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Managing Capital Inflows in Slovenia

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CONTENTS

ABSTRACT

The size of capital inflows to Slovenia has been relatively low by international standards and the lowest among Central Europe and Baltic countries pursuing EU accession. Slovenia has experienced first surpluses on the current account and later on the capital account to which the Bank of Slovenia responded first by sterilized intervention and later on by introducing capital controls. The dynamic of capital flows is explained by different factors in different years, such as one-off corrections in 1994, when households repatriated savings from abroad or regained confidence in the banking system, or due to residents regaining access to international capital markets. Capital inflows were in the case of Slovenia driven mainly by domestic residents. The empirical evidence suggests that capital inflows are determined primarily by domestic conditions, in particular the positive interest rate differential. The monetary authority's responses to foreign exchange inflows were framed within a policy that aimed simultaneously at achieving price stability and preventing the appreciation of the real exchange rate. In particular, to cope with the foreign exchange inflows the Bank of Slovenia first resorted to sterilization policy and then introduced capital controls. The policy responses did not address the cause of the inflows but tried to dampen its effects. The response to foreign exchange inflows reduced the flexibility of the exchange rate that in presence of positive interest differential created conditions for perpetuating capital inflows. In conducting sterilization policy the monetary authorities gave priority to the cost dimension over the enhancement of the interest rate transmission mechanism. Capital controls were introduced not only because of the cost of sterilization policy but also as a pre-emptive measure to discourage capital inflows. The result regarding the effectiveness of different capital controls is mixed. The use of capital controls while providing space for conducting independent monetary and exchange rate policy might also have affected the real sector and competitiveness of the banking system in conflicting ways. Most capital controls were lifted in 1999 in the framework of the legal alignment corresponding to the process of accession of Slovenia to the EU. Currently restrictions on capital inflows are applied only to short-term portfolio investment.

INTRODUCTION

This paper analyses the experience of Slovenia in coping with foreign capital inflows with the purpose of understanding their magnitude, their underlying causes, the policy responses and their implications. It also discusses possible alternative policy.

The paper is divided in five sections and conclusions. The first section describes the experience with capital inflows, the structure and characteristics of the inflows. The second section presents an empirical analysis of the causes of capital inflows. The third section presents the monetary policy framework of the Bank of Slovenia and analyses its policy responses in light of their internal consistency. The fourth section deals with the approaches followed in managing capital inflows and the fifth section discusses alternative policy.

I. EXPERIENCE WITH FOREIGN EXCHANGE INFLOWS

In order to understand the experience of Slovenia regarding capital inflows and the monetary authority's policy response, it is necessary to look broadly at overall foreign exchange inflows, including those inflows originating in current account transactions. This is because the official attitude towards capital inflows and their composition was shaped in the background of relatively substantial current account surplus in the first three years after independence in 1991. In analysing the experience with foreign exchange inflows it is also necessary to take into account the initial economic conditions after independence, which can help to understand the exposure of the Slovenian economy to different types of capital inflows.

Since the independence in 1991 and with the exception in 1999, Slovenia has experienced sustained increases in international reserves. The net inflows of foreign exchange originated first in current account surpluses and later in capital inflows. By tracking the result of the current and capital accounts and the size of the overall balance of payments excluding reserves, it is possible to characterize the experience of Slovenia with foreign exchange inflows and understand the Bank of Slovenia's (BOS) policy responses.

Table 1 exhibits the results of main accounts of the balance of payments and indicates how different flows originating in current ant capital transactions behaved during the period 1992-2000. The information pertaining to capital and financial account (capital account) was rearranged from original data in order to account for the changes in banking sector's international reserves, which broadly corresponds to reserves held by banks abroad to comply with part of reserve requirements.[1] Table 1 indicates that after independence, during the first three years, the current account had a predominant role in explaining the increase in international reserves, while capital inflows were the main reason behind the increase in reserves in the periods 1995-1997 and 1999-2000. Both capital inflows and current account surpluses explain the largest change in international reserves in the whole period in 1994 (7.3% of GDP).

Table 1
Balance of payments adjustment (percentage of GDP)

	1992	1993	1994	1995	1996	1997	1998	1999	2000
1. Current account	7.5	1.5	4.0	-0.6	0.2	0.1	-0.8	-3.9	-3.3
2. Capital account	-1.0	2.2	3.3	3.2	4.6	3.7	1.8	3.2	5.8
3. Total reserves	-6.5	-3.8	-7.3	-2.6	-4.8	-3.7	-1.0	0.7	-2.5
a. BOS reserves	-5.1	-0.7	-4.5	-1.3	-3.1	-7.1	-0.6	0.6	-1.1
b. Bank reserves	-1.4	-3.0	-2.8	-1.4	-1.7	3.3	-0.5	0.0	-1.5

Source: BOS Denarni Pregled, various issues.

[1] Total capital inflows are estimated by adding capital and financial account plus net errors and omissions plus changes in banks' reserves.

Relatively sizable current account surpluses during the first three years, particularly in 1992 emerged on the back of a strong real depreciation of the domestic currency, at the time when the Tolar was introduced as official currency in October 1991. Subsequent relatively substantial depreciation of the domestic currency with respect to the Deutsche Mark during 1992 and 1993 also contributed to push the real exchange rate down.[2] However, the current account surpluses after 1992 are mainly explained by the behaviour of the service account (tourism revenues), which compensated growing deficits in the goods account.

Capital inflows, on the other hand, exhibit an increasing trend until 1996 when they reach a peak, a decline until 1999 and again the highest peak in 2000 (Table 1). This dynamics broadly shadows the policy changes regarding capital inflows followed by the BOS, particularly with regard to the imposition of capital controls and later their liberalization. First, the gradual imposition of capital controls started in 1995, intensified in 1996 and 1997, which influenced the growth of foreign exchange inflows until the end of 1998 and, second, the liberalization of most capital restrictions in 1999. Furthermore, four phases concerning capital control policy can be identified since 1992. The first phase corresponds to absence of capital account restrictions in 1992-1995; imposition of capital controls in 1995-1999; liberalization of capital controls except those on portfolio inflows with maturity of less than one year in 1999-2000 and; liberalization of portfolio inflows with maturities above six months from July 2001.

In order to understand the policy responses to capital inflows it is important to assess their relative dimension, volatility and structure. With respect to their dimension, total capital inflows as percentage of GDP were sizable during 1994-1997 period, averaging 3,7% of GDP. Comparing the relative size of inflows to Slovenia with the size of inflows to other countries (emerging markets) that experienced well-documented capital inflow episodes indicates that in the case of Slovenia they were not extremely high (Table 2).

Table 2
Relative size of capital inflows in a sample of countries (percent of GDP)

	Capital inflows		Inflow episode			
	3-years prior (average)	**Inflow episode (average)**	**Year 1**	**Year 2**	**Year 3**	**Year 4**
Thailand (1988)	3,3	9,7	5,2	9,7	11,4	12,6
Egypt (1991/92)	2,7	8,5	8,5	…	…	…
Chile (1990)	4,5	7,4	10,6	3,5	8,1	…
Mexico (1988)	-0,2	6,2	2,3	4,9	7,8	9,9
Colombia (1991)	0,9	3,6	4,6	2,6	…	…
Average	2,2	7,1	6,2	4,1	6,8	7,5
	1992-93	**1994-97**	**1994**	**1995**	**1996**	**1997**
Slovenia	0,6	3,7	3.3	3.2	4.6	3.7

Source: Schadler et al., 1993. For Slovenia, see Table 1.

[2] The nominal exchange rate at the time of the introduction of the Slovenian Tolar was SIT 32 per DEM. The rate was set at a level compatible with the April 1988 real exchange rate that enable partial convertibility of the Yugoslav Dinar and contributed to accumulation of foreign exchange reserves during 1988 and 1989. (Mencinger, 2001)

Another insight into the relative dimension of the size of capital inflows to Slovenia can be obtained by looking at episodes of capital inflows in existing EMU members documented in Begg (2001). Table 3 shows that the size of average capital inflows to EMU countries is in general lower than the average of capital inflows in the sample of countries previously discussed (emerging markets). Comparing the size of average capital inflows to Slovenia with the size of 8 episodes of capital inflows to EMU countries indicates that only in three cases the average inflows to Slovenia were higher, which suggest that capital inflows to Slovenia were relatively high, but still not extraordinarily high by international standards.

Table 3
Episodes of capital inflows in existing EMU members

Italy		Portugal		Spain		Greece		Ireland	
Period	**Inflow % GDP**	**Period**	**Inflow % GDP**	**Period**	**Inflow % GDP**	**Period**	**Inflow % GDP**	**Period**	**Inflow % GDP**
1987-90	2,0	1987-91	5,4	1987-91	4,5	1986-88	4,3	1986-88	2,3
		1996-99	5,9	1996-97	3,0	1998-99	6,0		

Source: Begg (2001)

Given the fact that Slovenia during the mentioned period was a country in transition it can be argued that the above comparisons do not take into account different countries' backgrounds. Even in this case, if the size of capital inflows to Slovenia is compared with the size of capital inflows to Central European and Baltic countries pursuing EU accession, the result also indicates that the size of inflows to Slovenia has been relatively low by these standards.

Table 4 presents information concerning capital inflows to Central European and Baltic countries as percentage of GDP. Capital inflows in Table 4 were estimated by subtracting the current account surplus from the overall result of the balance of payments (change in official reserves) and then expressing the difference in terms of GDP (Begg 2001). Such a presentation of the size of capital inflows differs from the one shown in Tables 1 because in that Table capital inflows explain total change in international reserves, including official and commercial banks' reserves. Thus, with the exception of the year 1997, the size of capital inflows in Table 1 is bigger than the size of capital inflows in Table 4.

The extraordinary large size of capital inflows in 1997 in Table 4 is the result of commercial banks' selling international reserves to BOS as a consequence of changes in monetary policy instruments and does not represent high capital inflows. In 1996 BOS changed regulation and instruments. Those changes induced commercial banks to place their international reserves in BOS-bills or to sell them outright to the BOS instead of putting them

as deposits or in financial instruments abroad.[3] Total international reserves of the banking system's held abroad declined in US$ 765,7 millions from December 31st 1996 to December 31st 1997. Based on the above comparisons it is therefore difficult to argue that the size of capital inflows to Slovenia was extremely high by international standards.

Table 4
Size of capital inflows in Central European and Baltic countries (%GDP)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Aver-age (1993-1999)
Czech			7,0	11,3	17,6	6,0	2,8	5,9	4,9	7,9
Estonia			11,5	7,3	7,2	11,5	16,5	9,2	8,3	10,2
Hungary	4,2	1,2	17,5	8,6	17,8	1,1	1,8	7,0	9,1	9,0
Latvia			-5,4	-2,8	0,4	9,3	7,9	12,3	13,4	5,0
Lithuania			10,6	4,6	13,5	9,2	12,3	15,8	9,3	10,8
Poland	-6,4	-1,4	3,0	0,0	7,0	4,8	6,5	7,9	9,4	5,5
Slovak			4,8	3,3	7,6	13,1	10,6	8,1	10,2	8,2
Slovenia			-0,8	0,7	1,6	3,2	7,2	1,5	2,9	2,3

Source: Begg 2001. (Average: own estimates)

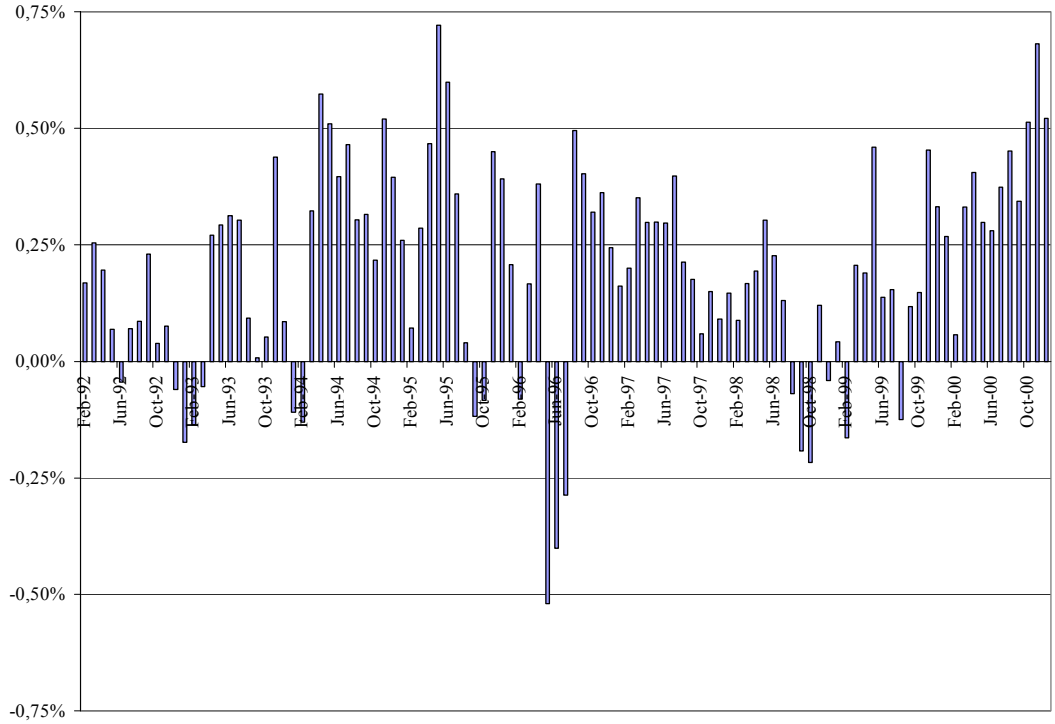
Another assessment of the size of the capital inflows can be obtained by looking at monthly capital inflows and their volatility. Figure 1 shows monthly private capital inflows as percentage of GDP. It indicates that with few exceptions monthly inflows never exceeded 0.5% of GDP. It also shows that there were broadly three periods in which monthly capital inflows were relatively high (March 1994-August 1995, August 1996-September-1997, November 1999-December 2000) with average size as percentage of GDP of 0.40%, 0.32% and 0.38% respectively. Given the fact that capital inflows were persistent during the three mentioned periods and there was a significant reversal only in May-July 1996, it can be said that capital inflows in general were rather stable.

Information on the total size of capital inflows presented in Table 1 includes both official and private financial transactions. Such a presentation to some extent, though not substantially, magnifies the size of the capital inflows and can blur the assessment regarding their size, structure and policy implications associated with them. This is because in Slovenia officially driven capital inflows were not sizeable or did not have significant monetary

[3] In June 1996 the BOS amended reserve requirements on foreign currency deposits. It decided that at least 30% of this requirement should be constituted in BOS's bills. In addition in July of the same year it introduced the obligation for banks to balance additional liabilities to foreign persons beyond their position at July 31, 1996 with corresponding assets. Such liabilities comprise any and all liabilities to foreign persons and liabilities under foreign loans taken by those domestic legal persons in which banks hold majority participation. As a result of the measures in 1996 banks were stimulated to either invest in BOS's foreign currency denominated bills or sell their foreign exchange surplus to the BOS.

impact.[4] Also, this is because official and private inflows have different policy implications. It was only in 1999 and 2000, that official inflows were relatively sizable due to high domestic debt repayments. In addition, official inflows in Table 5 also include BOS's financial transactions, which were particularly large in 1996. Therefore, in order to determine the size of the problem and to analyse the policy responses it seems reasonable to focus on private capital inflows, their characteristics and determinants.

Figure 1
Net private capital inflows (as percentage of GDP)



Source: BOS Denarni Pregled, various issues

Table 5 presents detailed information concerning capital inflows to Slovenia separating official and private capital inflows. Private capital inflows in terms of size were similar to total capital inflows to the economy (averaging 3,4% during 1994-1996), but they exhibit a slightly different dynamics than total inflows. They reached their peak in 1994-1995 (3,9% of GDP) while total inflows in 1996 (4,6% of GDP).

[4] In Slovenia the general government finances were in balance until 1997 and did not significantly deviate from a deficit of 1% of GDP in the last four years implying a relatively low borrowing requirement. Most government portfolio transactions were related to the process of assuming Slovenia's share in former Yugoslav external debt.

Table 5
Capital inflows: public and private

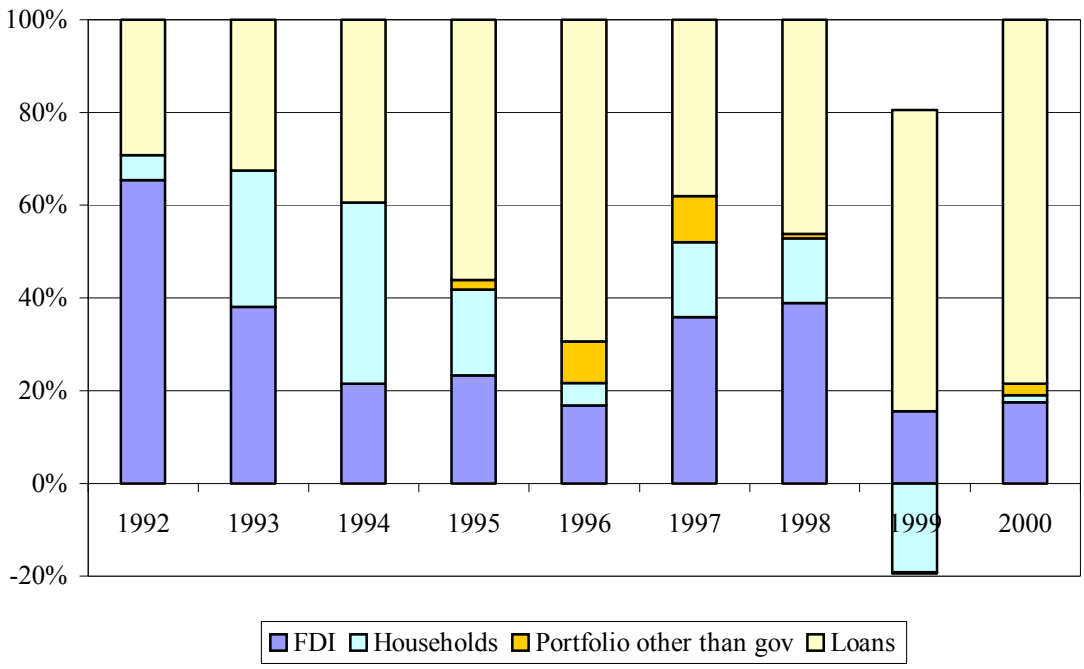
(As percentage of GDP)	1992	1993	1994	1995	1996	1997	1998	1999	2000
1. Public sector flows	-0,1	0,4	-0,1	0,4	1,2	0,8	0,2	1,6	2,0
Government bonds					0,9	1,0	0,6	1,8	1,2
Other public sector	-0,1	0,6	0,6	0,7	-0,4	-0,1	-0,1	0,1	0,7
Bank of Slovenia	0,0	-0,2	-0,7	-0,4	0,7	0,0	-0,3	-0,3	0,1
2. Private sector flows	1,4	1,8	3,9	3,9	3,5	2,4	1,2	1,5	3,5
FDI	0,9	0,9	0,9	1,0	0,7	1,8	1,3	0,9	1,0
Portfolio (other than government)				0,1	0,4	0,5	0,0	0,0	0,1
Loans	0,4	0,8	1,6	2,3	2,8	2,0	1,5	3,8	4,5
Banks	-0,1	0,0	0,7	1,2	1,5	-0,1	0,2	1,3	1,5
Enterprises	0,5	0,7	0,9	1,1	1,3	2,0	1,3	2,5	2,9
Households	0,1	0,7	1,6	0,8	0,2	0,8	0,5	-1,1	0,1
Other (rest)	0,1	-1,2	-0,2	-0,2	1,0	-0,9	0,2	-0,4	-0,9
Trade credits	0,0	0,6	-0,1	0,0	-1,6	-1,9	-2,2	-1,7	-1,3
3. Errors	-2,3	0,1	-0,5	-1,0	0,0	0,4	0,3	0,1	0,3
4. Total financial flow (1+2+3)	-1,0	2,2	3,3	3,2	4,6	3,7	1,8	3,2	5,8
(US$ millions)	1992	1993	1994	1995	1996	1997	1998	1999	2000
1. Public sector flows	-17	47	-11	66	223	149	42	330	362
Government bonds					163	184	113	365	224
Other public sector	-18	78	92	136	-69	-27	-20	16	126
Bank of Slovenia	1	-31	-103	-70	129	-9	-51	-51	12
2. Private sector flows	174	227	555	719	653	440	242	293	641
FDI	111	113	128	177	129	335	248	181	181
Portfolio (other than government)				15	68	92	6	-3	25
Loans	50	96	235	428	529	357	294	754	810
Banks	-9	2	106	216	291	-15	41	257	279
Enterprises	59	95	129	213	238	372	253	497	531
Households	9	87	232	142	37	151	89	-223	16
Other	9	-147	-25	-37	186	-156	33	-80	-159
Trade credits	-5	79	-15	-7	-294	-339	-428	-335	-232
3. Errors	-280	10	-70	-195	-5	77	62	27	53
4. Total financial flow (1+2+3)	-123	285	473	590	871	666	347	650	1056

Source: BOS Denarni Pregled, various issues.

Structural Characteristics of Capital Inflows

In analysing the structure of capital inflows it is important not to forget the period in which they were relatively high (1994-1996) and the fact that their dynamics was affected by capital controls policy. In general, it can be said that capital inflows were driven mainly by domestic residents in the form of loans and repatriation of deposits from abroad or taken out from "the mattresses" after independence. The share of total loans in total private inflows during the period 1992-2000 was 60.2% and the share of households' capital inflows was 9,2%, adding both to a total of 69,4% of total capital inflows. This is an important finding to take into account when discussing policy responses. Another important feature to notice is the growing trend in total of loans since independence (in absolute and relative terms) until 1996, its reduction in 1997-1998, which is due to BOS's restriction on banks' borrowing and its second increase in the last two years after the abolition of most capital controls (Figure 2).

Figure 2
Structure of capital inflows [1/]



1/ Does not include: Government borrowing, errors and omissions and Bank of Slovenia flows.
Source: BOS Denarni Pregled, various issues.

Foreign driven capital inflows, on the other hand, in the form of FDI and portfolio investment other than government debt issued abroad, were only 30,6 % of the total private inflows during the period and most of it were FDI inflows (27,2%). FDI has been modest during the whole period under consideration, averaging 1 % of GDP and peaking up only in 1997 and 1998. Among the reasons explaining the relatively low FDI is the way the privatization process was implemented in Slovenia--mainly by internal buy-outs and

purchased by residents--and the fact that the government has not yet privatized large public enterprises and banks. Other reason often argued is the side effect of capital controls on portfolio investment, which also seem to have discouraged FDI.[5] Regarding portfolio inflows, they started to show an increasing trend during 1995 to 1997 and then practically disappeared after BOS's introduction of restrictions on foreign portfolio investments (Table 5 and Figure 2).

The structure of capital inflows reflects several undergoing processes in the Slovenian economy. First, a strong repatriation of foreign currency deposits by households and restoration of confidence in the banking system during 1992 to 1994, particularly in the last year. This process can be understood as a one-off effect associated with consolidating macroeconomic stability. During those years the private sector (banks and enterprises) also regained increasing access to international capital markets and, as a consequence of the relatively high domestic-foreign interest differential, total foreign borrowing increased steadily from 1992 to 1996, while enterprise borrowing increased during the whole period with the exception of 1998. As macroeconomic stability was consolidating and creditworthiness improved, foreign investors also showed interest in portfolio investments in Slovenia. Thus, the evolution of the composition of capital inflows reflects the evolution of the still incomplete process of stabilization (relatively high inflation).

In analysing the structure of capital inflows, it is important to look at what type of inflows were driving the relatively sizeable inflows during 1994-1996. In 1994, the main reason was households' "repatriation" of deposits and loans, and in 1995-1996 the bulk of capital inflows were loans (Figure 2). This also indicates that the factors explaining capital inflows in this particular period were inherent to general conditions of the Slovenian economy and as a consequence susceptible of being influenced by the central bank.[6] Therefore, the policy responses have to be analysed in terms of their success in addressing the causes driving capital inflows and to a lesser degree in addressing their effects.

Capital Inflows of Residents

Private External Borrowing

As mentioned before, private external borrowing by means of loans has been the major factor explaining the dynamics of capital inflows to Slovenia during the whole period but particularly during 1993-1996 and 1999-2000. In particular, enterprises' and banks' average

[5] See Mrak et. al. (1998)

[6] When formulating policy it is crucial to identify which are the factors explaining capital inflows (internal or external). Internal factors are those related to domestic policy and economic conditions, such as domestic/foreign interest rate spreads, macro-economic stability, institutional reform and other determinants including those that attract short-term speculative capital inflows. External factors, on the other hand, are unrelated to policies and conditions in the country in question and include factors such as international interest rates or a rest of the world's recession. See Calvo et. al. (1993).

borrowing as percentage of GDP was 2,2% during the whole period. On average, enterprises borrowed more heavily than banks (1,5 % and 0,7 % of GDP respectively). However, banks' borrowing exceeded enterprises' borrowing during 1995 and 1996.

Table 6
External borrowing

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Loans (US$ mill.)	50	96	235	428	533	357	294	754	810
Banks	-9	2	106	216	291	-15	41	257	279
Enterprises	59	95	129	213	242	372	253	497	531
Loans (% GDP)	0,4	0,8	1,6	2,3	2,8	2,0	1,5	3,8	4,5
Banks	-0,1	0,0	0,7	1,2	1,5	-0,1	0,2	1,3	1,5
Enterprises	0,5	0,7	0,9	1,1	1,3	2,0	1,3	2,5	2,9

Source: BOS Monthly Bulletin, various issues.

When discussing the effectiveness of policy responses to the increase in loans, two underlying trends should be taken into account. First, banks increased external borrowing steadily from 1992 to 1996, but they sharply reduced it in 1997; and second, enterprises' borrowing increased persistently every year with the exception of 1998 (Table 6). The substantial increase of total loans during the last two years also reflects the lifting of capital restrictions in 1999.

Borrowing by Banks

The maturity of banks' external borrowing has been predominantly long-term, even before 1995, the year in which the BOS introduced a 40 percent non interest bearing deposits on foreign loans with maturities of less than five years. Such a policy measure practically prohibited banks from short-term borrowing abroad (Table 7).

Banks' long-term borrowing exhibited an increasing trend through the years until 1996. This relatively long trend was interrupted in 1997 when banks' net borrowing dropped from USD 291 millions in 1996 to negative US$ 15 millions in 1997. The drastic reduction of banks' external borrowing can be explained by the BOS's requirement on banks to balance their net foreign position as of July 31, 1996. The measure demanded from banks to balance any additional liability to non-residents beyond their position on July 31, 1996 with a corresponding increase in their claims against non-residents.

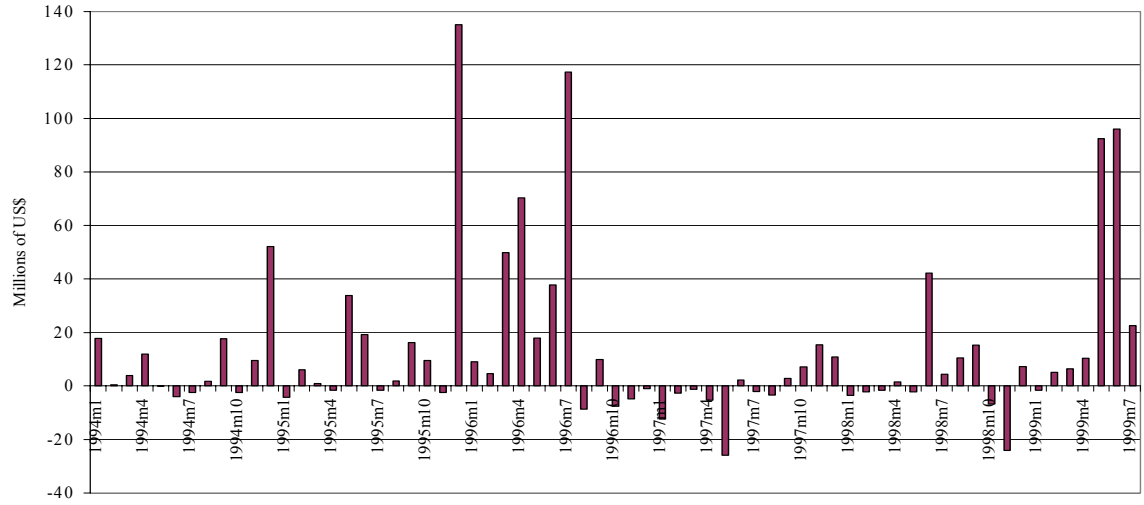
Table 7
External borrowing of banks and enterprises (millions of US dollars)

	Long-term			Short-term			Total
	Banks	Enterprises	Total	Banks	Enterprises	Total	
1992	-6,8	58,8	52,0	-2,4	6,7	4,3	56,3
1993	-2,4	94,7	92,3	4,1	67,5	71,6	163,9
1994	106,0	128,5	234,5	0,2	-6,3	-6.1	228,4
1995	212,4	212,6	425,0	3,3	-49,5	-45,2	379,8
1996 [1/]	294,0	238,0	532,0	-3,2	4,9	0,7	532,7
1997	-15,0	371,6	356,6	0,0	68,8	68,8	425,4
1998	40,3	253,2	293,6	0,4	-19,8	-19,4	274,2
1999	250,0	497,1	747,1	7,2	14,2	21,4	768,5
2000	281,9	530,9	812,8	-3,2	-11,3	-14,5	798,3

1/ Data include increase in banks' loans of USD 465.4 millions in 1996. In official data the amount is deducted due to Government issuance of bonds in exchange of NFA debt share.
Source: BOS Monthly Bulletin. Various issues.

Figure 3 shows the powerful effect of the measure, which practically prohibited banks from borrowing abroad after July 1996. The restriction seems to have been the most powerful among all controls in containing capital inflows. In the period January 1997-May 1998 banks practically did not borrow abroad. Total long-term net borrowing was negative US$ 6,6 millions.

Figure 3
Banks' long term loans [1/]

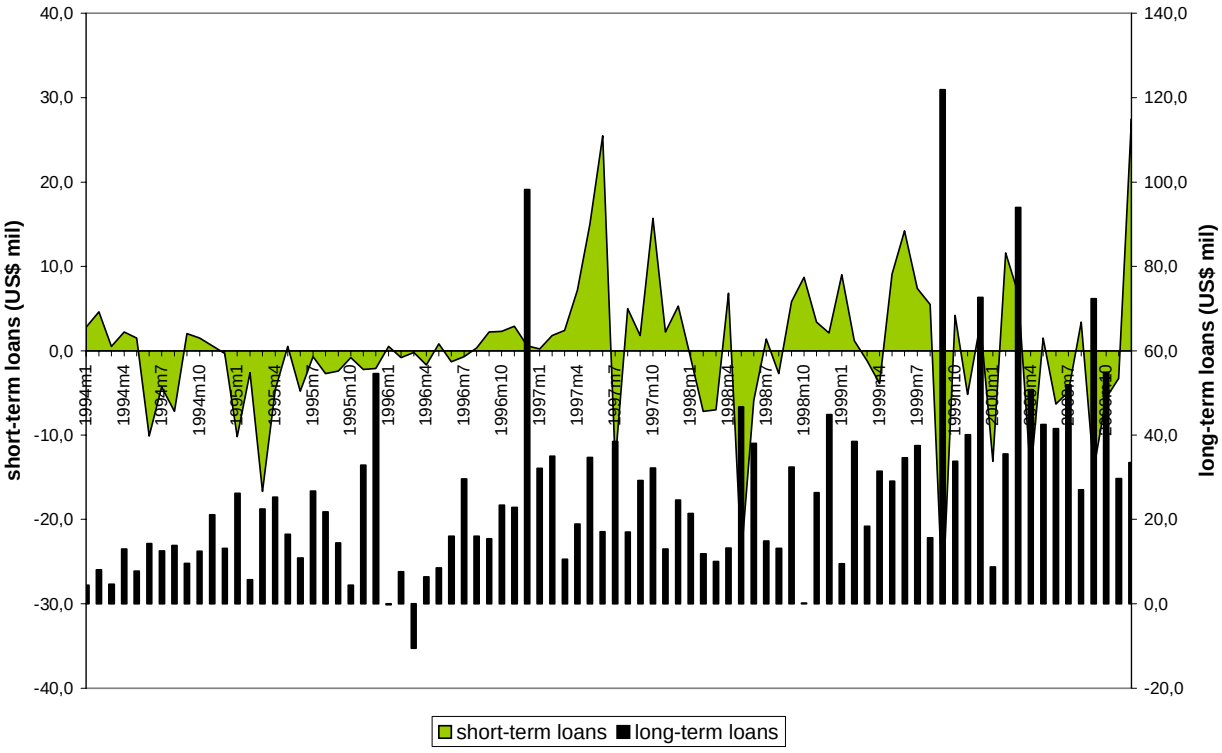


Source: BOS Monthly Bulletin, various issues.
1/ 1996 figures corrected as in Table 7.

Borrowing by Enterprises

One of the principal factors explaining the capital account dynamics is enterprise borrowing. The effect of this type of borrowing, even though recorded in the balance of payments, does not have necessarily adverse monetary consequences, because most of investment goods are imported from abroad.

Figure 4
Loans from abroad (US$ millions)



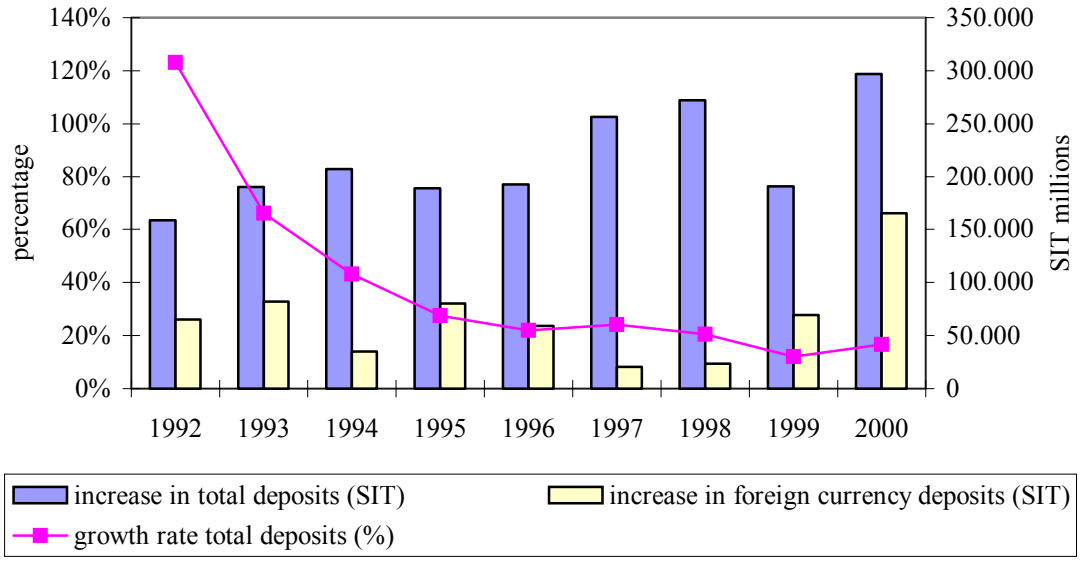
Source: BOS Monthly Bulletin, various issues.

As mentioned earlier, total enterprise borrowing has increased throughout the whole period but mainly through long-term loans. Short-term borrowing emerged in 1992, increased during 1993 and continued at a lower scale in 1994 (Table 7). Short-term loans practically disappeared for about two years after BOS's imposition of restriction on short-term borrowing in February 1995 (Figure 4). Short-term borrowing emerged again at the end of 1996.

Capital Inflows of Households

Inflows driven by households explain significantly total capital inflows during 1992-1994 (Figure 2). The main reasons behind the repatriation of deposits or their "taking them out from the mattresses" lies in the gradual consolidation of macroeconomic stabilization. Both inflation rate and exchange rate depreciation consistently declined in magnitude while the general government budget was in surplus. In particular, both the low depreciation rate and volatility of the exchange rate (SIT/DEM) in 1994 contributed to the regained confidence in the domestic currency.

Figure 5
Change in banking system's deposits



Source: BOS Monthly Bulletin, various issues.

The confidence in the stabilization process is reflected in the relatively large "repatriation of deposits" of households and the parallel increase in the deposits of the banking system during 1992-1994 (Figure 5). The growth rate of total deposits was significantly higher during those years and then slowly declined towards 20% per year. This development clearly reflects that the nature behind households' capital inflow was one-off effect type, which also indicates that money demand was higher and that there was potential room for monetization. This is another dimension to take into account when discussing policy responses.

Capital Inflows of Non-Residents

Foreign Direct Investment

FDI is commonly regarded as the private capital inflow of best choice due to its positive impact on enterprise restructuring process, economic growth and because of its long-term nature. It also allows for the transfer of technology, promotes competition and has other advantages. This component in Slovenia, as mentioned before, has behaved fairly stable and remained at a rather low level. In particular, it is only in 1997 and 1998 when its relative size increased above 1% of GDP.[7]

Table 8
FDI inflows

	Cumulative FDI-inflows 1989-2000 US$ million	Cumulative FDI-inflows 1989-2000 per capita US$	FDI-inflows per capita US$		FDI-inflows % GDP	
			1999	2000	1999	2000
Czech	21.673	2.102	605	434	11,7	9,1
Estonia	1.926	1.337	154	168	4,3	4,9
Hungary	19.420	1.935	140	164	2,9	3,5
Latvia	2.430	1.027	139	139	5,0	4,6
Lithuania	2.367	642	129	96	4,5	3,2
Poland	29.052	751	164	240	4,1	5,9
Slovak	3.611	669	130	278	3,6	7,4
Slovenia	1.534	768	72	67	0,7	0,7
Average		1.154	192	198	4,6	4,9

Source: EBRD (2001).

Despite this fact it is often argued that the relative size of FDI in Slovenia on per capita basis is quite high. However, as Table 8 shows, FDI flows measured in cumulative terms on per capita basis or as percentage of GDP were low. Therefore, any potential disrupting effect arising from this type of capital inflows was not comparable to other countries in transition.

[7] In 1997, the relative large size of FDI is explained by the acquisition of the tire manufacturer Sava by Goodyear, one of the largest foreign direct investments in Slovenia.

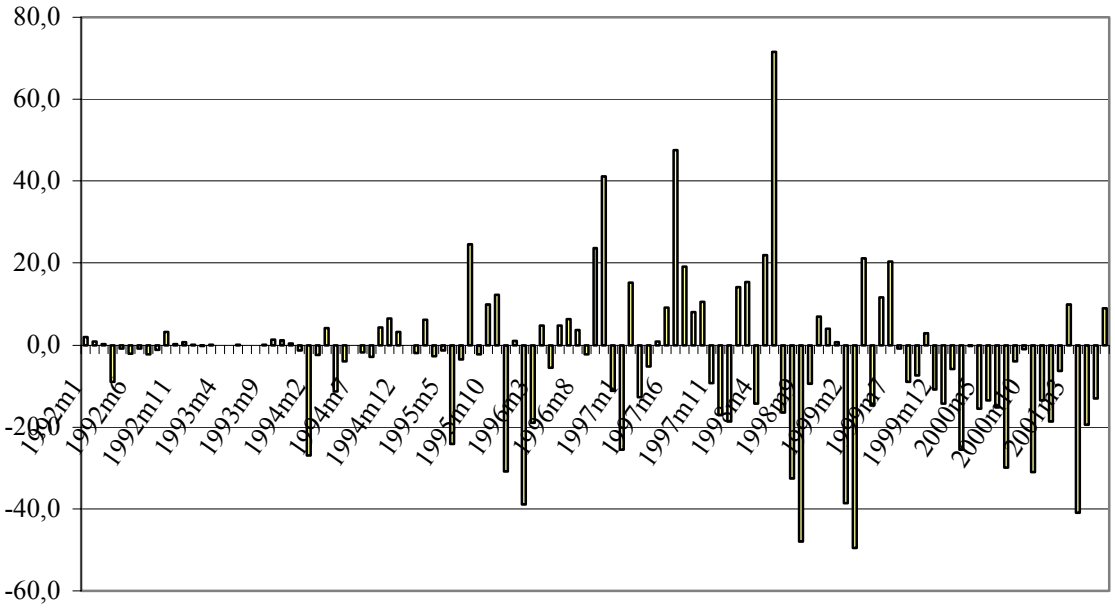
Portfolio Investment

Without doubt portfolio investment, particularly short-term speculative investment in sizable amounts can have destabilizing effects. However, not all portfolio investment have such characteristics because they can also have an important role in dynamizing the capital market, contribute to enhance corporate governance and economic growth.

Portfolio investment to Slovenia was dominated by government debt transactions that did not translate into foreign exchange inflows, with exception of the last two years, in which these had a relative minor impact. Prior to that, international bond issues by the government were related to assumption of debt from the former Yugoslavia or to refinance external debt and thus they did not involve cash inflows.

Foreign portfolio investment in instruments other than government bonds were insignificant (Table 5). After being practically non-existent until 1994, they showed an increasing trend during 1995 to 1997. In 1997 they reached the peak (USD 92 million or 0,5 percent of GDP) and then faded away as a result of the introduction of capital controls on portfolio investments (Table 5).

Figure 6
Private portfolio inflows (US$ millions)



Source: BOS Monthly Bulletin, various issues.

Private portfolio inflows exhibit an erratic behaviour during 1995 and 1996 (first half) and the largest reversal amounted to approximately 0,2% of GDP (Figure 6). In 1997 the behaviour of portfolio inflows was affected by the BOS' February imposition of a requirement

that non-resident portfolio transactions had to be channelled through (costly) custodian accounts with fully licensed domestic banks. Despite the measure portfolio inflows increased in the second half of the year and appear in the first six months of 1998. From the second half of 1998 until now portfolio inflows practically disappeared. Portfolio inflows also exhibited some variability, probably associated with the policy measure. However, the reversals were lower in size than in 1996. In 1997 the size of monthly flows only on few occasions exceeded the size of US$ 20 millions, less than 1 percent of the Stock Exchange' market capitalization as of December 1997.

Table 9
Net inflow of foreign portfolio investment and turnover of international investors on Ljubljana Stock Exchange (LJSE) (SIT Millions)

	Exchange market	Off exchange market	Total net flow	Turnover by foreign investors (a)	Total Turnover (b)	c =a/b	Total market capitaliza-tion (d)	d/GDP
1996	7.439	3.381	10.821	9.719	87.004	11,2%	177.183	6,9%
1997	8.441	9.966	18.407	24.090	108.296	22,2%	399.345	13,7%
1998	2.761	-2.104	657	14.334	173.375	8,3%	710.252	21,8%
1999	-2.269	674	-1.595	3.163	265.631	1,2%	919.692	25,2%
2000	208	8.540	8.749	4.296	269.617	1,6%	1.138.432	28,1%
Jan-May 2001	341	19.974	20.315	1.427	113.675	1,3%	1.160.611	

Source: Ljubljana Stock Exchange: Monthly Statistical Report June 2001

Table 9 shows that portfolio inflows, in spite of their relative small size, had an important impact on the total capital market turnover, particularly in 1997. Notice also the relatively small size of market capitalization as percentage of GDP during 1996 and 1997, which eventually could be an argument in favour of restrictions on portfolio investments. Alternatively, letting foreign portfolio inflows could have contributed to the development of the capital market.

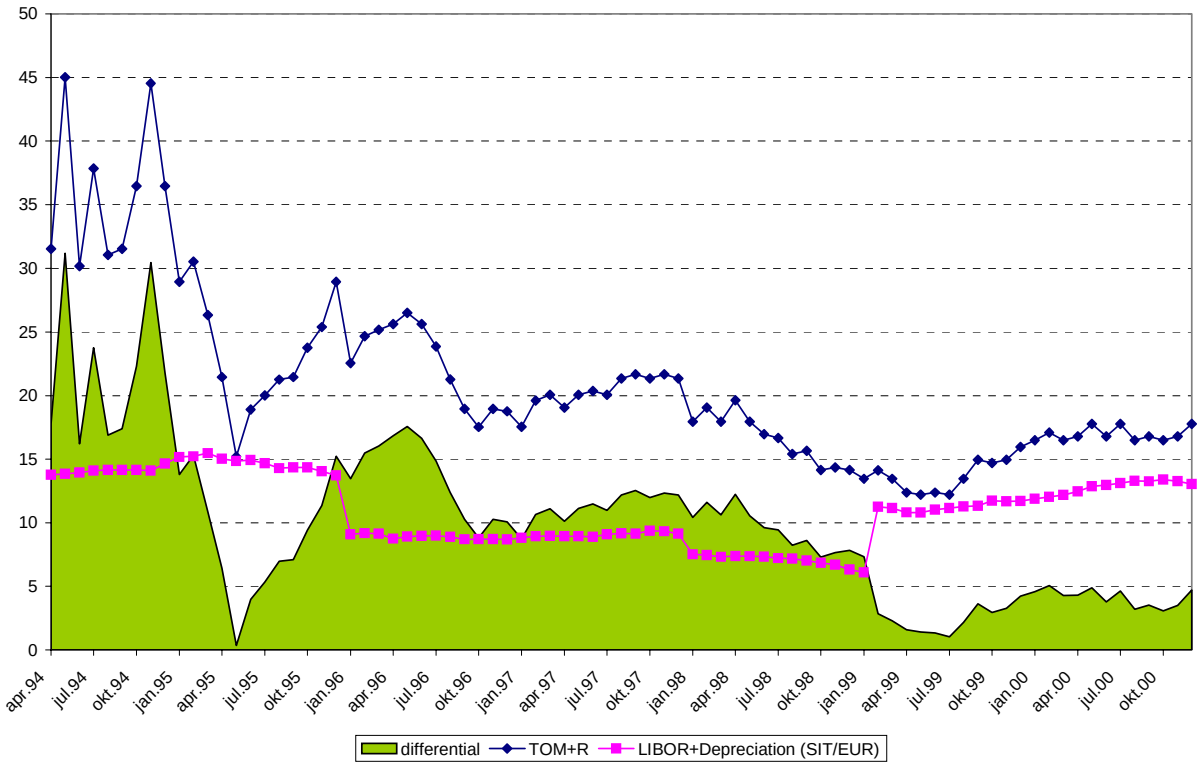
II. CAUSES OF CAPITAL INFLOWS (EMPIRICAL ANALYSIS)

The structure of capital inflows clearly indicates that domestic residents' borrowing abroad was the primary cause of capital inflows. In addition, the application of capital controls in the first instance to domestic residents' loans also points out that the reason behind capital inflows lies primarily in domestic conditions.

Without discussing exhaustively the reasons explaining why domestic residents import capital to Slovenia, we can without doubt name the relatively high domestic interest rate as

one of main determinants with a direct link to inflation. In Slovenia all financial contracts, with the exception of T-bills (introduced in 1998) and some BOS-bills, which pay nominal interest rate, are linked to changes in inflation. Even more, the so-called "temeljna obrestna mera" (TOM) (basic interest rate), which represents the average inflation over a period of the last twelve months estimated by the BOS is in fact the basic reference rate in the economy. All financial contracts are quoted in terms of TOM plus a fixed rate, similar to the LIBOR rate. Thus, to get an idea of how domestic borrowing conditions compare to borrowing conditions in the international market, one can look at the difference between the six months LIBOR rate and the TOM (Figure 7). To make the comparison realistic the LIBOR rate is increased say by 100 basis points (quite high for Slovenian enterprises) and by the actual annual depreciation of the Tolar with respect to the Euro and the TOM rate is increased by the actual banks' annualised fixed interest rate on loans for capital assets.

Figure 7
Interest rate differential



Source: BOS Monthly Bulletin, various issues, and Reuters.

The TOM (+)-LIBOR (+) differential rate has been positive and substantial, and declining only in the last two years Figure 7. Undoubtedly, the difference in borrowing conditions represents a powerful stimulus for domestic residents to borrow abroad.

With the aim to assess empirically the explanatory power of high interest rates and economic activity in Slovenia as determinants of capital inflows, two equations were

estimated using OLS regressions. One equation specifies the capital account as the dependent variable (KA) and the other the capital account excluding government transactions (KA1) as the dependent variable. Government transactions were excluded because, as mentioned before, they did not have impact on foreign exchange position during the period in which capital inflows were restricted. The explanatory variables used include: the uncovered domestic/foreign interest rate differential (UID); the industrial output index (IO); dummy variables that allow to capture the cyclical pattern in the predicted variables (KA and KA1) and dummy variables that capture offsetting accounting entries in the capital account of two large government transactions that did not have impact on capital inflows in 1996.[8]

The two equations were estimated using average quarterly data for the period in which capital inflows were imposed. The UID was defined as the differential between 31-90 days deposit rates in Slovenia and Germany, adjusted for actual, annualised one-month-ahead changes in the SIT/DEM exchange rate. The level of economic activity was proxied by the IO based on 1991. The estimated equations are reported below:

Notation

KA = Capital account
KA1 = Capital account excluding government transactions
UID = Uncovered interest rate differential
IO = Industrial output index
D1 = Dummy variable for 1st quarter
D2 = Dummy variable for 2nd quarter
D3 = Dummy variable for 3rd third quarter
D962 = Dummy variable for June 1996 Eurobond (2nd quarter)
D963 = Dummy variable for August 1996 Eurobond (3rd quarter)

Equation 1 [9]

KA1 = -516.59 + 6.14 UID + 6.07 IO - 42.48 D1 - 18.25 D2 - 136.35 D3 - 266.09 D962 - 241.17 D963

(-1.33) (2.48) (1.48) (-0.65) (-2.88) (-2.01) (-2.29) (-2.39)

Time period: 1993.1 - 1997.4

[8] In June and August 1996 the Government issued bonds in the amount of USD 465.4 millions and USD 320.6 millions respectively that did not translate into foreign exchange inflows. The capital account offsets the Government transaction in June by decreasing banks' liabilities in foreign loans in the same amount and in August by balancing the government receipts against increase in official reserves. Both transaction are simply accounting records (see BOS Monthly Bulletin June-July 1997).

[9] Figures under the coefficients are t-statistic.

Included observations: 19

R^2 = 0.760457 Adjusted R^2 = 0.6207

S.E. of regression: 93.32 Durbin-Watson: 1.9952

F-statistic: 5.44 Prob(F-statistic): 0.0053

Equation 2

KA = - 671,01 + 3.85 UID + 8.10 IO (-1) - 112.47 D1 + 32.13 D2 - 177.01 D3

(-2.02) (2.10) (2.18) (-2.08) (0.65) (-3.48)

Time period: 1993.1 - 1997.4

Included observations: 19

R^2 = 0.6623 Adjusted R^2 = 0.5324

S.E. of regression: 76.71 Durbin-Watson: 1.6242

F-statistic: 5.099 Prob(F-statistic): 0.008315

The estimated equations, despite the quality of the data and the small number of observations, provide reasonable results. In particular, the goodness-of-fit and the diagnostic of the estimated equations are better when private capital flows (KA1) are the dependent variable. Explanatory variables in Equation 1 explain 62 percent of the private capital flows and in Equation 2 explain 53 percent of total capital flows. Notice in particular that the uncovered differential is highly significant in both equations. This is relevant because of its potential implications for policy formulation.

Without attempting to explain the determination of domestic interest rates, some factors explaining why domestic interest rates remain high can be pointed out. One important factor explaining the high level of domestic interest rates is the high inflation, which is automatically transferred to lending rates via TOM clause. The inflation rate declined to its lowest in June 1999 to rebound later on due to VAT introduction and international price shocks.[10] Other factor explaining the level of domestic interest rates is the relatively high spread between borrowing and lending rates of the banking system. Another factor that should be reflected in the interest rates is the BOS's monetary policy and the degree of commitment to its monetary target. However, this is not so transparent in Slovenia despite of BOS's achieving its monetary targets every year. Some of the reasons lie in the indexation of financial contracts and the way BOS's monetary instruments are positioned and operate. Most of the policy implementation

[10] Concerning the behaviour of price formation mechanism underlying the interest rate indexation, empirical analysis suggests that growth in monetary aggregates and changes in the SIT/DEM exchange rate have strong impact on prices. These factors also place initial pressure on wage formation that feeds backs on price increases. Evidence of excessive wage demand on inflation is not conclusive. Additionally, evidence indicates that structural rigidities underlying the behaviour of controlled prices and prices of non-tradable goods influence the price dynamics. See Ross (1998).

seems to be captured by the exchange rate movements, for example, by the degree of relative stability of the exchange rate during periods of relatively high capital inflows to the economy.

III. MONETARY POLICY FRAMEWORK AND BOS'S POLICY RESPONSE TO FOREIGN EXCHANGE INFLOWS

In order to understand the Bank of Slovenia's (BOS) response to foreign exchange inflows to Slovenia--inflows originating from transactions of goods, services and financial claims registered in the balance of payments--it is important to understand its monetary policy framework. According to existing legislation, the BOS has two statutory objectives: (i) stability of the domestic currency, and (ii) preserving the integrity of the payment system. The first objective is interpreted to mean that the BOS's primary concern is price stability. However, the way the objective is stated, it could be ambiguously interpreted. In particular, stability of the currency could be understood as either price stability or exchange rate stability (real or nominal). Beyond interpreting the first objective, the evidence suggests that stability of the domestic currency in practice has assumed, at a given time, one or the other connotation.

The presence of foreign exchange inflows heightened the tension between BOS's policy objectives: pursuance of price stability or real exchange rate stability. The aim of reaching these conflicting objectives is fully justified taking into account that Slovenia is a very open economy, undergoing important structural changes, that depends critically on preserving its external competitiveness (at least until major structural reforms are completed).

The alternation between policy objectives has been facilitated by the existing exchange rate regime (managed floating exchange rate regime) and was carried out within the limits allowed by the BOS's intermediate policy target. Since its establishment in 1991, the BOS has followed a monetary aggregate target. Until 1997, the intermediate target was the narrow money aggregate M1 and its operational target was base money. In May 1997, the intermediate target was changed to a broad money aggregate M3 but base money as the operational target was still preserved. At that time, the BOS to enhance the credibility of its policy commitment, started to make public announcement of its monetary target.

When confronted with substantial foreign exchange inflows, the BOS's policy dilemma is exacerbated and, as a consequence, its attitude towards reserve accumulation (intervention in the foreign exchange market) indicates whether it is pursuing price or exchange rate stability. A less intensive accumulation of reserves indicates that the BOS is pursuing the objective of price stability and, a more intensive accumulation of reserves indicates that the BOS is giving pre-eminence to exchange rate stability (and/or its inflation objective if the inflow is sterilized). Of course, besides the relative size of the inflows and their monetary impact, the BOS's intervention behaviour is also determined by how its actual reserve position compares with the target path of reserve accumulation. At an early stage of the increase in foreign

exchange inflows, when the level of reserves is lower than the target level, the likely choice is reserve accumulation.[11]

The BOS, as mentioned before, follows a monetary target and when coping with foreign exchange inflows its attitude towards accumulation of reserves is carried out within the boundaries of this policy. This in terms of the monetary policy framework (M3 as intermediate target and base money as operational target) implies that when dealing with net inflows, the BOS looks primarily at the actual trajectory of its operational objective base money (B) and compares it with the targeted trajectory it wants to achieve (B*). If B is lower than B*, the BOS has a margin for accumulating reserves (monetizing foreign exchange inflows). However, if B is higher than B* or the size of inflows is significant, the BOS can choose between not intervening in the foreign exchange market (allowing the appreciation of the exchange rate) or accumulating reserves (by not increasing the base money).

The development of foreign exchange flows by affecting reserves of banks also determines the behaviour of broad monetary aggregates, which is being taken into account when determining policy responses.

When the decision is to allow the exchange rate to appreciate, the result is to exert downward pressure on the level of prices, which can be interpreted as consistent with the price stability objective. Alternatively, when B is higher than B*, the same objective can be pursued by the BOS sterilizing the inflows with either domestic currency denominated securities or with foreign currency denominated securities.

Schematically the choices the BOS faces in presence of foreign exchange inflows can be represented by the following conditions, policy choices and outcomes:

Condition	Reserve policy choice	Outcome
B < B*	Accumulation	Inflow monetization
B > B*	No accumulation	Exchange rate appreciation (decline in inflation)
	Accumulation	Exchange rate stability a) inflow monetization (inflation) b) sterilization (inflation control)

The BOS's response to foreign exchange inflows by means of intervention in the foreign exchange market (change in official reserves) is shown in Table 10. BOS followed an active intervention policy in 1992, 1994, 1996 and 1997. As discussed earlier, the unusually high

[11] The BOS also intervenes in the foreign exchange market to induce the depreciation of the exchange rate. However, the aim of the intervention can be to preserve the stability of the real exchange rate, not necessarily to discourage capital inflows.

amount of accumulation of reserves in 1997 was induced by policy changes. In fact capital inflows in 1997 were lower than in 1996 (Table 1). The reduction in banks' reserves as a consequence of policy changes was US$ 609 millions (Table 10). Comparing the amount of total inflows in 1996 and 1997 it could be argued that the BOS over-intervened in the foreign exchange market in 1997.[12]

If the size of official reserves in 1997 is downward adjusted by reducing the amount of reserves not related to capital inflows it could be said that intervention in the foreign exchange market due to foreign exchange inflows was particularly important in 1994, 1996 and 1997. The highest intervention caused by capital inflows alone occurred in 1996.

The year in which total foreign exchange inflows reached their peak during the whole period was 1994 (US$ 1047 millions). This background of current account surplus and sizable inflows might help to understand why the BOS decided as early as February 1995 to impose capital controls despite the fact that it is precisely in that year that the current account swung into deficit changing the overall circumstances from those prevailing in 1993.

Table 10
Foreign currency inflows and BOS's intervention in the foreign currency market (US$ millions)

	Current account	Capital account	Total foreign currency inflows (reserves)	Banks' reserves	BOS' reserves
1992	924	-123	-802	-169	-633
1993	195	281	-478	-367	-111
1994	570	477	-1047	-406	-641
1995	-107	599	-491	-254	-237
1996	30	873	-903	-316	-587
1997	12	665	-678	609	-1287
1998	-148	346	-201	-43	-158
1999	-784	652	133	52	81
2000	-593	1055	-462	-283	-179

Source: BOS Monthly Bulletin, various issues.

[12] "The amount channelled into foreign exchange reserves through foreign exchange interventions of the Bank exceeded the net amount from abroad. Based on measures adopted in 1996, banks were, inter alia, obliged to gradually lower their assets and put them into balance with their liabilities in foreign exchange. Purchase of the Bank's foreign currency bills accounted for 761 million US Dollars, and direct purchase of foreign exchange from banks (based on respective instruments) by the Bank for 581 million US Dollars. The sale of foreign exchange by banks to the Bank was regulated by the purchase with right to sell." (BOS Annual Report 1997).

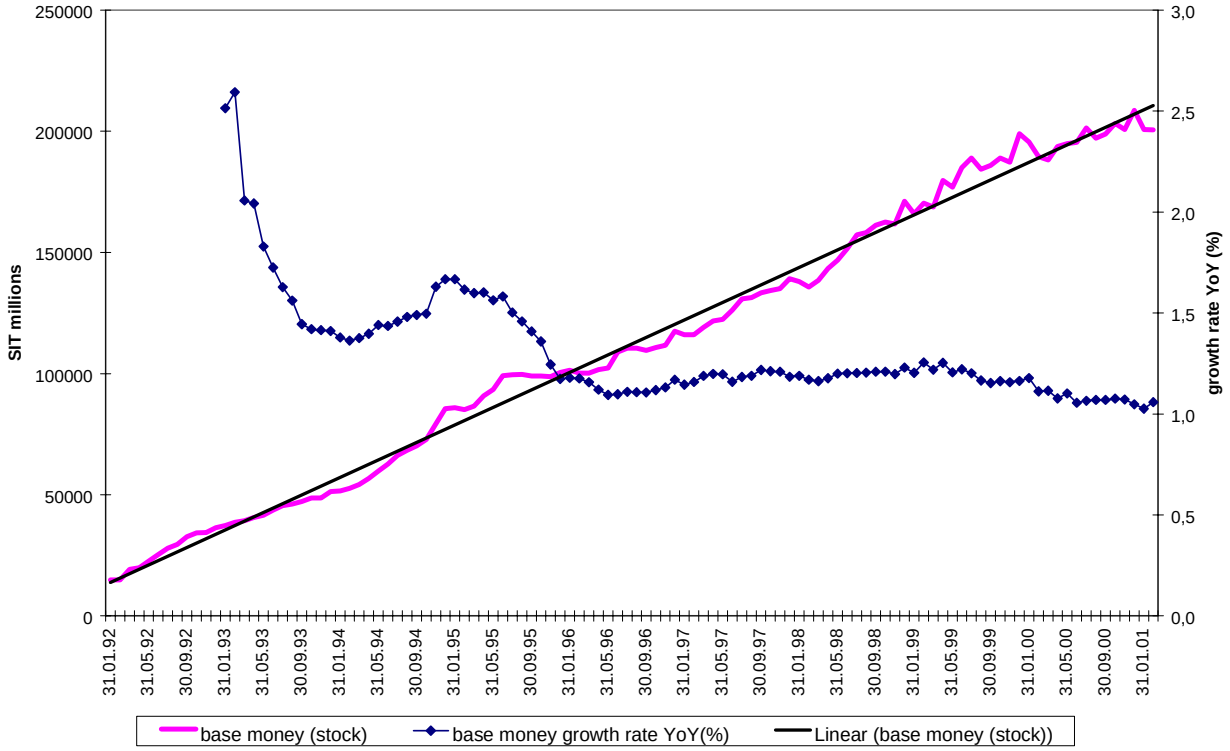
The impact of the foreign currency flows can be traced into money creation. Table 11 shows money supply and its sources (BOS' foreign currency and Tolar transactions). Tables 10 and 11 also show that foreign exchange inflows were particularly significant in 1994, 1996 and 1997. Taking into account the behaviour of the operating target of the BOS (base money) it seems that the critical year in which BOS was under pressure was 1994 because base money both in terms of its trend and yearly growth rate was off the policy track (Figure 8).

Table 11
Foreign exchange inflows and monetary impact (SIT billions)

				Base money creation							
				BOS intervention in foreign currency (FC) market				BOS Tolar instruments			
	BOS reser-ves	BOS net fo-reign assets	Issuance of FCBills (-)	Outright pur-chase of FC 1	Tempo-rary pur-chase FC 2	Purchase FC from MOF 3	Base money from FC purchases 4 = 1+2+3	Loans to banks 5	Issuance of Tolar bills (-) 6	Base money from tolar inst. 7 =5+6	Total base mo-ney supply 4+7
1992	51,0	50,8	-30,9	19,8	0,0	-9,7	16,8	13,2	-2,4	2,6	19,4
1993	12,0	15,3	0,1	32,7	0,0	-12,7	21,7	0,3	-0,4	-8,3	13,4
1994	68,1	81,5	-38,1	60,4	0,0	-21,1	38,2	13,8	-9,6	-1,6	36,5
1995	40,4	48,7	-24,4	23,9	0,0	-11,6	13,9	13,2	5,8	2,3	16,2
1996	78,5	60,7	-38,5	43,9	0,0	3,8	48,6	-27,4	-9,7	-30,9	17,7
1997	195,8	197,1	-114,0	92,7	0,0	-3,3	92,1	2,4	-59,5	-66,6	25,5
1998	27,1	35,6	12,1	48,3	0,0	-16,3	32,4	-14,2	-4,3	-4,4	27,9
1999	-26,4	-17,4	-10,1	-59,0	3,8	15,3	-45,2	18,0	52,7	81,1	35,9
2000	42,2	39,2	-21,9	-49,3	11,4	36,0	-1,9	-15,2	20,4	6,2	4,4

Source: BOS Denarni Pregled, various issues

Figure 8
Base money: stock and linear trend (in SIT millions) and yearly growth rate (%)



Source: BOS Monthly Bulletin, various issues.

In 1996 and 1997, the BOS also conducted an active sterilization policy, which affected the growth of base money, but the underlying causes were different. Whether the extent of sterilization was consistent with the policy of reducing inflation is a question that lies beyond the scope of this paper. Nevertheless, regarding 1994 it can be said that there was a strong money demand because the economy was undergoing a process of remonetization, which could have allowed a higher degree of monetization. Eventually, satisfying the higher money demand would have not resulted in higher inflation or in additional appreciation of the real exchange rate.

The exchange rate is the other policy variable to look at to understand BOS's intervention during the periods of relative high foreign exchange inflows. Table 10 shows that in the years in which base money increased mainly due to foreign exchange inflows (with the exception of 1997 for the reasons mentioned)--1994, 1996 and 1998-- the nominal exchange rate also became more rigid (Table 12). In particular, notice the sharp decline of exchange rate variability in 1994, the year in which foreign exchange inflows reached the highest level. Notice also in Figure 9 the slight appreciation or rigidity of the nominal exchange rate during the periods of relatively high capital inflows shown with implicit bands around the exchange rate. This suggests that in absence of BOS's intervention the appreciation of the nominal

exchange rate would have been stronger. The downward rigidity of the nominal exchange rate can be explained by the BOS's objective of preserving the external competitiveness of the economy and the upward rigidity, by the objective of price stability. The relative stability of the exchange rate was not the result of BOS' deliberately pursuing stability of the exchange rate but of relatively high foreign exchange inflows. [13] However, the combination of a stable nominal exchange rate, resulting from pursuing two policy objectives simultaneously, and high positive domestic-foreign interest rate differential seems to have established the conditions for perpetuating capital inflows.[14]

Table 12
Monthly standard deviation of the exchange rate (SIT/DEM)

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Standard deviation	4.81	4.58	1.16	2.54	0.66	1.53	0.93	1.52	1.96

Source:Own calculations based on BOS Monthly Bulletin, various issues

In 1995 the economic circumstances changed radically compared to those in 1994, which influenced the foreign exchange market.[15] In the second half of 1995 the nominal exchange rate depreciated as a consequence of the abolition of indexation factors (inflation and exchange rate) for deposits up to one month, which reduced deposits rates in banks and switched household demand into foreign currency (BOS Annual report 1995). The high rate of nominal exchange rate depreciation in November triggered BOS' intervention in the foreign exchange market by imposing a requirement on foreign exchange offices to balance their sales and purchases on a daily basis. The BOS's intervention was successful in diminishing the rate of depreciation of the nominal exchange rate.

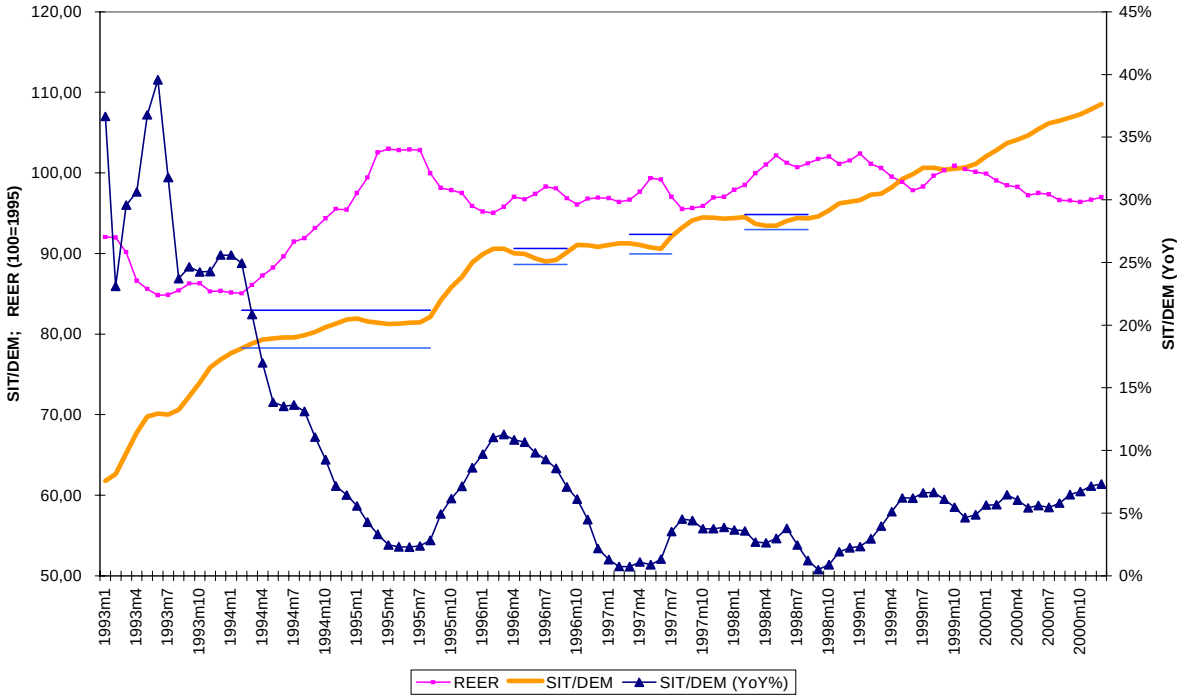
In 1996 capital inflows continued despite policy efforts (imposition of controls in 1995) and were reflected in the downward rigidity of the exchange rate. This triggered further introduction of capital controls and other policy measures, which seems to have affected the behaviour of the nominal exchange rate in conflicting ways until 1998. In the last two years nominal exchange rate depreciated as a consequence of current account deficits and the aim to reduce them and perhaps to some extent policy to close the interest rate differential.

[13] In discussing targets of the BOS Bohnec and Bradeško (1977) indicate that since 1992 the BOS has been making efforts to depreciate the exchange rate.

[14] Under flexible exchange rates with no intervention, a surge in foreign exchange inflows (capital inflows) generates, by definition, no change in central bank reserves and creates, instead, exchange rate appreciation. This appreciation creates through various mechanisms a current account deficit. If the appreciation, on the other hand, is not allowed to happen, the current account will remain in surplus and capital inflows will tend to perpetuate.

[15] The current account deficit is explained primarily by the historically high growth of private consumption (9,2% real growth rate), lowest real growth rate of exports and eventually because the appreciation of the real exchange rate.

Figure 9
Nominal and real effective exchange rate

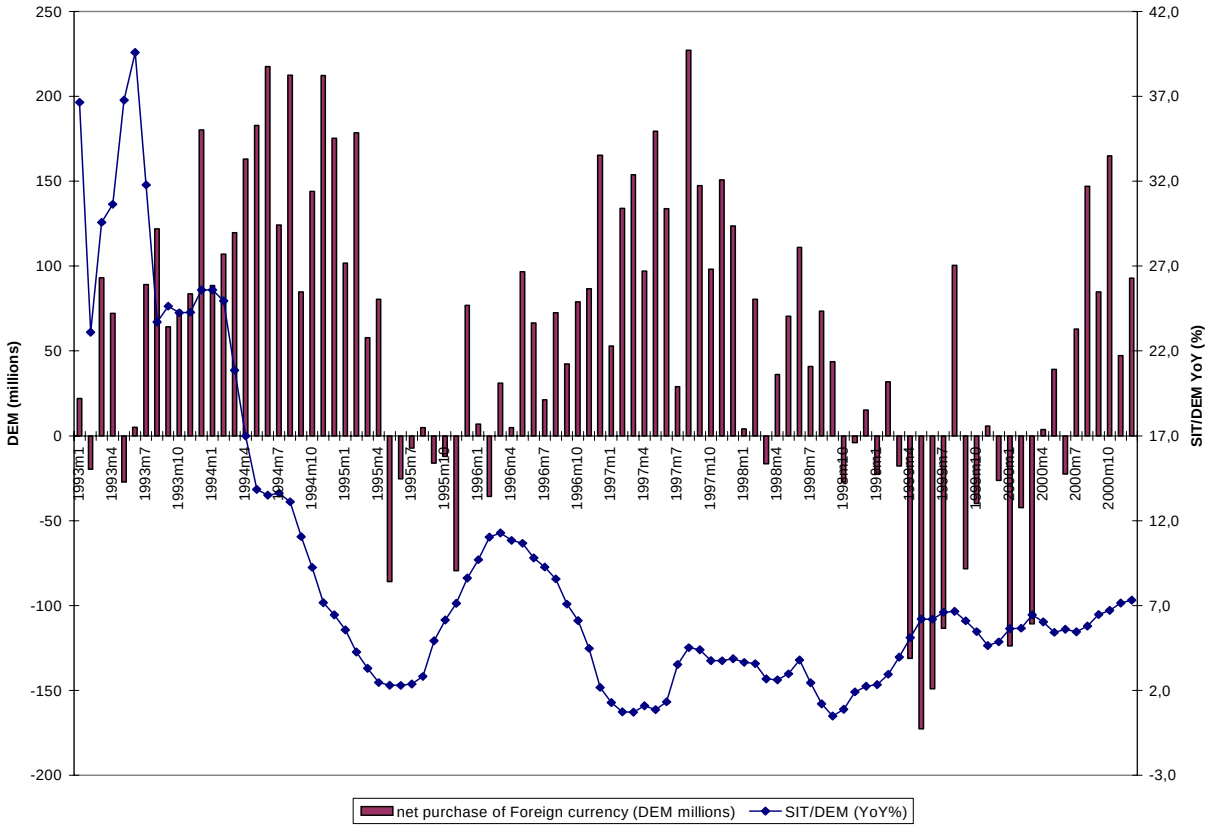


Source: BOS Monthly bulletin, various issues.

The stability of the nominal exchange rate as a result of foreign exchange inflows had also a negative impact on the real exchange rate (real effective exchange rate (REER)). This was particularly the case in 1994 (substantial real appreciation) and, to a lesser degree in 1996-1998. Moreover, monetary policy tightening seems to have contributed to the slight appreciation of the real exchange rate in 1998 (Table 11).

A complementary view of the exchange rate behaviour during periods of relatively high inflows can be obtained by looking at the volume of trade in the foreign currency market (banks and exchange offices) and the behaviour of the exchange rate in that market. The years in which net purchases of foreign currency were relatively high ((1993m7-1995m4) and (1996m5-1998m7)) correspond to the periods of relatively high foreign currency inflows (Figure 10). In those periods there was a strong negative relationship between the net purchase of foreign currency (+) and the yearly depreciation of the exchange rate (SIT/DEM). The higher net purchases of foreign exchange, the lower the depreciation rate of exchange rate. However, the rigidity of the exchange rate during the first seven months of 1997 seems to have been induced by the policy measures introduced in 1996, because in that period exchange offices did the bulk of net purchase of foreign currency.

Figure 10
Foreign exchange market (banks' and exchange offices' net purchases of Forex)



Source: BOS Denarni Pregled, Various issues.

To get a complete view of the impact of foreign exchange inflows and policy responses on the REER behaviour it is also necessary to look at the relation between nominal exchange rate and inflation. Slovenia inherited high inflation from former Yugoslavia, which means that in order to achieve stabilization, even within a managed floating exchange rate regime, the authorities had to accept lower nominal depreciation of the exchange rate in comparison to the inflation rate which in turn implied accepting an appreciation of the REER. This is due to the exchange rate pass-through to inflation, which is much higher in small emerging markets (Calvo& Reinhart 2000). However, the BOS confronted this fact reluctantly and engaged in sterilization since 1992 and imposed capital controls since 1995. This was particularly the case in 1994 where the BOS engaged in massive sterilization whose extent, as mentioned before, might be questionable. Probably accepting at that time a slight nominal appreciation of the currency would have contributed to lower inflation and reduce the interest rate differential, which later triggered persistent capital inflows.

Figure 11
Nominal and real exchange rate and inflation

Source: BOS Monthly Bulletin, various issues.

As mentioned earlier, conditions changed in the economy and in the financial market in 1995, which reverted the appreciation trend of the REER. The fact that the exchange rate continued depreciating at a lower pace until 1998 and that the REER remained at 1995 level indicates that the BOS gave great importance to external competitiveness of the economy (Figure 11). The lower average nominal depreciation of the exchange rate in 1997-1998 was in turn consistent with a gradual reduction of inflation which on annual bases reached its historical lowest level in 1999 before the VAT introduction and international oil price's shock. Lower exchange rate depreciation, on the other hand, continued inducing capital inflows.

IV. APPROACHES TO MANAGING CAPITAL INFLOWS

The BOS's responses to foreign capital inflows should be analysed in light of the monetary policy objective it followed and to the extent it addressed the causes driving them. Historically, the BOS's responses to foreign exchange inflows (originated either in current or capital account surpluses) have been two: sterilized intervention through a variety of

instruments and capital controls also of various types.[16] When coping with current account surpluses it resorted to sterilization (by means of various instruments) and when facing capital inflows the sterilization policy was supplemented by capital controls.[17] The evidence suggests that capital controls have been used in a pre-emptive manner to discourage what in the view of policy makers were unstable inflows of capital into the banking system.[18]

A critical dimension in the overall responses to foreign exchange inflows has been the minimization of the cost of implementing countervailing policy. This objective, which might be common to all central bankers, was pursued in the case of Slovenia by means of quite complex and cumbersome instruments, which are not commonly used by most central banks (Box 1). The problem of such an approach has been that interest rate signals in the economy are blurred and to some extent conflicting. Moreover, the multiplicity of instruments in implementing sterilization and the way they were positioned has deterred the development of the interbank market.[19]

Sterilization Policy

BOS instrumentation of sterilization policy dates as early as 1991. Sterilization was predominantly instrumented by means of its own foreign currency bills (FC-bills) until 1997 and from then only with Tolar denominated bills. After 1997 foreign currency bills (FC-bills) have been issued and still constitute the bulk of BOS-bills but they are used by banks mainly to meet reserve requirements and as collateral for open market operations. Foreign and Tolar denominated bills are used by the BOS as underlying collateral for various derivatives which are used depending on the BOS's assessment of the circumstances and the relative cost.[20]

[16] In describing policy responses to foreign exchange inflows Bole (2001) indicates "Obviously, every new swing in the forex inflows triggered a launch of new instrument for containing and neutralising foreign exchange inflows".

[17] Some can argue that BOS also aimed at closing the interest rate differential by steering the exchange rate in the last two years.

[18] Bole (1994)

[19] Eexamples of this is the fact that the BOS currently pays on BOS-bills of 2 and 14 days negative real interest rates and that the interbank market rate is also negative in real terms.

[20] "In Slovenia, the mix of policy measures changed smoothly after launching monetary independence. It adapted to the changing structure and mobility of foreign exchange inflows as well as to the effectiveness and opportunity cost of the measures currently in use", Bole (2001).

BOX 1. BOS's sterilization instruments

1992-1993 the BOS relied on FC-bills. The BOS preference for using FC-bills instead of Tolar bills for sterilization can be explained by the higher interest cost of Tolar bills and by the potential inflationary impact from issuing money only for covering interest costs. FC-bills were issued with or without warrants. Instruments with warrants were sold at discount and they did not show the effective interest rate paid by the BOS. The actual discount depended on the number of warrants attached and on the difference between the BOS's middle exchange rate and the official projections for inflation. They were purchased in Tolars. The warrant attached to the security acted as a hedge against inflation and exchange rate depreciation higher than officially projected. Holders of warrants were able to buy new Tolar bills (without additional warrant) or foreign currency bills.

1994-1995 sterilization was carried out with warrants, FC-bills and with Tolar denominated bills (with or without warrant). The issuance of Tolar bills was significant in 1994. Due to their relatively high cost they were mainly redeemed in 1995. The BOS also issued Twin bills, which comprise a Tolar and foreign currency part. They were issued in Tolars at discount and redeemed half in Tolars and half in DEM. The two parts could be traded separately. The Tolar part was revalued with inflation (TOM). The real yield on both parts was different.

1996 the BOS relayed on both FC and Tolar bills with warrants and Twin bills.

1997-1998 sterilization was done with Tolar bills with warrants and Twin bills.

1999-2000 when current account deficits emerged the BOS mainly redeemed Tolar bills and sold outright foreign currency. Intervention in the foreign exchange market is currently done also by means of foreign currency swaps.

Intensity and Cost of Sterilization

Table 13 shows various relevant indicators concerning sterilization intensity, that correspond to dynamics of reserve accumulation in Table 9. Sterilization was particularly intense in 1994, 1996 and 1997. The highest net issuance of bills in 1997 would indicate that it corresponded to the highest sterilization of foreign exchange inflows. However, as shown in Tables 10 and 11 and discussed before, inflows in that year were not significant and the FC bills were issued due to change in regulation concerning reserve requirements on foreign currency deposits and due to other measure enacted in 1996 (See Box 2). Moreover, as mentioned before, from 1997 onwards sterilization occurred by use of Tolar denominated bills. Accordingly, the sterilization effort in 1997 should correspond to total net issuance of Tolar bills (SIT 59.5

billion). Thus, if we look in historic perspective and in relative terms (e.g. as share of GDP) the highest sterilization effort (SIT 47.7 billions) seems to have occurred in 1994.

Table 13
BOS's net issuance of bills and sterilization effort (in SIT billion)

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Net issuance of FC bills	30.9	-0.1	38.1	24.4	38.5	114	-12.1	10.1	21.9
Net issuance of Tolar bills	2.4	0.4	9.6	-5.8	9.7	59.5	4.4	-52.7	-20.4
Total net issuance	33.3	0.3	47.7	18.6	48.2	173.5	-7.7	-42.6	1.5

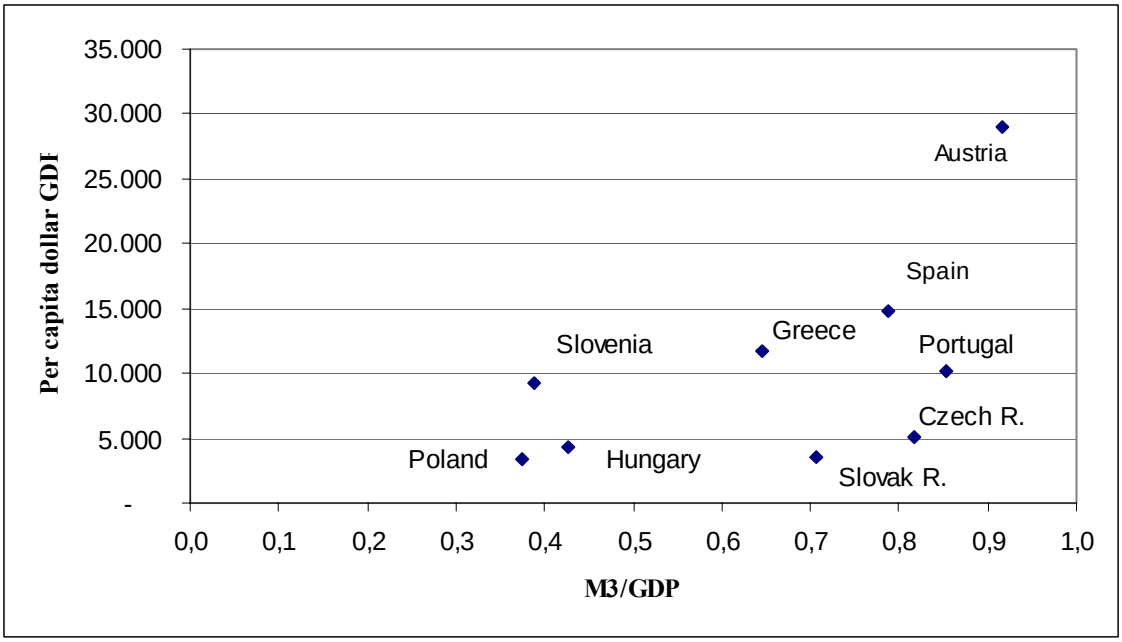
Source: BOS Denarni Pregled, various issues

A recurrent issue is whether the extent of the sterilization effort in 1994 was justified. As mentioned earlier the BOS's response to foreign exchange inflows was framed in pursuing its monetary target (M1) until 1997. It can be argued that this is a narrow money aggregate and at that time in 1994 stabilization was underway which suggests that there was room for a higher degree of monetization of foreign exchange flows without necessarily generating inflationary pressure. In particular, Figure 12 shows that the degree of monetization in Slovenia (M3 as percentage of GDP) was lower than in other transition and relatively low-income countries in Europe.

In assessing the intensity of the sterilization effort, two other issues have to be discussed: the likely reversibility of the inflows and the issue of whether the sterilization effort addressed the root of the problem. From the point of view of their likely reversibility (short-lived or speculative) that would have justified intense sterilization, it can be said that inflows were mainly not of such nature with the potential exception of portfolio inflows in 1996-1997.[21] Most of the loans were long-term (Table 7), driven by households regaining confidence in the banking system and the rest were FDI.

[21] The optimal degree of reserve accumulation depends upon prospects for reversals of the underlying capital inflows. If there is a high probability that the capital that is currently flowing into the economy will want to leave in the near future, then a higher level of reserve accumulation could be justified. As discussed earlier this type of inflows (short-term and speculative investments) in Slovenia was not predominant.

Figure 12
Degree of monetization in a sample of countries



Source: International Financial Statistics, IMF (1997).

The sterilization, as discussed before, was executed to achieve simultaneously two policy objectives. The objective of preserving external competitiveness of the economy (i.e. real exchange rate stability) was achieved but the inflation objective to a far lesser degree. Sterilization policy did not tackle the root of the problem; the positive interest rate differential. Moreover, when sterilization intensified it contributed to perpetuate the very reason triggering the inflows despite the fact that interest rate of BOS's underlying instruments did not increase to absorb capital inflows. This was the case because sterilization created rigidity in the exchange rate. The awareness of the cost associated with sterilization policy and of its limited power also explains why the BOS resorted to cumbersome instruments, without clear information on interest rates. The limited effectiveness of sterilization and the high sterilization cost in 1994 explain why the BOS decided to introduce capital controls as early as in February 1995.[22]

[22] The BOS also helped to intermediate an interbank agreements capping interest rates on Tolar deposit.

Table 14
Interest costs of BOS's bills (as percentage of GDP)

(Percentage of GDP)	1992	1993	1994	1995	1996	1997	1998	1999	2000
Foreign currency bills		0,24	0,47	0,37	0,26	0,39	0,40	0,25	0,37
Domestic currency bills		0,05	0,15	0,09	0,03	0,19	0,33	0,17	0,04
Total bills	0,22	0,29	0,62	0,46	0,29	0,58	0,73	0,42	0,41
(Percentage of base money)									
Foreign currency bills	-	6,6	10,2	8,2	5,7	8,0	8,6	5,0	0,9
Domestic currency bills	-	1,4	3,2	1,9	0,6	4,0	7,1	3,4	7,5
Total bills	6	8	13,4	10,1	6,4	12,0	15,7	8,4	8,4

Source: Estimation based on BOS Monthly Bulletin, March 2001 and BOS Annual reports 1992-2000

Table 14 shows the cost associated with sterilization policy. The sterilization cost was linked mainly to FC-bills issuance until 1996 due to their relatively lower cost than that of Tolar bills and its lower potential effect on money base creation on account of interest payments. The BOS, to make the FC bills additionally attractive to banks, decided to extend credit in tolars (collateralised credit) to those banks that presented FC-bills. The highest cost of sterilization was incurred in 1994 (0,62% of GDP).[23] Table 14 implicitly shows how much higher would have been the cost of sterilization if conducted by means of Tolar bills. In particular from 1997 onwards, sterilization was done through Tolar bills, whose outstanding amount is significantly lower than FC bills but whose relative cost is higher (Table15).

Table 15
Tolar and FC bills' share in total outstanding amount of bills at the year-end (%)

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Tolar bills/total bills	6	5,6	12,5	5,2	9,1	20,8	22,1	8,1	1,9
Forex bills/total bills	94	94,4	87,5	94,8	90,9	79,2	77,9	91,9	98,1

Source: BOS Monthly Bulletin, various issues

Capital Controls

The 1994 cost of sterilization is fundamental in understanding the instrumentation of monetary policy in the following years up to 1999. The BOS with the aim of avoiding the costly experience of 1994 in a preemptive manner introduced capital controls in 1995. The BOS did not wait for large capital inflows to materialize; as soon as it detected growth in some components of the capital account it introduced corresponding capital restrictions. Capital controls and other restrictions were gradually increased in the following years (Box 2). These controls were targeted primarily to residents' foreign borrowing (1995-1999) and later

[23] In that year the general government balance did not register a deficit (0% of GDP).

also to inward foreign portfolio investment (1997-). Another important characteristic is that capital controls were introduced primarily for monetary control reasons.

The effectiveness of capital controls should be assessed in light of whether they achieved the objectives they pursue: decrease capital inflows from abroad and reduce the cost of monetary/exchange rate policy.[24]

Starting with the 1995 unremunerated deposit requirement, which was reinforced in 1996, it can be said that it did not prove to be effective in reducing overall capital inflows but only in reducing those of short-term nature. In particular, the measure was not effective for other sectors' (enterprises) borrowing other than banks. Moreover, in 1995 and 1996 loans from abroad increased and they reached their peak in 1996 primarily because of large increase in borrowing by banks (Table 7). On the other hand, the restriction practically prohibited short-term borrowing particularly in 1995-1996 when it was negative (Table 6). Though, short-term borrowing was negative in 1994 previous to the introduction of the restriction, Short-term borrowing became positive in 1997 despite the associated cost of the control. International comparison indicates that the restriction was successful in reducing short-term loans. In particular 1997 data indicate that average short-term foreign loans was lower in Slovenia than in Visegrad countries and in Asia. Average short-term loans in US$ were 21,2 millions for Slovenia, 43.4 millions for Eastern Europe and 60.6 millions for Asia.[25] The restriction also lengthened the maturity of the loans but the fact that the maturity of loans subject to unremunerated deposit requirement increased from five to seven years in August 1997 indicates that the measure was proving not to be effective. It is indicative that the BOS did not use the requirement for deterring short-term flows, but for restricting overall inflows regardless of their maturity.

Without doubt one of the most successful measures introduced was the requirement on banks to balance additional liabilities abroad with foreign claims as of July 31st, 1996. This restriction virtually prohibited banks from borrowing abroad (Table 6). Banks' borrowing abroad was negative in 1997 and insignificant in 1998, the last year in which the restriction was still in place. Even though the measure was successful in restraining banks from borrowing abroad, it is important not to overlook the potential long-term adverse implications it could have had for the banking system if controls had lasted longer. In particular, given the high interest rates banks face when borrowing from the public (deposit rates), this could have led banks to decrease interest rates and potentially led to financial disintermediation.[26]

[24] Lengthening the maturity of the inflows can be considered a by-product of the objectives pursued and not an objective in itself.

[25] Buch, Hanschel (1999)

[26] The fixed component of time deposit interest rates with different maturities decreased more than 100 basis points in February 1998 and 10 basis points in June 1998.

BOX 2. Capital controls

The various controls and policy measures in chronological order are as follows:

February 1995, introduction of a 40 percent non-interest bearing Tolar deposits requirement on foreign non-trade-related loans with maturity of less than 5 years.

December 1995, imposition of a requirement on foreign exchange offices to balance their daily sales and purchases of foreign currency

July 1996, imposition of a requirement on banks to balance any additional liability in foreign currency beyond their position as of July 31, 1996 with corresponding claims in foreign assets

August 1996, lengthening of the maturity of loans subject to unremunerated deposit up to 7 years

February 1997, imposition of requirement on foreign portfolio investments to be conducted through (costly) custody accounts with a fully licensed bank. The cost was born by foreign portfolio investors in case of selling such securities to the local market participants earlier than six month after their purchase. The cost of the custody accounts was reviewed by the BOS and was applied to the value of the portfolio investment.

Building on the successful control measure on banks' borrowing in 1996 and noticing that enterprises' borrowing continued to escalate, BOS targeted an additional restriction on enterprises' borrowing abroad. The measure consisted in further 10 percent unremunerated deposit requirement on financial loans with maturities in excess of 7 years. The measure was not effective in lowering borrowing of enterprises in 1997. In 1998 enterprises' loans abroad were still high and only slightly lower than in 1996. The extension of loans' maturity subject to a requirement also indicates that the BOS was not tackling short-term flows and the restriction might have been non-effective.

The unremunerated deposit requirement had a partial success on reducing loans from abroad, which seems to have been its main target. It proved to be more successful in

restricting short-term loans, but not much in the case of long-term loans. The restriction might have also had collateral effects and might have worked particularly in favour of large size enterprises that have had access to foreign capital markets and for longer maturities rather than for medium and small size enterprises.[27] In view of the positive interest rate differential which affected mostly medium and small size enterprises, it is not surprising to find some studies which indicate that domestically owned enterprises perform poorer than foreign owned enterprises.[28]

Another issue to assess is whether the unremunerated deposit restrained the volatility of capital inflows. Table 16 shows the yearly volatility (standard deviation) of long-term loans, short-term loans and portfolio investment. It indicates that the volatility of long-term loans increased in general after 1995 though it declined in 1997 but as a consequence of another restriction. The volatility of short-term loans and other foreign portfolio investment on the other hand was slightly higher after 1995 but lower than long-term loans' volatility.

Table 16
Volatility of loans and portfolio investment

	1992	1993	1994	1995	1996	1997	1998	1999	2000	1992-2000
Long-term loans	15,0	21,2	45,5	73,8	139,3	43,1	52,8	43,4	48,0	66,2
Portfolio investment and short-term loans	20,0	16,6	16,9	15,1	17,9	42,3	22,6	18,4	16,9	21,8

Source: Own estimation based on BOS Monthly Bulletin, various issues

Another measure that proved to be successful was the restriction on foreign portfolio investment in 1997. As discussed previously, portfolio investments started to emerge in 1995 and grew to their highest level in 1997 (0,5% of GDP). In February 1997 the BOS determined that non-resident portfolio transactions had to be channelled through costly custodian accounts with fully licensed domestic banks. Inflows still appeared after the introduction of the restriction until October and then practically vanished in the following years. The restriction also reduced volatility of long-term loans in the following years.

Like in the case of other capital control measures, the restriction on foreign portfolio investment was introduced primarily for monetary control reasons and not with the purpose of deterring speculative capital inflows. However, such a restriction might have been justified on the grounds of the relatively low market capitalization of the Stock Exchange as percentage of GDP in 1996-1997 and the relatively important increasing impact of foreign investors' turnover in total market turnover (Table 9). On the other hand, as already mentioned, it was often argued that as a result of this restriction FDI inflows were also negatively affected.

[27] According to Valdes-Prieto and Soto (1998) the reduction of short-term capital flows discriminates against small and –medium-size enterprises who tend to lack access to alternative sources of funds.
[28] See IMAD (1996).

Capital controls, like sterilization, allowed the BOS to pursue the dual objective policy, but they did not remove the underlying determinants of capital inflows. Capital controls provided time and reduced the cost for the gradual elimination of the positive interest rate differential as the inflation was decreasing but on the other hand they, to some extent, insulated the domestic banking and financial systems from foreign competition which might have in conflicting way contributed to maintain the positive interest differential.

In February 1999 most capital controls were lifted with the exception of controls on foreign portfolio investments. Capital controls were primarily released as a result of accession negotiations with the EU on the chapter free movement of capital. However, it is also argued that monetary conditions changed in the economy, which allowed for their removal.

An immediate consequence of lifting capital controls was a high increase in total foreign loans, particularly banks' loans in 1999 and 2000, to the highest levels since independence (Table 6). Based on this, it can be argued that capital controls if not entirely effective in restricting borrowing abroad, they at least reduced the overall size of loans.

As regards the timing of capital control liberalization (February 1999) it can be argued that it might have not been the most appropriate one, because in June 1999 the government introduced value added tax on the back of high inflationary expectations. As a result there was an unusual increase in private consumption and investment in the second quarter of the year, which triggered the highest current account deficit so far of 3,9% of GDP, most of it occurring exactly in the second quarter. Thus, if liberalization would have taken place, for example early in 2000, the impact on the current account deficit and on the capital account could have been minor.

As of July 2001, BOS lifted restrictions on long-term portfolio investments. Practically the only foreign capital restriction that remains is on short-term portfolio investments (shorter than six months). The BOS has committed itself to the abolition of custody accounts for purchases of short-term securities by the end of 2002.

V. ALTERNATIVE POLICY

Alternative monetary policy should be discussed in the context of the conflicting policy targets the BOS pursued (reducing inflation by controlling monetary supply and maintaining relative stability of the real exchange rate) and their effect on deterring further capital inflows.

Concerning inflation, the BOS has succeeded in reducing inflation to a single digit, which is an accomplishment also shared by other EU Central European accession countries. This success was considerably eased in the case of Slovenia by the government's solid fiscal stance, which kept the budget fairly balanced until 1997 when it registered a small deficit (1,2 percent of GDP) and later on continued with relatively low deficits. Nevertheless, despite the BOS relative success, inflation inertia still persists. In the last three years the inflation rate has stabilized at around 9 percent per year. However, the decreasing inflation trend until 1999 was reverted due to VAT introduction and international oil price shock. In addition not all the

inflation dynamics should be attributed to the BOS, since the government maintains direct control of prices of some goods, whose deregulation affects overall inflation.[29]

The BOS has also preserved the relative stability of the REER as an implicit target during the past years. This is a remarkable success if we consider the strong real appreciation in the Visegrad countries.[30] However, the main element behind the stability of the real exchange rate has been the nominal exchange rate depreciation induced by the BOS and not the reduction in the price level. These results have important policy implications because they suggest that occasionally the exchange rate objective received pre-eminence over the inflation objective, which in itself is not questionable given its impact on the real sector.

An alternative strategy would have been to accept a relative appreciation of the nominal exchange rate in 1994, year in which the BOS conducted the most costly sterilization effort. In that year the current account registered its highest surplus (4% of GDP) and inflation rate was still high (21% annual average). Such circumstances granted enough space for allowing an appreciation of the nominal exchange rate, which could have bring on a sharper reduction in inflation and a lower current account surplus. Of course, this could have lead to an appreciation of the REER. However, such an appreciation was already taking place as a result of the undergoing process of price stabilization at that time (i.e. the depreciation rate of the nominal exchange rate was lower than the inflation rate). The advantage of the alternative approach would have been to induce a sharper decrease in the inflation rate. In fact, a similar adjustment took place in 1995, though the nominal exchange rate did not appreciate on average. In 1995 the depreciation of the exchange rate slowed down significantly from 15,9% to 4,2% annually with a powerful impact in reducing inflation from 21% to 13,5% (annual average).

As a result of the abovementioned alternative strategy, a lower inflation rate would have been reached earlier in 1994-1995. Lower inflation in turn would have reduced the inflation indexation component of interest rates (TOM) and contributed to an early closing of the positive interest rate differential, which is one of the main determinants of capital inflows to Slovenia. Additionally, an appreciation of the exchange rate could have had a positive effect in slowing wage indexation, which is feeding back inflation inertia. If such an approach could have been followed, it is likely that capital controls would have been unnecessary.[31]

Theoretically, another alternative in dealing with capital inflows (i.e. primarily loans from abroad) would have been to induce a higher depreciation of the exchange rate to close the uncovered interest differential between the domestic and international interest rates, which in

[29] As of the end of 1997, the government maintained control of approximately 20 percent of consumer prices including those of electricity and petroleum products. As of July 2000 the share of prices under control was 13,5% of the CPI.

[30] This paper does not discuss the relative consistency between pursuing REER stability and the accommodation of productivity gains in the last five years.

[31] The BOS has used two main instruments in 1996 and 1997 to induce the Tolar exchange rate depreciation: Purchase of foreign exchange with the right-to-sell more foreign exchange in the future and sales of foreign exchange for purchase of its foreign currency bills.

fact in the last two years narrowed significantly (Figure 7). Such a policy could have been less distortionary than capital controls or sterilization. However, this strategy would be self-defeated if repeated due to exchange rate depreciation passthrough to inflation and the automatic link between inflation and the indexed-interest rates.[32]

Whatever alternative strategy would have been followed, it would have benefited from an early de-indexation of interest rates and from instrumenting policy with simple internationally standardized instruments for conducting open market operations, which ensures transparency, enhances policy signalling and could have contributed to development of a liquid money market.

CONCLUSIONS

Capital inflows to Slovenia have been low by international standards, by far the lowest if compared with Central European and Baltic countries pursuing EU accession. It was during 1994-1996 when capital inflows were relatively large. Capital inflows, given their relative small size, could have had destabilizing macroeconomic consequences under the scenario of inconsistency between a higher degree of monetization and the relative income per capita of the population, which comparing with other EU accession countries does not seem to be the case. Capital inflows to Slovenia were driven primarily by domestic residents (households repatriation of deposits and loans), which suggest a strong money demand.

The official attitude towards capital inflows goes back to early days of monetary independence and was shaped in the background of current account surpluses. The authorities were not primarily concerned at that time with capital inflows but with current account inflows. In fact, monetary policy has sterilized foreign exchange flows originating in transactions in both accounts, without discriminating between them according to their nature.

The policy response to foreign exchange inflows originated in the BOS's policy stance, which aimed at preserving the stability of the domestic currency (price and exchange rate) by following a monetary aggregate as intermediate target. The pursuance of this target by means of sterilization policy, in presence of foreign exchange inflows, has resulted in the rigidity of the exchange rate, giving the impression that the BOS aims simultaneously at both its monetary target and at stabilization of the exchange rate. As explained in the paper, the relative rigidity of the exchange rate is explained by the dual objective policy. In particular, the exchange rate has exhibited less variability during the periods when the sterilization has intensified.

[32] At BOS's initiative a first voluntary agreement among banks to lower the interest rate on short-term Tolar deposits took place in December 1994 and a second one in April 1995. In April 1997 the agreement was renewed again, reducing the fixed part of interest rates on deposits of various maturities.

The rigidity of the exchange rate in presence of a positive interest rate differential created conditions for perpetuating capital inflows. That might explain why the BOS had to resort to capital controls.

The BOS's policy response to capital inflows, in terms of the ultimate policy objective it pursues (stability of the currency), indicates that the BOS has occasionally followed alternative and conflicting objectives: lower inflation and stability of the real exchange rate. As a consequence, inflation inertia persists but the real exchange rate has remained at its 1995 level, which can be considered a success.

The evidence suggests that domestic factors primarily explain capital inflows to Slovenia. Not only because capital inflows are driven mainly by residents' borrowing abroad (mainly private driven inflows) but also because empirical analysis suggests that the positive domestic/foreign interest differential is one of the main factors explaining capital inflows. Additionally, the fact that administrative measures applied mainly to Slovenian residents reinforces the finding that capital inflows were determined by internal factors. Given the preponderance of domestic residents' borrowing abroad and the type of inflows (long-term loans and deposit repatriation and FDI) in total inflows, it can be concluded that capital inflows to Slovenia were predominantly non-speculative or not easily reversible.

The BOS's response to foreign exchange inflows originating either in the current or capital account has been sterilized intervention by means of cumbersome instruments and, when confronting capital inflows, sterilization supplemented by capital controls. Both policy measures did not address the main cause of capital inflows (the positive interest rate differential) but gave time to BOS to pursue its monetary policy at a lower cost. Consequently, in implementing sterilization policy the main concern was the cost dimension, which was given pre-eminence over a clear monetary policy framework in which interest rates would convey information of market conditions or policy intentions.

The costly sterilization effort in 1994 is critical to understand the imposition of capital controls in the following years. The evidence about the relative success of the controls is mixed. It depends of the specific measure. The requirement on banks to balance increases in their liabilities to non-residents with claims to non-residents as of July 31 1996 and foreign portfolio investments were successful. The first virtually stopped banks from borrowing abroad, while the second practically eliminated portfolio investments.

The unremunerated deposit requirement, which was applied gradually to loans with longer maturity, was not successful in lowering total loans. However, it was effective in restraining the amount of short-term loans. The restriction did not curb volatility of long-term loans, but the volatility increased until an additional restriction targeted to banks was introduced. The effect on reducing nominal exchange rate volatility is not visible. The degree of exchange rate volatility primarily reflects BOS' intervention to neutrilize the effect of foreign exchange inflows. The fact that the maturity of loans subject to the restriction lengthened indicates that it was proven not to be very effective.

Capital controls contributed to alleviate the effect of the positive interest rate differential but they did not eliminate the underlying causes determining it. The impact of BOS's policy response to capital inflows on the economy also seems to have been conflicting. By preserving a competitive real exchange rate, it has favoured the export sector whose contribution to GDP growth is important. However, if continued for a longer period it could have resulted in various distortions in the economy such as: protecting the banking system from foreign competition and discriminating access to cheaper credit in favour of large size enterprises.

Concerning alternative policy, it can be said that an alternative policy to the one applied in 1994 which also shaped the policy afterwards would have been to allow for a sharper reduction in the inflation by means of lower intervention in the foreign exchange market. This could have contributed to close the interest rate differential. On the other hand the evidence suggests that there was room for a higher degree of monetization in 1994 (high money demand), which could have resulted in lower sterilization costs and as a result make the imposition of capital controls, at least on long-term flows, questionable.

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