MONETARY POLICY IN THE SLOVAK REPUBLIC

IMPLICIT INFLATION TARGETING AND THE CHOICE OF AN OPTIMAL EXCHANGE RATE REGIME

Mathias Nell

Introduction

The relatively frequent framework changes indicate that still no consensus among central bankers in CEE has been reached about how to best cope with the challenges posed by the transition process (Corker, Beaumont, van Elkan and Iakova, 2002).[1] The uncertainty about an optimal monetary policy framework also exists at the Národná Banka Slovenska (NBS), the monetary authority of the Slovak Republic (SR). Since its establishment in 1993, the NBS has often altered its framework. In recent years the debate within the NBS about which monetary policy framework to establish has again gained momentum, spurred by new insights from academics and practitioners as well as by the prospect of Economic and Monetary Union (EMU) membership.

This series of analyses shall contribute to the ongoing strategic debate by shedding light on the potential policy alternatives.

Table 1: Exchange Rate Arrangements

Exchange Rate Regime	Hardeness of the Peg				Exchange Rate Target Path			
	No peg	Soft	Medium	Hard	Horizontal	Trend	Announced	Unannounced
Fixed Pegs				■	■		■	
Crawling Pegs			■	■		■	■	
Managed Floating	■					■		■
Independent/ Pure Floating	■							

Exchange Rate Regime Classification

When analyzing various exchange rate regimes, one has to be absolutely precise about their respective definitions. Table 1 below categorizes the relevant exchange rate regimes according to the IMF's classification, and with regards to two dimensions: 1) hardness of the peg, i.e. no peg, soft, medium or hard peg, and 2) the exchange rate target path. The latter criterion is connected with four aspects. The exchange rate target path could either be horizontal, i.e. the currency is pegged to the reference currency or basket of currencies at a central rate, or some trend could be followed by the central bank, i.e. a nominal/real appreciation or depreciation of the domestic currency. Moreover, the target path could be publicly announced or unannounced. The aspect is particularly relevant for the differentiation of managed floating from other (pure) exchange rate targeting regimes, e.g. a fixed or a crawling peg. In a managed floating regime the exchange rate target path is not publicly announced.

The Strategic Options for the National Bank of Slovakia

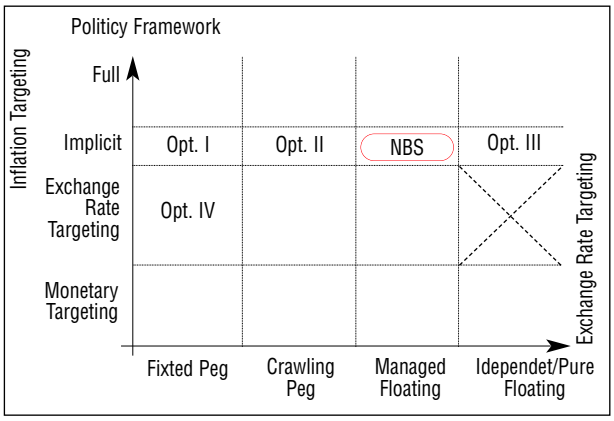
Since it left the pegged exchange rate framework and switched to a combination of managed floating and implicit inflation targeting the NBS has frequently assessed the strategic setting of its monetary policy (sometimes with outside help from the IMF). The evaluations usually comprised the following question. Should the NBS' implicit inflation targeting framework be replaced by full-fledged inflation targeting? The answer to this question typically was 'no' because certain preconditions for full-fledged inflation targeting, e.g. economic stability (absence of fiscal dominance and external stability) or financial system sophistication, were not sufficiently met. This article, hence, primarily deals with another question. Given its current framework of implicit inflation targeting, should the NBS change the prevailing exchange rate regime?

The policy options are depicted in figure 1 below. Figure

[1] This work is based on the author's diploma thesis produced for the University of Passau, Germany, and the National Bank of Slovakia.

The author would like to thank the National Bank of Slovakia and particularly Mr. Marian Nemec, Mr. František Hajnovič, Mr. Michal Benčik and Mr. Juraij Zeman of the Institute for Monetary and Financial Studies for their exceptional hospitality during his stay in Bratislava and their valuable contributions.

Figure 1: The Strategic Options of the NBS



1 also contains the option of pure exchange rate targeting, i.e. a fixed peg within an exchange rate targeting framework. This option shall also be analyzed because there are still proponents within the NBS who argue that the central bank should leave its implicit inflation targeting framework with managed floating and return to exchange rate targeting with a fixed peg. This discussion has recently gained momentum because of imminent ERM II participation. Hence, we shall start by evaluating Opt. IV.

4. The Viability of a Fixed Peg Regime – Opt. IV

Recognizing the importance of the two main transmission channels in the SR, i.e. the interest rate and the exchange rate channel, the NBS in practice uses both a key, short-term interest rate and the exchange rate as its two operating targets. Hence, the exchange rate, influenced via direct interventions in the foreign exchange market, serves as an intermediate target for monetary policy.[2]

Targeting both the exchange rate and the interest rate implies that the NBS has to observe two important conditions. On the one hand, the key domestic interest rate and the targeted exchange rate path have to be set in accordance with domestic economic conditions. On the other hand, two external constraints have to be taken into account in an open economy such as the SR: 1) purchasing power parity (PPP) and 2) the uncovered interest rate parity (UIP) condition. Definitely for the SR PPP has been of significance due to the quite substantial real appreciation of the exchange rate in relation to the euro. UIP is important to avoid excessive capital in- and outflows.

$$(1) \quad \Delta s^T + \alpha \doteq i - i^* \text{ alebo } \Delta s^T \doteq i - i^* - \alpha,$$

where Δs^T denotes the targeted nominal exchange rate path (in price notation), α the risk premium on the expected exchange rate change, *i* the domestic interest rate, and *i** the interest rate of the reference country (or basket of countries). $\doteq$ indicates the optimality condition. Since the original, simplified form of UIP is $E[\Delta s] + \alpha \doteq i - i^*$, equation (1) shows the need for an exchange rate targeting central bank to set the nominal exchange rate target in line with private sector expectations.

A central bank that uses both the short-term interest rate and the exchange rate as its operating targets, and thus focuses on the demand-side effects of monetary policy, may target a so-called real monetary conditions index (MCI):

$$(2) \quad MCI = r - \delta \Delta q^T,$$

where $\delta > 0$ a *r* and where *r* denotes the real interest rate $(i - \pi)$, Δq^T the change of the log of the real exchange rate target during the period (in price notation). reflects the relative importance of the exchange rate and the interest rate on aggregate demand, i.e. the exchange rate elasticity of aggregate demand in relation to the interest rate elasticity of aggregate demand.

Equation (2) represents a possible one-period variant of an MCI for an exchange rate targeting central bank with the interest rate as the key instrument. The MCI includes real variables because the model assumes sticky prices in the short run. Hence, both variables can be controlled with their nominal counterparts (Hüfner, 2004).

In its relative version, the PPP condition for the central bank's real exchange rate target can algebraically be written as:

$$(3) \quad \Delta q^T \doteq \Delta s^T + (\pi^* + \pi),$$

where π denoting the respective inflation rate. Therefore, if the real exchange rate does not change, domestic monetary conditions remain unchanged ceteris paribus, and the economy would not be affected.

For the monetary authorities it is crucial to determine a domestic short-term interest rate that is consistent with the targeted exchange rate path. Otherwise, domestic monetary conditions could become unstable as UIP is violated.

The optimal real interest rate may be set according to an open-economy Taylor rule with a direct exchange rate channel. Based on the assumptions that both the domestic and the foreign central bank set their real interest rates according to a Taylor rule, that the respective output gaps are zero, that the respective average real interest rates are equal, that no inflation problem exists in the reference country, and that the reference country's central bank operates within an independent/pure floating regime, Bofinger and Wollmershäuser (2000) obtain the following expression for the interest rate differential:

$$(4) \quad i - i^* = (1 - \delta)(\pi - \pi^*) + \beta(\pi - \pi^T) + \delta \Delta s^T,$$

kde π^T denotes the inflation target. $\beta > 0$ is a reaction parameter in the Taylor rule.

[2] See Bofinger and Wollmershäuser (2001) for a more thorough discussion of the use of the exchange rate as an operating target.

[3] Given that short-term interest rates are the main operating targets for the NBS, a time horizon of one to three months seems reasonable. See for instance Chaboud and Wright (2003). The models used here are all one-period models. A period is assumed to entail up to a quarter of a year.

Substituting (4) into (1) yields:

$$(5)\quad \Delta s^T + \alpha \doteq i - i^* = (1-\delta)(\pi - \pi^*) + \beta(\pi - \pi^T) + \delta\Delta s^T$$

Equation (5) expresses the compatibility of the interest rate and the exchange rate policy both with the UIP and the PPP condition. Too restrictive an interest rate policy would possibly be irreconcilable with UIP. Or in other words, if a central bank wants to use the domestic interest rate for disinflation, it can only do so to the extent that the foreign exchange markets demand a sufficient risk premium for a given nominal exchange rate target (Bofinger and Wollmershäuser, 2000).

A country trying to disinflate most rapidly by keeping the nominal exchange rate constant ($\Delta s^T = 0$), would need a relatively high risk premium to be demanded by foreign exchange markets, i.e. .

$$\alpha_{fix}^{equil.} \doteq i - i^* = (1-\delta)(\pi - \pi^*) + \beta(\pi - \pi^T)$$

However, a fixed peg is sustainable only if large and potentially excessive capital inflows (and later outflows) are avoided. In other words, the interest rate differential must not exceed the equilibrium risk premium ($i - i^* \leq \alpha_{fix}^{equil.}$). In a transition country such as the SR trying to disinflate this can only be guaranteed if:

- the inflation differential ($\pi - \pi^*$) is already rather small and the need to disinflate ($\pi - \pi^T$) not very high anymore,
- the actual risk premium on the expected exchange rate change is very high,
- monetary policy can mostly rely on the exchange rate channel, i.e. δ is very high (e.g. $\delta > 1$)) (Bofinger and Wollmershäuser, 2002).

Do these conditions apply to the SR? With a difference of roughly 6.5%, the differential of HCPI inflation in relation to the euro zone was considerable in 2003. Moreover, since nominal and real convergence are largely determining the NBS' monetary policy strategy, the need to disinflate in the SR is still relatively high, even though core inflation has gradually been converging towards euro zone levels. In fact, the processes of both disinflation and price liberalization have not yet been entirely completed.

Several studies have shown that in the SR the direct determinants of inflation are foreign prices, the exchange rate and wage costs (Kuijs, 2002). The interest channel has thus far not had any noteworthy, i.e. statistically significant, direct impact (Kuijs, 2002; Gavura, 2000). However, interest rates have been important indirectly. Interest rate changes in the SR have had a considerable effect on the exchange rate and aggregate demand. Aggregate demand in turn affects prices, the exchange rate and wage costs. In other words, even though in the SR δ has been relatively high – indicating that a fixed peg could be viable – monetary policy at present cannot rely exclusively on the exchange rate channel anymore, because of interest rates' strong indirect effects. Besides, continuing financial system development has strengthened the link of short-, medium- and long-term interest rates in the SR at an increasing pace. The interest rate channel is hence becoming notably more important. This is reflected by an unpublished structural model of the NBS' Monetary Department in which δ is already assumed to take a value of approximately two thirds.

In the SR the risk premium was still quite significant in 2003 (see table 2 below).[4] Hence, one can argue that a fixed peg may be workable. However, with a constant nominal exchange rate target the problem of shifting risk premia may be substantial.

Table 2: Monthly Risk Premia in 2003

Month 2003	SKK/EUR (monthly average)	% change to previous month	O/N Refinancig rate (in %)		Monthly interest rate differential (in %)	Monthly risk premium (in %)
			SR	EÚ		
February	41.979	+0.0785 %	8.00	2.75	5.25	5.1715
March	41.776	–0.0484 %	8.00	2.50	5.50	5.5484
April	41.055	–0.1726 %	8.00	2.50	5.50	5.6726
May	41.092	+0.0090 %	8.00	2.50	5.50	5.4910
June	41.502	+0.09978 %	8.00	2.00	6.00	5.9002
July	41.788	+0.06891 %	8.00	2.00	6.00	5.9311
August	41.932	+0.03446 %	8.00	2.00	6.00	5.9655
September	41.516	–0.09921 %	8.00	2.00	6.00	6.0992
October	41.288	–0.05492 %	7.75	2.00	5.75	5.8049
November	41.134	–0.03730 %	7.75	2.00	5.75	5.7873
December	41.130	–0.00097 %	7.75	2.00	5.75	5.7500

If introduced in an environment of relatively high nominal interest rate differentials (see fifth column in table 2), a fixed peg would result in an initially high risk premium. If the process of nominal convergence continued, i.e. the interest rate gap would narrow, the risk premium would fall. However, if the constant nominal exchange rate target were associated with a real appreciation, as would likely be the case in the SR, the risk premium would again increase. In the end, the central bank would face the following dilemma. If it tried to maintain UIP, monetary conditions in the domestic economy would become unstable as the domestic nominal interest rate would have to follow the large swings of the risk premium. On the other hand, if the central bank attempted to stabilize domestic conditions, it would violate UIP, leading to excessive capital in- and outflows.

The problem of shifting risk premia – coupled with the still pressing need for nominal convergence and the tendency of the interest rate to outweigh the exchange rate channel in importance for transmission – should lead to the conclusion within the NBS that a regime of a constant nominal exchange rate (i.e. Opt. IV) would be unfeasible. Hence, the NBS should consider alternative strategies.

To by continued in issue 10/2004

[4] The calculation of the monthly risk premium is an approximation based on two assumptions: 1) $E[\Delta s] = \Delta s$ and 2) UIP held at all times during the period. Hence, the monthly risk premium can be calculated as the residual value, i.e. $\alpha = i + i^* - \Delta s$. The approximate value should provide some idea at which levels the risk premium is likely to be.