Gabrisch, Hubert

Working Paper

Financial fragility and exchange rate arrangements of EU candidate countries

IWH Discussion Papers, No. 156/2002

Provided in Cooperation with:
Halle Institute for Economic Research (IWH) – Member of the Leibniz Association

Suggested Citation: Gabrisch, Hubert (2002) : Financial fragility and exchange rate arrangements of EU candidate countries, IWH Discussion Papers, No. 156/2002, Leibniz-Institut für Wirtschaftsforschung Halle (IWH), Halle (Saale), https://nbn-resolving.de/urn:nbn:de:gbv:3:2-20084

This Version is available at:
https://hdl.handle.net/10419/77023

Institut für Wirtschaftsforschung Halle
Halle Institute for Economic Research

Das IWH ist Mitglied der Wissenschaftsgemeinschaft Gottfried Wilhelm Leibniz WGL

Financial fragility and exchange rate arrangements of EU candidate countries

Hubert Gabrisch

Februar 2002 Nr. 156

Diskussionspapiere
Discussion Papers

Authors: Hubert Gabrisch

Department of Central and Eastern Europe

gab@iwh-halle.de

Phone: ++49 345 77 53 830

Herausgeber:

INSTITUT FÜR WIRTSCHAFTSFORSCHUNG HALLE (IWH)

Postanschrift: Postfach 11 03 61, 06017 Halle (Saale)

Hausanschrift: Kleine Märkerstraße 8, 06108 Halle (Saale)

Telefon: (03 45) 77 53-60

Telefax: (03 45) 77 53-8 20

Internet: http://www.iwh-halle.de

Abstract

Financial fragility of a country is the systemic risk of its debtors to default. With open capital markets, financial flows in international currency become more and more independent from trade and service flows. This political-oriented study investigates how exchange rate arrangements of Central and Eastern Europe countries increase or reduce financial fragility, stemming particularly from the moral-hazard problem, the original-sin problem, and commitment problems. It further discusses whether future EU members will face an increase of financial fragility when entering the ERM II. The study finds (a) that moral hazard plays a minor role in candidate countries. An independent float, like the one for Poland's currency, cannot reduce the vulnerability against a financial crisis. More problems result from original sins and commitment problems, the latter being closely related to the institutional weaknesses of transition countries. The study finds further (b) that, against this background, currency boards (Bulgaria, Estonia, and Lithuania) and managed floats (Czech Republic, Slovak Republic, Romania and Slovenia) present the best results in reducing financial fragility. Currency boards succeeded due to the small debt and equity markets, some lender-of-last-resort function of central banks, and a high integration of the trade and banking industry with the base currency region (EU). The advantages are less obvious for larger countries with less developed and integrated markets. Finally, the study finds (c) that the switch to ERM II will probably increase financial fragility of the independent float country Poland since the currency appreciated more during the float period than before. With an overvalued currency, increased sterilisation efforts might lead to liquidity constraints. Otherwise, expected depreciation might trigger speculative attacks. The misalignment problem is less present in case of managed floats. Hungary unilaterally introduced recently the ERM II setting, and crisis vulnerability increased. Official membership of ERM II, however, would lower the risk potential. The fix peg of Latvia's currency is sustainable due to reasons similar for other Baltic countries. The widening of the band in the case of ERM II would not generate any additional financial risk.

JEL: E58, F3

1. Introduction

With fundamental liberalisation of financial markets in developed countries and of capital accounts worldwide, systemic financial fragility of emerging market economies increased. A number of financial crises (currency and financial sector crises) upset the world economy in the last two decades. Compared with 'classic' demand and terms of trade shocks, financial shocks broke out quite independently from real economy developments. In reaction to increasing financial vulnerability, we observe a shift away from intermediate exchange rate arrangements[1] during the last decade. The share of free floats and hard pegs increased whilst the share of intermediate solutions shrank (Chart 1). This shift can be explained by the so-called open-economy trilemma (*Obstfeld and Taylor 1998*): a country cannot have free capital markets, a pegged exchange rate and follow an autonomous monetary policy. Such a combination rather raises the risk for a misalignment of the exchange rate. The advice is: give up either any exchange rate goal or any monetary policy.

Central and East European (CEE) countries are exposed to financial crises since economic transition started. We observe a similar shift away from intermediate exchange rate arrangements towards currency boards or floats (Chart 2). We find two questions to be answered: (a) since also currency boards, which are very hard versions of a fix peg, may collapse (Argentina) we will ask why these arrangements survived in CEE countries. (b) Most of the countries will soon become a member of the European Union (EU), and will somewhat later adopt the Euro. The way toward the Euro consists of a return to intermediate solutions (the ERM II is a fix peg within a wide band), and, later, euroisation through EMU membership. Will the move from either side to ERM II increase financial fragility?

The rest of the paper is organised as follows: Section 2 describes the problem of financial fragility from a more conceptual viewpoint. The role of the exchange rate arrangement will be treated prominently. This chapter will show that the choice of the exchange rate is a trickier task in the presence of financial shocks than under traditional conditions of demand and terms-of-trade shocks. Section 3 turns to the EU candidate countries and starts with an overview of crisis risk potentials and the exchange rate arrangement. In the following, we discuss the case of an exchange rate float and ask why some pegged arrangements including currency boards survived. Section 4 concludes taking the perspective of EMU membership.

2. On the nature of financial fragility

Financial fragility is the weakness of a debtor to absorb a financial shock. Systemic financial fragility means that a whole economy is vulnerable against those shocks like a bank run or a sudden reversal of capital flows; its central bank might run out of international reserve money. If so, a financial crisis breaks out. For the understanding of the relation between the exchange

[1] We define an arrangement as intermediate when the central bank follows a declared exchange rate goal. This includes a fix peg but not a currency board.

rate arrangement and financial fragility, the nature of financial shocks plays a role as well as the specific institutional framework of the financial sector.

A market economy is based upon financial contracts discharged over time -- a scheme that constitutes for the holder of a financial claim a basic risk of getting repaid. The fundamental change in financial markets of developed countries and the worldwide capital account liberalisation increased this basic risk. In the world economic order before, international financial flows were closely linked to real economy flows: commodities and services, which served as 'solid' collaterals. Under the new framework, the financial sector became active in international business and financial flows became independent from trade flows. The disintegration of international trade and finance created new kinds of contracts, parts of them devoted to provide collateral based upon reputation (for example, derivatives). The daily transactions on world foreign exchange markets amounted to 1,500 bn US dollars on average in 1998. World exports accounted for only a small portion of this number.[2]

Such large amounts add an additional factor to macroeconomic models and to the choice of the exchange rate arrangement: financial shocks. In the legacy of the Mundell-Fleming model, exchange rate arrangements were discussed under the prevalence of demand and terms-of-trade shocks. With a pegged exchange rate, a shock would be directly transmitted to the economy through the reduction of international reserve and thus a reduction of money supply, and thus, given wage rigidities, to aggregate demand. Debtors default due to shrinking revenue and/or lack of international reserve. The move to a floating exchange rate would ensure, that the shock would reduce neither money supply nor international reserves. Devaluation would cushion the shock at the expense of higher inflation. The critical point is that this basic model fits rather into a world in which payment flows were seen not to affect the long-run trajectories of the economies (*Studart 2001, p. 639*). It is a picture of the 1950s and 1960s where the financial sector was rather passive in international business.

The nature of modern financial fragility makes the choice of the optimal exchange rate arrangement more complicated than in the traditional Mundell-Fleming framework. Some of the recent crises were much more related to the changes in financial markets in developed economies than to changes in the fundamentals of the crises countries in Asian and Latin-America. *Eichengreen and Hausmann* (1999) condensate three hypotheses from the recent literature explaining financial fragility: moral hazard, the original sin and the commitment problem (see Box 1).

[2] BIZ, 2001.

Box 1: Explaining financial fragility – three hypotheses

Moral hazard

Moral hazard of agents who borrow abroad is likely when they can expect to be bailed out. Bailing out means the existence of explicit or implicit guarantees given by a third party (the government, or an international institution like the IMF). Corporations and banks are not forced to hedge their foreign exposures. The result is excessive risk taking.

Original-sin

A history of high inflation and strong and frequent depreciations undermines confidence in the currency of the borrowing country. The currency is not accepted as international reserve money, that is, lenders do not accept debt in this currency. Banks and corporations are not able to hedge their foreign exposure. The result is a currency and/or maturity mismatch of assets and liabilities.

Commitment problem

Financial contracts are charged over time. If law enforcement is weak, if there is a lack of collateral or if the institutional framework is weak, the willingness to repay could be constrained. The consequence could be high spreads on interests that increase financial fragility.

Moral hazard means that agents feel sure to be bailed out if they run into repayment difficulties. Explicit or implicit guarantees prevent them from hedging their foreign exposures against the exchange rate risk. A pegged exchange rate is an implicit guarantee given by the Central Bank, mainly to banks and to the government. The costs of this guarantee are normally outweighed by the gains a pegged exchange rate offers. If moral hazard led to excessive risk taking of, say, the banking sector, the cost, however, might outweigh gains. The banking sector might expand its balance sheet without being limited by its equity capital. The literature describes over-borrowing abroad (McKinon and Pill 1997) and a lending boom (Krugman 1998) as possible consequences: most of short-term financed investment is allocated in assets. Increased demand for assets is often constrained by supply (land or stock shares), hence, asset prices rise, the quality of bank assets will deteriorate and lending rates increase. The Central bank becomes more and more under pressure to put a brake on increasing interest rates. When domestic credit exceeds the amount trade and real growth can absorb, capital inflows might reverse, and the asset bubble bursts.

If moral hazard constitutes the main source of financial fragility, then two policy recommendabious can be found in the literature:

- Reverse of liberalisation of the capital account,
- more flexibility of the exchange rate, in the extreme case an independent float in order to force agents to hedge risks.

With a float the financial fragility will not diminish, when the borrowers of a country are not able to hedge. Hedging means that there is a final lender who accepts debt in the domestic currency of the borrower. Borrowers in developing countries have often difficulties to hedge their foreign exposure since hedging might be too costly or the currency is generally not accepted. If so, a floating exchange rate is not the optimal arrangement. The currency composition of external bank lending of industrial countries (BIS data) illustrates the minor role

currencies of developing and East European countries play: five currencies (US dollar, Euro, Yen, Pound sterling and Swiss Franc) represented 95 % of debt in 2000. The remaining five per cent included the currencies of other industrial countries, of developing and transition countries. If the domestic currency is not accepted as international reserve money, either a currency or a maturity mismatch of commitments can follow. A currency mismatch evolves when investment financed by international credit yields only revenue in domestic currency. A maturity mismatch evolves when long-term investment is financed by short-term international credit.

Why borrowers of a country are unable to hedge is not very clear. A certain history of inflation and strong depreciations (*Eichengreen* and *Hausmann*) may play a role, therefore, the term 'original sin'. With independent floats agents expect depreciations in case of a currency mismatch, and purchase foreign exchange to cover their exposures with the consequence of further depreciation. The likely outcome is a high volatility of interest rates. This is the reason why central banks all around the world are reluctant to let the market do its work, and raise interest rates or follow a managed ('dirty') float. Two reasons might explain the reluctance to rely on the market: (a) the fear that a depreciation due to the given inflation differential could seriously hurt the still vulnerable domestic banking system; and (b), the concern that a depreciation could lead to higher inflation and thereby damage the monetary authorities' reputation. With these typical original-sin problems, the fear is that a depreciation would trigger a downturn in investors confidence and result in even sharper reversals in net capital inflows. If the central bank tries to avoid depreciations and raises its interest rates, the structure of capital inflows might change towards the short end – financial fragility would increase.

A fix peg is not an alternative. If the central bank tried to defend the peg by interest hikes the liquidity situation of corporations, banks and the government would deteriorate, short-term capital then usually fills the gap and financial fragility increases. The trade-off between defending the peg and other aims of the government will lead to multiple equilibria and self-fulfilling currency crises.

Is a currency board a safer haven? A currency board is characterised as a constitutionally backed commitment of the central bank to intervene at any time on the foreign exchange market, coupled with the prohibition to sterilise. The latter is the difference to a fix peg: the central bank cannot take money from the market to defend the peg nor can it provide money (= loss of lender-of-last-resort function). Two possible risks emerge: (1) Financial fragility can increase due to spillover effects from trade shocks, when the currency of the main trading partner devalues. The recent collapse of Argentina's currency provides a good example.3 (2) A currency board is not immune against a bank run (see also the model of *Chang and*

[3] The Peso was tied to the US dollar, but only 12 % of trade was conducted with the US and 30 % with Brasil. The Real depreciated in January 1999 by 40 %, hurting Argentina's international competitiveness. The country slid into a severe recession, and financial markets lost trust into the country's capability to repay.

Velasco, 1998). When factor prices are insufficiently demand-elastic, a bank run could severely hurt the liquidity position of banks. The financial risks of a pure currency board are the reason why they are so rare. Central banks intend to keep some, but not all reserves above money circulation ensuring a certain lender-of-last resort function and to keep some tools for managing money supply (a minimum reserve holding of banks, for example).

Literature offers *no currency* as the solution. Indeed, mismatch problems as well as too much risk-taking would not appear with complete dollarisation or euroisation. The problem is, however, that the stock of reserves available at the moment needs to be high enough to cover not only (technically) the circulation of cash, but also deposits. The longer and the more severe the history of inflation and devaluation of a country, the less the public's confidence in monetary authorities and into the banking system, hence the higher should be the monetary aggregate to be covered (in the extreme case: M3). The problem can be solved by contractual dollarisation. In the case of unilaterial dollarisation, the lack of adequate reserves for covering deposits might otherwise trigger a bank run.

A no-currency is neither a solution when agents are not willing to hedge or to repay. This unwillingness is the direct consequence of weak *commitment* devices the modern financial world provides. In the 'old' world, financial contracts represented trade flows. The financial claim was almost completely covered by the collateral -- the traded item. With developing financial derivatives and financial institutions the close tie between claim and collateral broke. The value of financial contracts tends to exceed by far the value of the collateral that an institution is able to provide. An enforcement problem in countries with weak institutional framework and property rights might increase the commitment problem. Russia provides an example, but also borrowers in Asian countries were suspected to be unwilling to repay, often trying to hide unwillingness behind inability.

The implications for exchange rate policies are less obvious. Where the financial infrastructure is least developed, the markets may most need a lender of last resort, and the lender of last resort needs the freedom granted by a flexible exchange rate policy. A currency board or dollarisation/euroisation are no means to reduce financial fragility if it stems from a commitment problem. On the other hand, in case of a float, expected devaluations cause lenders to demand higher spreads, which might trigger a self-fulfilling crisis (*Eichengreen and Hausmann*).

The financial crises of the previous decade directed the attention of research and policies also to the institutional settings of the financial sector in crisis countries. When capital account restrictions are lifted, the quality of supervision and monitoring of the financial sector (*Williamson* and *Miller*, 1998) as well as the degree of international integration of the banking industry plays a role for increasing or reducing financial fragility. A low quality and integration hit first Japan's economy when financial deregulation and a loose monetary policy started in the 1980s, causing a 'slow-moving financial crisis' between 1991 and 1996 (*Fukao*, 2001) with severe impacts on the other Asian economies. Foreign ownership, for example, might help to improve monitoring and auditing, and can even substitute for the lender-of-last-resort function of the central bank; a fix peg becomes more sustainable. *Chan-Lau* and *Chen* (1998) remark that countries, such as Hong-Kong (currency board) and Singapore (managed float)

had better supervision and monitoring, developed from longer experience in financial business, and were less prone to financial crisis if not immune to them. Both countries are rather small and their banking industry is completely integrated into the international financial world. We will see that a specific combination of all the factors mentioned above drives financial fragility in CEE countries.

3. Financial fragility and exchange rate arrangements in Central and Eastern Europe

3.1 Is there a systematic link?

Measuring a country's vulnerability to financial shocks/crises became one of the leading areas in empirical research after the Asian crises in 1997. We use an approach by Kaminsky, Lizondo and Reinhard (1997) presented and tested by hand of developing countries: the so-called signals approach. The approach is based upon single macroeconomic and financial indicators. Brüggemann and Linne (2002) tested it for EU candidate countries and merged the single indicators into a composite indicator. Compared with probability approaches (Frankel and Rose, 1996; Eichengreen, Rose, and Wyplosz, 1996), which deliver short-term prognoses for a crisis to private investors, the medium-term oriented signals approach is more targeted at policy recommendations. Whilst the probability approaches may capture contagion, the signals approach can identify a change in fundamentals (policy failures and spillover effects from trade shocks) and problems in the banking sector as reasons for increasing fragility.

The most prominent consequence of a crisis or crisis–preventing measures is a re-arrangement of the country's exchange rate system. But is there any systematic link between a change of the risk potential and the exchange rate arrangement in EU candidate countries? The changes of the composite indicators for the risk potentials of EU accession countries are presented in Chart 3. The shadowed areas inform about the 18-month period before a financial crisis. In this perspective, countries with a fix peg may have (Czech Republic) and may not have (Hungary, Latvia) a currency crisis. There seems to be evidence that countries with a currency board did not experience a financial crisis, and their vulnerability is rather on the decline (Bulgaria and Estonia). Nevertheless, the signals approach marks a strong increase of vulnerability for currency board countries and Lativa in the aftermath of the Russian financial crisis from fall 1998. We can explain this increase by spillover effects from trade with Russia.

The managed float arrangements (Czech Republic, Slovak Republic, Romania and Slovenia) show a similar positive development of the composite indicator, though a financial crisis broke out twice in Romania (December 1996 and January 1997). Nevertheless, the match between interest rate targeting (against inflation) and exchange rate flexibility (against short-term capital inflow) seems to be more successful than in the case of the independent float of the Polish Zloty. The rapid increase of the risk potential was followed by speculative attacks against the Zloty in July 2001.

3.2 Is moral hazard the main problem?

The moral-hazard hypothesis predicts that capital flows should be large or, too much than ´socially optimal` (Eichengreen and Hausmann). Actually, capital flows seem to be rather low (Table 2). The share of the consolidated4 international claims of BIS reporting banks vis-à-vis Eastern Europe in their GDP accounted for a mere 0.7 % – by far less than for Western Europe. There seems to be, however, some difference between countries with a float and a peg. The ´Peggers` (countries with a fix peg, a narrow crawling band or a currency board, marked with a 'P') tend to show a higher share than countries with a flexible arrangement. Estonia is a remarkable case with a share of 33.3 %. On the other side we find Poland with its independent float and a share of only 0.1 %. Since there is a lack of clear determination what is 'socially optimal', more information is needed, for example, on exchange rate volatility or the real exchange rate,5 in order to identify a moral hazard problem.

The moral-hazard hypothesis predicts furthermore that capital inflows will take such forms, which most likely will benefit from a bailout – these are banks and the government. Banks are more likely to be bailed out by the government or the central bank than private companies due to the perceived threat to macroeconomic and financial stability. Governments are also likely to be bailed out by international aid, for example granted by the IMF. The sectoral structure of the consolidated international claims of BIS reporting banks shows that the share of claims vis-à-vis banks and governments is lower for CEE countries, Asian countries and Latin America than for Western Europe, with Russia being the exception. Peg arrangements show a even lower share than float arrangements, though it should be the reverse if the moral-hazard hypothesis were to hold. High capital inflow to Estonia should be seen as a moral hazard sign only if the structure were in favour of claims against banks and the government. Most foreign investment, however, is long-term and into the private non-banking sector.

Lending to Asian and Pacific, Latin America and Caribbean countries and to Eastern Europe concentrates more on the non-bank private sector than in developed countries. The low share of lending to banks and governments in CEE is rather an argument for the original-sin and the commitment view. In regions with a weak banking sector, international lenders prefer debtors who can provide a solid collateral. Whilst banks can provide only reputation, the private company sector offers more solid insurance.

The share of short-term debt is another indicator for the nature of financial fragility. The moral-hazard view includes that the exchange-rate insurance implied by a policy of pegging the currency is most credible over short horizon. The share of short-term lending to Eastern Europe is, however, small compared to Western Europe, Asia and Pacific or Latin America.

---

4 Consolidated means amongst other things that positions between offices of the same bank are being netted out.

5 If moral hazard existed, the real exchange rate should not be overvalued when the nominal exchange rate floats independently.

Float arrangements even show the highest shares of short-term lending (Czech Republic, Romania, Poland).

Public short-term debt or mass privatisation is one of the driving forces for emerging domestic debt and equrity markets. Moral hazard cannot play any significant role when the government does not run fiscal deficits, financed by T-bills or when privatisation is based upon (foreign) direct investment. In general, debt and equity markets are too small in CEE countries to attract large foreign portfolio inflows.[6] Take Estonia as an example: short-term public debt was zero (Table 3), short-term capital inflows served to finance trade.

3.3 The pitfalls of an independent float: the case of Poland

When moral hazard does not exist, an independent float cannot prevent financial fragility. This shall be briefly shown by the case of Poland.

The National Bank increased gradually the flexibility of the Zloty. With capital account liberalisation in 1995, capital inflows gained momentum, and the flexibility of the Zloty was significantly raised: first in May 1995 when the band around the central parity was widened from ± 2.5 % to ± 7 %. The National Bank expanded the band to ± 10 % in February 1998, and ± 12.5 % in October and to ± 15 % in March 1999. The band was abandoned in April 2000 when the National Bank declared an independent float and direct inflation targeting.[7] Although Poland's economy did not suffer from a financial crisis, its vulnerability increased since the Zloty started to float independently. This increase stemmed from a real appreciation initiated by strong capital inflows.

If moral hazard was the root of financial fragility, and if agents had rational expectations, hedging activities should prevent an excessive deviation of the free spot exchange rate from the purchasing power parity. In Chart 4, the exchange rate's hypothetical course following the purchasing power parity was extrapolated by use of the trend line of the central parity (the latter valid until 11 April 2000). The gap between the hypothetical central parity and the actual exchange rate widened in Euro terms until July 2001. The Zloty came under speculative pressure in July 2001 for the first time since the Russian financial crisis in August 1998 and devalued by about 13 % within two weeks. Since then, the Zloty appreciated again.

Capital inflows were also attracted by domestic equity and debt markets. Mass privatisation schemes established an equity market large enough to attract foreign portfolio investors. Public debt (44 % of GDP in the third quarter of 2001) was among the highest compared with other

---

6 The CEE country with the highest number of traded bonds in 2000 was Slovakia (108). In Estonia only 6 bonds were traded. The London debt market includes 5,300 bonds. On equity markets, market capitalisation ratios reached from 3.1 % in Romania to 35 % in Estonia in 2000 (*EBRD* 2001). Market capitalisation was 130 % in Frankfurt, 185 % in London, and 719 % in Paris.

7 Actually, the independent float is not complete: the National Bank purchased from time to time foreign money in order to avoid disruptions of the market after privatisation deals.

transition countries, and a relatively high share (4.5 %) was in T-bills. Although there were some official restrictions on short-term capital flows, the National Bank handled them liberally. Privatisation of banks gained momentum since 1998. The banking sector is now overwhelmingly privately owned with 56 % of foreign share in statutory capital. However, banks still held a relatively high share of bad performing loans in their portfolio in 1999 (14 % compared to 9 % in Hungary) illustrating commitment problems in the economy. With original-sin problems of the Polish economy, the float failed since the National Bank raised interest rates when inflation exceeded the targeted path. This prevented the Zloty to devalue and attracted foreign portfolio capital even causing an appreciation.

3.4 Why did the 'Peggers' survive?

Hungary's crawling peg was within margins of ± 2.25 % until May 2001. A relatively high capital inflow and share of international bank claims vis-à-vis domestic banks and the government (Table 1) could indicate moral hazard problems. The almost fix peg remained sustainable, because the National Bank defended it by a restrictive handling of still existing short-term capital controls, allowing for somewhat higher interest rates than without controls. Another feature was that the banking sector was re-structured more successfully than in other countries. The share of short-term debt in total debt was less than average. Although the domestic debt market is rather large in CEE comparison, it was not attractive for foreign speculators due to the restrictions on the capital account. Last but not least, state owned enterprises were preferably sold to strategic investors and not privatised by vouchers or equities. Capital inflows were overwhelmingly in form of foreign direct investment.

Nevertheless, financial fragility started to increase in early 2000. The Forint appreciated in real terms and the balance of payment deteriorated. In this context, the lifting of capital controls in May 2001 could cause a problem. In facing this challenge, the National Bank widened the band to ± 15 % in May 2001, and finally abandoned the crawling peg in October 2001 (approaching the EMR II solution). The problem, however, is that the Forint appreciated since then, approaching the lower band border in January 2002 (Chart 5). As in the Polish case, interest policy of the National Bank is too restrictive and lures additional capital into the country.[8]

Baltic countries: Among the Baltic countries, two have long-lasting currency boards: Estonia and Lithuania, and Latvia has a fix peg. In first approximation, these pegs survived due to the relatively small financial markets and the almost complete international integration of the banking industry (Sutela, 2001). The sizes of equity and debt markets is not attractive for large

[8] This statement can be evaluated by using the Taylor rule for finding the interest rate target adequate to fight inflation (about 13 % on year's average). But the interest differential is to large to cover the sum of the targeted exchange rate change and the risk premium. Hence, domestic financial market is in disequilibrium.

international investors. The relative sizes of debt markets is small due to low public debt. Public debt is at 3.2 % of GDP (2001) in Estonia, but short-term debt is zero (Table 2). Short-term public debt in terms of GDP was 1.5 % in Lithuania, and in Bulgaria (another currency board) 2.9 %. Privatisation in the Baltic countries followed (as in Hungary) patterns of direct sales to strategic investors; equity markets remained small. Hence, most capital inflows are long-term (FDI) or trade-related (short-term). Most banks in Estonia are in foreign ownership. There is, simply said, few room for moral hazard problems.

Add to this that Baltic currency boards are more like fix peg arrangments. From the very beginning, the money base of Estonia was more than covered by international reserve and the central bank could use these reserves if the banking sector ran into liquidity problems. The Eesti Pank hence has a lender-of-last resort function (which in a pure currency board is not existent). What is more, all 'currency boards' include the option to change obligatory reserves for sterilisation purposes. To fight off speculative attacks during the Asian crises, the Eesti Pank increased obligatory reserves in mid 1997.[9] Defending the fix peg this way generated some liquidity bottlenecks in the banking sector with the consequence of higher interest rates.

On second thought, a fix peg with restricted sterilisation (lender of last resort capabilities) may collapse due to spillover effects from trade shocks, when the currency appreciates in real terms. When the Russian Rouble depreciated in fall 1998, the former Baltic Soviet provinces were hit only marginally. Russia absorbs only 6.8 % of Estonia's exports, 4.2 % of Latvia's exports and 7.1 % of Lithuania's exports. The share of EU in exports is between 48 % (Lithuania) and 69 % (Estonia).[10] Nevertheless, spillover effects on fundamentals could be observed in the composite risk indicator for all three countries.

4. Some policy conclusions in perspective of EMU membership

EU candidate countries are obliged, after accession to the European Union, to make all preparations necessary to become a member of the European Monetary Union (EMU) and to introduce the Euro (no opting-out possible). We now return to our initial question whether financial fragility will increase when the CEE countries join the ERM II. We split the answer into two parts: (a) we compare the ERM II provision with the factual exchange rate arrangement, and (b) assess the regime switch, hence, the move from the today's arrangement to the ERM II.

The ERM II is a fix peg within a relatively wide band of ± 15 %. The parity is to negotiate with the ECB; no country can set the parity autonomously. The bandwidth may be smaller, but this is to negotiate with the ECB (Denmark negotiated a band of ± 2.5 %). No intervention is allowed; central banks of new members are obliged to defend the band by effective monetary

9 Eesti Pank, Annual Report 1997, Tallin.

10 Something similar holds for Bulgaria: only 2.5 % of exports go to Russia.

policies, including sterilisation. After at least a two-year period without intervention and successful convergence of interest and inflation rates (and fiscal stability) – supervised by the European Central Bank (ECB) – the Euro may be introduced. This is a procedure to adjust the new member countries' economy to the exchange rate, hence, to qualify the exchange rate as an equilibrium exchange rate.

Independent float

Among all exchange rate arrangement, the independent float of the Polish Zloty is at the highest variance to the ERM II. When, as we suspect, the nature of financial fragility is in original-sins and commitment problems, the independent float is not a successful way to find the equilibrium exchange rate. The central bank in its aim to lower the risk of a sudden reversal of capital inflows is forced to interest rate targeting. If the currency appreciates in real terms instead of depreciating, the float contributes to higher vulnerability, because the real appreciation and the high interest rates lure additional short-term capital into the country. The consequence might be a currency and maturity mismatch.

When the strategy to find the equilibrium exchange rate by way of a float fails, the most risky undertaking is to enter the ERM II with an overvalued currency. The critical aspect is the negotiation about the fixed Euro/Zloty parity between the ECB and the National Bank. If markets expect an initial depreciation, a speculative attack on the Zloty might occur at the eve of ERM membership. If the overvalued Zloty enters the ERM II, strong adjustments in the company and banking sector might lead to income and liquidity losses – both would increase financial fragility. The idea of unilateral euroisation – recently raised by some Polish authors (*Bratkowski and Rostowski*, 2001) would fail due to the weak reserve position of the central bank. There was no candidate country, including Poland, with reserves covering M2 in mid 2000 (*Gabrisch*, 2001). It would also not solve the problem of a possibly overvalued conversion rate. From this point of view, the switch from the independent float of the Zloty to a fix peg is the most risky undertaking among the candidate countries. A transitory solution seems necessary, possibly a switch to a managed float.

Managed float

For a country with commitment problems and a weak financial sector a managed float is the preferable solution, as the risk potential pictures of the Czech Republic, the Slovak Republic, Slovenia and Romania suggest. When those countries enter the ERM II an implicit declaration to intervene is given, and, what is more, appropriate tools for sterilising capital inflows/outflows need to be available. If this switch was premature, the central banks' capability to intervene and sterilise might be overstressed. This problem seems to be less pronounced in case of Slovenia with its small debt and equity markets. It could rather be a problem for the Czech Republic, the Slovak Republic and Romania. The Czech Republic already slid into a financial crisis due to the inability to sterilise capital inflows. Since then consolidation and transformation of the banking industry and the equity market gained momentum, and the switch to a fix peg should not increase financial fragility. For Romania, membership in the ERM II is a long-term

target. With the shield of the managed float, government and central bank may restructure the financial sector and make monetary policies more effective.

Currencies boards and fix pegs

Currency boards are sustainable when debt and equity markets are small and the banking industry is completely integrated internationally. Then there is little room for moral hazard or original-sin problems. When, in addition, most trade is conducted in the base currency – the Euro, and the central banks dispose of some tools for sterilisation, the fix peg will not contribute to financial fragility. Some lender-of-last-resort function of the central banks suffices to control the remaining commitment problems (particularly in Bulgaria). A country like Poland would have more problems with a currency board than the Baltic countries.

Whilst Latvia with its true fix peg will only have to introduce the ERM II band, the currency board countries might face the problems of a regime switch. The EU does not regard currency boards as an acceptable substitute for participating in ERM II (*Ecofin*, 2001). Any currency board, as well as a fix peg, means central bank intervention every day, which is, according to ERM II, forbidden. Currency boards may, however, in 'some circumstances' constitute an appropriate unilateral commitment within the ERM II, for example a general exemption with regard to intervention. Insofar, the currency board countries could enter the ERM II with a ± 0 % band. Anyway, this is a regime switch: from currency board to a fix peg. The markets could be confused about the central bank's intention and ability to sterilise. Latvia could become a safer haven than Estonia and Lithuania. The risk of dangerous speculative attacks seems, however, to be low, the condition of the financial sector considered. Only Bulgaria might have a major problem, in view of the troublesome past and the still weak transition. EU-membership is, however, a medium-term perspective for Bulgaria.

Intermediate solutions

Intermediate solutions – crawling pegs and bands – present a mixed picture. Russia's crawling band collapsed in summer 1998 due to a mismatch between fiscal and monetary policies. The huge commitment problems in the economy forced the Central Bank of Russia to raise the interest rate above the level that is sustainable for an active crawl. The financial market went in severe disequilibria. A managed float helped to calm down the situation after the crisis.

The narrow crawling peg of the EU candidate Hungary survived due to stronger condition of its company and banking sector. Direct sales privatisation and the consolidation of the banking industry including foreign companies and banks helped to lower the typical commitment problem of a country in transition. The switch to the widened band increased financial fragility due to a real appreciation of the Forint indicating a not yet optimal tuning of intervention and sterilisation. ERM II membership including ECB support should bring some relief.

References

BIS (Bank for International Settlements). International Banking and Financial Market Developments, *BIS Quarterly Review*, various issues, Basel.

Bofinger, Peter and Timo Wollmershäuser. 2000. *Options for the exchange rate policies of the EU accession countries (and other emerging market economies)*, Würzburg Economic Papers, Nr. 13.

Bratkowski and Rostowski. 2001. 'Unilateral adoption of the Euro by EU applicant countries: the macroeconomic aspects' in: Orlowski, Lucjan T. (ed.) *Transition and Growth in Post-Communist Countries: The Ten Year Experience*. Cheltenham, U.K. and Northampton, Massachusetts: Edward Elgar Publishing Ltd., pp. 125-47, April 2001.

Brüggemann, Axel, Hubert Gabrisch, Martina Kämpfe, Thomas Linne, Lucjan Orlowski and Johannes Stephan. 2000. *Währungskrisen in Mittel- und Osteuropa*, Nomos: Baden-Baden.

Brüggemann, Axel and Thomas Linne. 2002. *Weiterentwicklung und Anwendung eines Frühwarnindikatorensystems zur Betrachtung und Bewertung von Finanzkrisen in EU-Beitrittskandidatenländern und ausgewählten Staaten Mittel- und Osteuropas*. IWH, Sonderheft 1/2002, Halle(Saale).

Chan-Lau, Jorge A. and Zhaohui Chen. 1998. 'Financial Crisis and Credit Crunch as a Result of Inefficient Financial Intermediation – with reference to the Asian Financial Crisis.' *Working Paper WP/98/127*, August 1998, International Monetary Fund.

Chang, Roberto and Andres Velasco. 1998. 'Financial Fragility and the Exchange Rate Regime'. *NBER Working Paper 6469.*

Corker, Robert, Craig Beaumont, Rachel van Elkan und Dora Iakova (2000), 'Exchange Rate Regimes in Selected Advanced Transition Economies – Coping with Transition, Capital Inflows, and EU accession', *IMF Policy Discussion Papers*, PDP/00/3.

EBRD (European Bank Reconstruction and Development). 2001. *Transition report 2001*. London.

Ecofin (Council of EU ministries of Economy and Finance). 2001. 'Exchange rate aspects of enlargment'. *European Economy*, Supplement C, Economic Reform Monitor, No 1, February 2001, p. 1-3. http://europa.eu.int/comm/economy_finance.

Eichengreen, Barry, Andrew K. Rose and Charles A. Wyplosz. 1996. 'Exchange Market Mayhem: The Antecedents and Aftermath of Speculative Attacks'. *Economic Policy*, No. 21, p. 251-312.

Eichengreen, Barry and Ricardo Hausman. 1999. 'Exchange Rates and Financial Fragility'. NBER, *Working Paper* No. 7418, November.

Eesti Pank. 1997. *Annual Report* 1997. Tallin.

Fisher, S., 'Exchange Rate Regimes: Is the Bipolar View Correct?' in *Finance & Development*, Vol. 38, Nr. 2, International Monetary Fund, June 2001.

Flood, Robert P. and Nancy P. Marion. 1998. 'Perspectives on the Recent Currency Crisis Literature.', *Working Paper WP/98/130*, International Monetary Fund.

Frankel, Jeffrey. A. and Adrew K. Rose. 1996. 'Currency Crashes in Emerging Markets: An Empirical Treatment'. *Journal of International Economics,* Vol. 41, No 3-4, p. 351-366.

Fukao, Mitsuhiro. 2001. 'Financial Deregulations, Weakness of Market Discipline, and Market Development: Japan's Experience and Lessons for Latin America and the Caribbean. *Mimeo*, Kei University.

Gabrisch, Hubert. 2001. *The shock of unilateral euroisation on EU candidate countries*. http://wiiwsv.wsr.ac.at/Countdown/

IMF (International Monetary Fund). 2000. *Annual Report 2000*. Washington D.C.

Johnston, R. Barry, Jingqing Chai, and Liliana Schumacher. 2000. 'Assessing Financial System Vulnerabilities.' International Monetary Fund: *International Economic Policy Review*. Volume 2, 2000, p. 97 –118.

Kaminsky, Graciela L., Saul Lizondo and Carmen M. Reinhart. 1997. 'Leading Indicators of Currency Crises'. *Working Paper WP/79/97*, International Monetary Fund.

Krugman, Paul. 1979. 'A Model of Balance of Payments Crises'. *Journal of Money, Credit and Banking*, No. 11, p. 311-25.

Krugman, Paul. 1998. What happened to Asia? Paul Krugmann website, http://web.mit.edu/krugman/www/DISINTER.htm/.

McKinnon, Ronald I. and Huw Pill, 'Credible Economic Liberalization and Overborrowing,' *American Economic Review, Papers and Proceedings*, vol. 87, 1997, No 2, p. 189-93.

Obstfeld, Maurice. 1986. 'Rational and Self-Fulfilling Balance-of-Payment Crises', *American Economic Review*, vol. 76, No 1, p. 72-82.

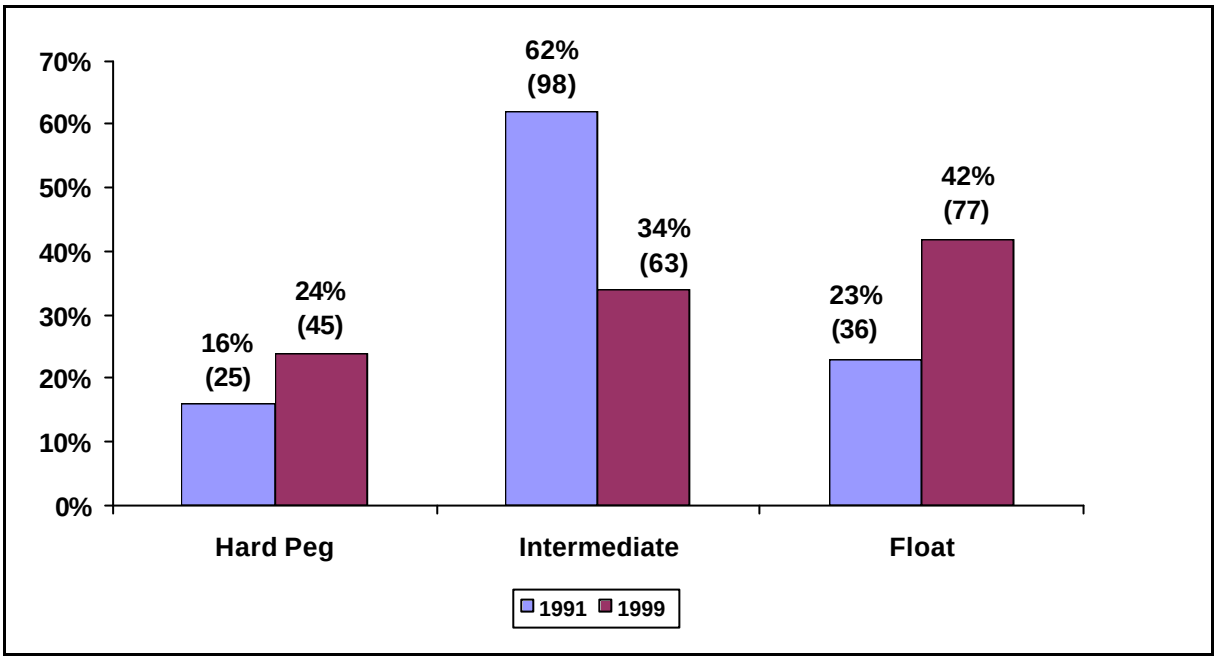
Obstfeld, Maurice and Alan M. Taylor, 'The Great Depression as a watershed: international capital mobility over the long run' in Bordo, Michael, David Goldin, Claudia Dale and Eugene Nelson White (ed.), *The Defining Moment*. University of Chicago Press, Chicago, 1998 p. 353-402.

Studart, Rogério. 'Dollarization: "an intellectual fad or a deep insight"? *Journal of Post Keynesian Economics*, Summer 2001, Vol. 23, No. 4: 639-63.

Sutela, Pekka. 2001. 'Managing capital flows in Estonia and Latvia'. ICEG project on Managing Capital Flows in the Transition Economies of Central and Eastern Europe. http://www.icegec.org/ from December 2001.

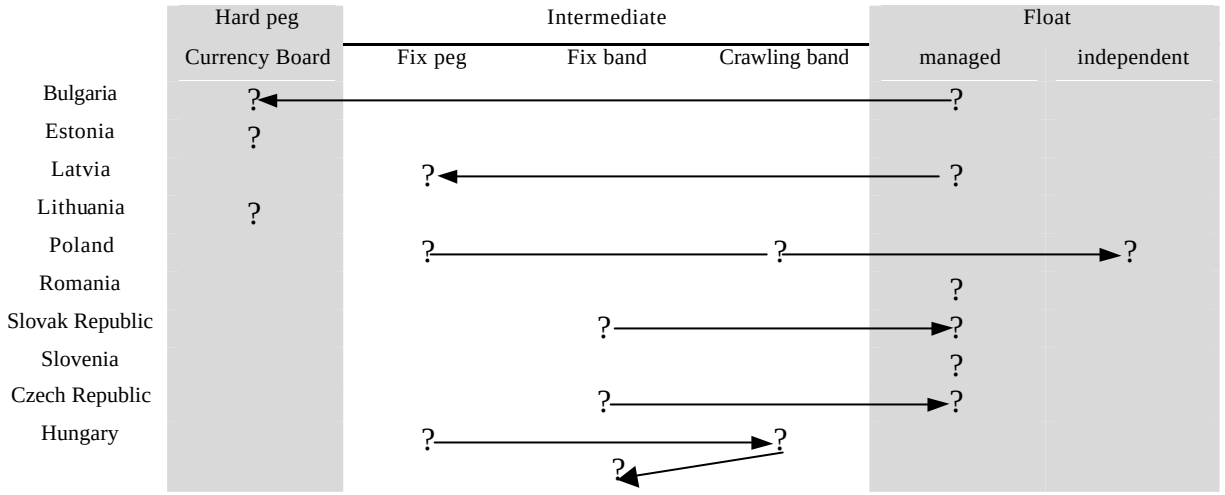
Williamson, John and Molly Miller. 1998. *A Review of Financial Liberalization.* Report No. IDP-171, World Bank.

Chart 1: Exchange rate arrangements around the world



Source: IMF 2000, p. 141-3; Fischer 2001.

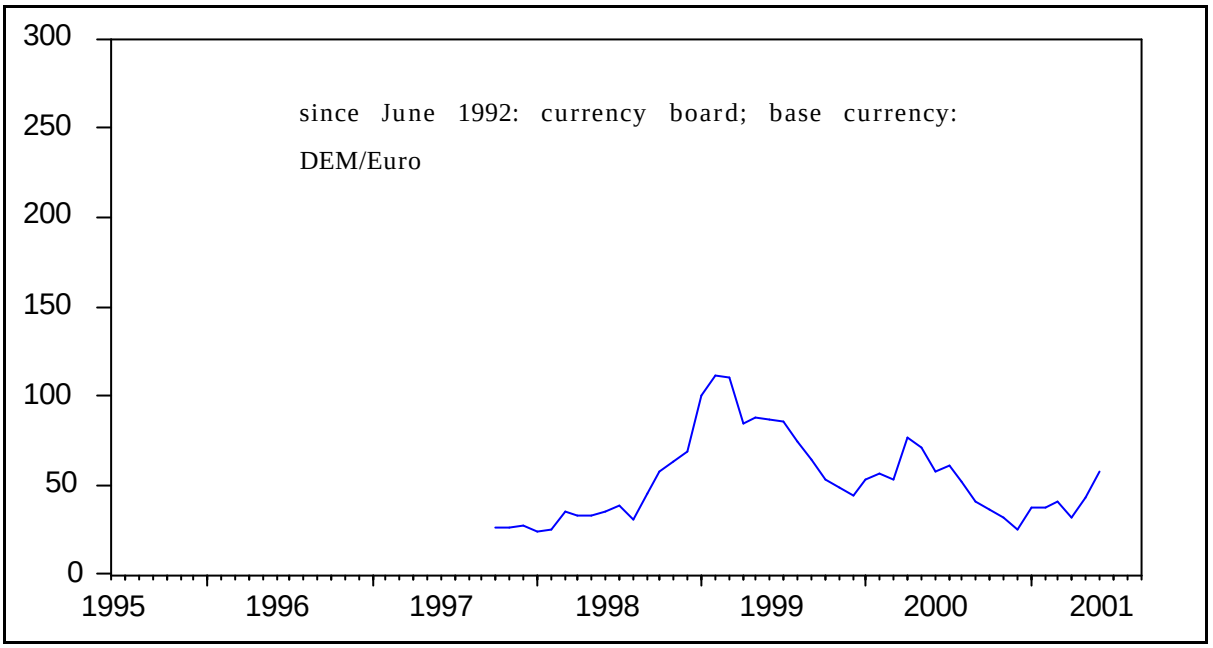
Chart 2: Exchange rate arrangements in Central and East European countries



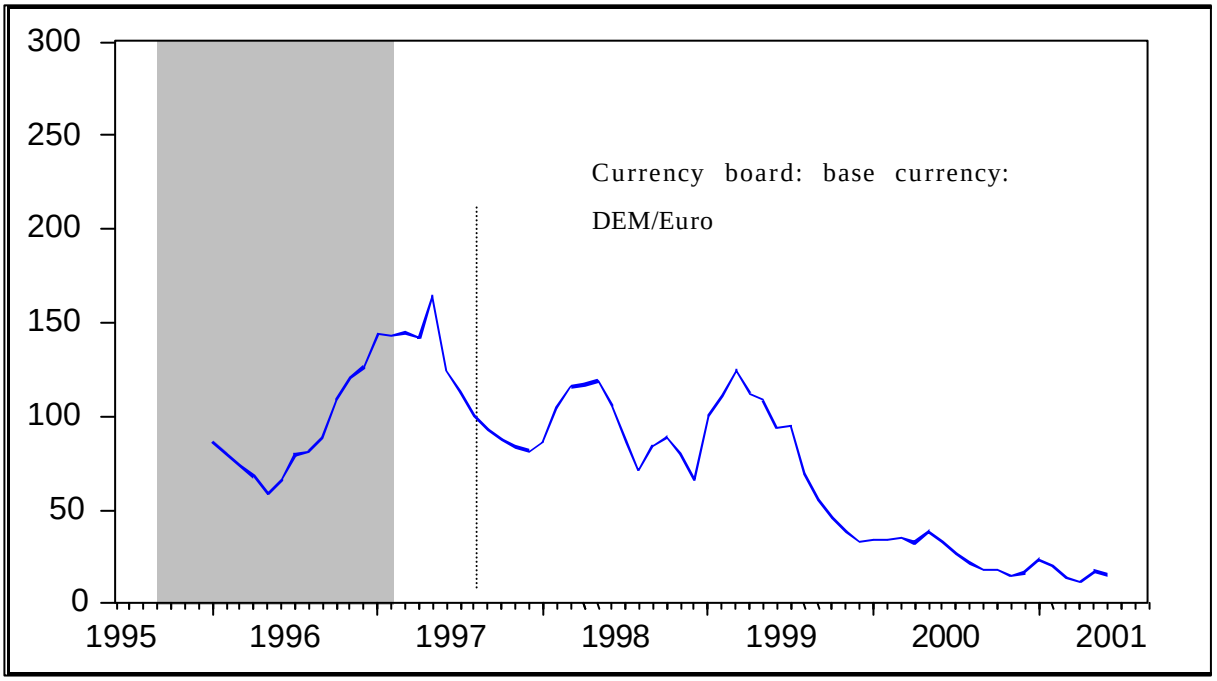
Sources: Corker et al. 2000

Chart 3: Composite risk indicator development for selected EU candidate countries

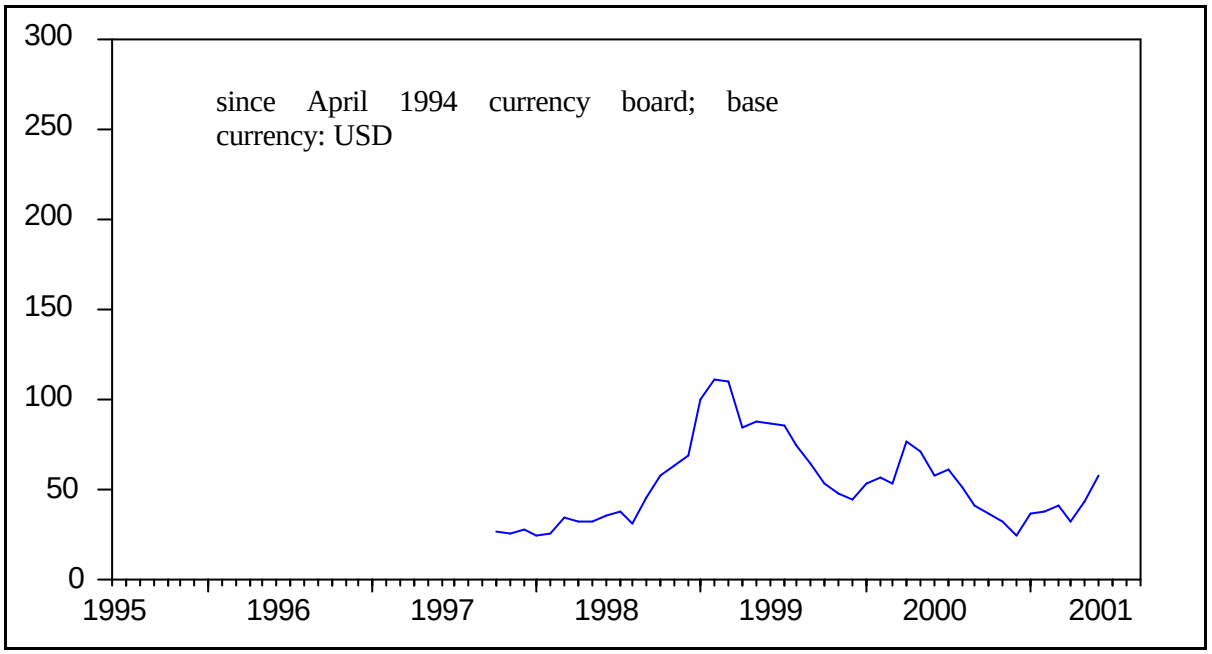
Estonia: July 1997 – June 2001



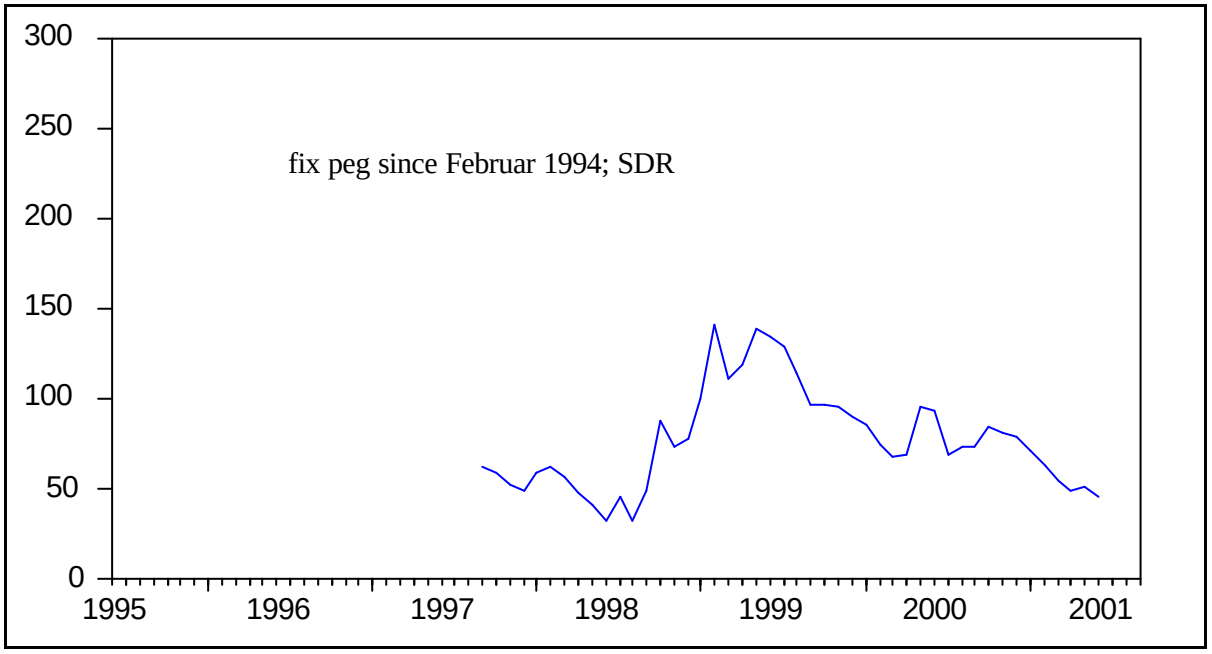
Bulgaria: December 1995 – June 2001



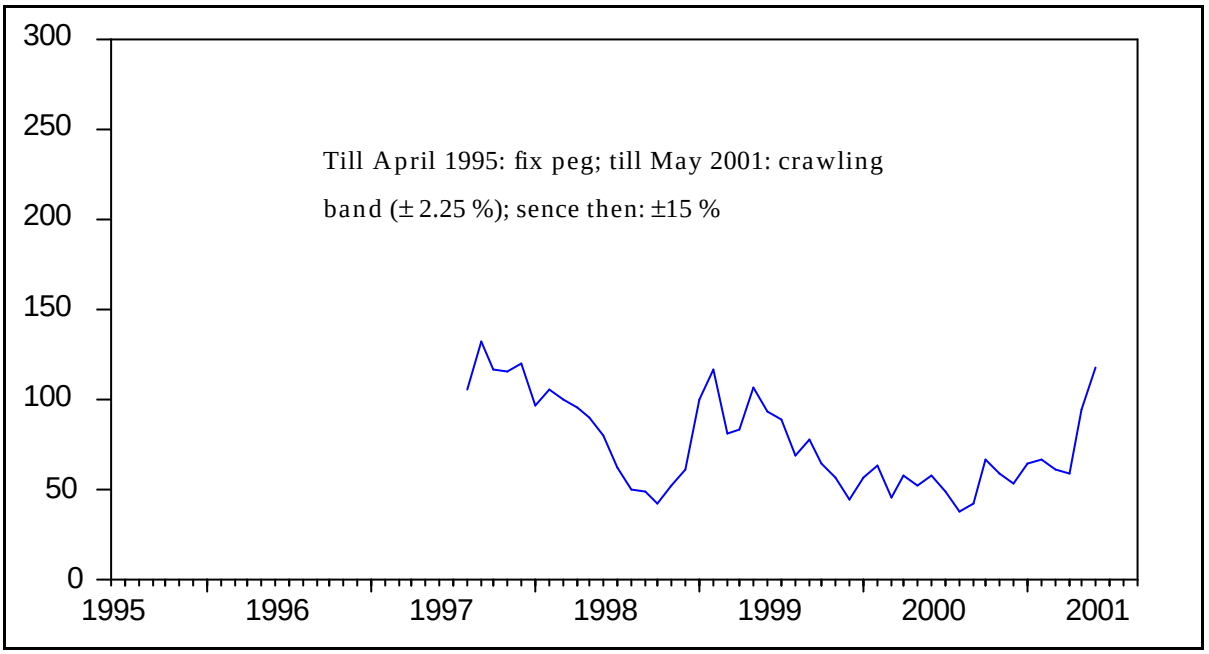
Lithuania: August 1997 – June 2001



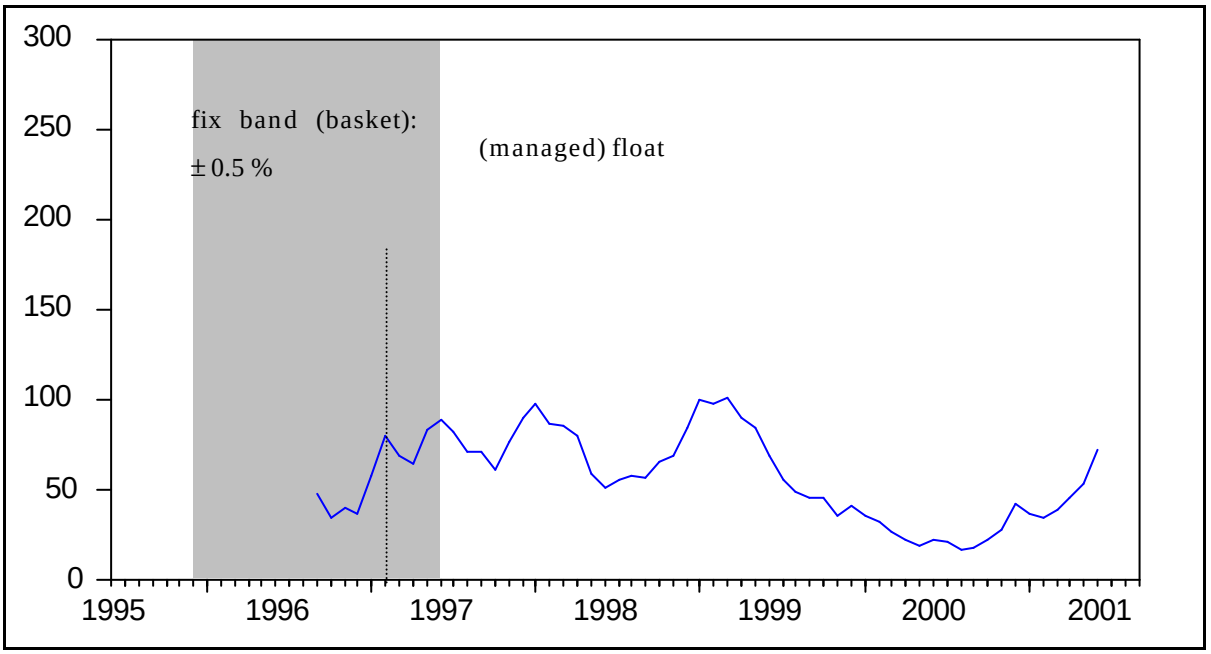
Latvia: August 1997 – June 2001



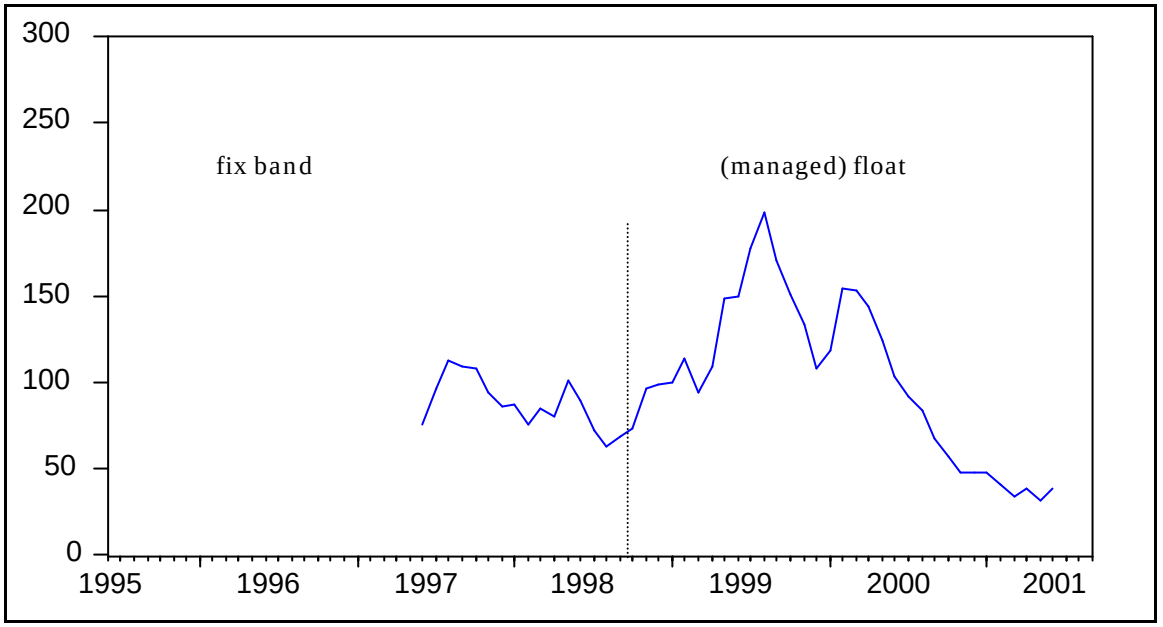
Hungary: June 1996 – May 2001



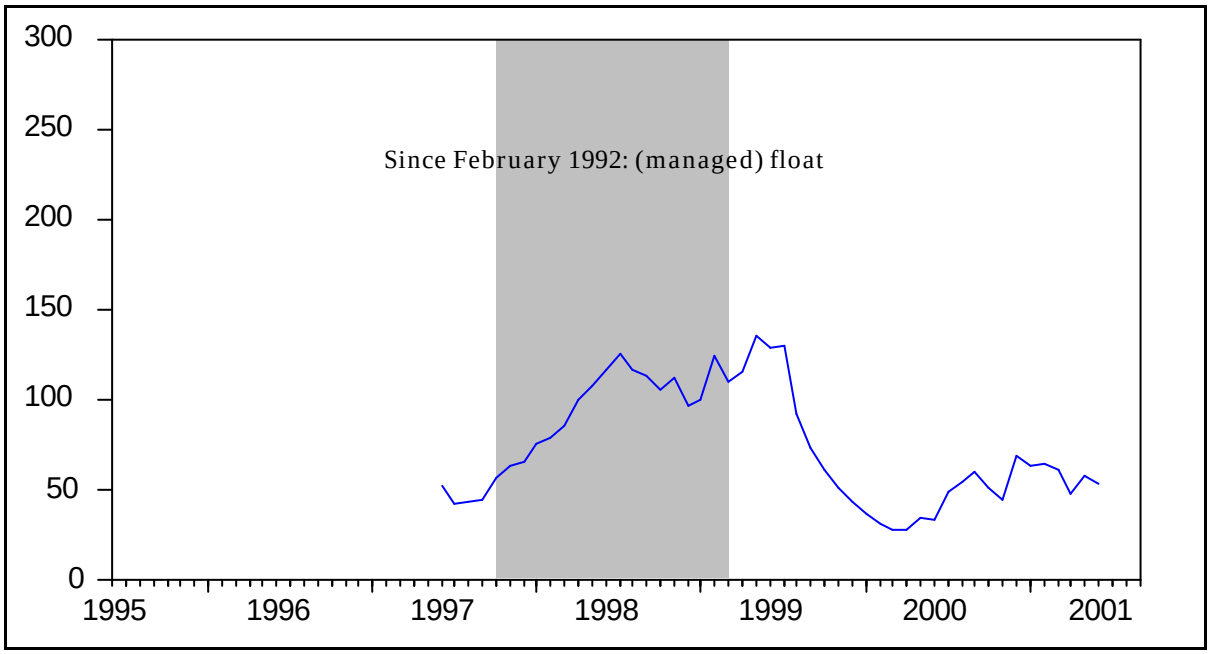
Czech Republic: August 1996 – June 2001



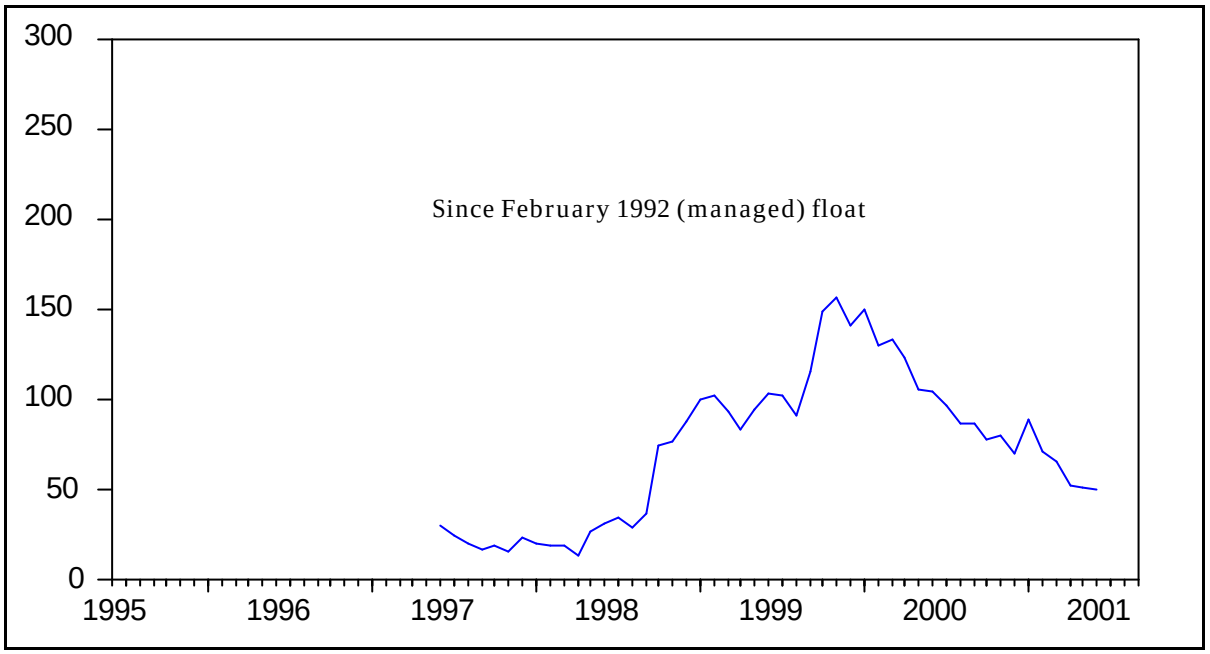
Slovak Republic: April 1997 – June 2001



Romania: May 1997 – June 2001



Slovenia: May 1997 – June 2001



Poland: August 1997– June 2001

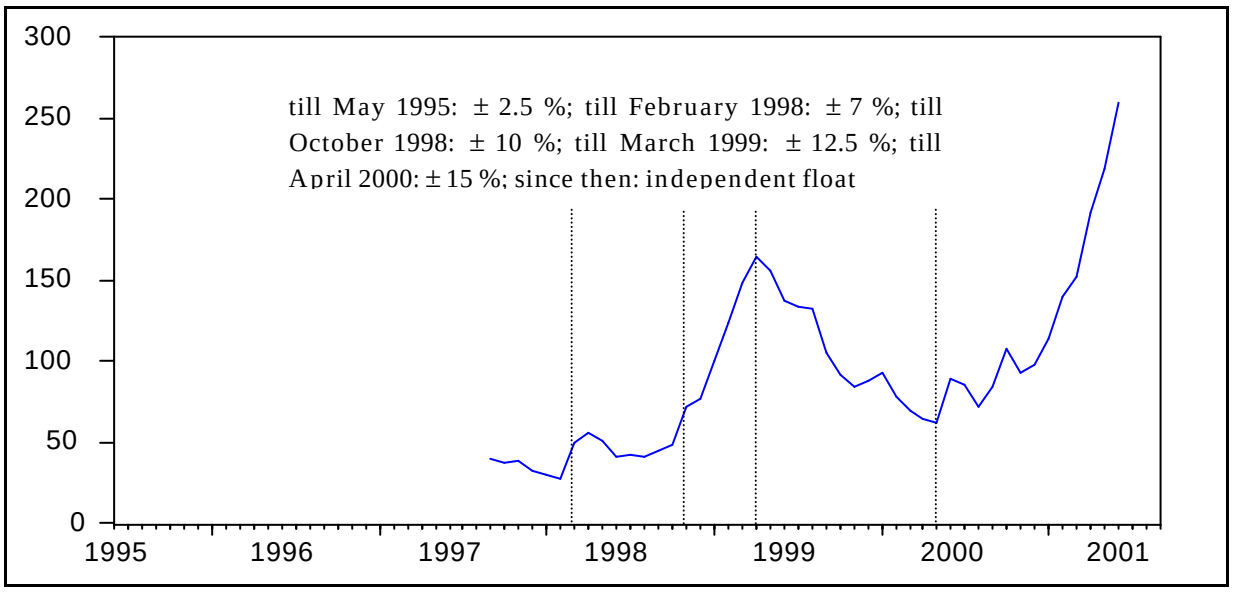


Table 2: Consolidated international claims of BIS reporting banks on individual countries

End June 2000, sectors and short-term in % of total

Claims vis-a-vis	Absolute change of total claims in % of GDP 2000[a]	Absolute size in % of total claims			
		Banks	Public sector	Non-bank private sector and others	short-term up to one year
Western Europe	2.1	56.9	12.5	30.6	60.4
Eastern Europe	0.7	44.8	14.4	40.8	32.2
Bulgaria (P)	0.2	23.5	41.1	35.3	23.7
Czech Republic	1.1	39.0	10.0	51.0	52.0
Estonia (P)	33.3	27.1	2.3	70.6	33.5
Hungary (P)	3.4	42.5	22.4	35.2	30.6
Latvia (P)	3.7	34.9	11.8	53.4	33.6
Lithuania (P)	3.0	28.2	28.2	43.7	46.3
Poland	0.1	32.2	20.9	46.9	37.2
Romania	1.0	22.2	8.6	69.3	39.2
Russia	4.2	60.3	7.6	32.1	26.0
Slovak Republic	3.3	10.9	23.2	65.9	38.4
Slovenia	1.7	32.9	31.3	35.8	20.8
Asia & Pacific	n. a.	35.9	12.7	51.4	47.2
Latin America & Caribbean	0.0	18.4	20.4	61.3	47.3

[a] Change End June 1999-End June 2000, in mn of US dollars.

Source: BIS; IMF; own calculation.

Table 3: Public debt indictors of selected candidate countries (central government)

-- IMF standard (SDSS) --

Country	Date	bn $	of which short term in %			in % of GDP	of which short-term in %
			total	domestic currency	foreign currency		
Bulgaria	Oct2001	9.280	4.1	0.7	3.4	71.0	2.9
Czech Republic	Sept2001	8.000	51.3	51.3	0.0	12.7	6.5
Estonia	Sept2001	0.160	0.0	0.0	0.0	3.2	0.0
Hungary[a]	Sept2001	29.600	21.6	17.4	4.2	58.7	12.7
Latvia	Sept2001	1.027	7.3	7.3	0.0	53.9	3.9
Lithuania	Nov2001	3.277	5.0	5.0	0.0	29.0	1.5
Poland[a]	Sept2001	75.9	7.2	7.2	0.0	44.2	4.5
Russia	Sept2001	158.0	62.9	6.6	1.5	5.1	4.1
Slovenia	June2001	4.848	n. a.	n. a.	n. a.	27.3	n. a.

[a] Including guaranteed debt.

Sources: Official statistics via internet: www.minfin.government.bg/en/index.html (11.01.02); www.mfcr.cz/cenpap/En/default.htm (11.01.02); www.stat.ee/sddseng#fiscal (16.01.02); www.ksh.hu/pls/ksh/docs/index_eng.html (16.01.02); www.csb.lv/Ecdata/latvia123.htm#EXTERNAL%20SECTOR (16.01.02); www.finmin.lt/liet/prie2001/htm (16.01.2002); www.mofnet.gov.pl/sdds_en/index.shtml (11.01.2002); www.minfin.ru/macroeng/cg_debt.htm (11.01.2002); www.sigov.si/mf/angl/tekgib/avl_dolg.htm#Breakdown%20by%20Currency%20-%20End%20of%20Q4%202000; own calculations.

Chart 4: The exchange rate of the Polish Zloty between 4 January 1999 until 31 December 2001

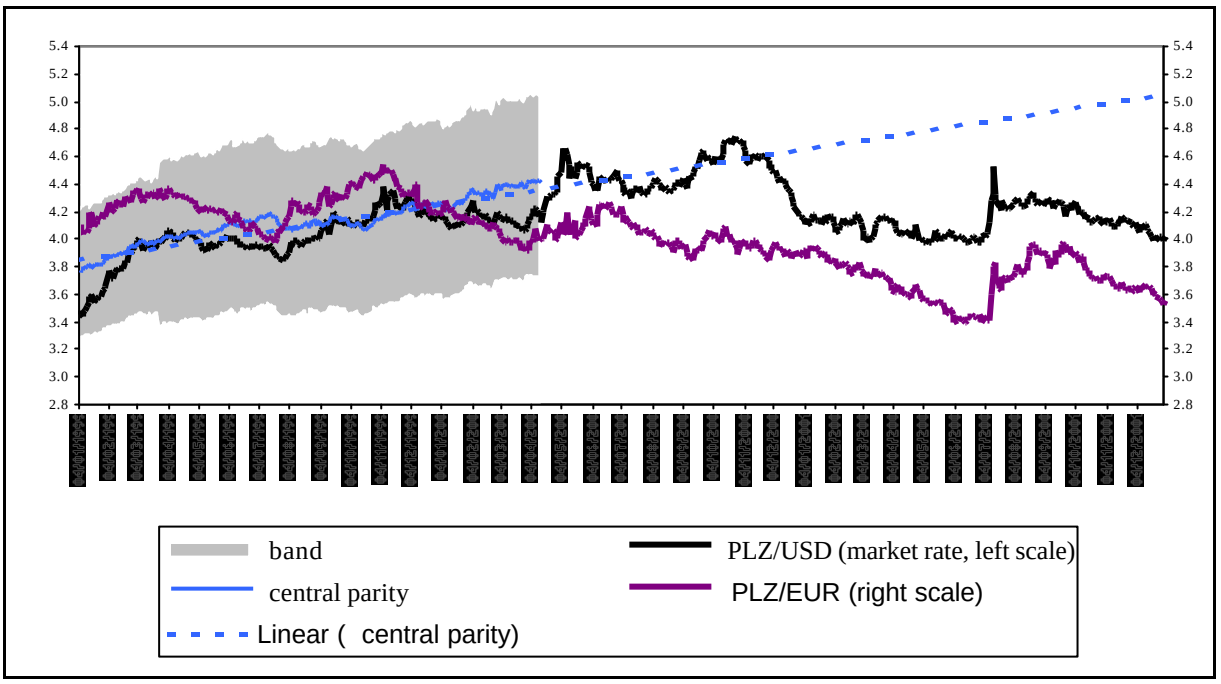


Chart 5: The exchange rate of the Hungarian Forint to the Euro between January 2001 and January 2002