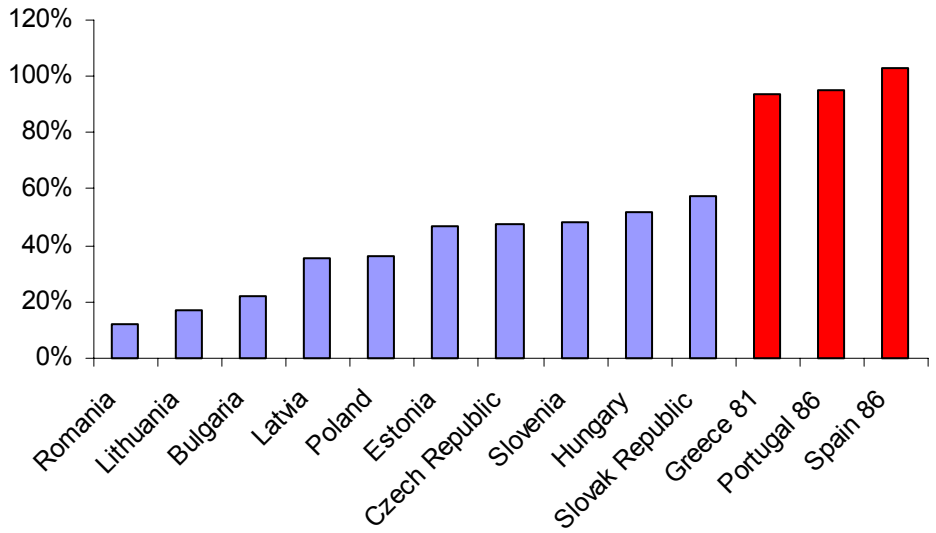
While progress varies widely within the CEEC group, recent data reveal low-financial depth in the CEECs, compared not only to EU member states today, but also to the last group of acceding countries at the time of their entry into the EU (Figure 5). Estimates from a recent empirical study (Cottarelli et al. 2003) suggest that the degree of financial depth in CEECs is much lower than predicted by the main variables determining it, such as incomes per capita and long-term real interest rates. The gap from such hypothetical equilibrium values is very large, averaging about 40 percentage points of GDP for CEECs.

Firms can in principle compensate for the lack of domestic bank credit with trade credit (credit among firms). Even though trade credit is an efficient substitute for short-term bank loans, it tends to increase volatility, especially when it is the only source of financing for firms. Indeed, trade credit creates credit chains among firms (Kiyotaky and Moore, 1997), as firms tend to be both debtors and creditors of other firms. A shock at a given point in the chain is transmitted to all other firms linked in the chain. Thus, shocks get magnified through a process of cascade of default in payments to suppliers. One positive side effect of having underdeveloped financial intermediation is that markets are less vulnerable to disruption and turbulence from international financial markets. This is the case because in underdeveloped markets external finance for firms is more limited, and the banking sector is less integrated in the inter-bank markets as compared to developed economies.

[37] See Ems (2000).

[38] Areas of concern related to the financial sector remain to be addressed. The implementation of many of the internationally compatible laws on banking and securities markets can be improved significantly. Financial sector supervisions should be strengthened, with a particular emphasis on consolidated supervision and increased autonomy of the supervisory authorities. Adequate protection of creditors' and shareholders' rights is also a top

Figure 5. Financial depth: Domestic Credit in % of GDP (*)



(*) Average of 2001 and 2002

Vulnerability to Real Interest and Exchange Rate Changes

As discussed by Hausmann (2002) volatility of real interest and exchange rates may limit country's debt service capacity and expose countries to sudden shifts in financing needs depending on the composition of debt.[39] Of course, vulnerability depends as well on the size and characteristics of debt stocks, fiscal and growth fundamentals, openness, and difficulties in accessing world financial markets during periods of crises.

priority for financial sector reform as it will facilitate the efficient allocation of resources and facilitate stable growth.

[39] Hausmann (2002) asserts that defaults are associated with the probability that debt service as a share of tax receipts exceeds some critical value in relation to budgetary resources. The higher the volatility of the debt service to tax ratio, the lower the debt level compatible with a certain expected debt service to tax ratio. The volatility of this ratio depends not only on the volatility of output (GDP), but also on the debt structure, which may be skewed towards foreign currency debt. This implies that high volatility of real variables (real exchange rates and real interest rates) limits country's debt service capacity and increases financial vulnerability.

Table 3. Composition of public debt in 2000

	Public debt % of GDP	Foreign currency debt* % of public debt	Foreign currency debt % of GDP	Foreign currency debt % of tax receipts**	Public debt % of tax receipts***
CEECs*	33.4	57.2	19.1	49.3	86.2
Bulgaria	80.6	91.4	73.7	169.4	185.3
Czech Rep.	17.3	10.4	1.8	4.4	42.6
Estonia	5.3	67.9	3.6	9.2	13.6
Hungary	58.2	n.a.	n.a.	n.a	126.8
Lativa	13.0	60.8	7.9	26.3	43.3
Lithuania	28.3	77.7	22.0	72.8	93.7
Poland	40.9	48.9	20.0	50.5	103.3
Romania	31.6	44.9	14.2	45.0	100.3
Slovakia	32.8	49.1	16.1	45.6	92.9
Slovenia	25.8	48.8	12.6	29.4	60.3

*This includes both domestic and foreign currency debt.

**Alternative measure is the foreign debt service to tax ratio

***Alternative measure is debt service to tax ratio.

Source: European Commission (2002)

Ten years after the beginning of transition CEECs' public debt was not large in terms of GDP (Table 3).[40] It was in fact roughly half of that in the EU (63% of GDP in 1999). However, as it is the case in Latin America,[41] government debt was largely debt denominated in foreign currency. The large share of foreign currency debt suggests that the CEECs are vulnerable to fluctuations in exchange rates and interest rates in world markets. An important distinction between the position of the CEECs and other emerging markets is that the ratio of foreign currency debt to fiscal revenue is much smaller (Bulgaria is an exception) in the CEECs than for instance in the Latin American region.[42] This implies that CEECs can meet financing needs by raising revenues on a larger base than Latin America and suggests that the risks of resorting to inflationary financing of the budget deficits are lower in CEECs than in Latin America.

The extent to which a country is vulnerable to crisis depends not only on the debt position of the government, but also on the external debt of the economy as a whole. Data on total external debt as a share of GDP and as a ratio of exports in 2000 reveal a number of interesting facts. These data show that in 2001 the stock of external debt of CEECs was similar

[40] In Table 3 public debt captures only central government debt.
[41] In 1999, approximately 45% of public debt in Latin America was foreign currency debt.
[42] In 2000, external debt in Latin America was much above 100% of tax revenue.

to that of Latin America when measured as a share of GNI (Table 4). However, CEECs have a much higher degree of openness to foreign trade as suggested by lower average applied tariff rates and higher trade openness indicators (Table 4). As a result, in 2001 the ratios of external debt and debt service payments to exports were much lower in the CEECs than in Latin America (Table 4). Furthermore, while rapid increases in investment led to large current account deficits in CEECs by 2001 (Table 4), the inflow of foreign direct investment (FDI) matched the current account deficit, and thus the CEECs avoided an increase in external debt.

Table 4. Macroeconomic indicators in 2001

	External Debt* % GNI	External debt* % exports	External debt service* % exports	Trade weighted tariffs**	Current Account* % GDP	FDI Net inflow % GDP	Foreign portfolio investment inflow % GDP	Trade/ GDP***
CEECs*	41.3	90.2	8.5	6.6	-3.5	4.4	1.3	94.9
Bulgaria	72.6	121.8	15.5	12.3	-6.2	5.1	0.5	118.9
Czech Rep.	38.9	50.8	4.4	5.1	-4.6	8.6	1.6	144.8
Estonia	54.4	55.3	0.9	0.0	-6.1	9.8	1.7	185.0
Hungary	60.2	82.0	8.5	9.9	-2.1	4.7	2.7	123.1
Latvia	74.1	151.1	2.9	3.1	-9.5	2.3	1.7	99.7
Lithuania	44.9	83.9	5.9	3.3	-4.8	3.8	2.2	106.3
Poland	34.4	113.5	11.5	11.3	-2.9	3.1	0.6	62.1
Romania	29.6	84.0	13.7	16.9	-5.6	2.9	1.4	75.1
Slovakia	55.2	72.1	6.2	n.a.	-3.7	7.2	4.0	156.5
Slovenia	34.3	58.1	Na	10.1	0.2	2.7	0.4	121.8
Latin America	41.5	170.5	19.4	11.7	Na	3.6	0.1	38.4
Emerging Asia	24. 1[a]	64.0[a].	5.7[a]	8.9	3.5	1.9	-0.84	84.4

* Source: World Bank/GDF. **Source: World Bank (WITS), tariffs are for the latest year available – 2001 for Bulgaria, Latvia, Romania, Slovenia; 2000 for Poland; 1999 for Czech Republic; 1997 for Hungary, Lithuania, EU; 1995 for Estonia.

***Data are for 2001 except for Slovakia and OECD for which data are for 2000.

[a] Data on external debt and debt service payments for Chinese Taipei and Singapore were not available.

Vulnerability to Sharp Reversals of Capital Flows

Financial crises in some EU member countries (Ems 2000) and the reversals of capital flows experienced by the SM3 countries in the beginning of the 90s (Nabli 2000), suggest that the risks associated with financial flow reversals in the CEECs should not be ignored. As a result of capital account liberalization in many countries around the world, including the CEECs, the volume of global capital transactions and the vulnerability to speculative attacks have increased sharply. Therefore, it is important to evaluate whether these countries may be vulnerable to sudden reversals in capital flows and the extent of currency depreciation that may accompany such events in light of the liberalization process accompanying EU accession.

We follow Calvo et al. (2002), who define a sudden stop of capital flows as an unexpected, severe and prolonged stop of capital flows. Of course, calculations are only illustrative, as it is hard to define ex ante how long a stop to capital inflows will last. The important aspect emphasized by Calvo et al. (2002) is that such a stop tends to be reversed for reasons largely exogenous to individual countries, as they are associated to swings in the general perception of risk of emerging markets. They argue that sudden stops present a big risk to countries with (1) a small share of output relative to domestic absorption of tradable goods; (2) foreign currency liabilities of the non-tradable sector; and (3) high public debt denominated in foreign currency. Sudden stops are typically accompanied by large contractions in international reserves and depreciation of the real exchange rate.

Calvo et al. (2002) reason that in the case of Argentina these three conditions magnified the effect of the sudden stop of flows to emerging markets following the financial crisis of 1998. They estimated the required adjustment in the equilibrium RER and found that Argentina needed to depreciate its RER by 46 percent in order to bring down its current account to zero. The slow adjustment of the RER in the years prior to the 2001 domestic crisis reflects both the presence of CB (i.e. fixed exchange rate) and non-tradables price stickiness.

In order to determine the change in the equilibrium RER required to balance the current account Calvo et al. (2002) assume homothetic preferences, exogenous prices of tradeables, and abstract from investment so that consumption of tradeables is proportionate to that of nontradables. They then compute the required change in the RER holding the demand for nontradeables fixed. In this case the required depreciation of the equilibrium RER equals $(\eta/\chi)/(1+\eta/\chi)$, where η is the fall in import demand following a sudden stop, measured as the ratio of current account to imports and χ is the price elasticity of home goods.

Based on this estimate we compute the required change in the equilibrium RER in the event of a sudden stop for the 10 CEECs (Table 5). Estimates suggest that most CEECs are at a

fairly low risk of dramatic RER fluctuation in the event of a sudden stop. Only in Latvia the required depreciation may be of magnitude close that in Argentina (Calvo et al. 2002). Other countries where devaluation may be substantial are Romania, Bulgaria and Lithuania. Since Latvia, Lithuania and Bulgaria have fixed nominal exchange rates, the lessons from Argentina are very timely and suggest that these countries will need to monitor carefully their external account, and the foreign liabilities in the public and private sectors.

Table 5. Required % Depreciation in the Equilibrium RER

Country	Required % depreciation in ERER	Short-term debt to Reserves in 2001
Bulgaria	34	0.1
Czech Republic	18	0.7
Estonia	16	1.3
Hungary	8	0.4
Lithuania	29	1.0
Latvia	41	2.6
Poland	27	0.3
Romania	37	0.1
Slovak Rep.	12	0.7
Slovenia	0	0.0
Argentina	46	1.4

*Authors' estimates based on World Bank data for 2001except for Bulgaria were data are for 2000. Since the elasticity of import demand is much lower than that for industrial countries, we use the lower bound for this elasticity in the literature (0.4).

A scenario where the current account in the CEECs would have to adjust to zero over a relatively short period of time, and the real exchange rate would need to depreciate by a large amount, as a result of a sudden stop of capital flows is an extreme experiment. Therefore, figures in Table 5 have to be taken as an extreme scenario of adjustment in case of total drying out of external finance for CEECs. Nevertheless, Table 5 illustrates the potential risks faced especially by countries like Bulgaria, Latvia, and Romania.

Many studies have also found the ratio of short-term debt to reserves to be a particularly useful indicator of volatility. Radelet and Sachs (1998) report that by mid-1997 (the year of the Asian crisis) this ratio was 1.7 in Indonesia, 2.1 in Korea and 1.5 in Thailand, while others

estimate a critical ratio (1 according to the Guidotti rule, 1.6 in Fanrkel and Wei, 2004). We compute this indicator for the CEECs (Table 5) and find that most countries were at low risk for a currency crisis in 2001. The only country where risk was substantial is Latvia. Its short term debt to reserves ratio in 2001 was 2.6, higher than that in Argentina in 2001.

Managing Capital Flows Volatility

Most CEECs have gradually liberalized capital flows over the 1990s, some faster than others, but even the slower countries recently removed the bulk of remaining restrictions (the process of dismantling residual controls over short-term capital movements has started as well). With EU accession capital inflows are likely to increase and become more volatile (as restrictions on short term capital movements are finally removed in all CEEC). Inflows will be attracted by the low wages of high skilled labour force, proximity to EU markets, the political stability and institutional quality in these countries.[43] Inflows are likely to be sensitive to the perceptions about the sustainability of policies in the run-up to accession, shifts in expectations and asset price volatility as reliance on securities markets increases, contagion effects through trade and financial flows, changes in interest rate differentials.

In the case of a fixed exchange rate regime, heavy inflows can result in currency and maturity mismatches for the financial sector's balance sheet. If the fixed exchange rate regime is credible, as under a CB, there can be a shift toward foreign borrowing at lower interest rates, leading to large open foreign exchange positions for banks and increases in the probability of speculative attacks.

Flexible exchange rate regimes allow more transparently for two-way risk, which limit excessive foreign currency borrowing and liquidity mismatches. Still the risk of excessive borrowing abroad cannot be eliminated. Prior to the adoption of the Euro, increased volatility in capital flows is likely to increase exchange rate volatility and with it the variability of the debt burden. Indeed, as shown earlier in Table 3, public debt, although not very large as a ratio to GDP or tax revenue, has a large foreign currency component. Moreover, firms in countries like Slovenia, Poland and Hungary have borrowed heavily abroad.

A premature removal of all capital restrictions against a background of immature financial markets and incomplete structural reforms may magnify any underlying macroeconomic and structural weaknesses and heighten the risk of bank failures. Strengthening

[43] When it comes to fostering FDI and portfolio flows, the experience of the SM3 countries shows that individual country's outcomes may differ depending on their macroeconomic and institutional environment (Nabli, 2000).

financial sector regulation and supervision will therefore be key for dealing with capital flow volatility, and ultimately output volatility.

Vulnerability to Terms of Trade Shocks

At the start of transition the CEECs were vulnerable to terms of trade shocks since they traded mainly with the CEECs and the FSU. By the end of the nineties, however, they had evolved into open economies with diversified trade structures, and therefore currently they are less vulnerable to shocks in their terms of trade.[44] By the end of the decade the average tariff for the region was lower than the corresponding tariffs observed in Latin America and emerging Asia (Table 4). Although the average tariffs for some CEECs were much higher than the regional average (e.g. Bulgaria, Poland, Romania), the openness to trade index (Table 4) and the concentration indexes[45] (Table 6) suggest that all CEECs are open economies with well diversified import and export base. Most CEECs have a more diversified export base than the FSU republics and a number of CEECs (Poland, Czech Republic, and Slovenia) have the same degree of diversification as the United States.[46] This implies that the CEECs are much less vulnerable to volatility caused by terms of trade shocks than the FSU republics and many other developing countries.

[44] Vulnerability to terms of trade shocks is a function of trade openness (that makes external shocks more relevant) and the structure of trade (trade specialization: the more specialized a country is, the more vulnerable to shocks to single commodities).

[45] The trade concentration index provided by UNCTAD is a modified version of the Herfindahl-Hirschmann index and measures the extent of export and import diversification (see UNCTAD, various issues.)

Table 6. Indexes of Concentration by Product

Country	Exports	Imports
Bulgaria	0.13	0.13
Czech Republic	0.08	0.06
Estonia	0.18	0.09
Hungary	0.11	0.09
Latvia	0.18	0.06
Lithuania	0.17	0.14
Poland	0.08	0.07
Romania	0.12	0.07
Slovakia	0.13	0.08
Slovenia	0.06	0.10
Armenia	0.19	0.16
Azerbaijan	0.60	0.09
Belarus	0.17	0.17
Georgia	0.16	0.13
Kazakhstan	0.48	0.07
Kyrgyzstan	0.40	0.10
Moldova, Republic of	0.30	0.13
Russian Federation	0.28	0.31
Turkmenistan	0.53	0.08
United States	0.08	0.10

Source: UNCTAD; concentration indexes for the CEECs based on data in 2001, except for Bulgaria, Czech Republic, Poland and Romania, for which indexes are based on data in 2000; concentration indexes for the FSU based on data in 2000, except for Moldova (2001) and Kyrgyzstan (1999).

[46] Belarus and Georgia are exceptions. Belarus has a more diversified export base than Latvia and Estonia, while Georgia has a more diversified export base than Latvia, Estonia, and Lithuania.

Table 7. Exports and export concentration by destination

Country	Index of export concentration By destination*	Top three export destination	Value of export (US $ Million)	Share of total export(%)
Bulgaria	0.06	World	4822	
		EU	1119	23.21
		Turkey	495	10.26
		Yugoslavia	376	7.80
Czech Republic	0.17	World	33353	
		EU	20245	60.70
		Slovak Republic	2680	8.04
		Poland	1730	5.19
Estonia	0.12	World	4014	
		EU	1619	40.34
		Russian	344	8.57
		Latvia	299	7.45
Hungary	0.15	World	30488	
		EU	20707	67.92
		United States	1525	5.00
		Romania	764	2.51
Latvia	0.08	World	2001	
		EU	838	41.91
		Lithuania	162	8.11
		Russian Federation	117	5.84
Lithuania	0.08	World	4583	
		EU	955	20.85
		Latvia	579	12.64
		Russian Federation	505	11.02
Poland	0.14	World	36053	
		EU	19829	55.00
		Czech Republic	1432	3.97
		Russian Federation	1059	2.94
Romania	0.10	World	11385	
		EU	1937	17.01
		Turkey	451	3.96
		Hungary	371	3.26
Slovak Republic	0.13	World	12631	
		EU	5573	44.12
		Czech Republic	2100	16.62
		Poland	736	5.83
Slovenia	0.11	World	9251	
		EU	4906	53.03
		Croatia	799	8.63
		Bosnia and Herzegovina	397	4.30

*Index of concentration by destination in 2001 computed using WITS, World Bank.

Proximity to EU markets

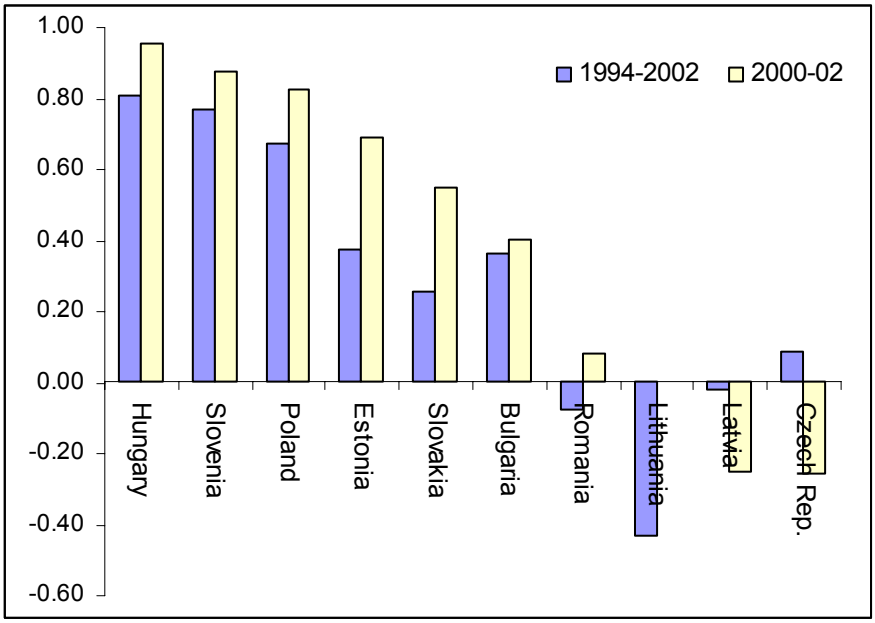
Reduction in transaction/transportation costs as a result of EU integration will inevitably bring economic benefits to the regions that are geographically closer to Western Europe and trade most intensively with the EU. The transition process of the CEECs provides evidence in support of the new trade theory of regional economics. In particular, the Visegrad countries closer to Western Europe (the core) such as Poland, Czech Republic, Hungary, Slovenia, Slovakia, which are associated with the Germany-Austria-Italy core, and the Baltic Republics with the Scandinavian core, grew faster and with less volatility than the peripheral regions - Bulgaria and Romania – during the period 1995-2001. Bulgaria is a particularly telling case since it weathered one of the worst crises of the CEECs in 1996-97, followed by Romania in 1997-98. Data for 2001 shows that the countries closer to the EU core also have much larger share of exports destined to the EU than those at the periphery. For instance, in 2001 67 percent of Hungary's exports were destined to the EU compared to only 17 percent of Romania's (Table 7).

The well advanced process of trade integration with the European Union[48] implies a high degree of correlation between cyclical movements of GDP and industrial production in many individual CEECs and the EU member countries (Figure 6). Exports of most individual CEECs to the EU are above 40 percent of total exports of these countries (Table 7). Bulgaria, Romania and Lithuania are exceptions with around 20 percent of total exports intended for the EU markets. This explains the relatively low degree of correlation between their industrial production and that of the EU. More puzzling are the results for the Czech Republic and Latvia, where a combination of local policy shocks and large scale restructuring of the industrial sector that has proceeded more slowly than in other CEECs may explain the lack of correlation or even negative correlations with the EU cycle. This suggests that the performance of the CEECs is highly dependent on the health of the EU markets and highlights the risk to the CEECs from a lengthy economic slowdown in euro land.

[47] It is important to point out that distance to Western European markets does not by itself explain the occurrence and/or the severity of the crises in Bulgaria and Romania. Many other factors played a critical role including but not limited to the slow progress with structural and financial sector reform, macroeconomic stabilization, privatisation and putting in place institutions to support development of the market economy.

[48] Most CEECs have shares of intra-industry trade in total trade with EU comparable or higher than those of Portugal and Greece (Nabli 2000).

Figure 6. Correlation between 12 m changes in industrial production of CEECs and EU.



Vulnerability to Shocks in International Capital Markets

We assess the likelihood of contagion from turbulence in international financial markets by examining the sensitivity of interest rates in CEECs to external financial shocks. We use EMBI+ as a proxy for the perception in international markets of the risk in emerging markets. From the point of view of an individual country, shifts in the overall EMBI+ can be considered as a measure of an exogenous shock in international capital markets that can affect the supply of funds to a country. If one finds that domestic financial indicators, especially interest rates are affected by movements in the EMBI+, one can argue that the country has a low degree of autonomy in its domestic monetary policy and is affected by exogenous shocks in global financial markets. The strong correlations between changes in the EMBI+ and domestic nominal and real interest rates in Bulgaria, Poland, and Hungary (Figures 7 and 8) over the past couple of years and the fact that most restrictions on capital flows have been removed suggest that most CEECs may be susceptible to shocks in international capital markets.

Figure 7. EMBI+ (Spreads over US treasury bills)

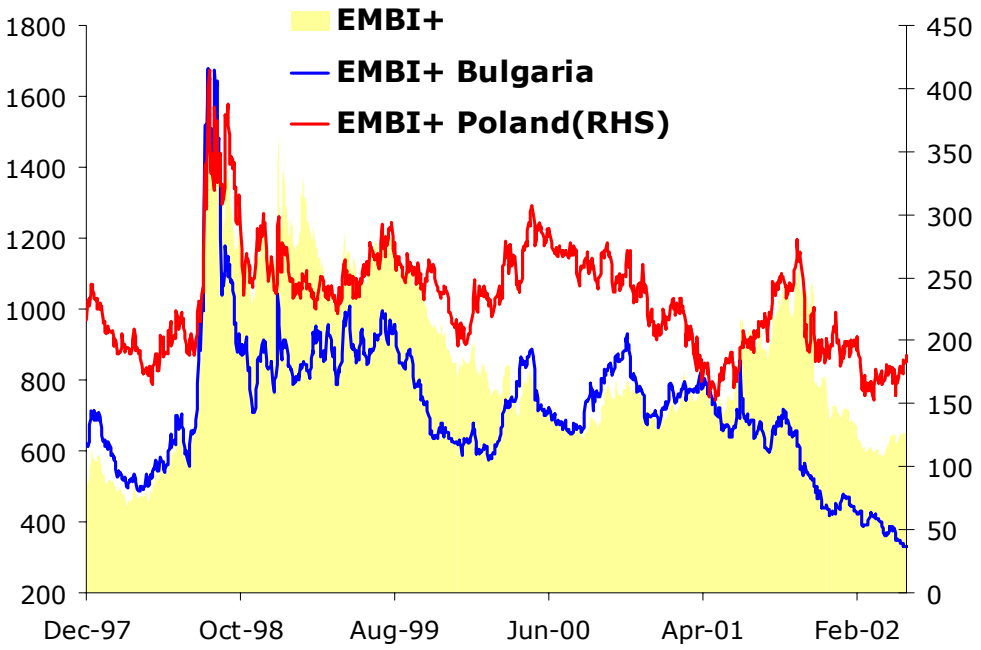
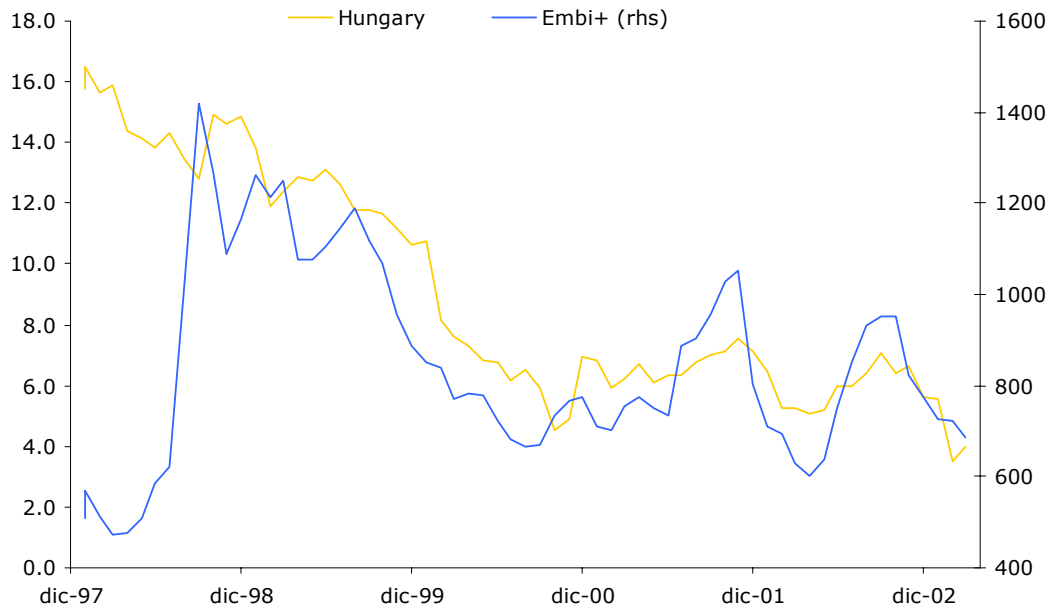


Figure 8. EMBI+ and nominal interest rates (short term).



However, the position of CEECs is more favourable than that of other emerging economies, especially those of Latin America, as integration in foreign financial markets has proceeded hand-in-hand with trade integration, especially with EU countries. This parallel opening up of the economies of CEECs has reduced the vulnerability of CEECs to sudden stops

and reversals in foreign capital flows and is perhaps one of the main lessons from the experience of CEECs.

Convergence onto macro targets

Although it will take years for the CEECs to achieve real convergence to EU income levels,[49] the countries of CEE have achieved remarkable progress in convergence towards macroeconomic targets prevailing in the EU.[50] Despite significant differences across countries, inflation has converged to EU levels (Figure 9). Interest rates have declined rapidly towards EU levels (Figure 10), but the differential with EU remains larger than inflation for several CEECs. However, if not carefully designed monetary and fiscal policies prior to accession can create conditions for increased volatility in accession candidates.

The inflow of foreign investment and the productivity improvements during the same period resulted in a RER appreciation. While at present there is no evidence of major real exchange rate overvaluation, a sustained period of high growth as these countries catch up with the EU member states, reflecting productivity improvements and new inflows, and deregulation of price of public utilities will increase the likelihood of a real appreciation, which may hurt the competitiveness of the CEECs.[51] Improving the functioning labour markets, reduced transaction costs, prudent macro policies and other reforms that improve the efficiency of the economy and lower the price of nontradables are key forces that could counteract this real appreciation.

Greater openness of the capital account will constrain the flexibility of the CEECs in using macroeconomic and monetary policy. While the ultimate goal of the CEECs is to stabilize its exchange rate, in the pre-accession period there are a variety of options, each with its pros and cons. Under a pegged exchange rate regime, interest rates are endogenously determined, the ability of the authorities to achieve disinflation objectives is constrained, and they need to rely exclusively on fiscal policy to accommodate transition and accession spending demands. Fixed-

[49] Feldman and Watson (2002) estimate that it will take three decades or more for the Visegrad countries to catch up with the EU average. They assume fixed investment to GDP ratio, 2 percent per year growth in per capita GDP, TFP growth in the Visegrad countries similar to the one over the transition period.

[50] The Maastricht Treaty (1992) established five convergence criteria for participation in the 3rd stage of EMU. These criteria include (i) annual consumer price inflation of no more than 1.5 percentage points higher than in the three economies with the lowest inflation rates, (ii) interest rates on long-term government securities to be no higher than 2 percentage points above the rates in the three economies with the lowest inflation rates; (iii) general government deficit should not exceed 3% of GDP; (iv) general government debt to GDP ratio should be no more than 60 percent; (v) the currency should be stable, trading within normal fluctuation bands against other EU currencies for at least two years.

[51] The significance of the real exchange rate appreciation has been subject to some controversy. Nabli (2000) finds that, regardless of the cause of appreciation, the movements of the real effective exchange rate are not a good indicator of the behaviour of exports. In Estonia and Poland, real exchange rate appreciation was accompanied by increases in export volumes, while in Slovenia and Hungary, where real exchange rate appreciation was smallest,

but-adjustable pegs are vulnerable to speculative attacks and maintaining them can be costly in terms of spent reserves to maintain the peg.[52]

Currency boards (CB) overcome some of these limitations of fixed-but adjustable pegs by tying the prices of tradables to those of the anchor and automatically adjusting money supply to meet money demand through interest rate changes. However, countries with CB may be at a higher risk for overvalued exchange rates than those with flexible exchange rates because their nominal exchange rates may be overvalued and adjustment to the RER will have to come through the price of nontradables.[53]

Exchange rate flexibility greatly enhances the ability of policy makers to meet inflation objectives and encourages the development of markets in which to hedge exchange rate risk (Feldman and Watson, 2002). A degree of exchange rate flexibility would raise the exchange risk premium, driving a wedge between domestic and foreign interest rates, and therefore discourage interest sensitive capital inflows at a time when reliance on capital controls is going to decline (Feldman and Watson 2002, Nabli 2000). Exchange rate movements could also absorb variations in liquidity. International experience suggests that managed floating exchanges rates are good for sustained rapid growth (Williamson, 2000). The flexibility in the exchange rate will allow current accounts to adjust automatically and thus avoid large current account imbalances. However, exchange rate volatility matters in an environment of volatile capital flows.[54] In the absence of hedging opportunities, exchange rate volatility will increase the volatility in the prices of trade goods, which has been shown to affect negatively trade (Bacchetta and van Wincoop, 2000). Exchange rate volatility is also linked to higher risk premium on financial assets, which will lead to higher cost of capital, and volatility in the domestic currency equivalent of foreign currency debt. Large fluctuations in the domestic currency value of foreign currency liabilities and their associated debt servicing costs could lead to financial instability (Feldman and Watson, 2002). The macroeconomic policy mix, if not chosen appropriately, could also be a potential source of volatility. For instance, if the external account is left to deteriorate substantially because of anti-inflationary measures, a large depreciation can be triggered leading to high prices, and potentially severe economic disruptions (Feldman and Watson, 2002).

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export growth was low and even negative when adjusted by work trade growth. He found the same for the SM3 and EA5 (Indonesia, Korea, Malaysia, Philippines, and Thailand).

[52] Hungary and Latvia have a pegged exchange rate regime.

[53] The European Central Bank does not consider CB arrangements to be incompatible with ERM2. Therefore, in those CEECs where CBs are functioning well, there is no strong reason to abandon them (Feldman and Watson, 2002). Bulgaria, Lithuania and Estonia have CB arrangements.

[54] Of the countries with flexible exchange rates, only Poland has a free float. The Czech and Slovak Republics have a relatively free float, Slovenia and Romania have a managed float.

Another area, which will be increasingly important for managing volatility in the CEECs, is that of fiscal policy. If the trend of rapid growth and sizable external current account deficits continues, raising interest rates to contain inflationary pressure and avoid real exchange rate appreciation would worsen the external balance by attracting capital inflows and strengthening the exchange rate, thereby failing to improve the competitiveness of the economy. In the long run structural reform could help increase the productivity of the economy and its competitiveness, but in the short run fiscal policy is the only additional instrument to deal with conflicting domestic and external priorities (Feldman and Watson, 2002). In addition to improving the internal fiscal balance, fiscal consolidation could improve the external balance by lowering import demand and the price of nontradables, thereby raising exports.

At present the CEECs with CBs have much smaller budget deficits or small surpluses, whereas those with free or relatively free floats (all Visegrad countries) have fiscal deficits well above 3 percent (Figure 11).[55] This implies that going forward the Visegrad countries will need to adopt an appropriately restrained fiscal policy if they are to avoid tensions between domestic and external priorities and meet the 3 percent ceiling on budget deficits once they join the EU. The adoption of existing rules in the EU is unlikely to overcome the pro-cyclical stance of fiscal policy displayed by CEECs during the transition period. Indeed, the 3 percent limit on the budget deficit tends to induce pro-cyclical adjustments of the budget, by requiring countries to reduce the deficit during a marked slowdown of the economy. This problem is going to be even more serious for candidate countries as the likelihood to hit the 3 percent ceiling is higher than for member states, due to a much higher volatility of output.[56] This issue is also important looking into the future at the implications of the Stability and Growth Pact[57] for CEECs. The Sapir Report (2003)[58] raises the issue about the risks that the limits on budget deficits designed for current EU members can cause a pro-cyclical bias, especially during downturns, for CEECs. Thus, fiscal policy may be a source of macroeconomic instability after accession to the EU.

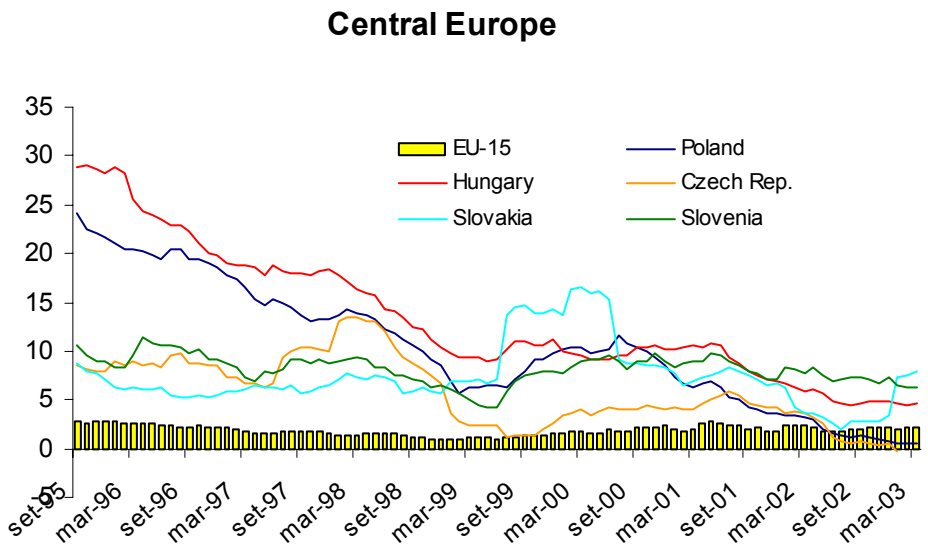
Off-budgetary expenditures and contingent liabilities that may become explicit government liabilities also pose a risk to government finances and may result in enormous fiscal

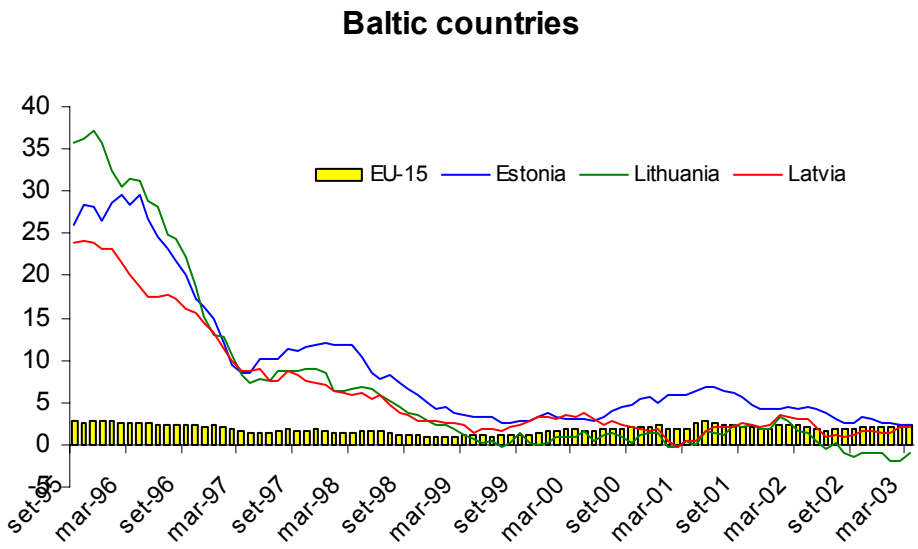
[55] In fact, they have been increasing sharply in the larger CEECs (Poland, Hungary and the Czech Republic).
[56] Indeed, countries like the CEECs with a much higher rate of growth of potential output than the EU member states are in principle characterized by larger swings in growth and higher probability of hitting the 3% budget ceiling during slowdown of the economy.
[57] The Growth and Stability Pact calls for public government debt not to exceed 60 percent of GDP, public deficits to be below 3 percent of GDP and public budget to be in balance or in surplus over a normal cycle.
[58] The Sapir Report has been written by a group of experts for the President of the European Commission. André Sapir, an Adviser at the European Commission has been the coordinator of the report.

costs and economic turmoil. The CEECs need to better manage their government risk exposure using financial instrument available to EU member states.[59]

[59] For example, integration of the EU markets has permitted pooling across member states (Brixi 2000).

Figure 9. Inflation convergence (12 month % changes in CPI index)





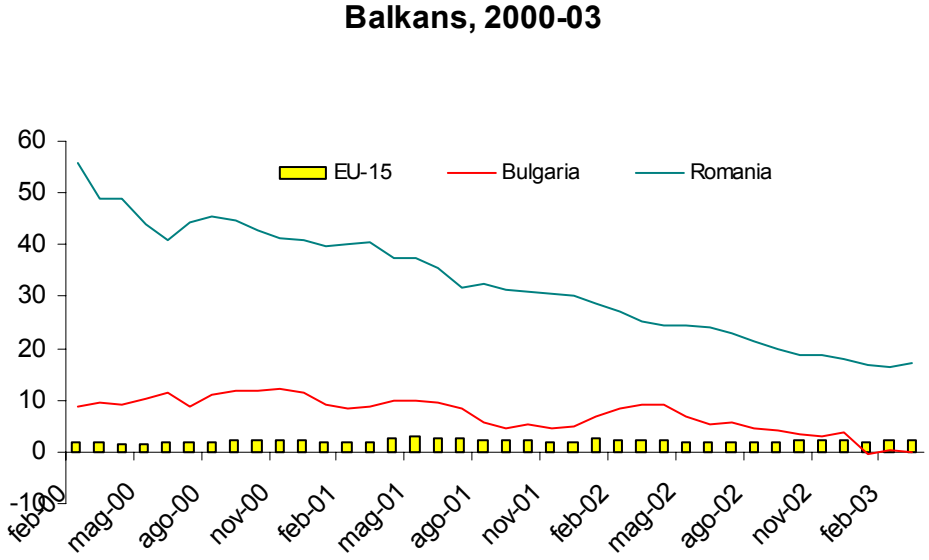


Figure 10. Interest rate convergence

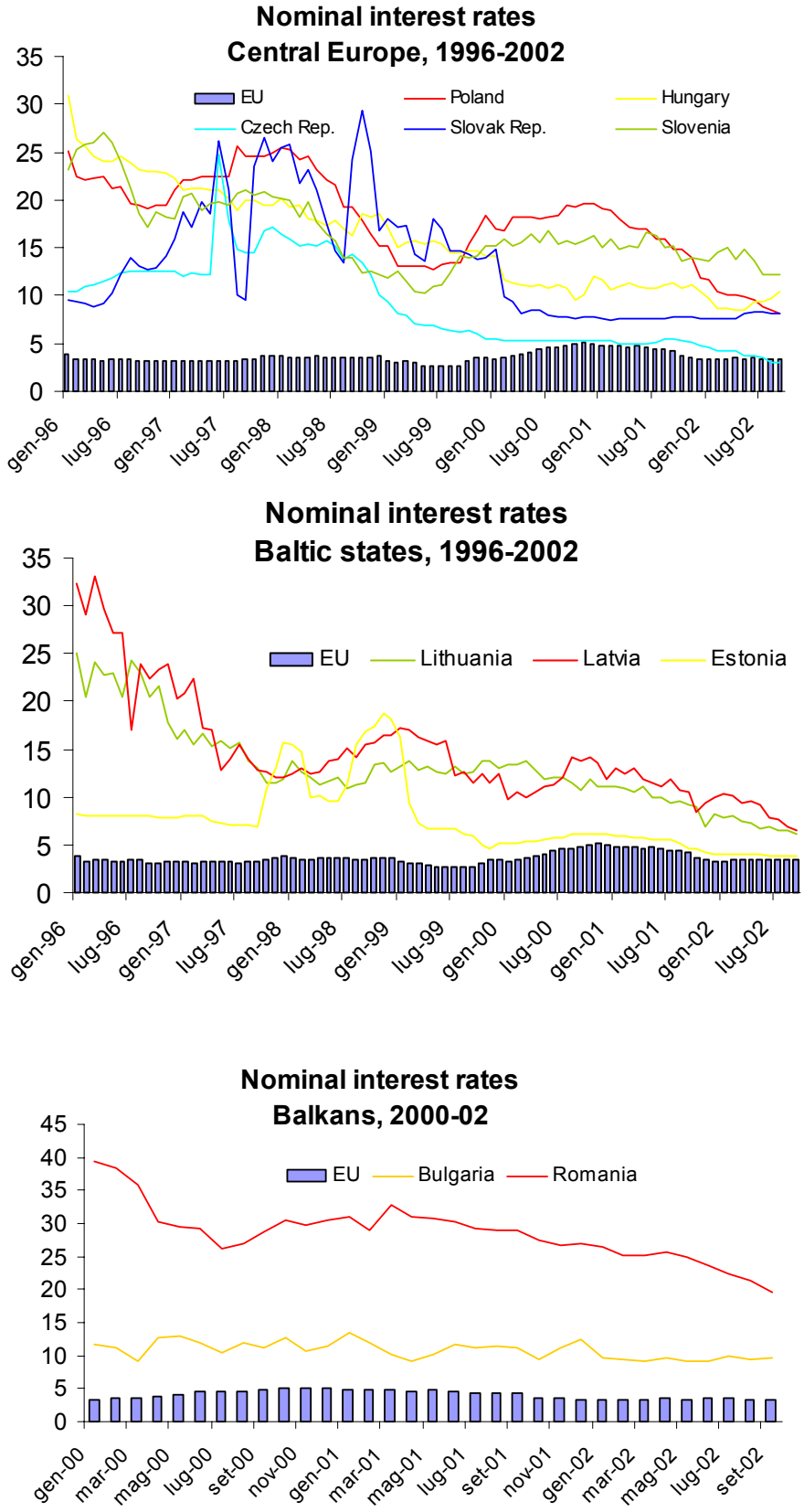
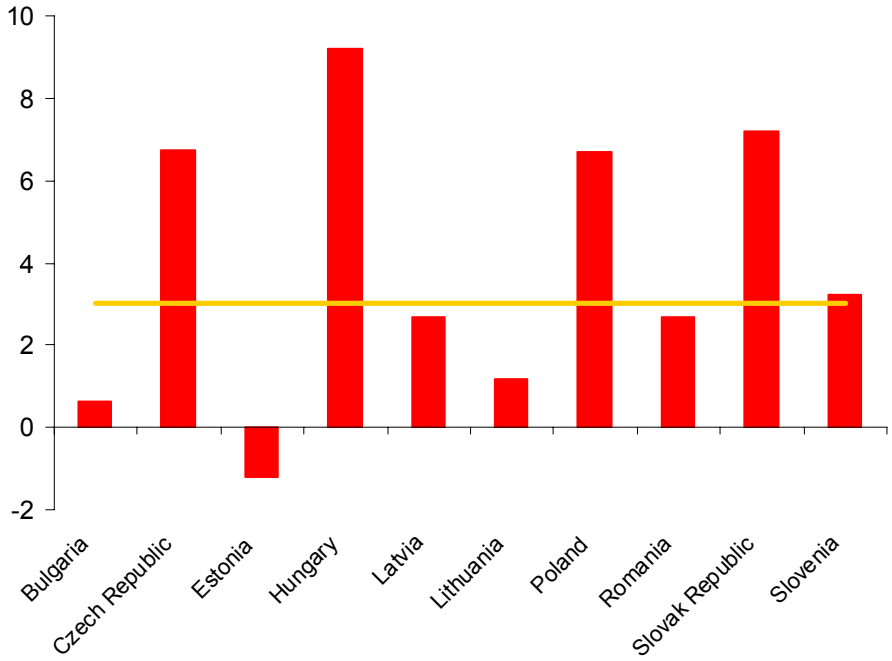


Figure 11. Budget deficit in percent of GDP, 2002



6. *Concluding remarks - open issues*

Even after EU accession, important issues in macroeconomic management will remain open. Among these, the role of real appreciation, the speed of entry in the European Monetary Union (EMU), require further study. The speed of entry into the EMU is one of the main policy choices.[60]

Entry in the European Union may not be sufficient to impose discipline on fiscal policy. In principle, all member states are subject to the limit of 3% for the ratio of budget deficit to GDP. However, there is room for discretion by the European Commission and the Council of Ministers of EU members on declaring a country in excessive deficit.[61]

In summary, the framework for macroeconomic policies during the limbo before adopting the euro may be conducive to some instability. It is to be hoped that European institutions will devise a set of transition rules for ensuring fiscal discipline, while protecting at the same time the needed public investment in transition countries. Furthermore, current fiscal

[60] Ems (2000) emphasizes that based on the experience of current EU member states to join the EMU, it may take considerable time for the CEECs to prepare for the adoption of the single currency.
[61] Countries outside the Eurozone are not subject to the rules of the Stability and Growth Pact and to its penalties. However, a member country that has not yet adopted the euro is declared in a state of excessive deficits can loose transfers for cohesion funds (see Coricelli and Ercolani (2002) for a discussion).

rules for members of the Euro zone seem weak in several areas and may prove particularly inefficient in the case of transition countries (Buiter and Grafe, 2002). Indeed, current rules have a pro-cyclical bias, as they require an ex post adjustment in phases of recession, while they do not force any surplus in periods of economic boom. Moreover, applying a single set of rules to countries with sharply different rate of growth in output, and often inflation, seems hardly efficient.

It should be noted that the process of privatization has masked several other potential problems. Indeed, a large component of FDI has been linked to privatization (roughly half of them). The low level of public debt is also the result of privatization, suggesting that a proper measure of net public debt should be used in countries that have privatized assets for up to 30 percent of GDP. Extrapolation of past trends on FDI are thus unrealistic, and the external constraint can thus become more serious. Financial risks pertaining to the "banks-firms nexus", especially if indeed firms are highly leveraged and have foreign exchange liabilities, may also loom large and should be explored further.

On the positive side, a major favourable factor for CEECs is given by the process of institutional convergence that accession to the EU has induced. Fundamental changes in goods, factor and financial markets had to take place in order to fulfil the so-called Copenhagen criteria for accession, summarized by the notion of the building of a well-functioning market economy. This has implied a significant improvement in the area of the so-called rule of law, in particular in the protection of property rights and contract enforcement. The EU integration has apparently given a credibility bonus to the CEECs. Markets believe in the EU accession as evidenced by spreads in international borrowing that are much lower for CEECs than for other emerging markets. In addition to such credibility bonus, the process of accession has implied a rapid process of institutional change associated with the adoption of the Acquis Communautaire.

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