



**DISCUSSION PAPERS**

DP/41/2004

**The Relationship between  
Real Convergence and the  
Real Exchange Rate:  
the Case of Bulgaria**

**Mariella Nenova**

**BULGARIAN  
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**Mariella Nenova**

July 2004

## DISCUSSION PAPERS

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**ISBN 954-9791-78-5**

Accepted 14 June 2004.

Printed in BNB Printing Center.

Views expressed in materials are those of the authors and do not necessarily reflect BNB policy.

Elements of the 1999 banknote with a nominal value of 50 leva are used in cover design.

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**Summary**\*. The paper argues that there is a strong relationship between the undergoing economic restructuring of the candidate countries, the propagation of a successful catching-up process and the monetary policy stance.

The monetary policy can play an important role in the process of real restructuring: stimulating or hampering it. A restrictive monetary policy imposes strong pressure on the real and the banking sector to restructure and to develop abilities to flexibly respond to shocks. On the contrary, expansionary monetary policy shelters old and inefficient structures sacrificing the prospects for future growth and catching-up.

The paper further argues that assessments of the real exchange rate appreciation under a fixed exchange rate regime in the candidate countries overstate the potential problem: its negative impact on competitiveness. Extrapolations of economic trends and relations, specific for the transition period, far into the future may give wrong and misleading signals to the economic policy makers. It is necessary to resort to a set of indicators in order to assess rightly the exact situation in a specific country.

The paper takes the example of Bulgaria to support its main arguments.

**JEL classification:** E52, E61

**Key words:** monetary policy, macroeconomic policy, exchange rate, catching-up

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\* A preliminary draft of the paper was presented at the Workshop on EXCHANGE RATE ISSUES IN THE ACCESSION COUNTRIES, 21 October 2002, ECB – Frankfurt.

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I am grateful to Iliyan Georgiev (European University Institute, Florence) who provided the econometric analysis referred to in the paper and helped in the interpretation, to Tzvetan Tzalinski (expert, BNB) who gave me helpful insights about restructuring in industry, to Mincho Karavastev (head of division, AEAf) who helped me with information about the real effective exchange rate, to Andrey Vassilev (head of division, BNB) with whom I discussed the possible outcomes of changes in the exchange rate regimes. I thank Mr. James Roaf, the resident representative of the IMF, for his valuable comments presented at the First Annual Conference of the Bulgarian Macroeconomic Association (27 February 2004).

## I. Introduction

Twelve years the ex-communist countries have been reforming their economies and establish the principles and rules of the functioning market. Some of them, like Hungary and Poland, have started the restructuring long before the collapse of the socialist system, but still they undergo the painful transformation of economic structures and behavior. All countries in transition suffered from relatively high inflation (even hyperinflation), a significant drop of output and growing unemployment. The collapse of the COMECON market disrupted the established trade and production relations, reinforcing the welfare loss caused by transition itself. In most of the past years the countries struggled to catch up with the output level of the pretransition period. The economic developments in the transition economies of the last twelve years demonstrate the importance of a reasonable (in its essence restrictive) macroeconomic policy for economic recovery and implementation of structural changes in the economy.

Why are structural changes so important for the transition countries? In brief, the fundamental factors, triggering off the collapse of the communist system, have been the continuous loss of efficiency and growing imbalances due to lack of motivation to innovate. The structure of economic sectors and interrelations between them became obsolete, reducing the potential for future growth. During the transition period the countries had to overcome the primary imbalances and to create an overall environment for enhancing economic efficiency, in particular, competitiveness. It is obvious that an economic structure dominated by old-fashioned technologies, low value added and low quality products cannot propagate a successful catching-up process. So, deep structural changes leading to a different, more efficient and more productive economy are necessary to nurture the catching-up process.

Economic restructuring is not straightforward and easy to implement because of the very strong resistance of inertia and corporate interests. The existing enterprises, all of them state-owned at the beginning of transition, try to survive and being quite powerful they guide the economic policy mix. However, the problem cannot be confined just to transition economies; it is widely spread in almost all developing countries.

The monetary policy can play an important role in the process of real restructuring: stimulating or hampering it. If the economic policy aims to alleviate the burden of structural reforms by creating excess liquidity in the system and the monetary policy is accommodative, a high inflationary is created. Loss makers are able to survive, while new comers suffer a very high initial cost and may not enter the market. The necessary adjustment of relative prices

cannot be accomplished. The accommodative monetary policy counteracts the forces of competition and shelters inefficiency.

The central bank may inject liquidity and run an accommodative monetary policy by two basic channels: financing a budget deficit or refinancing commercial banks. The budget deficit is created either because firms do not pay or are not forced to pay taxes, or because the budget finances directly their losses.<sup>1</sup> The second channel is through commercial banks – they try to keep loss makers alive, hoping that one day they will become able to repay their debts and the central bank refinances unconditionally the commercial banks. Behind that vicious circle a misguided economic policy and central bank subordination to government hide.

Ultimately, following the accommodative monetary policy scenario, a high inflation, sometimes bursting into open hyperinflation, reduces the real wealth and most often initiates a process of dollarization and substantial squeeze of monetary base. From one moment on, the monetary policy becomes incapable to support the expansionary economic policy.

It is easy to say that in periods of deep structural transformation money demand function is difficult to assess and hence the deficiencies of money supply management. However, the economic history of high inflationary countries provides evidence that loose monetary policy has been used in most cases to alleviate the burden of real restructuring. After a period (usually not very long) of persistent misuse of the central bank, the countries have to switch from a discretionary monetary policy to strict rules in order to rebuild confidence and reestablish governance. A transparent rule in monetary policy is the peg of the exchange rate which effectively deprives the central bank – and the government from the most flexible economic policy instrument the management of the money supply. Experience again provides evidence that there are ways to circumvent the rules and undermine the fixed exchange rate. The losses caused by such type of economic policy may be much more disastrous than the impact of a similar economic policy under a flexible exchange rate and active monetary policy.

An extreme case of a fixed exchange rate is the currency board arrangement, since it introduces an automatic mechanism of equalizing demand for and supply of money (national currency).

The analysis to follow provides evidence on the interrelation between monetary policy and restructuring in Bulgaria and importance of the currency board arrangement (the fixed exchange rate) for the implementation of the vital structural reforms targeted at creating an economic structure capable of a successful catching-up process. The second section briefs on the economic

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<sup>1</sup> Certainly, there might be other factors contributing to the budget deficit too.



policy and developments in Bulgaria in the period 1991 – 1997. The third section reveals the principles of exchange rate determination under the currency board arrangement and the reversal in the process of dollarization in Bulgaria after 1997. The fourth section tries to provide evidence for economic restructuring and labor productivity growth in Bulgaria promoted by overall macroeconomic stability. The fifth section touches upon the problem of real exchange rate appreciation and competitiveness. It reveals some of the measurement deficiencies of the real exchange rate (when the consumer price index is used as a deflator) and accentuates on factors that might counteract a hypothetical decline in competitiveness. The last section concludes by suggesting a set of indicators that may provide a better measure of competitiveness than the real exchange rate.

## **II. A Sensitivity to Exchange Rate Fluctuations: the Experience of 1991–1997**

Bulgaria started the transition with practically no foreign reserves, which made a pegged exchange rate regime undesirable due to possible low credibility. The floating exchange rate had to be supported by a restrictive monetary policy and well-managed money supply based on ceilings of central bank and commercial banks' domestic credit. In practice, the central bank was forced to run an expansionary monetary policy under the pressure to finance rising fiscal and quasi-fiscal deficits.

Till 1997 there was no restructuring of the real sector and Bulgaria was considered a laggard in transition. On the eve of transition the state-owned enterprises have been already overburdened by bad debts. After the collapse of COMECON they experienced a sharp drop in production, further exacerbating the debt issue. Privatization has been postponed and the government got involved in a sequence of debt relief operations (Nenova M., Micheva N., Manchev Tz., Mihailov A.). The state-owned enterprises enjoyed an easy money environment to prolong the period of inefficient operation. The private firms were able to soften budget constraints, as well, by taking advantage of loopholes in legislation and weak law enforcement.

The central bank financed loss makers directly and indirectly: a mechanism practised during the socialist regime. It granted direct credits to the government to finance a growing budget deficit. It also refinanced unconditionally commercial banks overwhelmed by a rising share of nonperforming loans of state-owned (and private) firms.

The depreciating exchange rate and the high inflation triggered off a shift from national currency to foreign currency deposits, observable in the period 1991–1995. The share of foreign currency deposits in quasi-money increased

from 20.7% as of December 1990 to 60% at the end of 1996 and 69% at the end of 1997. In the turbulent environment of 1996 (a run on banks) and the hyperinflationary first two months of 1997 dollarization spread also most retail trade operations. The economic agents had become highly sensitive to the exchange rate fluctuations; they immediately converted their wages into foreign currency (predominantly US dollars), the demand for foreign currency spiked and the depreciation of the exchange rate quickly spilled over to prices. The annual nominal interest rate reached a three-digit number.

A cointegration analysis of the USD/BGL exchange rate and a number of price indexes based on monthly data for the period 1991–1995 (Georgiev and Petrova, Stoyanova, Georgiev) concludes that:

- The variance of both the price level and exchange rate grows unbounded. Hence, the uncertainty about their future dynamics is high; planning horizon of economic agents shortens considerably which hampers investment.
- In the long run, there is a strong positive association of the nominal USD/BGL exchange rate, on the one hand, and both the consumer and the producer price level, on the other. In the short run, the exchange rate and the wage dynamics jointly contribute in equal terms to the change in producer prices. As to consumer prices, those of the tradable goods fully absorb exchange rate changes, while those of the nontradables are affected by nominal depreciation only through producer prices.

In an inflationary environment with high sensitivity of prices to exchange rate movements (or visa versa, it is difficult to establish the direction of causality) it is obvious that the structural changes may not come to fruition. The uncertainty and high risks of the future frustrate investments and initiation of new business plans.

The radical change in the economic policy in Bulgaria became possible only after the financial crisis of 1996 developed into an overall economic crisis. The welfare and output loss had been much higher than the initial costs of transition. The real value of national currency savings diminished close to zero.

At the beginning of 1997 the Bulgarian economy was characterized by: total loss of confidence in politicians and economic policy makers; a significant loss of income and wealth; a dominance of the inefficient economic structure created under the socialist regime; a high sensitivity of prices to exchange rate dynamics and a high degree of dollarization. It seemed at that time that only a crucial change in economic policy might bring back confidence, establish macroeconomic stability and restore growth prospects.

### III. Currency Board Arrangements

The crucial change in the economic policy was the introduction of currency board arrangements. The economy had to switch from a regime of free floating to a fixed exchange rate. However, the determination of the exchange rate under currency board arrangements is quite different compared to the choice of the peg level in a pegged exchange rate regime. There is a political agreement on the level of a peg while the level of fixing under a currency board regime should equalize the central bank reserve money with foreign reserves. In the case of Bulgaria between June and July 1997, when the new Law on the BNB entered into force, the ratio was fixed at DM 1 to BGL 1000.<sup>2</sup> Since then the balance between foreign reserves and reserve money has been maintained. The Law forbids any central bank financing of budget expenses either directly or through purchases of government securities or in any other form. In contrast to the failed currency board in Argentina, in Bulgaria no national government securities are included in the foreign reserves and no distortions in the balancing level of the exchange rate might happen.<sup>3</sup> The procedure of commercial banks' refinancing is clearly stated in the Law and it requires high-grade collateral (unlike the discretionary policy of the pre-1997 period).<sup>4</sup>

The introduction of a fixed exchange rate and the mechanism of automatic balance of the demand for and the supply of money *via* the currency board arrangements shortly inserted macroeconomic stability in the system. The fixed exchange rate under the specific economic situation in Bulgaria in 1997 successfully played the role of a strong anchor. A favorable environment for a healthy change in relative prices and restructuring has been established.

In general, under a fixed exchange rate regime the structural changes may happen as likely as they may not happen. It depends entirely on the strength and the commitment of the government to implement necessary reforms: an undertaking, which is very painful and hurts many interests. The government still has some freedom to continue with a policy of interventions and protec-

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<sup>2</sup> Under currency board arrangements the national currency, the lev, was fixed to the German mark by law and if also provided for an automatic repegging to the euro, once it comes into existence. Due to this provision the switch from the German mark as an anchor currency to the euro took place without amendments to the Law on the BNB and without speculations about the exchange rate. In July 1999 due to overall macroeconomic stabilization and restored confidence, redenomination of the national currency took place thus changing the rate to DM 1 = BGN 1.

<sup>3</sup> The design of the Bulgarian currency board contains two safeguards: fiscal reserve account and a banking department account. Foreign reserves cover more than twice the monetary base.

<sup>4</sup> Since the introduction of the currency board till now no commercial bank has resorted to central bank refinancing.

tion of loss makers, deliberately building shelters against competition. In such a case the peg will soon be undermined. The collapse of a fixed exchange rate regime, especially under a currency board regime, would bring much higher losses than a floating exchange rate (the regrettable example of Argentina). The floating exchange rate responds immediately to erratic economic policy while the pegged exchange rate might delay the visibility of disproportion. The inevitable drop in foreign exchange reserves may be masked for a certain period of time by government or central bank borrowing (Tornell A., Velsaco A.). Therefore the introduction of the currency board arrangements in Bulgaria was tightly bound to an ambitious program to implement postponed structural reforms and to insert financial discipline into the system – the major difference between the economic policies of the period before 1997. It should be reported that the objectives of the program have been highly met.<sup>5</sup>

Recent research based on data covering the period after the introduction of the currency board did not detect permanent effect of the USD/BGL dynamics on consumer prices and wages, which represents statistical evidence was over.<sup>6</sup> Gradually the Bulgarian economy grew less sensitive to the fluctuations of the BGN/USD exchange rate. The economic policy implemented appeared to be able to reverse the process of dollarization and to strengthen confidence in the national currency.

Table 1

**BULGARIA: LESS SENSITIVITY TO THE US DOLLAR**

	1998	2002
Currency structure of (percent):		
Exports		
USD	65.8	44.6
euro	31.4	52.3
Imports		
USD	53.9	37.1
euro	41.8	60.1
Share of foreign currency deposits in quasi-money (percent)	68.8	63.5

Source: BNB

The most important change occurred in the currency structure of exports

<sup>5</sup> See IMF reports on the progress of Bulgaria under the EFF program.

<sup>6</sup> Ilijan Georgiev (European University Institute, Florence) has been very kind to do the cointegration analysis.

and imports due to the fixed exchange rate of the national currency to the euro and the substantial reduction in customs tariffs between Bulgaria and the European Union. The level of dollarization, measured by the share of foreign currency deposits in quasi-money remains relatively high and yet tended to decline.

The choice of the exchange rate regime is usually based on domestic as well as on external factor considerations. The Bulgarian experience with two exchange rate regimes: free (managed) float between 1991 and June 1997 and fixed exchange rate under a currency board since July 1997, may illustrate the dominance of domestic considerations in the choice of the exchange rate regime. Next sections will provide evidence that the choice made in July 1997 has been beneficial for the economy.

#### **IV. The Importance of Macroeconomic Stability for Growth**

If we measure the real convergence by GDP per capita (in PPP), it is obvious that it depends on the size of the real growth rate and the sustainability of growth, with, sustainability being the most important factor. The exchange rate regime chosen should be one element of a comprehensive economic policy mix targeted at achieving a sustainable long-term economic growth.

In their catching-up endeavour the accession countries face the challenges of real and nominal convergence. Although nominal and real convergences stand for different processes, there is a close relationship between them.<sup>7</sup> If we assume that in most of the candidate countries the successful catching-up process hinges on export-led growth, we can identify at least three major channels through which nominal convergence may support the real convergence. First, successful in meeting the price stability criteria and the related decline in interest rates may favor private investment, may accelerate productivity and output growth, thus supporting real convergence. Second, exchange rate volatility is basically associated with macroeconomic instability, higher uncertainty rate may reduce foreign trade volumes rather than promote exports. Hence, nominal exchange rate stability (and especially CBA) may stimulate export-led growth. Third, lower fiscal deficits and decreased public debt may led to a reduction the nominal and real interest rates, and repel speculative capital flows. This may reduce the exposure of pre-accession economies to exogenous shocks and may increase financial stability, which is conducive to economic growth.

The progress in real convergence may also encourage the nominal conver-

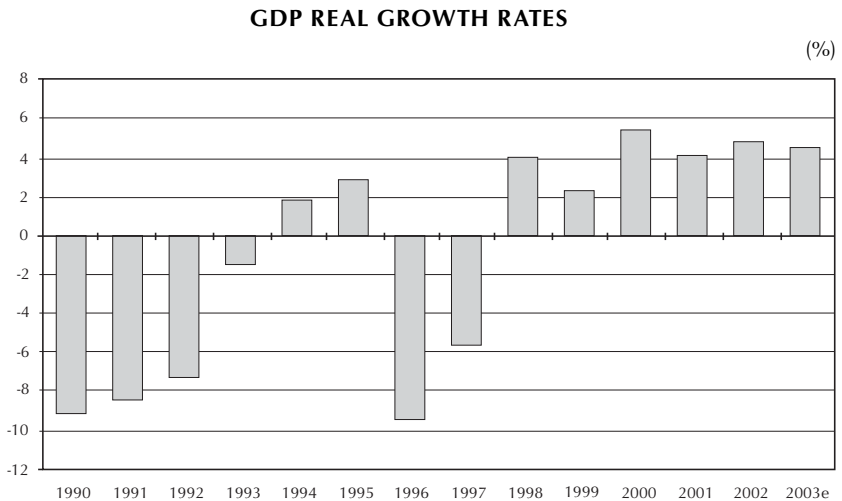
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<sup>7</sup> See Gaspar P. (2001) "Real and Nominal Convergence of Pre-accession Economies and the Choice of Exchange Rate Regime", ICEG

gence, and three major channels may be outlined. First, accelerated income convergence and GDP growth will broaden the scope for noninflationary wage increase, which may help meet the inflation and interest rate criteria. Second, the sooner the economy absorbs the shocks of liberalization and adjusts relative prices to productivity differentials, the faster would inflation converge to some eurozone benchmark. Third, rapid real convergence may allow the authorities to pursue more ambitious fiscal consolidation programs as its costs are born easier when real incomes expand rapidly.

It is a very strong statement to say that Bulgaria has achieved a nominal convergence with EU. However, since the introduction of currency board arrangements nominal variables have been constrained within reasonable limits. The sustained macroeconomic stability since the introduction of the currency board stimulated economic growth and investment in Bulgaria: a strong proof of the importance of nominal stability for growth.

**Figure 1**



Source: NSI, BNB (2003 estimate).

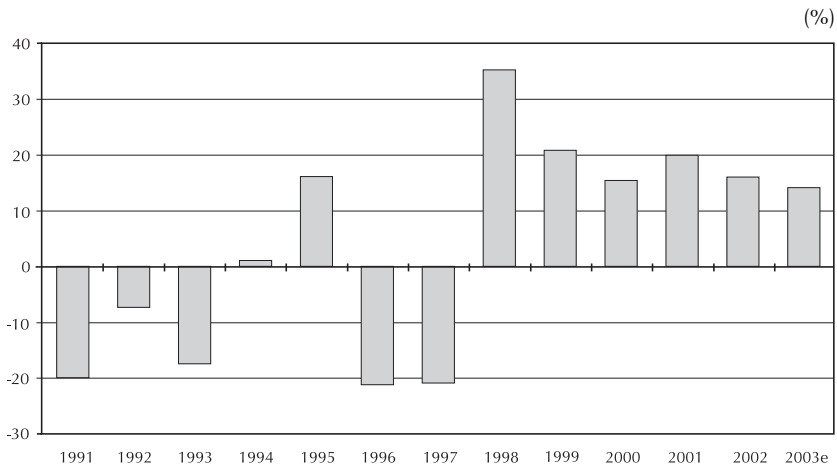
The external environment in the 1997–2003 period was unfavorable: the economy was attacked by a sequence of international financial and political crises. The burning conflict in our western neighbor burst out into open military actions in the first half of 1999 (the Kosovo crisis) just following the Asian flu and the Russian crisis; 2003 was marked by the war in Iraq and an overall economic slowdown. Yet the economy sustained positive economic growth:

resistance to negative shocks, absent in the period before 1997. The sources of resistance have been the ongoing structural reform (fast privatization of state-owned enterprises and banks), the ability to preserve the macroeconomic stability through the currency board arrangements and prudent fiscal policy (maintenance of the consolidated general government budget close to balance).

The macroeconomic stabilization and privatization promoted competition and exerted pressure on newly privatized firms and new entrants to improve efficiency and update technology and management. The real rate of gross fixed capital formation increased considerably.

Figure 2

**GROSS FIXED CAPITAL FORMATION REAL GROWTH RATES**

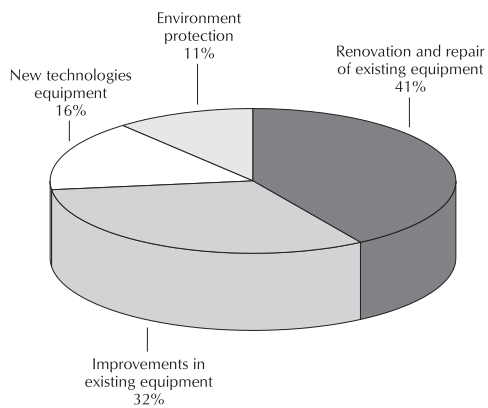


Source: NSI, BNB (2003 estimate).

According to the survey of investment activity in industry, conducted twice a year by the National Statistical Institute, Bulgarian firms have substantially changed the structure of new investment. The share of resources directed to technology and product innovation as well as to more efficient use of inputs squeezes out investment for maintenance and repair of existing equipment.

Figure 3

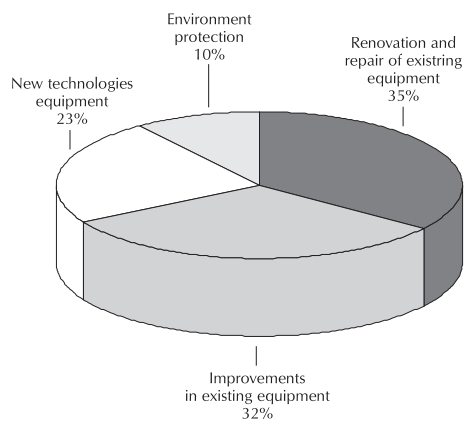
### STRUCTURE OF FIXED ASSETS INVESTMENT IN 1998



Source: BNB.

Figure 4

### STRUCTURE OF FIXED ASSETS INVESTMENT IN 2003



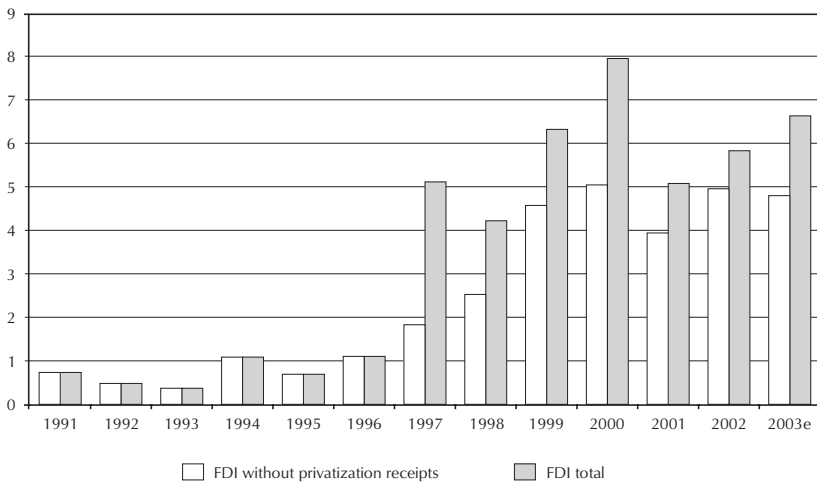
Source: BNB.



Figure 5

## FOREIGN DIRECT INVESTMENT

(% of GDP)



Source: BNB.

Macroeconomic stability and the fixed exchange rate attract foreign direct investment. Both the high real investment rate and foreign direct investment should stimulate the product and technological innovation of the Bulgarian economy. Industry provides some evidence of the efficiency of structural changes, measured by labor productivity and unit labor cost.

In the beginning of transition the Bulgarian industry was strongly hit by the collapse of the common socialist market. The significant loss of output prompted a sharp increase in layoffs. The policy of the firms (and the trade unions) in the first two years of transition was targeted at raising the real wage rate while sacrificing employment: labor productivity stayed almost constant (Beleva, Jackman, Nenova-Amar). A change in target since 1993 focused on preserving the employment rate by allowing a decline in real wage if necessary: labor productivity also started to decline. Expectations of expanding future output also contained the rate of workers dismissals within certain limits in the period after 1993.

Since 1997 privatization in industry accelerated and at the end of 1999 almost all small- and medium-sized enterprises had been denationalized. Monopolistic firms in the utilities sector (energy distribution, water supply, railways, and fixed telecommunication lines) remained state-owned; in some sectors privatization is still pending.

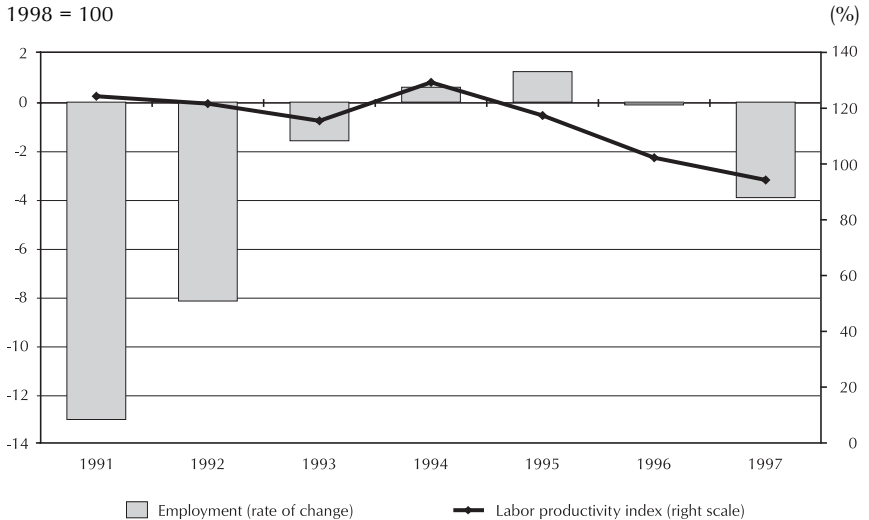
The required economic transformation started in 1997 with the introduction of currency board arrangements and privatization of state-owned enterprises and banks. A survey of privatized firms, conducted in the autumn of 1998 (Pankow, Dimitrov, Kozarzewski) reveals the following major steps to restructuring common for most of the surveyed firms in the early stage after privatization:

- Changes in the management and organizational system and working out a new marketing strategies;
- Implementing an investment program supporting realization of the new marketing strategy;
- A decline in employment by 11% on average for the sample of surveyed firms;
- The majority of firms had initiated substantial cuts in general costs but at the time of the survey they had not yet completed the programs.

Restructuring in industry accelerated after 1999. Labor shedding in industry continues accompanied by rising labor productivity. An important indicator, the unit labor cost, progressively improves.

Figure 6

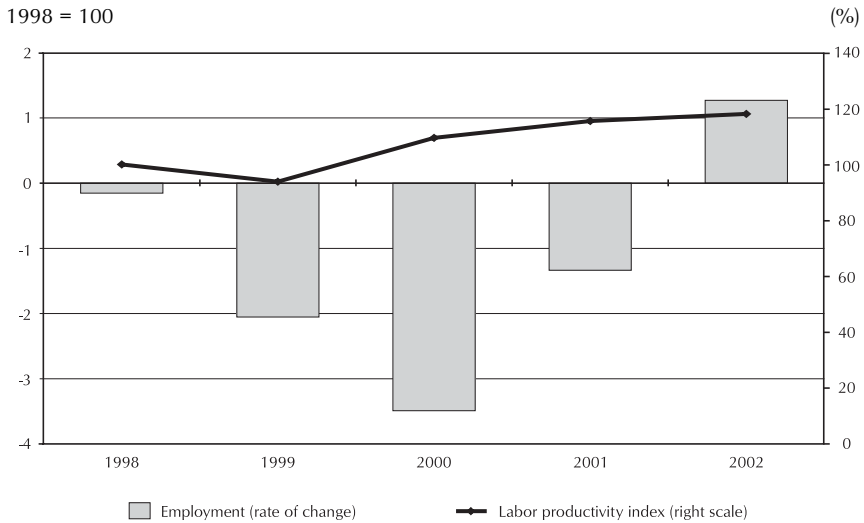
**EMPLOYMENT AND LABOR PRODUCTIVITY IN INDUSTRY  
BETWEEN 1991 AND 1997**



Source: NSI.

Figure 7

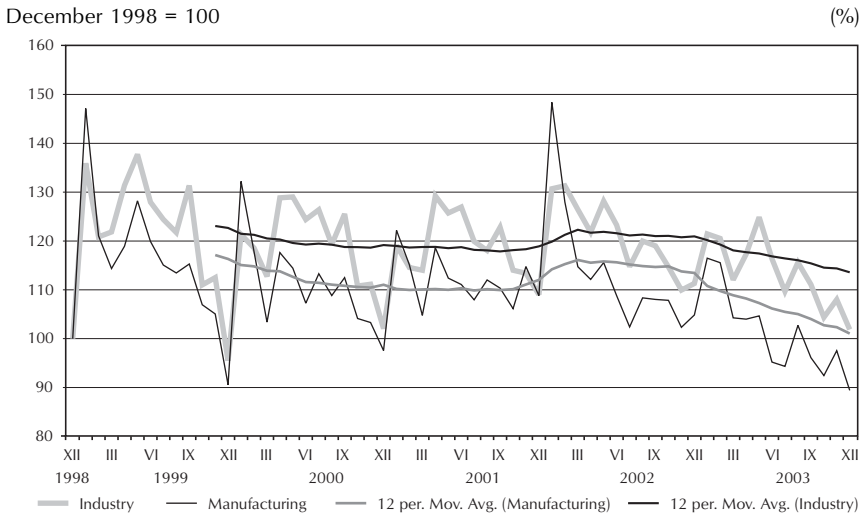
**EMPLOYMENT AND LABOR PRODUCTIVITY IN INDUSTRY  
BETWEEN 1998 AND 2002**



Source: NSI.

Figure 8

**UNIT LABOR COST INDEX**



Source: BNB.

To conclude, since 1997 we are witnessing effective structural changes and efficiency improvements in industry: an upward trend in productivity and a downward trend in unit labor cost, developments, which are expected to continue in the future promoted by investments in new technologies and new products.

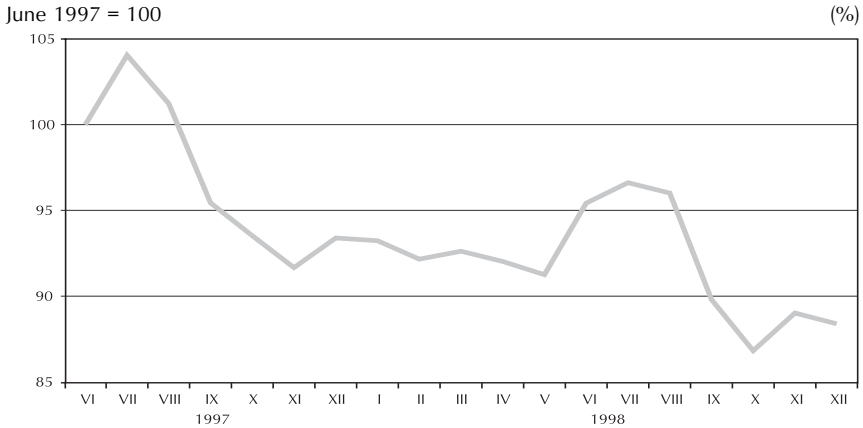
## **V. Real Exchange Rate Appreciation: The Impact on Competitiveness**

It is documented in the literature that pegging the exchange rate has initially a positive effect on growth. Later, due to real appreciation (if the inflation rate of the home country is higher than the inflation of the trading partners), the economy may lose competitiveness and suffer a drop of output. However, economic history provides ample evidence that in most cases lack of fiscal and financial discipline (nominal divergence) caused the higher (and volatile) inflation and undermined the fixed exchange rate.

Figure 8 shows recent developments in the real effective exchange rate (the consumer price index used as a deflator) in Bulgaria. In the first year and a half after the introduction of currency board arrangements in Bulgaria the real effective exchange rate appreciated mainly due to a residual inflation of 14% in the second half of 1997 and a 22% average inflation in 1998 (end of period inflation in 1998 was 1.6%). The real effective exchange rate afterwards closely followed the changes in the EUR/USD nominal exchange rate. Since the beginning of 2002 appreciation has dominated.

Figure 9

**REAL EFFECTIVE EXCHANGE RATE DYNAMICS  
(Deflated by CPI)**

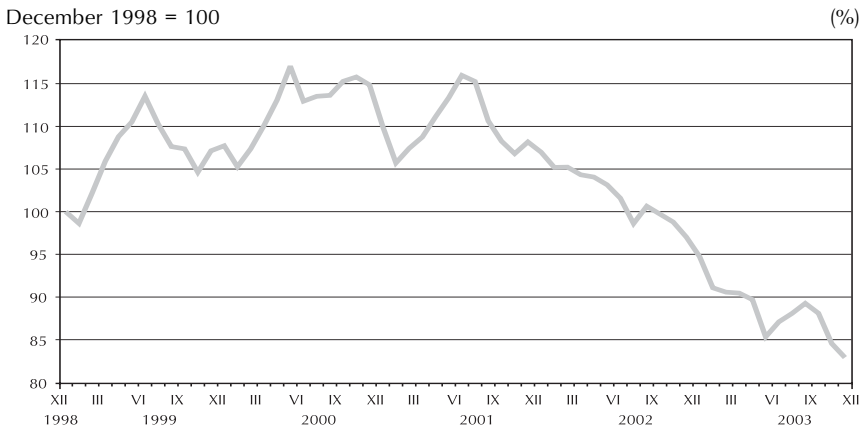


A decrease means appreciation. Deflated by CPI. The real effective exchange rate is weighted average of the exchange rates of the Bulgarian lev *vis-a-vis* the US dollar, German mark, British pound and French franc.

Source: BNB, AEAf.

Figure 10

**REAL EFFECTIVE EXCHANGE RATE DYNAMICS  
(Deflated by CPI)**



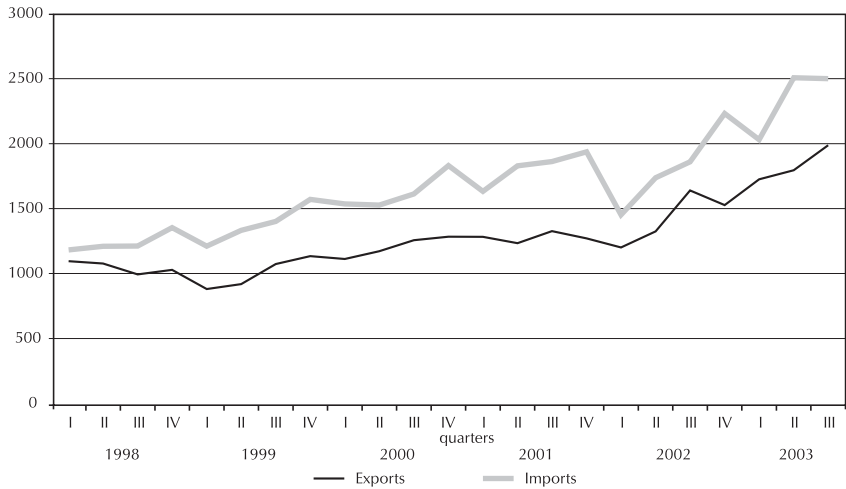
A decrease means appreciation. Deflated by CPI. The real effective exchange rate is a weighted average of the exchange rates of the Bulgarian lev *vis-a-vis* the US dollar, German mark, British pound and French franc.

Source: AEAf.

Figure 11

EXPORTS AND IMPORTS (FOB)

(million USD)



Source: BNB.

An econometric analysis reveals that on average in the 1998–2001 period a low elasticity of exports to the real exchange rate and a very high elasticity to foreign demand has been observed (Barber, Catherine, and Andrey Vassilev). The downward trend in exports between 1998 and mid-1999 when the calculated real effective exchange rate depreciated, was due to the global output and demand decline: a consequence of the Asian flu. Export growth between 2002 and 2003 goes contrary to just established logic because it happened against the background of a world slowdown and real exchange rate appreciation. Figure 10 in section 5 suggests that the period is marked by sustained competitiveness (using the unit labor cost as a deflator), which may serve as an explanation of export expansion.

According to econometric estimates imports is rather sensitive (adversely) to the real exchange rate, but its sensitivity to domestic demand is much higher. Growing domestic demand and real appreciation contributed to the upward trend in imports in the 2002–2003 period.

Based on the observed elasticities we may conclude that depreciation does affect imports and it may be instrumental for reducing current account deficit. However, it cannot be used as an instrument to promote exports, since a substantial depreciation of the exchange rate would be necessary to counteract negative external shocks on exports due to the low sensitivity.

Most likely huge depreciation will unlock inflation and overall destabilization; the economic costs might be disastrous.

Drawing on the econometric analysis we may conclude that there is a dual challenge to the long-term perspective of the fixed exchange rate regime in Bulgaria. On one hand, theory states that the process of catching-up brings about real appreciation of the national currency *vis-a-vis* the currency of the developed countries, which might threaten the competitiveness and growth prospects of the home economy. I argue that the impact of real appreciation, in the case when CPI is used as a deflator, should not be overstated. On the other hand, high sensitivity of foreign trade to demand conditions points out that if the economy is to develop its growth potential and undergo a sustained catching-up process, deep restructuring and expanding trade relations based on a significant efficiency improvement should be in place.

Restructuring and gains in efficiency remains the core problem of the Bulgarian economy. The experience confirmed the importance of macroeconomic stability and the favorable effect of the currency board arrangement (the automatic mechanism of equalizing money demand and supply) on real and banking sector development. We can resort also to the international experience with fixed exchange rates: in the classical gold exchange standard period and during the existence of the Bretton-Wood system countries achieved the highest degree of convergence in interest rates, inflation rates, and money growth accompanied by real growth (Bordo, M.D.). As Bordo states in the referred paper "In an environment of capital mobility, currency substitution, policy reactions and policy interdependence floating rates no longer necessarily provide insulation from either real or monetary shocks".

And yet, could a real exchange rate appreciation under the currency board threaten competitiveness and hence growth and catching-up in the future? It is of great importance to select a proper set of indicators to assess the state of competitiveness for Bulgaria (and for all other accession countries, too). Using the real exchange rate (particularly the one deflated by CPI) may lead to wrong decisions because of measurement errors.

The real exchange rate can be estimated in different ways. The wide spread calculation uses the consumer price index as a deflator. The consumer price index in the accession countries (and the developing countries) is overburdened by many deficiencies, the major being the lack of quality adjustment. The inflation rate is overrated because the CPI is not corrected to the change in quality of goods and services. One of the basic acquisitions of the transition to a market economy is the rising quality and variety of products supplied and demanded. The real convergence, closely related to rising living standards, implies improving quality of supply. Much of reported future infla-

tion will be related to the rising quality of different products and of the consumption basket as a whole. The application of the hedonic approach to three groups of products (computers, cars and housing) in Spain reveals the substantial upward bias of traditionally measured inflation to quality adjusted inflation (Bover, O., Izquiero M., and Maria de los Llanos Matea). In the accession countries, especially in the least developed ones like Bulgaria, the quality changes affect all products, starting from basic food to housing and high-tech products.<sup>8</sup> If it is possible (unfortunately it is not) to adjust the price indexes to quality gains, inflation rate will be very close to the one in the developed countries.

The high share of food and energy in the consumption basket of the least developed accession countries (54% in 2003 for Bulgaria) causes the strong volatility of the CPI. The evolution in catching-up has already initiated a process of reducing the share of foods and smoothing down the CPI monthly fluctuations. In Bulgaria, the nonfood and nonfuel prices have been stable since the introduction of currency board arrangements: their accumulated inflation in the period of end-1997 to end-2001 was just 2.1%.

Since the introduction of the currency board administered prices contributed significantly to the inflation rate in the 1997–2002 period. Any upward correction in the pre-1997 period immediately spilled over other price indices, while under the fixed exchange rate it was possible to achieve the necessary increase in the real price of goods as electricity, central heating, water supply, medicines. The bulk of administered prices' shock took place between 1997 and 2002, any further adjustments should be smaller and their future impact on inflation would fade away shortly.

Expectations for real exchange rate appreciation via the channel of the Balassa – Samuelson (BS) effect have a good theoretical background and little empirical evidence. Different estimates of the BS effect for the candidate countries range between 1.5 and 4.5% annual rates.<sup>9</sup> The EC's ECFIN (#708/01) report Real Convergence in Candidate Countries shows, that using data for the candidate countries over the period of 1995 to 2000 do not directly confirm this proposition: the change in GDP per capita over that period,

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<sup>8</sup> The quality bias can be traced in all price indices, which might be used in the real exchange rate calculation.

<sup>9</sup> This problem has been discussed in details at the East-West Conference 2001, organized by the Austrian National Bank in November 2001. The IMF estimate is the lowest: between 1-1.5%. See Fischer S. (2001) *Exchange rate regimes: Is the Bi-polar View Correct?*, Masson P.R.(1999): *Monetary and Exchange Rate Policy of Transition Economies of Central and Eastern Europe after the Launch of EMU*. IMF Policy Discussion Paper, G.Kopits: *Implication of EMU for Exchange Rate Policy in Central and Eastern Europe* IMF Working Paper 1999/9. Pelkmans (Pelkmans et al. Long-run Economic Aspects of the EU Eastern Enlargement, WRP) estimates the effect as high as 3.5–4% per annum.



which measures catching-up *via* productivity levels, shows only a weak correlation with real exchange rate movements, and in the opposite direction: higher catching-up rate was rather connected with smaller increases in the real exchange rate. Consequently, calculations are not entirely persuasive and it is dangerous to use them in economic policy decisions. Some arguments in favor of a more cautious approach to the estimations of the BS effect are as follows:

- The econometric analysis of integrated panel data relies on unrealistically strong and instable assumptions about their stochastic properties. Researchers accept that the violation of these assumptions may invalidate the results.

To avoid the weaknesses of panel-data cointegration techniques, econometric tests for a single country, Bulgaria, have been implemented based on the respective time series for the period after the introduction of the currency board. A cointegration analysis, based on monthly data from June 1997 to May 2001 came to the conclusion that the BS mechanism is an oversimplified description of wage and price setting under the currency board regime (Georgiev, memo<sup>10</sup>). It looks plausible that wages in the services sector adjust to achieve a certain purchasing power, but so do industrial wages, *i.e.* there is no obvious asymmetry between the two sectors in this respect. The consumer prices of services undergo constant increases in the sample period but there is no evidence that these are cost- (wage increase) related. Another study of the BS effect based on data after the introduction of currency board arrangements (Nenovsky N., Dimitrova K.) rejected its existence, too. It is not surprising because the structural change effects dominate.

- The nontradables sector remained extremely underdeveloped during the socialist regime; the Government provided most of the services at that time. The transition period created favorable environment for services sector development and a lot of small-sized private establishments have appeared. Reforms initiated in the social insurance and healthcare sectors allowed the further development of private provision of services and provoked an increase in prices. Trade, transport and communication command the greatest share of value added in the candidate countries (Stapel S.). According to the same survey of Stapel the branch structures of value added in the candidate countries and in the services sector in particular is visibly changing. Consequently, we should not mess up the development of the newly emerged services sector and the BS effect. In the future the maturing services sector should undergo a significant consolidation, diversification of services and labor productivity growth.

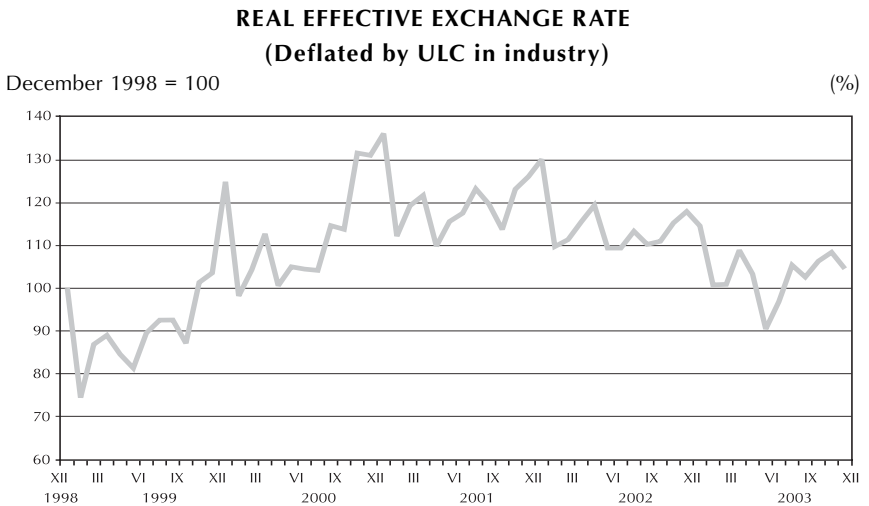
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<sup>10</sup> The analysis has been conducted by Ilijan Georgiev (European University Institute, Florence). The results of the research have not been published yet.

• Productivity level in the candidate countries is significantly lower than the average for EU but is growing faster than that in the EU (the numbers cited below are taken from Stapel S.). The index of productivity in 1998 (1995 = 100) of the total economy of the candidate countries was 110% against 104% for the EU. In 1998 Bulgaria was the country with the lowest level of total productivity among the candidate countries, due to a low productivity in manufacturing, construction, trade, transport and public services. As to the productivity in agriculture, financial and businesses services it ranked better. The numbers can be interpreted in the sense that there is a high potential in the accession countries for fast growth in productivity both in tradables and nontradables sectors.

A better measure of the real exchange rate and cost competitiveness is based on the relative unit labor costs. The unit labor cost index for Bulgaria was quite stable between 2000 and 2002 and exhibited a downward trend in 2003. The real effective exchange rate, presented in figure 8, changes in a sweeping way if we use the unit labor cost index of industry for Bulgaria as a deflator.<sup>11</sup>

Figure 12



A decrease means appreciation. Deflated by ULC in industry. The real effective exchange rate is a weighted average of the exchange rates of the Bulgarian lev *vis-a-vis* the US dollar, German mark, British pound and French franc.

Source: AEAf, BNB.

<sup>11</sup> I should draw the attention to the fact that the indicator uses as deflator in the bilateral exchange rates the CPI not the ULC of the respective foreign countries.

The candidate countries have to continue with reforms, promoting economic restructuring and pressing a shift to higher quality (and with a higher share of value added in price) products as the only way to counteract any real exchange rate appreciation and loss in competitiveness. What might be the channels of future improvement in competitiveness for Bulgaria?

*First*, a closer integration with the other candidate countries and the current member states. Bulgaria may develop a lower sensitivity of exports to foreign demand if the intraindustry trade with the member countries intensifies.

*Second*, further improvement of the national product quality might decrease the high elasticity of imports to domestic demand.

*Third*, a higher inflow of foreign direct investment (especially green-field investments) might further improve the economic structures.

*Fourth*, any labor market rigidities should be eliminated or reduced in scope. The World Bank provided an assessment of the Bulgaria's labor market flexibility. "Existing labor market policies and institutions, with the exception of high payroll taxes and somewhat strict employment legislation, do not create widespread labor market rigidities: unemployment schemes are not overly generous, the minimum wage is not high and industrial relations do not appear to prevent efficient wage dispersion across sectors." (The World Bank)

*Fifth*, the domestic factors that may disrupt the economic stability of the country have been almost eliminated in the years after the introduction of the currency board.<sup>12</sup> The bulk of the state-owned enterprises have been privatized and the few remaining are on the agenda for privatization. It is not too ambitious to say that firms and banks in Bulgaria operate under hard budget constraints (the government grants subsidies to the central district heating, the passenger railway transport and the city transport<sup>13</sup>). The government targets a balanced budget in 2006. The banking sector is already 98 percent private after the privatization of the State Savings Bank.

## VI. Conclusions

In the foreseeable future the candidate countries should concentrate on achieving macroeconomic stability and nominal convergence with the EU as an important condition for the continuous restructuring and efficiency improvement of their economies. Any adverse impact from a real exchange rate appreciation should be neutralized by a pressure on the real sector to adjust and restructure. In the countries with a fixed exchange rate the pressure on

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<sup>12</sup> See Pre-accession Economic Program (2003-2005) of the Bulgarian Government for details.

<sup>13</sup> There are programs for restructuring and loss reduction in the central district heating sector and the passenger railway transport.

the real sector is stronger. The essence of restructuring is the establishment of a flexible real sector able to respond to real shocks of various nature.

Extrapolating current trends in the candidate countries into the future is quite dangerous and misleading. We will shift into the future the current period of vigorous and substantial structural changes, while the changes should have been slowed down, their short-term negative impact on the economy should have faded away and the positive medium- to long-term consequences should have become visible. We may expect that the fruits of restructuring will get fully grown in the medium- to long-term perspective, counteracting any forces threatening the competitiveness and the catching-up process. The real exchange rate (deflated by CPI) might turn out to be an inadequate measure of competitiveness and it would be better to switch to indicators as trends in the real GDP growth rate, labor productivity growth, long-term trends in export and import dynamics, level of integration in the EU (e.g. intraindustry trade), shifts in product structures, changes in the quality of goods and services.

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