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## How to Reduce Inflation: An Independent Central Bank or A Currency Board? The Experience of the Baltic Countries

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# LICOS

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#### **How to Reduce Inflation: An Independent Central Bank or A Currency Board? The Experience of the Baltic Countries**



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# How to Reduce Inflation: An Independent Central Bank or A Currency Board? The Experience of the Baltic Countries

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## Abstract

Countries in transition often face high levels of inflation. This paper discusses two ways to reduce inflation: the creation of an independent central bank and the introduction of a currency board. It is shown that both options have advantages and disadvantages. This framework is used for a normative analysis of the policy choices of the Baltic states. It is argued that, while Estonia's currency board based on the D-mark is very much in line with the criteria for an optimal monetary regime, Lithuania's initial choice of a US-dollar based currency board is not. The peg to the SDR - which very much looks like a currency board - as (eventually) adopted by Latvia is an intermediate case. Some policy recommendations and the problem of exit strategies towards the Euro zone are discussed.

*JEL*: E58, E61, F31

*Key words*: currency board, central bank independence, Baltics

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## 1. Introduction

The proper design of monetary institutions is a very important issue for transition countries. There seems to be broad support for the idea that price stability should be the prime objective of monetary policy. How should this objective be realized, i.e. what is the proper monetary arrangement? Basically, there are two options: a currency board and an independent central bank under flexible exchange rates.

A currency board can be considered as the most credible form of a fixed exchange rate regime as the own currency is convertible against a fixed exchange rate with some other currency (ies), which is codified, be it in a law or otherwise. The anchor currency is generally chosen for its expected stability and international acceptability. There is, as a rule, no independent monetary policy as the monetary base (or in the simplest case: banknotes) is (are) backed by foreign reserves (Pautola and Backé, 1998).<sup>1</sup> Currency boards are back in fashion (Ghosh et al., 2000). Once they were a common monetary arrangement, especially in British Dominions. After these countries became independent, currency boards were only used by a handful of small, open economies. However, in recent years quite a number of countries have introduced a currency board or considered to do so.<sup>2</sup>

A number of recent studies suggest that countries with a currency board have been quite successful in bringing down inflation. For instance, Ghosh et al. (2000) conclude that currency boards have been instituted to gain credibility following a period of high inflation, and in this regard, have been remarkably successful. Countries with a currency board experienced lower inflation and higher growth compared to both floating regimes and simple pegs. The lack of discretionary powers of a currency board is often considered to be crucial in this respect.<sup>3</sup>

An alternative for the introduction of a currency board is to have a flexible exchange rate regime and to give the central bank independence and a clear mandate for price stability. It is often argued that a high level of central bank independence coupled with some explicit mandate for the central bank to aim for price stability constitute important institutional devices to maintain price stability. Indeed, various countries have recently upgraded central bank independence to raise their commitment to price stability. There exists a vast literature showing

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<sup>1</sup> Currency boards often hold reserves somewhat exceeding 100 percent of their liabilities to have a margin of protection should the assets they hold lose value (Schuler, 1992). Excess foreign exchange reserves can be used to conduct monetary operations or to provide Lender of Last Resort support.

<sup>2</sup> Moreover, currency boards have been suggested as the proper exchange rate regime for potential EU and EMU entry countries (Sinn, 1999).

<sup>3</sup> Schuler (1999) argues, for instance, that “by design, a currency board has no discretionary powers. Its operations are completely passive and automatic. The sole function of a currency board is to exchange its notes and coins for the anchor currency at a fixed rate. Unlike a central bank, an orthodox currency board does not lend to the domestic government, to domestic companies, or to domestic banks. In a currency board system, the government can finance

that a “conservative” (i.e. inflation-averse) and independent central bank will bring lower inflation (see Eijffinger and De Haan (1996) and Berger et al. (2000a) for surveys).

So, an important question is which arrangement should be preferred.<sup>4</sup> Estonia and Lithuania have introduced currency-board-like systems. Estonia created such a system in 1992, establishing a fixed rate with the German mark. Lithuania did likewise in 1994, but establishing a fixed exchange rate with the US-dollar. Interestingly, the third Baltic state, Latvia, did not opt for a currency board. Initially, the Latvian authorities opted for a strong independent central bank with a flexible exchange rate arrangement (Zettermeyer and Citrin, 1995). However, since February 1994 Latvia has a de-facto peg to the IMF special drawing right’s (SDR) basket of currencies; its policies are quite similar to those of a currency board. This paper deals with the question of whether the Baltic states have made the right policy choices.<sup>5</sup>

The remainder of the paper is organized as follows. The next section presents a very simple theoretical model to compare (ex post) the welfare benefits of a currency board and an independent central bank. Section 3 discusses some aspects that may be relevant too, but which are not taken up in the model. Section 4 describes monetary policy of the Baltics. In Sections 5 and 6 the theoretical framework is used in a normative way to analyze the monetary arrangements of the Baltic states. Section 7 offers some concluding comments.

## 2. Currency board or independent central bank?

A high inflation problem is an important motivation for countries in transition to consider introducing a currency board or a credible exchange rate peg. However, before a country decides in favor of a currency board, a proper comparison with the alternative of an independent and conservative (i.e. inflation-averse) central bank should be made. Both alternatives have advantages and disadvantages and it is not always obvious what the optimum solution would be. We can illustrate this as follows.

Assume that (the log of) output is given by a simplified Lucas supply curve:

$$y_t = (\pi_t - \pi_t^e) + \varepsilon_t \tag{1}$$

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its spending by only taxing or borrowing, not by printing money and thereby creating inflation.” For an opposite view, see Roubini (1999).

<sup>4</sup> Of course one can argue that these two options can be considered as the extremes and that intermediate positions are possible. However, there is a growing consensus both in the literature and among policymakers that these intermediate positions may not be viable. As Frankel (1999, p. 29) argues this view “which is rapidly becoming a new conventional wisdom .... maintains that countries are increasingly finding the middle ground unsustainable and that intermediate regimes such as adjustable pegs, crawling pegs, basket pegs, and target zones are being forced toward the extremes of either a free float or a rigid peg.”

<sup>5</sup> For an evaluation of alternative monetary regimes with regard to macroeconomic stabilization in Russia, the Ukraine and Kazakhstan see e.g. Bofinger (1997).

with  $\pi$  and  $\pi^e$  denoting actual and expected inflation and where  $\varepsilon$  is a random output shock with  $\varepsilon \sim N(0, \sigma_\varepsilon^2)$ . The level of natural output is normalized to zero. The model's demand side is given by the purchasing power parity condition:

$$\pi_t = \pi_t^F + e_t \quad (2)$$

with  $\pi^F$  denoting foreign inflation and  $e$  the change in the nominal exchange rate towards a possible target country. Under fully *flexible exchange* rates,  $e$  will fully compensate any changes in foreign inflation. In this case inflation will be determined in a process involving both the home country's government and central bank. We can conveniently summarize this process by assuming that a loss function of the following form is minimized:

$$L = \pi_t^2 + [\gamma\chi^{CB} + (1-\gamma)\chi^G](y_t - y^*)^2, \quad (3)$$

where  $y^* > 0$  is a time-invariant output target giving rise to the well-known time inconsistency problem for monetary policy. The parameters  $\chi^G$  and  $\chi^{CB}$  are, respectively, the government's and the central bank's preference put on the real target with  $\chi^G > \chi^{CB}$ . The weight  $\gamma \in (0,1)$  denotes the degree of *central bank independence*, measuring the extent to which the central banker's preferences affect monetary policy making. If  $\gamma = 1$ , the central bank fully determines monetary policy. The inverse of  $\chi^{CB}$  is often considered a measure of *central bank conservatism*. It is easy to show that the inflationary bias decreases with higher values of  $\gamma$  and lower values of  $\chi^{CB}$  (see also Eijffinger and De Haan, 2000).<sup>6</sup> Minimizing (3) with regard to  $\pi$  and introducing rational expectations leads to the following equilibrium inflation

$$\pi_t = \lambda y_t^* - \frac{\lambda}{1+\lambda} \varepsilon_t, \quad (4)$$

where we have defined  $\lambda = \gamma\chi^{CB} + (1-\gamma)\chi^G$ . The inverse of  $\lambda$  could be interpreted as a measure for the *stabilization culture* prevalent in the home country.<sup>7</sup> The first term in (4) is the inflationary bias that has its roots in the inability of monetary policy to commit to a socially optimal inflation rate of zero in the absence of output shocks. The bias is the higher,

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<sup>6</sup> Note that there is no uncertainty about preferences in the model. See Berger et al (2000a) for a further discussion of uncertainty in this type of models.

<sup>7</sup> Note that in an ex ante optimisation context, both the degree of conservatism and the degree of central bank independence can be made endogenous. For our purpose, i.e. to assess whether the Baltics have made the right decision, both parameters can be treated as given.

the less independent and conservative the central bank is and the more output oriented is the government.

Alternatively, the country could opt for a *currency board* to govern monetary policy and credibly fix its exchange rate against a foreign currency of its choice ( $e = 0$ ). In this case the domestic inflation rate will equal the foreign inflation rate. To simplify, assume that target country's (i.e. the foreign) monetary policy suffers from an inflationary bias of size  $a$  and reacts to the foreign output shock  $u \sim N(0, \sigma_u^2)$  according to the simple linear rule  $-bu_t$ . In line with the standard model of monetary policy, we can assume that both  $a$  and  $b$  decrease in the foreign central bank's degree of independence and conservatism. Substituting for foreign inflation we can rewrite equation (2) as:

$$\pi_t = \pi_t^F = a - bu_t. \quad (2')$$

Note that, under a currency board regime, the home economy's output shock plays no role in actual monetary policy. The "imported" policy is aimed at the foreign output shock alone.

The trade-off between a currency board and an independent central bank can be modeled as a comparison of expected welfare under both regimes. Using (2'), (4), and (1), a social planner with a quadratic loss function similar to (3) and an output weight of  $\bar{\lambda}$  will prefer a currency board if the following inequality is met:

$$(\lambda y^*)^2 - a^2 > \frac{\lambda}{1 + \lambda} \left( \bar{\lambda} + \frac{\bar{\lambda} - \lambda}{1 + \lambda} \right) \sigma_\varepsilon^2 + (1 + \bar{\lambda}) b^2 \sigma_u^2 - 2\bar{\lambda} b \rho_{\varepsilon, u} \sigma_\varepsilon \sigma_u, \quad (5)$$

where  $\rho_{\varepsilon, u}$  is the coefficient of correlation between the output shocks in the home economy and the country targeted under a currency board regime. Inequality (5) weighs the possible credibility gain from a currency board (LHS) against the expected welfare effects stemming from the loss of a national stabilization policy (RHS). A number of insights and policy recommendations can be derived.

### (1) *Stabilization culture*

Ceteris paribus a currency board becomes more attractive when the home country's central bank is relatively dependent and output-oriented compared to the foreign central bank. The same is true when the home country's government is very output-oriented. The reason is that a lower  $\lambda$  will lower the inflationary bias under a regime of floating exchange rates (first term LHS). If the social planner is sufficiently conservative, i.e. if  $\bar{\lambda}$  is low enough, this gain in expected welfare will always outweigh the loss in output stabilization associated with a lower  $\lambda$  (first term RHS).

### *(2) Conservative and independent foreign central bank*

A currency board arrangement is more attractive if the imported foreign monetary policy is in the hands of an independent and conservative foreign central bank. The argument is that a more conservative foreign monetary authority will both lower the inflationary bias under a board (second term LHS) and the extent to which the imported stabilization policy distorts the home economy (second term RHS). Note, however, that the last term on the RHS suggests that the latter gain is the lower, the higher is the correlation between the foreign and the home country's output shocks (see below).<sup>8</sup>

### *(3) Synchronized business cycles*

The higher the correlation between the home and foreign country's output shocks, the more attractive is a currency board (last term RHS). Behind this is the simple fact that a higher  $\rho_{\epsilon,u}$  will ensure that foreign monetary policy is more in line with the needs of the home economy.<sup>9</sup> Of course, this result rests critically on the assumption that imported monetary policy converts output shocks linearly into shocks to inflation without, for instance, non-additive control errors. To allow for this possibility, we will include in our empirical investigation the coefficient of correlation between home and foreign inflation as well. If monetary policy does behave as assumed, both measures should convey similar information.

## **3. Some other considerations**

The simple model discussed in the previous Section identifies three fundamental arguments that should be taken into account when a country decides about its currency regime. There are of course additional considerations that need to be discussed. Indeed, apart from the credibility benefit and the cost of being vulnerable to foreign shocks, the literature identifies a number of other costs and benefits of a currency board in comparison to an independent central bank.<sup>10</sup>

### *(4) Transaction costs*

An entirely fixed exchange rate will reduce the transaction costs of international trade and investments. Transaction costs are lower since international transactions face less exchange rate uncertainty. If exchange rate uncertainty has a negative impact on trade and international

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<sup>8</sup> It is even possible that the second effect prevails. The intuition is that, if the correlation is very high, imported monetary policy will be in line with the home country's stabilization needs (see the following paragraph). In this case a *non-conservative* foreign central bank will produce a better outcome.

<sup>9</sup> Somewhat surprisingly perhaps, higher output volatility at home and abroad *as such* is not necessarily an argument against a currency board. As Berger et al. (2000b) show, a more volatile economy in combination with a sufficiently high correlation among both economies might actually help the case for currency boards.



investment, a currency board with a fixed exchange rate regime will lead to a better international allocation of the means of production. However, most empirical studies hardly find any support for a negative relationship between exchange rate uncertainty on the one hand and trade and investment on the other.<sup>11</sup> This transaction costs argument applies to fixed exchange rates in general. A currency board may provide an additional credibility effect as it is a stricter rule-based system which may lead to more capital inflows. The magnitude of the transaction costs depends, of course, on the size of (future) international transactions with the pegging country. Other relevant considerations for the choice of the currency to peg to are the denomination of the pegging country's exports and imports and the denomination of its international debt. The domestic acceptance of a foreign currency may also be taken into account (Enoch and Gulde, 1997).

#### *(5) Political support*

Currency boards do not require sophisticated money markets and monetary policy operations to be effective (Kopcke, 1999).<sup>12</sup> Lack of knowledge about monetary transmission, a problem which is highly relevant for countries in transition, is also less of a problem under a currency board system than under a central bank aiming at a monetary growth rate or an inflation target. Furthermore, to make an independent central bank work requires time. Credibility has to be earned and therefore a currency board may be preferred in a situation of a severe credibility problem and/or crisis. Indeed, currency boards have often been adopted at the end of a prolonged crisis. Still, a currency board is not an easy way out. At the outset, it may be difficult to gather sufficient currency reserves to back the monetary base (Pautola and Backé, 1998). Not least, it requires broad political support (Ghosh et al., 2000). No doubt, many people mix up full sovereignty in monetary affairs with sound money, which is obviously not correct. Still, lack of popular support for a currency board may result in a self-fulfilling speculative attack. Although it is sometimes claimed that speculative attacks cannot occur under currency boards, recent experience shows otherwise (Roubini, 1999).<sup>13</sup> Finally, also the introduction of a currency board takes time as the fixed exchange rate is established in the law

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<sup>10</sup> See also Bennett (1994), Williamson (1995) and Baliño et al. (1997) for a general discussion of the pros and cons of a currency board.

<sup>11</sup> Various possible explanations for this rather counterintuitive result come to mind. For one thing, in most empirical studies exchange rate uncertainty is proxied by observed exchange rate variability, which is not necessarily a good approximation. Another explanation for the lack of a negative impact of exchange rate uncertainty could be the level of aggregation of most studies. See Eijffinger and De Haan (2000) for a further discussion.

<sup>12</sup> See Enoch and Gulde (1997) for an exposition of the technicalities of a currency board.

<sup>13</sup> Of course, the crucial issue is whether currency boards are better able to cope with speculative attacks than other regimes.

and the authorities may first have to clear up a legacy of monetary, fiscal and financial failures of the past (Enoch and Gulde, 1997).

#### *(6) Lender of last resort*

A currency board implies that the central bank cannot (fully) act as lender of last resort. This is often regarded a serious drawback of a currency board.<sup>14</sup> As this safety net for the financial sector is missing, it is often argued that a prerequisite for a currency board is a reasonably healthy financial system. The authorities should ensure that financial institutions have adequate capital, proper reserves for losses, and that they provide full disclosure of their financial accounts and have access to credit markets abroad. This is all the more important as in the past decades except for the Eastern Caribbean Central Bank all existing currency boards have experienced at least one banking crisis (Santiprabhob, 1997). Roubini (1999) argues that a monetary tightening when a currency board is subject to a speculative attack can bankrupt the domestic financial system and the domestic banks as tight base money means that, given required reserve ratios, banks are forced to recall loans and firms may go bankrupt. However, Korhonen (2000) argues that in transition economies the number and scope of bank failures seem to be largely uncorrelated with the type of exchange rate regime chosen. There is no evidence that countries with currency boards have less stable financial systems.

There is, of course, also another side to the coin of the alleged reduced role of lender of last resort under a currency board as a currency board can be seen as a pre-commitment for a no-bail-out of distressed banks. In other words, it reduces the moral hazard problem of banking supervision. Especially, if banking crises result from poor management and supervision, a currency board may be beneficial.

#### *(7) Seigniorage*

The seigniorage benefits of an independent central bank and a currency board differ. It is sometimes argued that a currency board will not bring any seigniorage. This is wrong, as a currency board generates profits from the difference between the interest earned on its reserve assets and the expense of maintaining its liabilities (notes and coins in circulation). Still, although not zero, under a currency board system the seigniorage that a country can collect is limited. As Kopcke (1999, p. 30) puts it: the “principal seigniorage offered by a currency board is the option it gives to its economy to create its own central bank”. Still, the loss of

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<sup>14</sup> However, Dornbusch (2000) questions this argument, stating that "the lender of last resort issue has to deal with substituting good credit (not money) for bad credit. That is intrinsically a Treasury function or, if the Treasury cannot be a source of good credit, the good part of the banking system, if any, or the rest of the world."

seigniorage is substantially less than the savings on debt service from lower interest rates under a (credible) currency board. Indeed, this argument takes away much of the sting of the loss of seigniorage argument against a currency board (Dornbusch, 2000).

#### *(8) Fiscal policy*

As a currency board cannot provide credit to the government, this could encourage sound fiscal policy making. If the fiscal authorities know that a budget deficit will not be monetized, their incentives to have large deficits will be reduced. However, that disciplining effect should not be taken for granted, especially not if a country has lacked fiscal discipline in the past (Pautola and Backé, 1998). Indeed, Roubini (1999) argues that the choice of the exchange rate regime does not determine inflation nor fiscal deficits. To the contrary, the choice of the exchange rate regime might be determined by the fiscal needs of the country. In other words, like a healthy financial system, sound public finances may be considered as a prerequisite for the successful operation of a currency board (Kopcke, 1999).

A similar case of possible reversed causality exists regarding central bank independence. On the one hand, it has been argued that CBI may enhance sound fiscal policies. On the other hand, causality may also run the other way, i.e. a country will grant its central bank an independent status only if the fiscal need for seigniorage is low (Roubini, 1999). There is, however, only weak evidence suggesting that CBI and fiscal policy outcomes are correlated. Sikken and De Haan (1998), using data for 30 LDCs over the period 1950-94, report for instance that some proxies for CBI are significantly related to central bank credit to government but that CBI is not related to budget deficits (see Eijffinger and De Haan, 1996 for a further discussion).

#### *(9) Misalignments*

Finally, a currency board runs the risk of a real misalignment. If a country's inflation remains higher than that of the pegging country, the currency can become overvalued (Pautola and Backé, 1998). While fixing the exchange rate is a fast way to disinflate an economy starting with a higher inflation rate, pegging the exchange rate will not necessarily reduce the inflation rate instantaneously to that of the pegging country. There are several reasons why inflation will not fall right away (Roubini, 1999). First, purchasing power parity does not hold exactly in the short run since domestic and foreign goods are not perfectly substitutable and the mix of goods and services in the countries concerned may differ. Second, non-tradable goods prices do not feel the same competitive pressures as tradable goods prices, thus inflation in the non-traded sector may fall only slowly. Third, as there is significant inertia in nominal wage growth, wage inflation might not fall right away. Often wage contracts are backward looking

and the adjustment of wages will occur slowly. Finally, differing productivity growth rates may be reflected in differences in price increases (Samuelson-Belassa effect). If domestic inflation does not converge to the level of the pegging country, a real appreciation will occur over time. As Roubini (1999) points out, such a real exchange rate appreciation may cause a loss of competitiveness and a structural worsening of the trade balance which makes the current account deficit less sustainable.<sup>15</sup>

Dornbusch (2000) forcefully argues against that the view that a flexible exchange rate offers an easier way of adjusting relative price levels and hence competitiveness than general deflation. In his view, most disturbances are temporary rather than permanent and hence should be financed rather than adjusted to. Furthermore, in many countries, exchange rates have been the dominant instrument of destabilisation, notably so in Latin America.

#### 4. The Baltics

##### *Economic performance*

The three Baltic states have been quite successful in their transition to a market economy. Table 1 reveals that, while all countries suffered from strongly negative growth rates in the early 1990s, real GDP has been on the rise again since 1995. In the aftermath of the August 1998 Russian crisis, the experience of the three Baltic countries has been very similar in many respects: driven by the collapse of the CIS markets, exports declined and economic growth turned negative in all three countries (Keller, 2000).

*Table 1. Real GDP growth and unemployment*

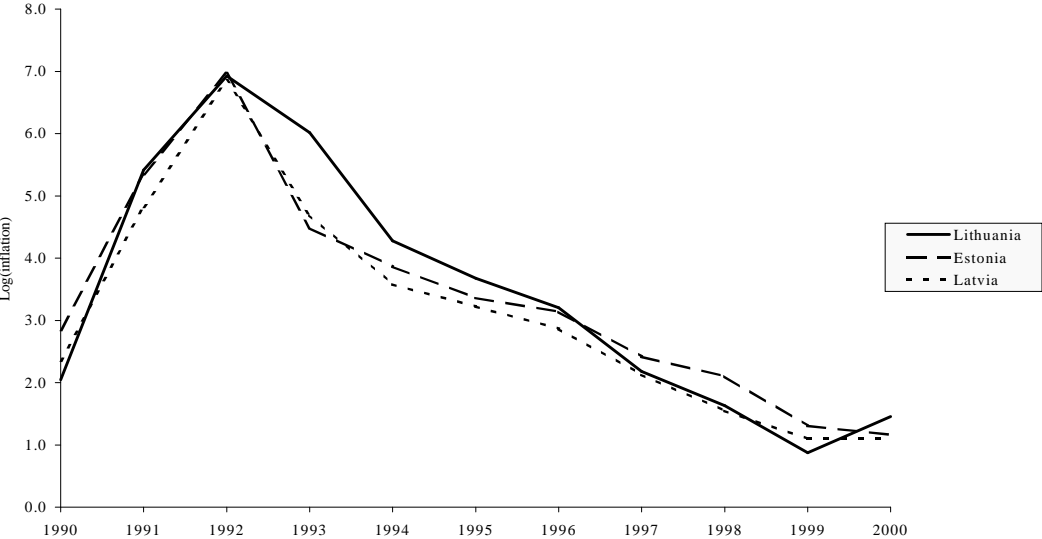
	Estonia		Latvia		Lithuania	
	<i>Growth</i>	<i>Unemploy- ment</i>	<i>Growth</i>	<i>Unemploy- ment.</i>	<i>Growth</i>	<i>Unemploy- ment.</i>
1991	-7.9		-11.1		-5.7	
1992	-21.6		-35.2		-21.3	
1993	-8.2		-16.2		-16.2	
1994	-1.8	7.6	2.1	6.5	-9.8	3.8
1995	4.3	9.7	0.3	6.6	3.3	6.1
1996	4.0	10.0	3.3	7.2	4.7	7.1
1997	11.4	9.7	6.5	7.0	6.1	5.9
1998	4.0	10.3	3.8	9.2	4.4	6.4
1999	2.3		4.0		2.5	

*Source:* IMF (1999).

<sup>15</sup> McGettigan (2000) argues that current account sustainability is a difficult concept to tie down empirically. This author considers the current account unsustainable if continuation of current policies is likely to lead to a drastic policy shift or to a crisis. All kind of indicators can be used to assess whether this will happen. However, special features of transition countries may affect the interpretation of these indicators.

It is interesting to note that Estonia’s growth performance has been somewhat better than that of its neighbors. These differences do not, however, translate into lower measured unemployment. Unemployment has been stabilized in all three states on levels comparable to or below western European rates.

Figure 1. Inflation in the Baltics



Notes: All data, including forecasts, are from the WEO dataset of the IMF.

The Baltics share a similar history of CPI inflation as Figure 1 reveals. In all three countries inflation reached dramatic 4-digit highs in 1992, about two years after the collapse of the iron curtain. But hyperinflation seems to be a thing of the past.

Figure 2. Lending rates in the Baltics



Source: IMF, International Financial Statistics

Figure 2 suggests, however, that the almost identical time-path of inflation across countries hides significant differences in expectations. Deposit interest rates in Estonia were way below the rates in Lithuania and Latvia until late in the 1990s, perhaps signaling a relative swift stabilization of inflation expectations in the latter country. The implied difference in real interest rates could well have helped the growth performance of Estonia. The open question is whether monetary institutions had anything to do with these observed differences and similarities.

### *Monetary institutions*

*Estonia* introduced a currency board system on 20 June 1992, establishing an exchange rate of 8 kroons = 1 German mark (DM).<sup>16</sup> Eesti Pank (the central bank in Estonia) has the right to revalue the kroon (upwards), but devaluation requires an Act of Parliament. Since the beginning of 1999 the kroon is pegged to the euro (1 euro = 15.6446 eek). Base money was fully backed by foreign reserves, initially by gold, and shortly thereafter by assets denominated in DM (Pautola and Backé, 1998). At the time that the currency board was introduced, current account transactions were fully liberalised, but some restrictions existed on capital transactions. At the end of 1993 also capital account transactions were almost fully liberalized. The government's policy aim is to maintain the currency board and the current exchange rate peg until Estonia joins the European Economic and Monetary Union (EMU) (IMF, 1999).

*Lithuania*, influenced by Estonia's success, introduced a currency board on 1 April 1994, establishing an exchange rate of 4 litas = 1 US\$. The choice of the dollar was motivated by the pre-existing large-scale dollarisation of the economy, and the denomination of important imports (oil) in dollars (Ghosh et al., 2000). Zettermeyer and Citrin (1995) argue that in Lithuania the currency board was introduced only after the Lithuanian government had demonstrated its capacity to adjust fiscally, reduce inflation, and stabilize the exchange rate. With monetary policy tightened significantly from early 1993, the monthly rate of inflation had been stabilized at low single-digit levels for some time. The Bank of Lithuania has the power to change the official exchange rate in consultation with the government (Camard, 1996). In September 1998, it was decided that the third stage of the envisaged monetary program (abolition of the currency board system, unpegging of the litas from the dollar and repegging it to a dollar-euro basket) adopted in early-1997 would be postponed. According to

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<sup>16</sup> Consideration was also given to linking to the European Currency Unit (ECU). However, as such a link would not have been as transparent as a link with a single currency, this option was rejected (Bennett, 1993).

previous plans the third stage was to begin in mid-1999. The postponement was caused by the emerging markets instability.

Nowadays, the Bank of *Latvia* behaves similar to a currency board: “The Bank of Latvia's monetary policy aims at maintaining exchange rate stability and controlling the amount of banks' reserves so as to limit excessive lending. The exchange rate policy of the Bank of Latvia is similar to that of a currency board, and the monetary base is backed by gold and foreign currency reserves.” (Bank of Latvia, 2000). The lat is pegged to the SDR basket of major international currencies at the rate  $1 \text{ SDR} = 0.7997 \text{ LVL}$  since mid-February 1994. However, there is no formal codified commitment to those policies, and the Bank of Latvia could discontinue them without changing the essence of its central banking system. It can therefore not be considered a full currency board (Schuler, 1999). It seems that Latvia's monetary regime best described as a halfway-house between a SDR-based currency board and an independent central bank. In Mai 1992 the law “On the Bank of Latvia” was approved by parliament. According to Article 13 of this law, “the Bank of Latvia shall not be subject to the decisions and regulations adopted by the Government or its institutions. The Bank of Latvia shall be independent in the adoption of it decisions and in their practical implementation.” Before Latvia decided to introduce its peg to the SDR, it had a money-based stabilization program. Interestingly, Zettermeyer and Citron (1995) argue that although the necessary conditions for pegging were broadly satisfied at the time, with widespread political support for strong stabilization policies, the Latvian authorities opted for a strong independent central bank in conjunction with a flexible exchange rate arrangement. According to Zettermeyer and Citron this policy was successful: “The Latvian experience confirms that inflation can be effectively and rapidly reduced under a money-based stabilization and that the exchange rate peg is not a precondition for fiscal discipline and quick stabilization” (Zettermeyer and Citron, 1995, p. 99).

## **5. An evaluation**

To which extent is this heterogeneous institutional setting compatible with the arguments listed in Sections 2 and 3? And what policy implications can we derive from such a comparison? Have the Baltics done the right thing? To answer these questions, we have to rely on within-period observations, since there is a lack of reliable and comparable pre-1990 data. While this limits our possibilities to discuss the exchange rate regimes from an *ex ante*

perspective, we can evaluate whether the monetary regime choices made by the three Baltic countries were recommendable *ex post*.<sup>17</sup>

First, we consider *stabilization culture* and *central bank independence*. From the theoretical model discussed in Section 2 we inferred that, as a rule, a high available degree of central bank conservatism and independence in the home country should be viewed as evidence against a currency board arrangement (or fixed exchange rates in general). In contrast, a highly independent and conservative monetary authority in the target country speaks in its favor. So how independent are the various monetary authorities in the Baltic states? One way to answer this question is to compare the scores on various legal indicators for central bank independence (CBI). In the literature various indicators have been proposed (see Eijffinger and De Haan, 1996 for an extensive discussion). Although these measures differ substantially, they share a common approach. On the basis of various criteria, the central bank laws of the countries concerned are compared to one another. The upper part of Table 2 presents the scores for the Baltics, using three well-known indicators for CBI, i.e. the index of Alesina (AL), Grilli, Masciandaro and Tabellini (GMT) and Eijffinger and Schaling (ES).<sup>18</sup> Somewhat surprisingly, it follows from Table 2 that the central bank of Latvia has a relatively low score for these legal indicators.

Still, as Cukierman (1992) has argued, the turnover rate of central bank governors (TOR) may be a better indicator for actual independence. This indicator is based on the presumption that, at least above some threshold, a higher turnover of central bank governors indicates a lower level of independence. The idea behind this measure is that, even if the central bank law is quite explicit, it may not be operational if a different tradition has precedence. This approach is also much better suited for capturing the stabilization culture, i.e. the interaction of central bank and government in actual monetary policy (see Section 2).<sup>19</sup> From this perspective, the central bank of Latvia is clearly the most independent one.<sup>20</sup>

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<sup>17</sup> There is, of course, a potential problem with endogeneity if the criteria applied were not policy-invariant. Note, however, that endogeneity would not bias the results, since it would apply to *all* institutional settings in a similar way.

<sup>18</sup> See Eijffinger and De Haan (1996) for a detailed description of these indicators. The scores for the Baltics have been determined on the basis of their respective bank laws which are available on the homepage of their central banks.

<sup>19</sup> A striking example is Argentina, where the legal term of office of the central bank governor is four years, but where there it is also an informal tradition that the governor will resign whenever there is a change of government, or even a new finance minister. Consequently, the actual average term of office of the governor of the central bank amounted to only ten months during the 1980s. This example suggests that the turnover rate of central bank governors may be a good indicator for the degree of central bank autonomy. Also the experience of Lithuania, where parliament replaced the governor in 1996 although the Law does not provide for this, supports this.

<sup>20</sup> See Loungani and Sheets (1997) and Radzyner and Riesinger (1997) for further discussion.



Table 2. Independence of monetary authorities

	<i>AL</i>	<i>GMT</i>	<i>ES</i>	<i>TOR</i>
Estonia	3	11(4)	4	0.31
Lithuania	4	12(5)	5	0.69
Latvia	1	7(3)	2	0.15
	<i>AL</i>	<i>GMT</i>	<i>ES</i>	<i>Inflation 1990s</i>
Germany	4	13 (6)	5	2.75
US	3	12 (5)	3	3.09
SDR	2.99	9.98 (3.76)	3.2	2.72

*Notes:* The figures for the SDR have been computed as weighted average of the underlying country figures. The figure in parentheses under GMT is the index for political independence.

With regard to the characteristics of the central banks in the target areas, the lower part of Table 2 presents evidence based on legal indicators for CBI and actual inflation during the period of interest. Both variables are known to be negatively correlated across OECD countries (Berger et al., 2000a). The literature on CBI has not yet produced indicators for conservatism of actual monetary policy. The lower part of Table 2 suggests that all the indicators conclude that the central bank of Germany is more independent than the US central bank and the (weighted average of CBI in) the SDR countries. German inflation is about level with (weighted) inflation of the SDR countries and somewhat lower than in the US. Overall, however, the differences between these country's monetary institutions look minor.

The model sketched in Section 2 also suggests to look at the *correlation* of shocks as a crucial determinant of the choice for a monetary policy regime. Table 3 presents the correlation of output and inflation shocks across the three Baltic states and the three target areas under consideration during the 1990s.<sup>21</sup> Shocks are defined as the deviation of real GDP growth and inflation from their respective Hodrick-Prescott trend.<sup>22</sup> The results are revealing. Estonia, which targets Germany with its currency board, obviously could hardly have done better. German inflation and output are positively correlated with the Estonian business cycle. While the correlation (especially that of output) is far from perfect, it ensured that imported stabilization policy was not too much out of line with domestic requirements. The results for Lithuania, with its US-dollar based currency board, are just the opposite. Lithuania imported a monetary policy geared to meet the demands of a business cycle which was, at least in the 1990s, highly negatively correlated with its own. While, in general, a currency board might or

<sup>21</sup> To use as many observations as possible, our estimation period does not coincide with the various regimes that can be distinguished.

<sup>22</sup> Results are very robust with regard to the filter chosen. Some results change when the original output growth and inflation series are not HP-filtered before computing the correlations. However, since many of the single series are only stationary around a trend in the period under consideration, it seems appropriate to use the results as displayed above.

might not have been a good idea in the Lithuanian case, choosing the US-dollar as the basket currency certainly was a bad choice. The country could have done dramatically better by de-facto fixing its exchange rate vis-à-vis the German DM.

Even though Latvia has never formally adopted a currency board based on the SDR, it seems reasonable to focus on this particular currency basket. Is the synchronicity of the business cycle in Latvia and the SDR area large enough to render an independent central bank regime inferior to the currency-board-like-system? Table 3 provides somewhat mixed results here: while the correlation of inflation is (weakly) negative, the coefficient of correlation of output shocks is clearly positive. (Note that the correlation with German output and inflation shocks is highly positive.) All in all, Latvia’s actual monetary regime choice seems less in line with the business cycle synchronicity criterion than Estonia’s, but more so than Lithuania’s.

Table 3. Correlation of output and inflation shocks

<i>Output shocks</i>	Estonia	Lithuania	Latvia
Germany	<b>0.18</b>	0.44	0.29
US	-0.23	<b>-0.46</b>	-0.25
SDR	0.25	0.21	<b>0.31</b>
<i>Inflation shocks</i>	Estonia	Lithuania	Latvia
Germany	<b>0.62</b>	0.78	0.65
US	-0.47	<b>-0.57</b>	-0.48
SDR	-0.06	-0.13	<b>-0.08</b>

Notes: Shocks are defined as the deviation of GDP growth rates and inflation from their Hodrick-Prescott trend. Series run 1991-2000 (forecast). Results hardly change if we use the log of inflation for the Baltic countries. The figures for the SDR have been computed as weighted average of the figures of the underlying countries. Bold figures mark the correlation between the respective home country and the area or basket targeted.

Apart from the considerations discussed above, Section 3 outlined a number of other relevant issues. In the remainder of this section these will be discussed in turn.

The European Union is by far the largest export partner for Estonia, with the Union as a whole accounting for 68% of Estonia’ s total exports as of December, 1998, and the euro zone for around 40%. The main export articles to European Union are machinery and equipment that account for 40% of Estonia’ s exports to EU, followed by textiles and timber with 18% and 15%, respectively (Ross, 1999). From this perspective Estonia’s choice to peg to the German mark seems the proper decision. However, the choice of the US-dollar as the currency to peg the litas to is questionable from the perspective of the saving of *transaction costs* in international trade

and finance. Table 4 presents some trade statistics for the Baltics and it is clear that trade with Germany is also for Lithuania far more important than trade with the US.

Table 4. Trade Shares (in %)

Share of country in trade (1992-98) with:	Estonia		Lithuania		Latvia	
	Exports	Imports	Exports	Imports	Exports	Imports
Germany	<b>7.3</b>	<b>10.3</b>	14.2	17.3	12.5	15.0
US	2.3	3.0	<b>1.6</b>	<b>2.4</b>	1.4	2.1
SDR	3.1	4.3	4.6	5.4	<b>4.5</b>	<b>4.6</b>

Source: IMF Trade Statistics. Bold figures mark the correlation between the respective home country and the area or basket targeted. The figures for the SDR have been computed as weighted average of the underlying country figures.

The introduction of the currency board in Estonia was relatively easy as the Bank of Estonia disposed of substantial quantities of gold that had been deposited in foreign central banks before the Second World War, so that it could meet backing requirements including some excess reserves with its own international reserves (Pautola and Backé, 1998). There has been broad *political support* in Estonia for the currency board. Almost immediately after the introduction of the currency board, foreign reserves began to accumulate. Despite the rather favorable circumstances for the currency board, the Estonian kroon has experienced pressure a number of times. Still, there has not been a realignment.

In Lithuania the introduction of the currency board was not supported by a number of important players. While the government and the IMF supported it, the Bank of Lithuania, some commercial banks and many industrialists opposed it. Initially the net-backing of the monetary base was less than 100 per cent. Resources borrowed from the IMF were considered a suitable backing due to their long-term character. Lithuania also experienced a rapid growth in reserves. Indeed, excess reserves amounted to about 15 per cent of total deposits of the banking sector, which was considered adequate for lender-of-last-resort purposes (Pautola and Backé, 1998).

An alleged potential weakness of currency boards is their limited ability to act as a *lender of last resort*. A banking crisis can have serious consequences. This is clearly illustrated by developments in both Estonia and Lithuania. Estonia was confronted with banking crisis in 1992 and 1994 and finally in 1998 during which many banks collapsed. Although the Bank of Estonia could have used its excess reserves to rescue troubled banks, the bank refrained from intervention. Only in 1994 were some loans granted to surviving and

newly merged banks (Pautola and Backé, 1998).<sup>23</sup> The number of licensed banks fell from 22 in 1994 to 6 in 1998.<sup>24</sup>

As a currency board has limited lender of last resort possibilities and banks face high liquidity and interest rate volatility currency boards may impose strict prudential supervision rules. In Lithuania, for instance, the capital adequacy ratio was initially put at 13 per cent to be reduced to 10 per cent in 1997 (Santiprabhob, 1997). Nevertheless, also Lithuania experienced a banking crisis in 1995/96 during which fourteen smaller banks were closed. The Lithuanian authorities did not show the same resolve in dealing with the larger banks that they had shown with problematic small banks. Moreover, the implementation of measures to strengthen the banking system, following the suspension of operations of two banks in December 1995, was delayed repeatedly. The ensuing political turmoil, a number of contradictory laws passed by parliament, and the initial inaction of the authorities concerning the affected banks further undermined the public's confidence in the financial system (Lopez Claros and Garibaldi, 1998, pp. 49-50). However, in 1996 a restructuring operation financed through the government's budget and a World Bank loan proved sufficient to avert the crisis (Ghosh et al., 2000). Apparently, when the problems are large enough or systemic in nature, government intervention is inevitable (Korhonen, 2000).

Lopez-Claros and Garibaldi (1998) conclude that the currency boards in Estonia and Lithuania have withstood reasonably well the banking crises, both of which originated in the context of ineffective supervision and poor banking practices (weak lending skills, insider abuse, over-extension of the banks' branch network, violations of regulatory provisions, under-capitalization, among others). Also Latvia had its banking crisis. In the spring of 1995, Latvia experienced one of the largest banking crisis in the former Soviet Union to date, involving the loss of about 40 percent of the banking system's assets and liabilities (Fleming and Talley, 1996).<sup>25</sup> The impact of the Russia crisis on the banking system in Latvia was far more serious than for that of its Baltic neighbors, reflecting the sizable holdings of Russian

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<sup>23</sup> The Estonian authorities dealt quite differently with the 1992 and the 1994 episodes. In the earlier crises, after initial liquidity support, when the crises was thought to be temporary, the central bank moved quickly to close the problem banks and to deal with them in a decisive manner — in one case, without bailing out creditors. In contrast, the 1994 crisis dragged on for a year, drained large resources from the central bank (equivalent to 6 percent of base money), and, with the exception of shareholders, created no losses to creditors who were bailed out at government expense (Lopez-Claros and Garibaldi, 1998, p. 15).

<sup>24</sup> Data from the homepage of Eesti Pank.

<sup>25</sup> See Fleming et al. (1997) for a detailed analysis of the banking crises in the Baltics. After Bank Baltija had become insolvent in early 1995 and had received one emergency liquidity loan from the central bank, its operations were suspended and it entered bankruptcy and liquidation procedures. Creditors received no bail-out of any kind despite the size of the bank (Lopez-Claros and Garibaldi, 1998).

government securities by a number of banks (Keller, 2000). Latvia found it necessary to step up its regulatory efforts in the banking sector (Bank of Latvia, 1995).<sup>26</sup>

By construction, currency boards produce lower *seigniorage* receipts than an independent central bank, even when both regimes would deliver the same rate of inflation. In that sense the loss of income is an argument against having a currency board. In Lithuania the distribution of profits is as follows. First losses of the previous year are covered. Seventy per cent of the remaining profits are allocated to the capital of the central bank and what remains is transferred to the government (Law on the Bank of Lithuania).<sup>27</sup>

Even though both Estonia and Lithuania suffered from the same actual loss of seigniorage income from introducing a currency board, their fiscal behavior was quite different. Table 5 reveals that in the case of Estonia the currency board has been associated with notable *fiscal discipline*. According to the IMF (1999), Estonia's budget deficit remained well within even the EMU's Maastricht criterion throughout the late 1990s and its 1998 debt level was less than four percent of GDP. In contrast, Lithuania's deficits have been increasing beyond 5 percent of GDP in recent years. Its 1998 debt level was in the range of 15 percent of GDP. Latvia takes an intermediate position with regard to fiscal discipline – while its debt level is in the same range as Lithuania's, current deficits are rather low.

Table 5. Government Finances (in % of GDP)

	Estonia		Lithuania		Latvia	
	<i>Balance</i>	<i>Debt</i>	<i>Balance</i>	<i>Debt</i>	<i>Balance</i>	<i>Debt</i>
1994	1.3	7.3	-4.8	10.4	-4.0	14.5
1995	-0.5	6.7	-4.5	14.3	-3.9	14.8
1996	-1.5	6.9	-4.5	15.0	-1.7	12.7
1997	1.8	4.7	-1.8	16.2	0.1	11.1
1998	-0.3	3.3	-5.8	17.0	-0.8	14.7

Source: IMF (1999).

As inflation was quite high in 1997/98 due to the strong economic performance, the *real exchange rate* appreciated substantially in Estonia and Lithuania (see Figure 3). Lithuania entered the currency board in 1994 with an exchange rate that was considered

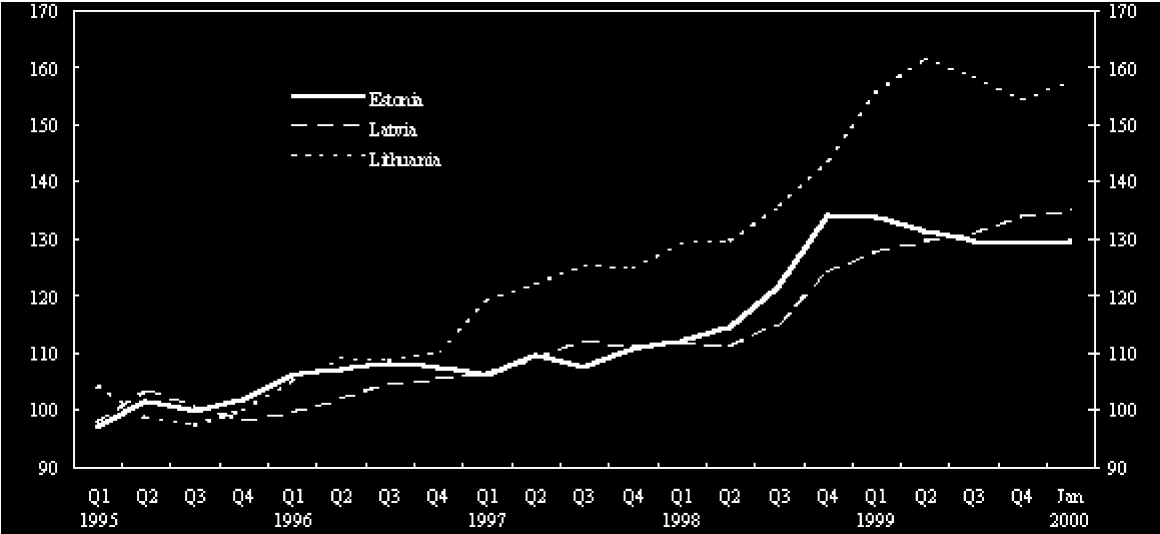
<sup>26</sup> On a more speculative note, the Latvian focus on bank regulation could perhaps be interpreted as evidence in favor of its commitment to its currency-board-like monetary regime. In principle, under a regime of flexible exchange rates the central bank would have been free to act as an unrestricted lender of last resort instead.

<sup>27</sup> Lopez-Claros and Garibaldi (1998) argue that a case can be made that the seigniorage "losses" in the Baltic area are minimal since, the reserves held as coverage for the currency issue are at about levels that they should be (about three months' worth of imports) for small, relatively open economies, even if the country in question did not have a currency board.

undervalued in real terms. Still, even considering the initial undervaluation, there has been a significant real appreciation since 1994. According to Roubini (1999) these real appreciations have had dramatic effects on the competitiveness of exports of these countries. In 1992, Estonia ran a current account surplus equal to 3.4% of GDP; this had turned into a current account deficit of 8.6% of GDP in 1998. The authorities in Estonia do not agree. “Considering the initial undervaluation and high productivity growth in the tradables sector, the appreciation of the real exchange rate is strongly overstated by statistical phenomena and has not been a major threat to international competitiveness.” (Ross, 1999). Indeed, in Estonia, and also in Latvia and Lithuania, dollar wages remain well below levels in Western European trade partner countries, and these relatively low labor costs are often cited as an important contributing factor for the growth of foreign direct investment. Export growth has remained buoyant in all three countries, and while the current accounts deficits have widened, especially in Estonia, international reserves seem adequate (Lopez-Claros and Garibaldi, 1998).

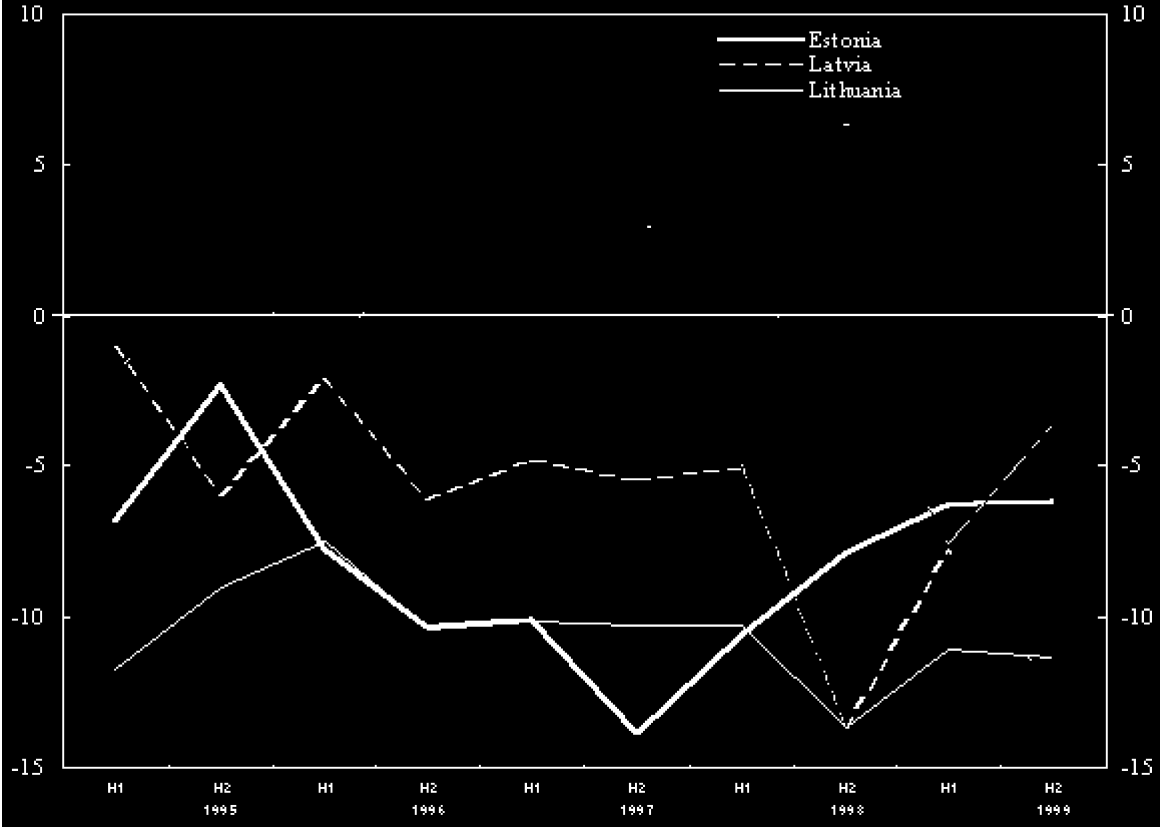
It is interesting to note that Latvia under its somewhat less rigid and comparatively late commitment to a SDR-based currency-board-like-system suffered a relatively similar real appreciation as Lithuania between 1993-96 (see Lopez-Claros and Garibaldi, 1998). While Latvia’s current account initially showed only a relatively small deficit, by 1998 the deficit had increased to almost ten percent of GDP. As Figure 4 reveals, both Lithuania and Estonia feature deficits at a comparable level since the mid-1990s.

Figure 3. Real effective exchange rate (1995=100)



Source: Keller (2000).

Figure 4. Current account balance (% GDP)



Source: Keller (2000).

## 6. What have we learned?

The main conclusion from the discussion above is probably that the monetary regimes in the three Baltic states are not only heterogeneous in form – they also differ quite substantially with regard to their ability to fulfil the criteria for an optimal monetary regime developed in Sections 2 and 3.

Table 6.: Did the Baltics do the right thing? An evaluation of monetary regimes

<i>Actual institution</i>	Estonia Currency board (DM)	Latvia Currency-board-like-system (SDR)	Lithuania Currency board (US-\$)
<i>Criterion</i>			
(1) <i>Stabilization culture</i>	+ High legal CBI but high TOR score	– Low legal CBI but low TOR score	+ High legal CBI but high TOR score
(2) <i>Foreign CBI</i>	+ High legal CBI	+ High legal CBI	+ High legal CBI
(3) <i>Business cycle sync.</i>	+ Both real and nominal correlation high	–/+ Positive real but weakly negative nominal correlation with SDR	– Negative real and nominal correlation (both positive with Germany)
(4) <i>Transactions costs</i>	+ Relatively high German trade share	+ Relatively high SDR trade share	– Relatively low US trade share
(5) <i>Political support</i>	+ Broad support all around, low interest rates premium	–/+ Not a clear choice right from beginning	–/+ (Some) opposition within the country, but IMF support
(6) <i>Lender of last resort</i>	– Banking crisis in 1992/94/98	– Banking crisis in 1995	– Banking crisis in 1995/6
(7) <i>Seigniorage</i>	– Loss of seigniorage	+ No seigniorage loss	– Loss of seigniorage
(8) <i>Fiscal policy</i>	+ Very strong fiscal discipline	–/+ Some fiscal discipline	– Relatively high and growing deficits, even though debt ratio still low
(9) <i>Misalignments</i>	– Appreciation since 1993	– Appreciation since 1993	– Appreciation since 1993

Notes: Evaluation based on the actual target currencies as listed in the second row. Latvia is classified as a currency-board-like-system based on SDR (see text). See for rows (1) and (2): Table 2; (3): Table 3; (4): Table 4; (8): Table 5 and (9): Figures 3-4.

Table 6 summarizes our main results. Across all arguments discussed in the previous two sections, we find that *Estonia's* exchange rate regime, a currency board targeting the German DM (euro), is perhaps the one that is most in line with the criteria. It is interesting to note that, as discussed above (see Figure 2), the Estonian exchange rate regime was also the one most successful in stabilizing inflation expectations. In the case of *Latvia* the evaluation very much depends on one's interpretation of the actual exchange rate regime. If we interpret it as a currency-board-like-system based on the SDR, Latvia's decision is somewhat less in line with the criteria pointing towards such a monetary arrangement than the Estonian choice. This is due to the weaker business cycle synchronicity and the wavering initial support for the idea of de facto fixing the exchange rate. The (prevailing) lack of legal codification of the country's



currency board regime further stresses this point. Taking into account the relatively high degree of observed central bank independence, it is not entirely clear whether Latvia would not be better off with a fully flexible exchange rate regime. At a somewhat less fundamental level, it seems safe to recommend at least a re-adjustment towards the DM (or euro) area. Also *Lithuania's* currency board targeting the US-Dollar is not in line with the recommendations following from the analyses of Sections 2 and 3. Table 6 reveals that what distinguishes the Estonian currency board from the Lithuanian board is the business cycle synchronicity with its target area, the fiscal discipline it can call upon, and the strong public support it gathered. While the latter factor might be exogenous rather than a matter of conscious political choice, especially the first feature of the Estonian solution is hardly an accident. Clearly, pegging one's currency to (and importing monetary policy from) an area fundamentally in sync with the economic development at home is a sensible decision. The Lithuanian government did just the opposite when basing its currency board on the US-dollar instead of the German DM. While the monetary policy imported from the US-Fed surely helped Lithuania to anchor inflation expectations, it also forced the Lithuanian currency board to implement a stabilization policy that amplified rather than compensated real and nominal shocks at home. A possible peg to the German DM would have provided the same low inflationary bias without this disadvantage. Also with regard to the initial stabilization problem, Latvia is a somewhat different case. While it could have opted for a currency board based on the German DM that would have avoided falling into a Lithuanian type stabilization trap, its relatively high degree of factual central bank independence allowed it to bring down inflation without giving up national policy autonomy.

## **7. Concluding comments**

So far, most attention from academics and policymakers alike has focused on how to start up a currency board and how to operate it. Our analysis suggests that under certain circumstances a currency board may indeed be very beneficial. More specifically, the answer to the question of whether the introduction of a currency board is a good idea for a country seeking to stabilize inflation might depend on a number of criteria other than expected inflation in the target area. For instance, the anchor currency should be issued in a region which has a positively correlated business cycle with the home economy to ensure that imported monetary policy is in line with the stabilization needs of the pegging country. According to this and other criteria, the Estonian currency board seems to be much more robust than the Lithuanian board. However, even in the Estonian case the board will not remain in place forever.

Currency boards may give a new currency a quick start (in some cases more than in others), but it is likely that the balance of costs and benefits will change over time if only because the circumstances may change.

This brings up the issue as to how to exit a currency board. In general, if a currency board has functioned for quite some time in a credible way, it may be transformed into an independent central bank. However, the circumstances have to be right for such a transformation. One of the key concerns is to design and implement the exit process in a manner which does not impair the credibility of the monetary policy makers (Pautola and Backé, 1998). As Kopcke (1999) points out, a country should prepare for its potential departure, i.e. the monetary authorities should create a capacity to undertake policy analysis and conduct policy and money markets and financial institutions should develop. However, a currency board does not encourage these developments: “the art of conducting monetary policy can atrophy for lack of application, and credit markets can remain thin as banks become accustomed to dealing with the currency board and to holding many of their marketable financial assets abroad” (Kopcke, 1999, p. 32). Furthermore, the specification of the exit mechanism may undermine the credibility of the currency board (Enoch and Gulde, 1997).

As far as the exit strategy for the Baltic countries with a currency board is concerned, it is clear that any assessment of options for monetary and exchange rate policies over the medium-term should take into account the Baltic countries’ stated intentions to join the EU and the EMU, goals for which there appears to be a broad-based domestic consensus. The EU has clarified that until accession, the choice of the exchange rate regimes remains that of the country, provided that the regime is supportive of meeting the Copenhagen criteria. Only after EU membership does the exchange rate policy become a matter of common concern. The ECB has recently clarified that a euro-pegged currency board arrangement will be permitted under ERM2 on a case-by-case basis provided that agreement is reached on the central rate vis-à-vis the euro. Pegs to currencies other than the euro will, however, not be acceptable under ERM2 (Keller, 2000). Consequently, at some time both Lithuania and Latvia have to peg their currencies to the euro. Recently, the Bank of Lithuania has announced that the reorientation of the litas exchange rate towards the euro as planned in 2000 will not be carried out. Instead, the litas will be pegged directly to the euro in the second half of 2001, without an intermediate peg to a currency basket composed of equal shares of the euro and the dollar. Our analysis supports this decision.

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