Inflation targeting in the Czech Republic

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1 The search for a new strategy

In December 1997, the Czech National Bank (CNB) announced a switch to inflation targeting. After eight years of relying on three strategies based on intermediate targets (see Table 1 for summary[2]), this represented an historic change in the strategy of Czech monetary policy with regard to the way in which policy reacts to economic shocks. The long-run strategy has not changed as much, however, as the stability of the Czech koruna has been the ultimate monetary policy target of the CNB since the very beginning of the Bank's existence[3] and its monetary strategies have always been derived from the necessity of ensuring disinflation subject to the constraints imposed by the process of transition.[4]

Between 1993 and 1995 the koruna was pegged to a basket of currencies, and the money supply was used as a complementary intermediate target.[5] In 1996, the stability of both the money supply and the exchange rate were affected by large capital inflows as well as by financial innovations, and liberalisation. The koruna was still pegged to a basket, but the fluctuation band was widened as a response to the capital inflows, and intervention on the foreign-exchange market became rare. The monetary target gained in importance. In May 1997, after exchange-rate turbulence,[6] the CNB let the koruna float and undertook an intensive search for a new monetary policy strategy.

At that time there were three major arguments in favour of inflation targeting. First, after having hovered around 9%–10% for three years, inflation increased in late 1997 and was well above single digits in early 1998. Consequently, the key policy issue became the need to provide an anchor for inflation expectations. Previous strategies had been insufficient to reduce inflation expectations[7] in the changing conditions of successive of economic transition stages. A new strategy was needed, and inflation targeting offered an attractive option. Unlike previous non-binding annual forecasts, inflation targeting involved the public commitment by the CNB to the unambiguous declaration of the medium-term disinflation path. Accordingly, economic agents would be provided with a new

Table 1 Targets and inflation forecasts 1993–97

	Forecast of CPI inflation (%)	*Intermediate Target: Money supply growth (%)*	*Intermediate Target: exchange rate peg*	*Operational target*
1993	15 (18)	complementary 16 ± 1 (21)	'92' peg fluctuation band 0.5%	monetary base
1994	10 (10)	complementary 13.5 ± 1.5 (22)	'92' peg fluctuation band 0.5%	free reserves
1995	9 (9)	complementary 15.5 ± 1.5 (19)	'92' peg fluctuation band 0.75%	free reserves with overriding rule
1996	9 (9)	15 ± 2 (8)	'92' peg fluctuation band 7.5%	short-term rates
1997	8 (9)	10 ± 2 (10)	'92' peg fluctuation band 7.5% May: koruna floats	short-term rates

Note: Annual Reports data are from CNB and annual monetary documents prepared each December. Although some targets were modified during the year, we do not report the modifications here for the sake of simplicity. For example, in 1994, the target for money-supply growth was modified upwards owing to capital inflows, but the growth exceeded the upper limit. Outcomes are in parentheses. CPI inflation deviated from the forecast in two periods when monetary policy decisions were subject to uncertainty: after the VAT reform in 1993 and during the exchange-rate turbulence in 1997.

medium-term nominal anchor on which they could base their expectations and decisions. This new nominal anchor would also supply economic agents with a longer time horizon than annual forecasts.

A second argument in favour of inflation targeting is that under conditions of financial openness and 'transitional' innovation, the intermediate targets used previously showed increased inconsistency with the long-term target of price stability (see Chart 1). Specifically, the open-capital account and increasingly liberalised and innovative financial markets made massive capital flows possible. Such flows started to dominate exchange-rate developments, especially in the short run. Defending the peg thus implied increased volatility in other important macroeconomic indicators, and subsequently caused deviations from the desired disinflation path. The links between money supply, which was the operational target and inflation, became difficult to predict. In addition to the impact of capital flows, velocity was affected by profound changes to financial markets within a relatively short time span. Consequently, monetary targeting was not a reliable basis for the medium-term disinflation strategy. Inflation targeting, on the other hand, provided a framework for integrated a broader set of economic indicators (including the previously used intermediate targets).[8]

Chart 1 illustrates the contradiction between signals sent by the CPI forecast and the intermediate targets. In 1993, both intermediate targets were met but the CPI inflation exceeded the forecast. In the following three years, the koruna index remained within its bands and the CPI inflation was in accordance with the forecasts but monetary targets were over-

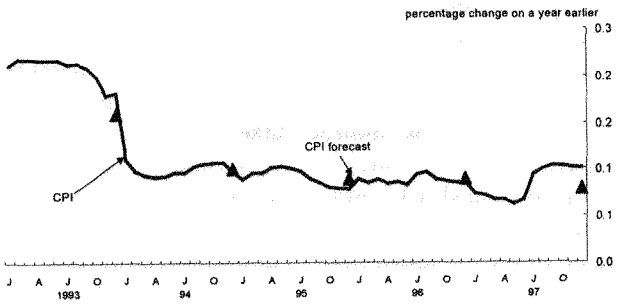


Chart 1a Inflation and the inflation forecast (1993–97)

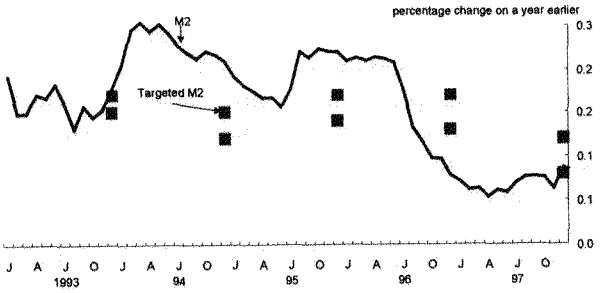


Chart 1b Intermediate M2 targets (1993–97)

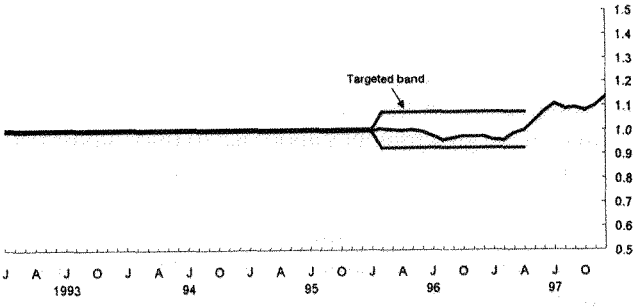


Chart 1c Koruna index (1993–97)

shot. In 1996, there was an appreciation of the koruna after the bands had been widened and CPI inflation was in accordance with the forecast but the monetary target was undershot. In 1997 the lower band of the monetary target was hit and CPI inflation was in accordance with the forecasts, but there was a depreciation of the koruna after the bands had been abandoned in May.

Third, the type of inflation targeting adopted by CNB has provided a scheme for filtering out transitional price shocks from 'market' inflation pressures. The concept of *net inflation* used for target purposes excludes from the CPI the primary impact of changes in administered prices as well as the effects of changes in indirect taxes. Consequently, targeting net inflation helped monetary policy to accommodate the primary inflation impulses of transitional shocks and to smooth their secondary effects. This function is still important as there remains much uncertainty regarding the scale and speed of future adjustment of administered prices.

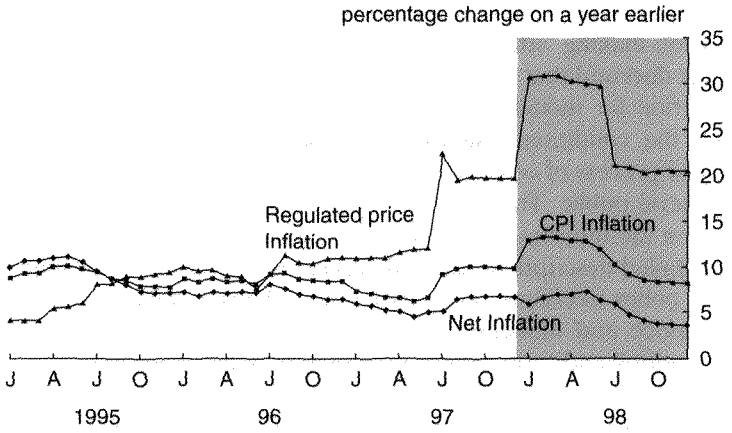
2 Implementation of inflation targeting in the Czech Republic

The implementation of inflation targeting in the Czech Republic has had two important features. First, in December 1997, targets were specified explicitly in terms of net inflation, which excludes the first-round effects of changes in administered prices and indirect taxes. The exclusion of regulated prices was supported by the fact that the data available at the time clearly demonstrated that there had been different short-run dynamics in the two price segments (Chart 2). It was expected that such differences would continue for several years and that the effect would diminish gradually over the medium term as regulated prices converged with competitive levels. With elections scheduled for June 1998, uncertainty about adjustments to regulated prices was relatively high.

For the purposes of inflation targeting, the Czech Statistical Office calculated an historical net inflation index. The consumer basket was adjusted to exclude items with regulated prices and prices affected by other administrative measures. As currently defined, the net inflation index represents approximately 82% of the consumer price index. It covers 663 of its 754 items.[9] The weights and components of this index can be changed from year to year if there is a change in the government's approach to price adjustments.[10]

As a result of short-run deviations between administered and free prices shown in Chart 2 the forecast of overall CPI inflation is not considered the most reliable indicator of the medium-term inflation outlook. The divergence of the two inflation indicators in 1995, 1997, and again in 1998 has shown net inflation to be a useful tool for policy-makers.

The second feature of the Czech approach to inflation targeting stems from the necessity of declaring the targeted disinflation path. After the Czech National Bank Board meeting on 21 December 1997, the Board committed to a net inflation target of 6% ± 0.5% by end 1998 and 4.5% ± 1% by end 2000. In 1997, there was still a gap between Czech inflation and long-term target, which is benchmarked as inflation prevailing in European Union countries.[11] Two options were considered in tackling this issue: (i) the CNB could announce a medium-term benchmark as its target and specify a time horizon (e.g. five years) within which inflation



Note: The shaded area shows which information was not available at the time of introducting inflation targeting.

Chart 2 Inflation indicators: 1995–96

should have converged with the target, or (ii) the CNB could define the targeted disinflation path for the next several years.

The latter option was chosen for the following reasons. First, announcing a target one year ahead corresponds better to the monetary policy lags in the Czech Republic. Second, the shorter horizon has increased the efficiency of the strategy by giving a nominal anchor for each year to economic agent. This is important since inflation expectations have not settled on the disinflation path, and nominal contracts, especially wage contracts, have been relatively rigid. Third, the target set for three years ahead (for the year 2000) allowed it to be set at a level higher than the benchmark without losing credibility, since in the medium-term, inflation could be expected to converge with the benchmark according to the declared slope of the disinflation path. The smoother disinflation path[12] may be less costly in terms of short-term volatility of output if expectations are adaptive. Fourth, it is thought that measurement errors in CPI inflation differ between the benchmark countries and the Czech Republic. This has been to a large extent due to the catch-up effect.[13] Consequently, rapid convergence of observed inflation rates could imply deflation in some sectors.

The three-year target for the end of 2000 was declared a 'key' target, the aim of which was to provide a framework for decision-making. The one-year target announced for the end of 1998 was declared to be an 'orientation' target whose aim was to provide a nominal anchor for economic contracts, whose horizons do not usually exceed one year. In previous years, these contracts were often linked to annual inflation forecasts published by various institutions, including the CNB.

An increase in the transparency of the decision-making process has been

an important aspect of the new framework. In early 1998, the CNB explained the decision-making strategy at several press conferences and in press releases. It declared that achieving the net-inflation targets was to be the ultimate criterion for monetary policy decisions. Decisions would be taken by analysing the conditional inflation outlooks and comparing them to the targets. The process of constructing the inflation outlooks has been described to the general public. The CNB has begun to publish the minutes of board meetings on the Internet two weeks after each meeting. The minutes include a fairly detailed description of the discussion as well as the reasoning behind monetary policy decisions. The CNB now publishes Inflation Reports that focus on price and monetary developments, including descriptions of the inflation outlook and explanations of monetary policy measures.

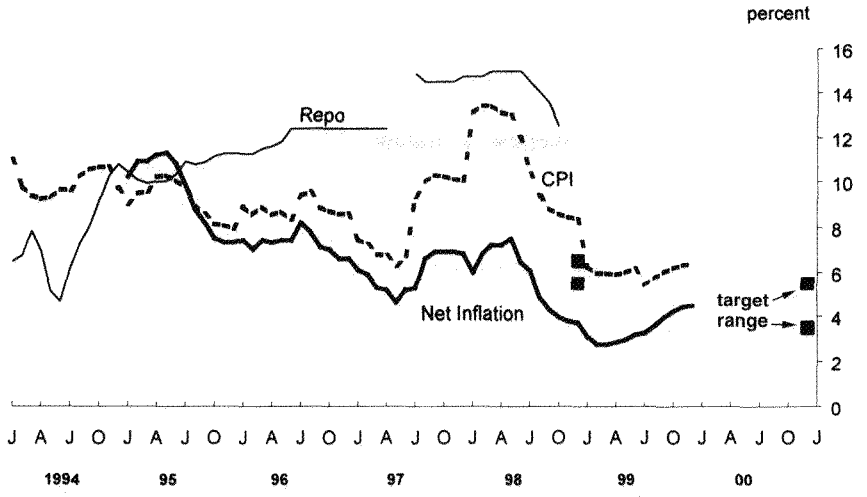
During the first year of inflation targeting, one could distinguish three periods during which different factors affected the decision-making process.[14] Until March 1998, inflation expectations were not in line with the targeted disinflation path, even though the economic fundamentals, for example as the trade deficit and consumption, were becoming more sustainable![15] This inconsistency was due to backward-looking expectations as well as inflation signals sent by the January adjustment of administered prices, the secondary impact of deregulation, and increased exchange-rate uncertainty. As a result, the inflation outlook was revised upwards and the REPO rate was increased by 0.25% to 15% in March.

In the second period, up until July, several factors caused a reduction in inflation. One was weaker domestic demand. Furthermore, the koruna appreciated,[16] owing to a falling current-account deficit as well as to the narrowing of the gap between productivity growth and wage increases. More importantly, other external factors started playing an important role. The exogenous reduction in inflation caused by the fall in world commodity and producer prices was named 'borrowed disinflation'.[17] During this period the REPO rate remained unchanged.

In the third period, the economy slowed down and domestic demand pressure reduced. According to the Czech National Bank estimates, the external price shock slowed inflation by 1%–2%. The speed of disinflation was fairly rapid. In this period, the CNB started to adjust the REPO rate downwards as expected inflation fell. The changes in the market were attributed to the falling inflationary expectations, the temporary impact of borrowed disinflation, and the domestic economic slow down.

3 Lessons from the Czech case

The experiences of the Czech Republic provide lessons because this was the first economy in transition to adopt inflation targeting as the explicit framework for its monetary policy. Most countries switched to inflation targeting only after inflation was under control and on a decreasing path.[18] Generally, countries implementing inflation targeting had one-digit infla-



Note: The REPO rate has been used as an instrument of monetary policy by the CNB since 1996 (the volatility of the rate in 1994–95 was due to the use of volume instruments). The targets for net inflation were announced in December 1997: 6% ±0.55 (end 1998) and 4.5% ±1% (end 2000). The information on net inflation is separated into three parts: data calculated backwards in 1997 (period 1995–97), observed values of 1998 (period of 1998:1 to 1998:10) and the outlook (period of 1998:11 to 1999:12). The CPI inflation and outlook are included for comparison.

Chart 3 REPO rate, inflation targets and inflation outlook

tion, and in the majority of cases, their central banks placed more emphasis on reducing inflationary volatility than inflation itself. The first lesson from the Czech case is that certain preconditions enabled the effective implementation of this strategy. Second, there have been important gains even in the first year of implementation. Third, several problems have led to increased uncertainty, making targets more difficult to reach. These problems would have constrained any monetary strategy, however, and have not been caused by the switch to inflation targeting.

3.1 Conditions for implementation

Outlining the preconditions is important since their absence would reduce the advantages of inflation targeting. A distinguishing feature of the Czech reform strategy has been the priority attached to domestic price stability.[19] In choosing a framework, some other countries in the region placed emphasis on the balance of payments and external competitiveness.[20] The monetary strategy in the Czech Republic was in keeping with society's preferences for a stable currency; such support for a strategy can overcome the adverse impact of any short-term costs.

In the Czech case, the institutional preconditions have been met as well. The central bank conducts its monetary policy with a fairly high degree of independence. According to the Constitution and the central bank law, the

CNB is independent of the government and has sole responsibility for the conduct of monetary policy. During the course of transition, this independence has been exercised with respect to both instruments and goals. Furthermore, there has been no loss of fiscal discipline, which might have limited policy effectiveness. A balanced-budget has been maintained throughout the recent past, so that extensive public borrowing from the banking system has not constrained monetary policy.[21] One of the most important benefits of inflation targeting has been the increasingly efficient formation of expectations, which has reduced the costs of disinflation.[22] Another precondition, which has been met in the Czech Republic, is that of adequate development of financial markets. With a floating exchange rate, there is a need for a foreign-exchange market that is deep enough so that short-term volatility of capital flows need not lead to excessive turbulence in the real economy.

For example, instruments reducing exchange rate uncertainty are available to economic agents. Similarly, the instruments needed for the central bank to transmit its monetary policy decisions effectively are available. The foreign exchange and money markets were relatively well developed in 1997. Finally, it was important that in the initial stages of inflation targeting, external factors such as import prices did not damage the credibility of targets. In fact, lower import prices helped to reduce inflation expectations.

3.2 Gains from the new strategy

The CNB's internal and its external communications have become increasingly transparent. Internally, the decision-making process has come to focus squarely on inflation developments. The conflict between intermediate and long-term targets – a disadvantage of earlier strategies – has been eliminated. The importance of various indicators has been unambiguously (although implicitly) determined by their weight in the transmission from the interest-rate to the inflation outlook. Changes in instruments have been based on the deviation of the inflation outlook from the targeted path.

Monetary policy has also become more transparent to the general public. The policy moves of the CNB have become smoother and more predictable because of clear defined targets and instruments. Publishing minutes of the board meetings 'opened the kitchen' of the central bank. By the same token, decisions are now more exposed to the reactions of professional economists and the public.

In the Czech case, an increase in inflation was envisaged in early 1998, and market expectations for the future rate of inflation were quite unstable, with little public confidence that the disinflation process would be re-established in the foreseeable future. Public commitment to the explicit disinflation target and the related resolute policy stance were aimed at reversing expectations and reassuring the markets and the public. Given

the situation of increased political uncertainty, with the government having resigned, the independent central bank's commitment to sound, transparent, long-term goals was of utmost importance.

The introduction of net inflation has been the third important gain from the introduction of inflation targeting, helping to avoid a counter-productive reaction in monetary policy. As can be seen from Chart 2, in 1998 the initial shock from administered price adjustments was significant.[23] Had CPI inflation been targeted, monetary policy could have over reacted to a temporary increase in inflation; alternatively, the credibility of the new strategy might have been compromised. In this case, one of the most important gains would have been lost since expectations would not have settled in line with the targeted disinflation path.

3.3 The 1998 dilemmas

The first year of inflation targeting has brought three dilemmas for the central bank. First, the reduction of borrowed disinflation caused net inflation to deviate from its targeted path. Second, financial factors determining exchange-rate movements increasingly. Third, it has become more difficult to assess the inflation outlook owing to increased uncertainty about the medium-term fiscal outlook.

In the Czech case the large impact of external factors on domestic inflation has presented a challenge to policy-makers. *Ex ante*, it was clear that there would be a choice to be made in specifying inflation targets between an index covering a narrow basket of goods and services that would be less vulnerable to exogenous shocks, and a broader index that would better represent consumers' actual cost of living and the public's inflationary expectations. Two types of exogenous shocks have been classified as most important to monetary policy decisions: (i) administered price corrections; and (ii) external price shocks.

In 1997, the CNB opted for providing as powerful a nominal anchor as possible. Net inflation was designed to filter out primary transitional price shocks, on the publicly-announced assumption that CPI inflation and net inflation would converge in the medium run, after administered prices had been completely corrected. An unanticipated fall in world commodity prices in 1998[24] reaffirmed the need to incorporate some mechanism for dealing with external shocks into an inflation-targeting framework. Credibility would be best served if this were done when the framework is introduced instead of when the shock arrives. The solution to the problem of borrowed disinflation remains an issue for future research. It is not clear whether the gain of reduced expectations will last, nor whether it will outweigh the loss of credibility caused by the deviation from the originally announced disinflation path.

The strong exchange rate has had a powerful impact on net inflation in 1998 because Czech economy is very open to trade. The Czech economy is

also highly open to capital flows, which have increasingly dominated short-term exchange-rate developments. Economies in transition that have wide interest rate differentials over industrialised economies and volatile risk premiums may contribute to exchange-rate volatility. This volatility arises as a response to various international shocks, new economic and political data, and the changing and occasionally erratic perceptions of investors.

In such circumstances, some issues related to the exchange rate within the framework of inflation targeting require clarification. The level of the exchange rate can be neither an explicit nor an implicit objective of monetary policy. This is because control of the exchange rate is neither feasible in current conditions nor consistent with an inflation-targeting framework. Accordingly, external imbalances must be addressed by a combination of macroeconomic policies. Foreign-exchange interventions can cause the transition from one exchange-rate level to another and reduce volatility in the market for the koruna.

Yet for a small, open economy, movements in the exchange rate are a significant factor in the decision-making process of the central bank. Consequently, foreign investors try to anticipate the strategy of the central bank towards these changes and to use these implicit bands to reduce foreign-exchange risk when speculating on the foreign-exchange market. Analogously, market participants tend to forecast the behaviour of the central bank by comparing their own inflation forecasts with the targeted disinflation path, which can be interpolated from the explicit short- and long-run inflation targets. Increased credibility of the inflation target may in itself lead to nominal exchange-rate appreciation and potentially to loss of competitiveness. If the inflation forecast is in accordance with the target, then uncertainty about possible future cuts in domestic interest rates is reduced. Hence the risk premium falls, and all things being equal, the currency appreciates.

The Czech experience offers an important lesson about 'domestically produced' uncertainties. While the dilemmas of dealing with external factors are common to open economies that target inflation, the central bank may confront additional economic uncertainty during transition, making it difficult to project the medium-term fiscal outlook. Specifically, a reform strategy can be changed, with consequent changes in the prospects for administered price corrections and tax reforms. As a result, the inflation target can turn out to be the only medium-term economic policy target that is announced publicly. Hence, instead of having a reliable fiscal outlook to use as an important source of information, the central bank has to make only its own forecasts of fiscal policy on which to base future policy. The central bank has to consider whether this type of uncertainty should be reduced by initiating the co-ordination of economic policies, with the necessary institutional structure, even if it is not a standard role of an independent central bank.

Notes

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2 All three strategies used a similar framework. Each year, specific intermediate targets were announced together with a forecast of CPI inflation that was projected in accordance with these targets.

3 The Czech National Bank was established on 1 January 1993, after the dissolution of Czechoslovakia, succeeding the State Bank of Czechoslovakia (see Constitutional Act No. 542/1992 Coll., on the Dissolution of the Czech and Slovak Federal Republic, adopted 1 January 1993). Act No. 130/1989 Coll., on the State Bank of Czechoslovakia, adopted on 15 November 1989, created the preconditions for the two-tier banking system.

4 The transitional period imposes various types of constraints on monetary policy. For example, market instruments are introduced gradually and become efficient only after financial markets progress from their embryonic stage.

5 In the first years of transition, it was possible to target both money and the exchange rate owing to the low degree of koruna convertibility. The intermediate monetary target was important because due to embryonic financial markets, the only available operational targets were quantitative ones. Only in 1996, did short-term interest rates start playing the role of operational target.

6 For more information on the May exchange rate turbulence, see the CNB working paper, *Koruna Exchange Rate Turbulence in May 1997*.

7 In particular, wage negotiations continued to be based on a double-digit assumption despite the fact that the koruna had been pegged to the basket of DEM and USD since 1992 with no change in central parity until May 1997 (see Pohledy [1997] for the inflation forecast by Czech–Moravian Confederation of Trade Unions). Growth in average nominal wage was 25% in 1993, 17% in 1994, 18% in 1995, 14% in 1996, and 12% in 1997.

8 Inflation targeting is not, however, a panacea for all the instabilities of transition. For example, corrections to administered prices and tax reforms may lead to volatility in overall inflation.

9 The items excluded from the consumer basket are: (i) prices regulated by the Ministry of Finance or local authorities (weight in CPI is 7.4%); (ii) prices affected by other administrative measures (weight in CPI is 6%); and (iii) administrative fees (weight in CPI is 4.4%).

10 For example, in 1997, local authorities began to regulate taxis, so the price of taxi fares was excluded from the net-inflation index.

11 The inflation rate of European Union countries was used as a long-term benchmark in order to ensure convergence of financial indicators that would smooth the entry of the Czech Republic into the Union.

12 The term 'smoother path' is meant to stress a difference between defining a disinflation path by two subsequent targets (this implies the 1% annual reduction) and defining a targeted jump from observed levels of inflation to a benchmark inflation level (with approximate scale of 6% without specifying time distribution of disinflation).

13 During transition, productivity grew faster in some sectors of the Czech economy than in the benchmark countries, due to the catch-up effect. Since the CPI measure does not record each innovation as a change in the consumption basket, a part of the inflation differential reflects a difference in speed of innovations and should be allowed for in the medium term.

14 See minutes of the Board meetings (Inflation Reports) for detailed descriptions of the decision-making process.
15 One can compare inflation targets as shown in Chart 3 with inflation forecast by trade unions (Pohledy, 1997) for end of 1998 that predicted 14% CPI inflation. In May 1998, their prediction was 11% CPI inflation
16 The appreciation was partially an endogenous process linked to improvement in domestic economic fundamentals. But it was also a consequence of exogenous factors, since crises in some emerging markets made the koruna relatively more attractive to foreign investors.
17 The term 'borrowed' refers to the fact that the external positive shock has been viewed as temporary. The medium-term scenario used for outlooks assumed that an international fall in prices would be corrected for later on. There has, however, been a permanent gain in terms of reduced expectations.
18 In the Czech case, there were three detectable inflation episodes. In 1993, inflation was created by the VAT reform. In 1995, the impact of capital inflow on demand started to affect inflation. In 1997, the exchange-rate turbulence and consequent depreciation of the koruna was a significant factor in the development of inflation.
19 The remarkable stability of the Koruna has not been limited to recent developments. After World War I, the currency of the newly formed Czechoslovak Republic was the only country in the region to avoid hyperinflation. After World War II, the relatively modest monetary overhang was a favourable feature of the macroeconomic situation.
20 For example, Hungary and Poland used crawling-peg regimes.
21 Nevertheless, the revealed hidden debt of institutions during transformation inflated the previous officially declared debt level.
22 Implementation of the new strategy contributed to a change in the mode of expectations. In the past, expectations were mainly adaptive. After the declaration of targets, they have become gradually more forward-looking. This has been a very important achievement. Should wages be negotiated under a strictly backward-looking mode of expectations, the costs of disinflation would be much higher and the risk of reappearance of the external imbalance would increase.
23 Chart 2 also shows that the net inflation has been influenced by the secondary (spillover) effect from the segment of regulated prices to other price segments. However, this factor has been considered in making monetary policy decisions.
24 See Chart 3 for illustration of this positive price shock. The 1998 target will be undershot significantly. The impact of a fall in world prices has been estimated from 1 to 2%.

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