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# Currency Board and Crawling Peg

## Combining the Technical and Political Sustainability of Exchange Rate Based Stabilization

*The Russian financial system is caught up in a vicious circle of lack of credibility, inflationary expectations and non-sustainability of the exchange rate, which is driving the country to the brink of disaster. This has revived the debate as to what would constitute an adequate exchange rate system. The following article examines the arguments for and against a currency board and a crawling peg, and concludes that a combination of the two would be the best strategy.*

On August 17, 1998 the Russian government announced the widening of the exchange rate band vis-à-vis the US-\$, which in fact meant the giving up of the exchange rate target and the introduction of flexible exchange rates. At the same time a moratorium of external debts and the imposition of capital account controls were decided. The failure of the monetary system and the insolvency of the government have been the result of a deep crisis of the financial sector which had long been apparent, but nevertheless surprised investors by its severity. The nearly entire loss of confidence in the success of Russian economic reforms increases the danger of a complete economic collapse. After the Russian economy's having grown slightly in 1997 for the first time in the past decade, a new recession seems to be inevitable. Furthermore, the dramatic flight out of the rouble might immediately lead to a new era of hyperinflation.

This ominous situation provides the background for the reviving discussion about what would constitute an adequate exchange rate system. Especially in countries with a weak financial sector there is a fatal trade-off between the possible import of macro-economic stabilization via a nominal exchange rate peg and the vulnerability to speculative attacks that can only be excluded in a regime with flexible exchange rates. Past proposals that aimed to mitigate this trade-off have been ignored by politicians

because they seemed to be too complicated or simply because the underlying monetary system was unpopular at the time.<sup>1</sup>

This paper aims to explore the question as to which exchange rate system would best be able to break the vicious circle of lack of credibility, inflationary expectations and non-sustainability which is driving Russia to the brink of disaster. For this purpose, the next section will begin with the presentation of the traditional arguments for fixed vs. flexible exchange rates in countries in transition. Thereafter, the characteristics and the criticisms of orthodox currency boards are introduced. This most rigorous form of fixed exchange rates is contrasted with the more flexible system of a crawling band or crawling peg, which will be shown to be an appropriate complement to an orthodox currency board. The discussion of implementation problems and of adequacy for the Russian Federation will close the paper.

### Flexible versus Fixed Exchange Rates

The first decision of a constitutional character concerns the question as to whether exchange rates should basically be flexible or fixed. Fixed exchange rates are often supposed to support the credibility of the central bank because they reduce its discretionary latitude and facilitate the verification of its announce-

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<sup>1</sup> Sell proposes a modified Fisher Rule in order to stabilize the rouble. This rule is based on the gold standard, but modified in order to be more robust against speculative attacks. See Friedrich L. Sell: Stabilizing the Rouble: Is there a Case for a New Fisher Rule?, in: INTERECONOMICS, January/February 1995, pp. 31-35.

ments.<sup>2</sup> This aspect is of special importance in countries with a lack of reputation and may exceed the efficiency loss due to restrained flexibility. However, an exchange rate target is not per se more credible than an inflation target or a quantitative monetary target. The import of reputation from a foreign central bank postulates the apparent ability and willingness of the monetary authority to maintain and to defend the preannounced parity. Consequently, the success of a nominal exchange rate peg is tied to compliance with some necessary preconditions.

First of all, the country must have at its disposal sufficient reserves in the reference currency in order to guarantee the technical sustainability of the exchange rate target. Otherwise, it is extremely vulnerable to speculative attacks, even if the fundamental data are sound. Next, prices should be sufficiently flexible on all markets. They now have to bear the whole burden of adjustment as the nominal exchange rate is not able to react to exogenous shocks. The combination of fixed exchange rates and price rigidity will lead to massive unemployment as long as (expected) inflation in the reforming country exceeds that in the reference country. The traditional criteria that have been formulated for optimum currency areas, which are – in principle – also valid for fixed exchange rate regimes<sup>3</sup> are an (imperfect) substitute for flexible prices. Especially, a high degree of factor mobility across borders (Mundell) and/or deep financial integration (Ingram) can mitigate social costs even in an environment of price rigidity. Certainly, none of these criteria are met by Russia or most other countries in transition. Finally, the current account has to be widely liberalized and the share of tradeables in GDP has to be sufficiently large. Otherwise, the lever of the peg will be too short to stabilize domestic prices.

### Characteristics of a Currency Board

Currency boards enjoy growing support among politicians and can claim recent success in Argentina and some small countries in transition.<sup>4</sup> The principle idea of a currency board is to (re-)gain credibility by giving up a major part of national sovereignty to another country with a better reputation. Hence, a

currency board is a very rigorous way of “tying one’s hand”. This is done by renouncing any discretionary national monetary policy and introducing a special kind of “currency substitution”. Domestic coins and bills are issued only in exchange for the foreign-reserve currency, i.e. the ratio of foreign exchange to domestic currency in circulation never falls below 1:1. The advantage of this procedure vis-à-vis a classical fixed exchange rate system is twofold.

First, a currency board will always ensure the technical sustainability of a preannounced (and usually constitutionally prescribed) exchange rate target. While a speculative attack may exhaust the foreign reserves of a central bank and force it to float the exchange rate or to restrict convertibility, a currency board can – from a theoretical point of view – redeem its liabilities until the very last coin. Obviously, this fact will considerably raise the credibility of the monetary system. The second advantage of a currency board is often overlooked but of special importance for countries with an unsound financial sector: a currency board is quite easy to handle and, hence, economizes on the scarce factor “banking know-how”. Experts can be employed to manage the problem of outstanding loans and to establish efficient banking supervision instead of dealing with the control of the money supply.

### Criticism of Currency Boards

At the same time, however, the weakness of the financial sector also provides a grave argument against the establishment of a currency board in Russia. Because they are not allowed to acquire domestic assets, currency boards cannot serve as a lender of last resort (LLR).<sup>5</sup> This renders commercial banks more vulnerable to panic withdrawals of private deposits and might provoke a further financial crisis. However, a central bank’s role as a lender of last resort is ambiguous, because it gives rise to moral hazard. Commercial banks might be encouraged to engage in risky ventures, relying on “big brother’s” helping hand. In addition, LLR functions can be provided by a separate institution like an appropriate deposit security system.<sup>6</sup>

<sup>4</sup> Besides Argentina currency boards have been established in Hongkong, Singapore, Estonia, Lithuania, Bosnia-Herzegovina and Bulgaria.

<sup>5</sup> See Owen F. Humpage and Jean M. McIntire: An Introduction to Currency Boards, in: Federal Reserve Bank of Cleveland (ed.): *Economic Review*, Vol. 31, No. 2, 1995, pp. 2-11, here p. 8.

<sup>6</sup> *Ibid.*; and Matthias Sutter: A Currency Board for European Monetary Union Outsiders, in: *INTERECONOMICS*, May/June 1996, pp. 131-138, here p. 136.

<sup>2</sup> See Volker Hofmann and Friedrich L. Sell: Credibility, Currency Convertibility and the Stabilization of the Rouble, in: *INTERECONOMICS*, January/February 1993, pp. 11-16, here p. 12.

<sup>3</sup> For a survey of the different criteria for optimum currency areas see: Stefania Rossi: Currency Areas from the Traditional Theory to the Modern Game Theory Approach: a Note, in: *Economia delle scelte pubbliche*, Vol. 1, 1992, pp. 57-76.

Another, more severe argument against a currency board is the substantial costs of adjustment in an environment of high inflation differentials compared to the anchor currency, which can be classified as a special case of price rigidity. An excessive increase in domestic prices leads to an appreciation of the real exchange rate that cannot be corrected by a nominal devaluation. Consequently, the country suffers a continual loss of international competitiveness, which stops only when inflation differences have disappeared. The process of disinflation may be rather tedious and cause substantial social costs undermining political sustainability. This aspect seems to be extremely important in Russia, where the population's readiness to accept further privations and its confidence in the government are very limited.

A third objection to currency boards is that they are rather expensive. Usually, the issuing of high powered money is the source of seignorage, because the central bank can exchange it for interest bearing assets although the "production costs" are very low. A currency board, however, has to buy non-interest

bearing foreign currency. In a country like Russia, where the financial system is underdeveloped and the ability (and/or willingness) to collect taxes is limited, seignorage is an important source of revenue and an exchange rate system which renounces it suffers a loss of credibility. In practice, this problem is partly solved by splitting total foreign reserves into so-called liquid reserves which comprise approximately 30 to 50 per cent of total assets and serve the settlement of daily transactions, and investment reserves, which consist of higher-yielding foreign bonds.<sup>7</sup>

#### Smoothing Adjustment by a Crawling Peg

A crawling peg is situated somewhere between fixed and flexible exchange rates. The continual rise of the central rate allows for an adjustment of inflation differentials, but only along a predetermined, non-stochastic path. Suppose that consumer prices rise by 2% p.a. in the USA, but by 30% p.a. in Russia. In order to keep the real exchange rate constant and to

<sup>7</sup> See Owen F. Humpage and Jean M. McIntire, *op. cit.*, p. 6.

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avoid a loss of Russia's international competitiveness the rouble should depreciate at a nominal rate of 30% - 2 % = 28% p.a.:

$$(1) \quad e = E \frac{P^{USA}}{P^{Ru}}$$

Where  $e$  = real exchange rate,  $E$  = nominal exchange rate and  $Ru$  = Russia

Transforming the levels in equation (1) into relative changes we get

$$(1a) \quad \hat{e} = \hat{E} + \pi^{USA} - \pi^{Ru}$$

where  $\pi = \hat{P}$  = inflation

From (1a) it follows immediately that the nominal devaluation rate ( $\hat{E}$ ) has to equal inflation differences ( $\pi^{Ru} - \pi^{USA}$ ) in order to keep the real exchange rate constant ( $\hat{e} = 0$ ).

Allowing for inflation rate differences does not rule out the possibility of using the exchange rate for macroeconomic stabilization. The idea behind a crawling peg is to stabilize inflation first and reduce it later. The annual depreciation rate should be gradually reduced and finally disappear.

Besides the trend component, in some countries the nominal exchange rate can float within a limited area around the central rate in order to react to short-term disturbances. If this additional flexibility exists, the exchange rate regime is called a crawling band. Until August 16, 1998 Russia had tied the rouble to the US-\$ by a crawling band with a margin of  $\pm 5\%$ . As history has shown, a crawling band or a crawling peg may support the political sustainability of the exchange rate target, but they cannot guarantee its technical sustainability as long as the stock of foreign exchange in the central bank's balance falls short of domestic currency in circulation. When in August 1998 private expectations anticipated a devaluation of the rouble in the near future, the mechanism of self-fulfilling prophecies was set in motion, a mechanism which can only be stopped by the incontestable competence of the monetary authority to defend the exchange rate target.

### Combining Currency Board and Crawling Peg

Although at first glance a crawling peg would appear to rule out the simultaneous implementation of a currency board, this is not in fact the case. The trade-off between technical and political sustainability can be solved by combining both instruments, i.e. by backing the rouble with US dollars, but allowing for a continual, preannounced devaluation.

In an orthodox currency board system the issuing of domestic currency necessitates a balance of payments surplus that can be realized by a positive current account and/or net capital inflows. The currency board then absorbs the accompanying supply of foreign exchange and in turn issues domestic currency. The combination with a crawling peg opens a third source of money creation. Now the continual appreciation of foreign assets is accompanied by a steady increase in national money supply. This mechanism is described by equations (2) and (2a):

$$(2) \quad E \cdot \$ = R$$

with  $R$  = Rouble

Rewriting (2) in relative changes yields

$$(2a) \quad \hat{E} + \hat{\$} = \hat{R}$$

Abstracting from a change in foreign reserves ( $\hat{\$} = 0$ ) the growth rate of roubles in circulation just equals the depreciation of the Russian currency vis-à-vis the dollar. Interestingly, besides smoothing the adjustment path this procedure raises Russian seignorage, because the newly created money can be sold against interest-bearing foreign securities that will constitute a surplus reserve.

For ( $\hat{\$} = 0$ ) the additional seignorage measured in US dollars is given by the growth rate of domestic money in circulation ( $\hat{E}$ ) times the stock of foreign reserve ( $\$$ ):

$$(3) \quad \Delta S = \hat{E} \cdot \$$$

with  $\Delta S$  = additional seignorage, due to currency devaluation.

Combining (3) with (1a) yields

$$(4) \quad \Delta S \approx (\pi^{Ru} - \pi^{USA}) \$$$

if the real exchange rate is kept constant ( $\hat{e} = 0$ ).

Additional seignorage can hence be interpreted as a special kind of inflation tax. Furthermore, total seignorage comprises interest payments on foreign exchange:

$$(5) \quad S = i^{\$} \cdot \$ + (\pi^{Ru} - \pi^{USA}) \$$$

where  $i^{\$}$  is the average interest rate on foreign reserve assets.

Summarizing, the combination of a currency board with a crawling peg seems to attenuate the major objections against the individual exchange rate regimes. On the one hand, the complementary implementation of both instruments reduces the social and

fiscal costs, which are usually associated with a currency board. By avoiding a drastic fall in the real exchange rate and a severe loss of seignorage, political sustainability is strengthened. On the other hand, the renunciation of any discretionary latitude and the complete coverage of domestic currency circulation by foreign exchange substantially increases the transparency and the technical sustainability of the system in comparison with currently practised crawling peg regimes, which do without the full coverage of domestic currency by the reference currency.

### Implementation Problems

When the implementation of a "crawling peg currency board" has in principle been decided, the next question concerns the choice of the appropriate anchor currency. Two aspects have to be taken into account. First, the reference currency has to enjoy an excellent reputation if the import of macroeconomic stability is not to be damned to failure from the very beginning. Second, special attention should be paid to the real effective exchange rate, which is the sum of a country's bilateral real exchange rates, weighted by the individual shares in its foreign trade.<sup>8</sup> From this point of view, the ideal anchor would be not a single currency, but a currency basket that reflects the country's foreign trade structure. However, a currency board would be obligated to exchange any currency of the basket and could thus maintain the constant relationship to all the others only by additional market interventions. This would cause substantial transaction costs and damage its character as a pure currency board without monetary instruments.

If bilateral trade relations are taken as the criterion for the choice of the anchor currency, the euro will be the optimal peg for the rouble. In 1996, more than thirty per cent of Russian exports and imports were transacted with the European Union, whereas the United States only had a share of about five per cent of Russia's foreign trade.<sup>9</sup>

In order to guarantee the full coverage of roubles by euros, the International Monetary Fund (IMF) should provide financial aid in the form of a stabilization fund

as the leading industrial countries did in the case of Poland in the early 1990s.<sup>10</sup> The risk of abuse by the Russian government can be reduced and the credibility of the currency board enhanced if only the liquidity reserve and a possible surplus reserve are physically placed in Russia, while the Fund holds the investment reserve on trust.

### Is Russia Ready?

The above discussion has shown that – from an economic point of view – there are good arguments to peg the rouble to the euro by a currency board and to smooth adjustment by a crawling peg. However, some difficulties remain to be surmounted. First, it is questionable whether the leverage of an exchange rate peg will be strong enough to discipline domestic prices. In 1996 total imports were only 20.2% of GDP, whereas in other Central European countries with an exchange rate target this quota ranged from 27.7% in Poland up to 78.6% in Estonia.<sup>11</sup> Russian politicians would hence be well advised to promote trade liberalization instead of reverting to convertibility restraints and other protectionist measures which are being imposed to delay urgently needed reforms.

Next, the drastic devaluation of the rouble is not the cause, but the consequence, of the current financial crisis. The implementation of new monetary rules cannot replace the fundamental reorganization of the financial sector. As long as the settlement of private and public liabilities is not guaranteed, Russia will not succeed in regaining reputation, which is a prerequisite for attracting international investment and preventing capital flight.

Finally, the implementation of a currency board entails the transfer of national sovereignty to the central bank which issues the reference currency. In today's Russia this may encounter heavy political resistance. However, even in the past, when Russia practised a crawling band vis-à-vis the dollar, the sovereignty of the central bank was limited. As long as the monetary authority follows an exchange rate target, it can control money supply only in the short run. In the long run, just as in a currency board system, the circulation of domestic currency is determined by the balance of payments. The loss of sovereignty will hence be less than may appear at the first glance.

<sup>8</sup> See John Williams: A Survey of the Literature on the Optimal Peg, in: *Journal of Development Economics*, Vol. 11, 1982, pp. 39-61, here pp. 55 f.

<sup>9</sup> See Deutsches Institut für Wirtschaftsforschung / Institut für Weltwirtschaft / Institut für Wirtschaftsforschung Halle: *Die wirtschaftliche Lage Rußlands – Wirtschaftspolitik muß jetzt endlich Wachstumserfolge vorweisen*, Elfter Bericht, Kieler Diskussionsbeiträge, No. 308, 1997, p. 32.

<sup>10</sup> See Jeffrey Sachs: *Poland's Jump to the Market Economy*, Cambridge/London 1993, p. 54.

<sup>11</sup> See IMF: *International Financial Statistics*, Washington D.C.