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Chilean-type capital controls: A building block of the new international financial architecture?

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Chilean-Type Capital Controls: A Building Block of the New International Financial Architecture?

by Claudia M. Buch

CONTENTS

- Taxes on short-term capital flows such as introduced in Chile and Slovenia during the 1990s in the form of unremunerated reserve requirements (URRs) on financial credits are under discussion as a remedy against adverse effects of volatile international capital flows. From a theoretical point of view, URRs find support from the fact that financial markets react faster to exogenous shocks than goods markets. A high volatility of capital flows, in turn, may reduce investment and exports, and thus negatively affect overall growth. A tax designed to reduce inflows of (short-term) capital and to enhance the autonomy of domestic monetary policy may therefore raise welfare.
- Yet, the effectiveness of URRs is limited because capital controls can at best delay but not prevent speculative attacks on misaligned currencies. Moreover, a temporary introduction of capital controls, as is often proposed in the case of an acute financial crisis, may have the adverse effect of increasing rather than lowering financial market volatility.
- The empirical evidence from Chile and Slovenia shows that URRs are no panacea and that the gain in monetary autonomy has been limited. While the composition of inflows has changed towards flows exempted from the URR, the overall inflow of capital has increased, and interest rate effects have been short-lived. There is no evidence that the volatility of capital flows has declined. Exchange rate volatility seems to have come down, albeit possibly as a result of exchange market intervention.
- Capital controls are often proposed as a tool to promote the stability of the financial sector. More specifically, it is often argued that external financial liberalization should proceed only after sufficient progress has been made in reforming the domestic banking system. Yet, the administrative capacity to enforce capital controls is typically weak precisely in those countries which have poorly supervised and thus potentially unstable banking systems. Also, foreign competition can enhance the efficiency of the domestic financial sector. Thus, progressing simultaneously on internal and external financial liberalization seems the preferable option. At the time of opening up for foreign capital, minimum prudential standards should be in place. Also, public deposit guarantees should have been abolished in order to limit the risk of overborrowing and moral hazard.
- The imposition of capital controls may even send negative signals to investors and thus affect investment negatively. Exposure to external shocks should rather be reduced by pursuing structural reforms, by following sound macroeconomic policies, by disseminating clear and transparent information, and by using market mechanisms to alter the structure of foreign debt. This also allows for a more efficient use of scarce administrative resources. In this context, international institutions have an important role to play in designing and enforcing an institutional framework in which such mechanisms can be implemented.

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1. The Policy Debate

The severe financial and economic crises which have beleaguered Asia, Russia, and Brazil recently and which have sent their shock waves not only through other emerging markets have left policymakers around the globe looking for possible remedies. Facing distortions such as asymmetries in information and price rigidities, the goal is to shield basically innocent bystanders from the adverse effects of external financial shocks and to provide countries with breathing space to correct policy mistakes. Taxes on short-term capital flows such as proposed in 1978 by James Tobin and as introduced in Chile in 1991 have entered policy discussions prominently. In his original proposal, Tobin (1978: 154f.) advocated throwing "some sand in the wheels of excessively efficient international money markets" by means of an "internationally uniform tax on all spot conversions of one currency into another."

A pure Tobin tax would cover all foreign exchange transactions and all traders. It would be collected by the national tax authorities at a low tax rate which is invariant to interest rates. Implementation must be world-wide, and the main intentions of the tax are to reduce financial market volatility and to expand the autonomy of national monetary policy. Yet, the implementation of such an instrument raises several issues, notably the coordination of national tax policies and the efficient use of the proceeds of the tax.[1]

Recent policy discussions have focused on unremunerated reserve requirements (URRs) of the type implemented in Chile since the early 1990s. Less attention than to Chile is usually paid to the case of Slovenia although the country has had a similar regime since 1995. URRs and other capital account restrictions which more than proportionally raise the costs of short-term capital are the focus of this paper: being expressed as constant percentage of the size of the financial flows, the tax rate per unit of time is larger for a short-term financial credit than for a loan with a longer maturity. Note, however, that although URRs come closest to the original proposal of Tobin, URRs of the Slovene or Chilean type do not qualify as pure Tobin taxes. This is because they are not levied on all capital account items and because they are not imposed multilaterally.

Among the proponents of Chilean-type capital controls on inflows of foreign capital are a host of well-known economists and international institutions (cf. Eichengreen 1999; World Bank 1998).[2] A recent survey of financial liberalization episodes concluded that delaying and possibly limiting capital account convertibility might be a sensible strategy to deal with the risks of financial integration (Williamson and Mahar 1998: 65). On a policy level, various countries such as Malaysia, Russia, or Brazil have resorted to restrictions on the free flow of capital recently although most of these controls go substantially beyond the proposals from academia. These observations suggest that " [...], the abrupt reversals in economies that were hitherto deemed miraculous have challenged the conventional wisdom that it is a good thing to let capital move freely across borders."[3]

During the past two decades, various other variants of the Tobin tax have also been discussed. Eichengreen et al. (1995: 166), for example, proposed a tax or deposit requirement on all domestic-currency lending to nonresidents. Their proposal originally aimed at preventing speculation against EU currencies prior to the introduction of the euro and, more generally, to protect the domestic balance of payments. Garber and Taylor (1995) discussed zero-interest margin deposits or prudential bank capital requirements against net foreign exchange positions as options to limit the amount of foreign borrowing of commercial banks. Both restrictions would raise the effective costs of foreign loans and thus make borrowing from abroad less attractive. However, it can be shown that such regulations may have the perverse effect

1 For a discussion see also Frankel (1996).

2 For an overview, see the homepage of Nouriel Roubini via the homepage of the NYU Economics Department (http://www.stern.nyu.edu/Faculty/FacPict/Economics/index.htm).

3 *The Economist* (1/98) "Keeping the hot money out", downloaded from Roubini's homepage on Asia on April 21, 1999.

of speeding up the collapse of a fixed exchange rate regime rather than enhancing its sustainability precisely because they lower foreign borrowing (Buch and Heinrich 1999).

As the recent discussion has focused on Chilean-type capital controls, this paper will summarize the discussion to date and discuss whether URRs are an optimal response to increased financial risks. We start by giving a brief overview of global financial flows and capital account restrictions with a special focus on the experiences of Chile and Slovenia which have implemented Tobin-type capital controls (Chapter 2). Facing potentially adverse effects of foreign capital flows, policymakers essentially have two options. *First*, they can resort to measures that directly aim at reducing the volume and the volatility of capital flows by levying taxes on cross-border capital flows. The usefulness and effectiveness of such measures will be discussed in Chapter 3 of this paper. *Second*, policymakers can try to affect the structure of capital flows by an adjustment of domestic policies and by reforms of the international financial architecture.[4] The scope and the limitations of such approaches will be analyzed in Chapter 4. This chapter will particularly draw on the experiences of other transition economies of Central and Eastern Europe in dealing with the contagion effects of the Russian financial crisis in order to show the scope of domestic policy to shield a country from adverse external developments.

2. Capital Flows and Capital Controls

There is a common perception that capital flows have become more volatile in recent years and that a rise in short-term capital flows has promoted these developments. This chapter gives a brief account of the statistical evidence on the structure of capital flows, and it reviews the policies that countries have implemented to shield themselves from volatile capital flows.

2.1 Short-Term Capital Flows

Standard balance of payments statistics do give only insufficient account of the share of short-term capital flows in total international finance. Inflows of financial credits are often not classified according to their maturity, and portfolio capital flows are likewise not broken down by maturity. Data provided by the Bank for International Settlements (BIS) on the maturity structure of bank lending towards countries outside the BIS-reporting area can be used as an indicator, though (Figure 1). These data show that the share of short-term loans in total lending has shifted upward when comparing the 1990s to the 1980s. While in the 1980s roughly 40 percent of all foreign loans had a maturity of less than one year, this share increased to more than 50 percent in the 1990s. Recently, it has come down again. Interestingly, trends in developing countries have relatively closely tracked those in developed countries although the level of short-term loans has been somewhat higher for the group of developing countries in the 1990s.

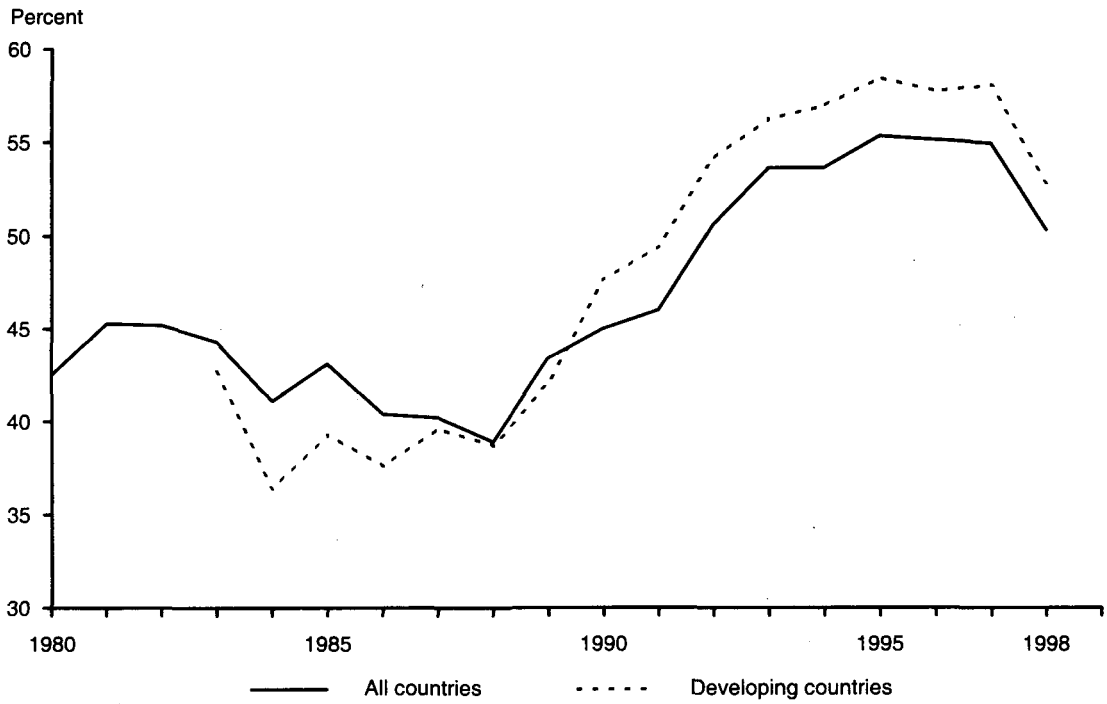
Overall, Mussa et al. (1999) noted that there seemed not to have been a secular trend towards an increasing share of short-term foreign debt in recent decades. Yet, they confirmed the evidence presented in Figure 1: Remaining maturities tended to shorten during the boom phase of large capital flows between the late 1980s and mid-1990s while they lengthened afterwards.

2.2 Capital Account Restrictions

Despite the on-going liberalization of capital account transactions that has taken place over the past two decades, almost two-thirds of the countries surveyed regularly by the International Monetary Fund (IMF) had some restrictions on commercial or financial credits in place in 1998. At the same time, the share of countries imposing restrictions on capital account transactions seems to have fallen: in 1990, almost 80 percent of all countries surveyed had restricted

4 For a recent contribution, see Eichengreen (1999).

Figure 1: Short-Term Loans[a] as Percent of Total Foreign Loans, 1980–1998



[a]Loans with a maturity of less than one year.

Source: BIS (1999b).

at least some capital account items, in 1998, it was merely two thirds of them (Table 1).

The motivations of countries to impose capital controls and the forms of controls that are actually being chosen have been the subject of various survey papers. In a recent study, Johnston and Tamirisa (1998) found that controls on capital *out*flows were more prevalent than controls on capital *in*flows. To improve balance of payment management, to address prudential considerations, and to overcome weaknesses in the state of development of the domestic economy are motivations to introduce capital controls.

Table 1: Capital Account Restrictions, 1970–1998

	1970	1980	1990	1998
Number of countries included	117	140	153	184
Share of countries with restrictions on capital account transactions (%)	79	75	78	66
Share of countries with restrictions on commercial credits (%)	...	...	...	60
Share of countries with restrictions on financial credits (%)	...	...	...	62

Source: IMF (1998b).

The empirical literature tends to provide relatively little evidence to support the effectiveness of capital controls, particularly of controls on capital outflows. Dooley (1996) found that capital controls have been successful in driving a small gap between domestic and foreign interest rates but do not seem to have had the impact on economic welfare that economic theory might predict. Similar conclusions were reached by Grilli and Milesi-Ferretti (1995) who found capital controls to be correlated with higher inflation and lower real interest rates but not with economic growth.

2.3 Taxes on Short-Term Capital Flows: The Cases of Chile and Slovenia

Since the focus of this paper is on the effects and the effectiveness of Tobin-type taxes on short-term capital flows, it is useful to review the experiences of Chile and Slovenia which

have implemented unremunerated reserve requirements (URRs).

Since 1991, foreign loans and deposits by nonresidents in Chile have generally been subject to a 20 % URR.[5] Instead of holding the reserves, the Bank of Chile has also offered investors to pay an up-front fee in an amount equivalent to the reserve requirement. The reserve rate was raised to 30 % in May 1992, and the deposit period was then fixed to one year. Also, a 1.2 percent stamp tax on local currency credits was at that time extended to all foreign loans, excluding trade credits. Although the exemption of this item has certainly created loopholes and has therefore reduced the effectiveness of the tax, Valdés-Prieto and Soto (1998) have argued that it would have been difficult politically to extend the coverage of the tax also to the export sector.

Valdés-Prieto and Soto have also calculated the tax equivalent (t) of the Chilean URR. Assume that an amount L invested in the international capital market yields the foreign interbank rate i^* plus an intermediation spread s. Then, the interest revenue foregone, when lending to an economy that imposes an URR, amounts to $(i^*+s)rL$, where r = reserve requirement. This needs to be related to the total amount of funds lent, $(1-r)L$. Combining these terms, the tax equivalent of the reserve requirement is given by:

$$[1] \quad t = \left[\frac{(i^*+s)r}{1-r}\right] \cdot \frac{holding\ period}{maturity}.$$

Hence, the effective tax rate increases in the foreign interest rate, in the intermediation spread, and in the reserve requirement. Moreover, the tax rate is lower (ceteris paribus), the longer the maturity of the loan. As the tax rate depends inter alia on the foreign interest rate, it is thus not fully controllable by the authorities (unless r is being adjusted continuously). Because only inflows of foreign capital are subject to the reserve requirement, the tax rate is zero for capital outflows, i.e., for loans granted abroad by Chilean residents. After rising gradually from zero to about 4 % between 1991 and mid-1992, the rate further increased to roughly 6 % in 1995 (Figure 2). In autumn 1998, the URR was set to zero, showing the intention of the authorities to flexibly adjust it to the cycle of international capital flows (Eichengreen 1999: 53).

At least in the beginning, the Chilean URR was considered as being relatively successful, and Labán et al. (1997: 21) concluded that "the case for the ineffectiveness of capital controls may have been overstated". Yet, because markets found ways to circumvent the reserve requirements by shifting activities into unregulated areas, the Chilean authorities successively had to expand the coverage of the controls (Labán and Larrain 1998). In 1995, the deposit requirement was extended to other financial investments, excluding foreign direct investment (FDI) and first issues of American Depository Receipts (ADRs). Since 1996, reserve requirements have also covered credits after their first rollover. Moreover, the maximum proportion of foreign investment projects that could be financed through debt was lowered from 70 to 50 percent, and the minimum amount of foreign direct investment exempted from the reserve requirement was raised. These adjustments became necessary because trades migrated to less regulated markets.

In addition, Chile's currency has come under pressure in the wake of the Asian crises to which Chile is heavily exposed due to its large exports to that region. In response, the government successively reduced the deposit requirement from 30 to zero percent in September 1998 (Laurens and Cardoso 1998: 10). The intention was to attract more capital in order to support the currency and to prevent a further devaluation which would hurt firms with open foreign exchange liabilities (Banco Central de Chile 1998). Thus, precisely at a time when currency turmoil elsewhere would suggest that a Tobin-type tax might prove particularly useful, the Chilean authorities apparently concluded that, whatever the benefits of the tax, they could no longer afford to turn away foreign capital. These developments need to be

5 This and the following information have been taken from Labán and Larrain (1998), Ffrench-Davis et al. (1995), and IMF (1998b). Chile's experience with capital controls in the 1980s is briefly reviewed in Edwards (1999).

Figure 2: Tax Equivalent of the Chilean Reserve Requirements, 1991–1996

Source: Valdés-Prieto and Soto (1998).

taken into account when assessing whether Chile has been affected by the Asian financial crises.

Similar to Chile in the 1990s, Slovenia has introduced an URR on financial credits and has lowered the reserve rate to zero recently. In February 1995, the Bank of Slovenia (BoS) introduced a number of restrictions for regulating capital flows, among which a non-interest-bearing deposit in Slovene tolars for financial credits featured prominently: 40 percent of each financial credit from abroad had to be put in a non-interest-bearing account at the BoS for the period of two years if the financial credit had a maturity of less than seven years. For longer maturities, the deposit requirement was only 10 percent. Clearly, the Slovene capital control regime "punishes" short-term capital flows more severely than long-term flows, when one takes the annualized foregone interest rate into account. In January 1999, the BoS set the reserve requirement to zero, signaling that more foreign credits would be desired.[6] This move has followed a sharp drop in net capital inflows in 1998 (Buch and Hanschel 1999). As the system has not been abandoned entirely, the BoS in principle has retained the option to raise the reserve rate on short notice again.

6 See BoS (1999).

3. Effectiveness of Capital Controls

In a world without frictions and with perfectly competitive markets, there would be no scope for controls on the free flow of capital: differences in the rates of return on capital between two countries would trigger capital flows, rates of return would converge, and overall welfare would increase. Yet, as soon as more realistic features of markets such as asymmetric information and less-than-instantaneous adjustment processes are taken into account, the free flow of capital does not necessarily serve to achieve optimal welfare. Rather, a second-best equilibrium which features some form of capital controls may be the optimal solution.

The following chapter will look at the experiences of Chile and Slovenia with the reserve requirements more closely. It will be argued that the success of the regimes needs to be measured against the gain in monetary autonomy, the reduction in financial market volatility, and the impact on investment that is achieved.[7] Throughout the discussion, an im-

7 We thus abstract from other motivations to have capital controls, such as the maintenance of the domestic tax base and the retention of domestic savings. See Grilli and Milesi-Ferretti (1995) for an overview.

portant caveat must be borne in mind: By focusing on the possible links between URRs and macroeconomic developments, influences of other important policy measures are often left out of account. This is a main reason why Nadal-De Simone and Sorsa (1999: 49) argued that "It seems premature to point out the Chilean experience as supportive of the effectiveness of controls on capital inflows [...]."[8] The Chilean authorities have, for instance, made substantial headway with regard to enhancing the stability of their banking system. Moreover, the choice of an exchange rate regime has implications for the structure of capital flows. In particular, pegged exchange rates tend to signal the belief to market participants that exchange rates will remain stable, thus encouraging borrowing from abroad.

3.1 Capital Controls and Monetary Autonomy

A main reason why capital controls are recommended and introduced, is their potential of affording the monetary authorities with greater autonomy. In the case of floating exchange rates, capital controls may help policymakers to dissolve the conflict between setting domestic interest rates and the resulting exchange rate (and thus trade) effects. In the case of fixed exchange rates, capital controls may give policymakers some autonomy over domestic interest rates without triggering capital inflows that may sacrifice a monetary target. Regardless of the exchange rate regime, monetary autonomy is thus the greater, the more effective capital controls are in influencing the *level* of capital inflows. In addition, the *volatility* of capital flows, which will be discussed below, has an impact on the degree of freedom of the monetary authorities, as a high volatility eventually requires frequent policy actions.

Whether capital controls are actually effective in achieving these goals, remains an empirical issue. Effectiveness depends, *first*, on the relevance of the controls. In Chile, the reserve requirement was relevant in the sense that it yielded substantial tax revenue (Valdés-Prieto and Soto 1998). This is in contrast to the experiences of other, developing countries for which the evasion of capital account restrictions has been pervasive and which have raised little revenue from taxes on cross-border capital flows (Dooley 1996).

The *second* criterion is whether the controls have a dampening impact on overall inflows of capital. For Chile, this has not been the case (Laurens and Cardoso 1998: 12). While the composition of inflows has changed in favor of those flows exempted from the tax, the overall inflow of capital, and thus Chile's external debt, has, if anything, increased (Figure 3a).[9] This is a result of the strong fundamentals of the Chilean economy as well as of external factors which have increased the availability of financial funds. This is also reflected in a general increase in the foreign debt stocks of the Latin American countries, although Chilean foreign debt has been accumulating at a somewhat slower pace than the debt in the other two countries.

In relation to GDP, Chile's external debt has decreased in recent years (Figure 3b). This is in contrast to developments in Argentina or Mexico, where foreign debt has increased also in relative terms lately. Still, the decline in Chile is difficult to attribute to the imposition of the capital controls alone as it has started already in the mid-1980s and as a similar time pattern could be observed for a country like Brazil. Edwards (1998b) likewise gave evidence for an increase in capital inflows, and he found a change in the structure of capital flows towards longer-term instruments after the imposition of the URRs. Moreover, he showed the impact of the controls on the real exchange rate and on interest rate differentials to be limited and short-lived although some short-run influences were visible.

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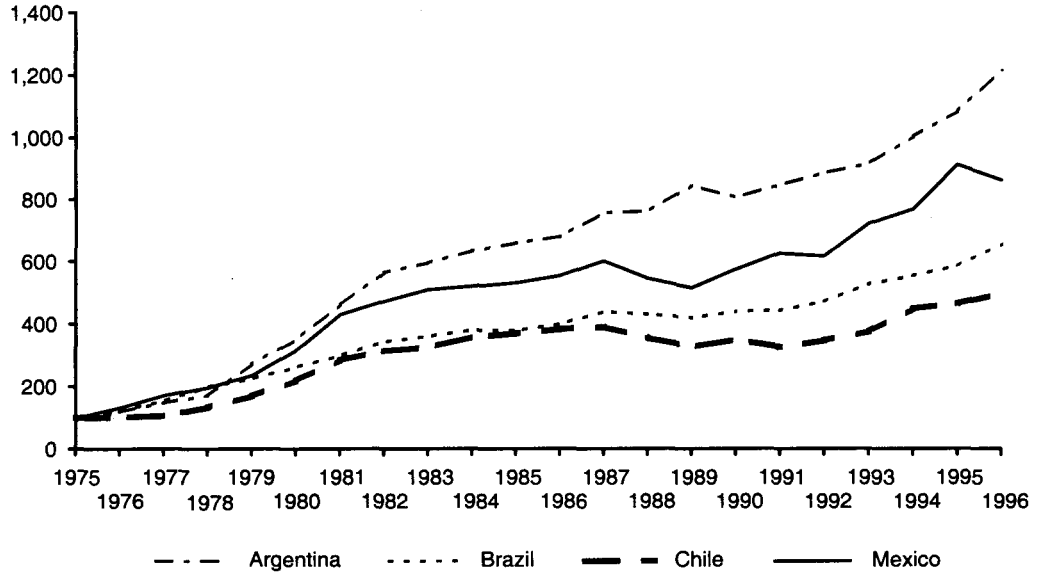
8 For a similar assessment, see Edwards (1999).

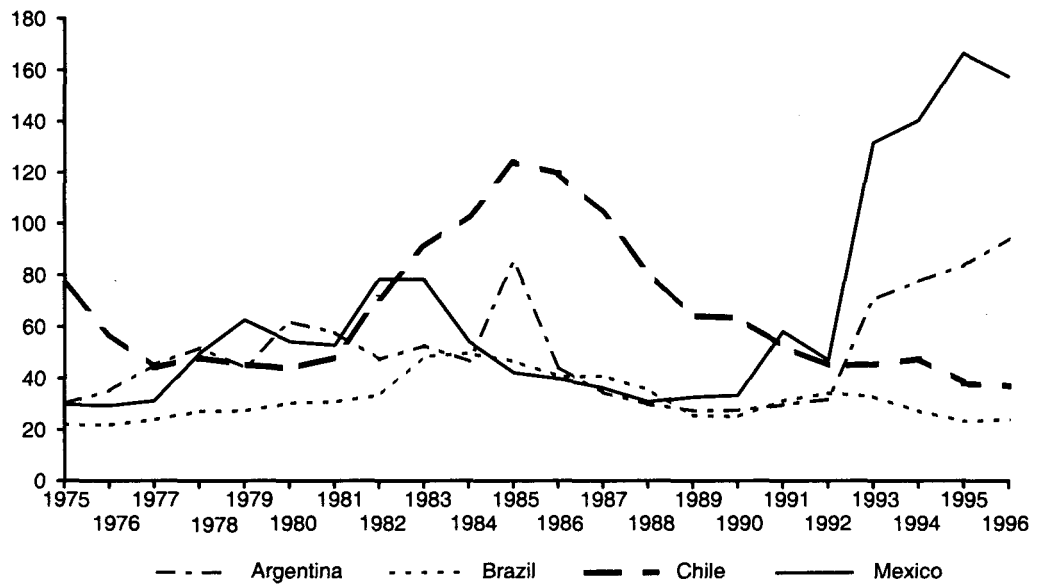
9 A theoretical argument explaining the increase in capital inflows after the imposition of URRs was provided by Cordella (1998). He argued that URRs served as a buffer against liquidity shocks. Hence, risk-averse agents which faced uncertainty about their liquidity needs would be more willing to provide funding in the presence of the URR. Note that this argument is essentially the same as for minimum reserve requirements in a domestic setting.

Figure 3: External Debt of Selected Latin American Countries, 1975–1996

a) Billions of current US dollars
(index, 1975 = 100)



b) Percent of GDP



Source: World Bank (1999).

The evidence for Slovenia roughly supports the findings for Chile. Capital flows have increased in absolute terms after the imposition of the reserve requirement, and this has also transmitted into an increase of debt relative to GDP (World Bank 1999). Developments have been roughly in line with those in the Czech Republic or Estonia. Foreign debt of Hungary and Poland, in contrast, has declined in recent years, primarily as a result of the restructuring and repayment of old debt. For Slovenia, there is hardly any evidence for an impact of the controls on the overall composition of capital flows (Buch and Hanschel 1999). More specifically,

Slovenia has not received relatively more long-term capital inflows in the form of FDI or less financial credits than other comparable transition economies. In fact, as the BoS has been following an implicit exchange rate target, it has accumulated substantial foreign reserves and has in this sense failed to gain monetary autonomy.

Moreover, while (Chilean-type) capital controls may enhance monetary autonomy in tranquil periods, they are unable to prevent speculative attacks on overvalued currencies in general. Traditional speculative attack models indicate that inconsistencies between macroeconomic policies are at the heart of financial crises.[10] A speculative attack on the foreign exchange reserves of a central bank occurs if the (shadow) floating exchange rate, which is determined by market fundamentals, equals the fixed exchange rate, which the central bank tries to defend by selling its reserves. In such models, the probability of a speculative attack increases with the rate of monetary expansion. This, in turn, depends on the amount of deficit financing provided by the monetary authorities, on the interest sensitivity of money demand, and on the volume of foreign reserves of the central bank.

As the Asian financial crises have shown, fiscal and macroeconomic imbalances are not necessarily the sole causes of financial crises. Rather, institutional weaknesses, in particular in the banking sectors, have been identified as important causes of currency crises. Models that feature such microeconomic weaknesses have been labeled "third generation" speculative attack models, following the second generation models which have focused on self-fulfilling attacks (Obstfeld 1994).

Regardless of the crisis being caused by micro- or macroeconomic distortions, the issue has been raised that taxes on cross-border capital flows "buy time" for domestic policymakers to adjust to adverse external shocks. Essentially, this argument was supported by the analysis of Park and Sachs (1996) who showed that capital controls can delay the breakdown of a fixed exchange rate system. In contrast to the present paper, the authors assumed fairly restrictive capital controls on both capital in- and outflows which fully prevent households from changing their foreign bond holdings. These controls thus shift the entire adjustment process to the current account. Yet, while the collapse of a fixed exchange rate can be postponed in this model, it cannot be prevented. Moreover, balance of payments crises are delayed only at the cost of lower consumption and of a greater jump in the exchange rate at the time of the collapse, if compared to a regime without capital controls. Hence, the time that policymakers can buy might be relatively short, and it will depend on how credible the public deems the adjustment to be. Moreover, the likelihood of a self-fulfilling speculative attack may be increased by the mere possibility that controls are introduced in the future (Dooley 1996: 669).

Overall, for the case of Chile, Laurens and Cardoso (1998: 16) rejected that the URR has helped the authorities to obtain breathing-space and to adjust domestic policies. Rather, the authors argued that the controls have tended to delay integration of the Chilean economy into global markets, have failed to reduce domestic interest rates, and have increased the degree of regulation in the Chilean economy. For Slovenia, the maintenance of the URR would be an obstacle to future EU and OECD membership and has consequently been critized by the EU.[11]

3.2 Capital Controls and Financial Market Volatility

The central intuition behind the proposal to introduce Chilean-type capital controls is the notion that financial markets react faster than goods markets, and that the interaction of traders on financial markets gives rise to herding behavior and noise trading. This, in turn, drives a wedge between the price of a financial

[10] The literature on speculative attacks, which dates back to the seminal paper by Krugman (1979), is surveyed comprehensively by Agénor et al. (1992).

[11] For a general discussion of capital account convertibility and OECD membership, see Quirk and Evans (1995). The opinion of the EU on Slovenia can be found in EU (1998).

Table 2: Share of Short-Term Foreign Bank Loans, 1992–1998[a] (Percent)

	1992	1993	1994	1995	1996	1997	1998
Asia	59.0	62.8	62.9	63.5	61.5	60.6	52.5
Eastern Europe	27.3	37.2	35.2	39.1	44.2	43.4	36.0
Czech Republic	....	...	40.4	48.6	49.3	50.0	58.8
Estonia	...	...	37.9	33.8	45.8	47.8	25.9
Hungary	23.8	26.9	30.7	34.6	39.2	34.2	34.7
Poland	31.4	33.1	23.2	29.6	33.2	38.1	40.7
Slovenia	...	...	39.8	30.9	17.8	21.2	22.9
Latin America	43.4	50.0	51.3	52.3	53.7	54.8	51.8
Argentina	47.6	52.6	53.4	56.5	44.8	61.4	54.8
Brazil	48.5	54.8	50.3	56.0	63.0	64.1	56.0
Chile	42.7	52.4	53.7	54.7	51.2	49.8	39.6
Mexico	42.4	47.1	51.3	45.4	60.1	61.3	44.9

[a]Liabilities vis-à-vis banks in the BIS-reporting area (maturity < 1 year).

Source: BIS (1999b).

instrument and its fundamental value, and thus causes excessive volatility in the price of financial variables. The fast and sudden changes in financial markets are in contrast to the delayed responses of the real sector. This might be suboptimal because physical investment and exports might be reduced and because resources might be misallocated. As a result, overall growth and welfare might suffer.

Using the standard sticky price model developed by Dornbusch (1976), it can in fact be shown that the imposition of a transaction tax reduces the degree of overshooting of exchange rates (Buch et al. 1998). Hence, domestic interest rate shocks have less of an impact on exchange rate volatility. The model shows at the same time, however, that there is no free lunch. Policymakers should take into account that the implementation of a transaction tax by itself is an exogenous shock which pushes the economy to a new steady state equilibrium. This is because, in essence, the imposition of a transaction tax has the same effect as a domestic interest rate shock. Hence, both the introduction and the subsequent elimination of transaction taxes cause an (overshooting) exchange rate adjustment. This must be considered when proposing the "temporary" introduction of capital controls in the event of an acute financial crisis. An additional case against temporary capital controls has been made by Reinhart and Smith (1997) who argued that, in order to be effective, temporary controls on capital inflows would have to be very punitive.[12] Resulting welfare gains might thus be lost easily if the controls are not removed early enough.

One aim of Chilean-type taxes on capital flows is to change the structure of capital flows away from short-term (presumably more volatile) towards long-term (less volatile) capital flows, and in particular towards foreign direct investments. More specifically, as URRs increase the costs of short-term financial credits, one would suspect that they tilt the structure of foreign credits towards longer maturities.

Table 2 shows the shares of short-term bank credits in total bank credits received from abroad for selected countries. At the end of 1998, the share of short-term bank credits was in a similar range of about 52–53 percent in Asia and Latin America, and only 36 percent for the transition economies of Central and Eastern Europe. At least through 1996, developments in Chile tracked developments in Latin America as a whole quite closely. Since 1996, the share of short-term lending to Chile has been below-average and on a decline, reaching similar proportions as in the early 1990s. In contrast to the initial introduction of the URR in 1991, which seemed to have had relatively little

12 This argument is based on the observation that the intertemporal rate of substitution of consumption is low in developing countries. Hence, the current account effect of a small tax would be limited.

effect on the maturity structure of foreign bank lending, this might be attributable to the increase in the effective tax rate in 1996 (see Figure 2).

Looking at the composition of total capital flows, Laurens and Cardoso (1998: 14) reported mixed evidence on the effects of the URR. While some studies found a decline in the share of short-term inflows, others found the reverse or simply no effect. Mainly, these differences are due to different time frames and different definitions of capital flows being used. Generally, an important caveat that needs to be borne in mind is that net errors and omissions in the balance of payments have increased in Chile, and that statistics are suspected to have become less reliable after the introduction of the URR.

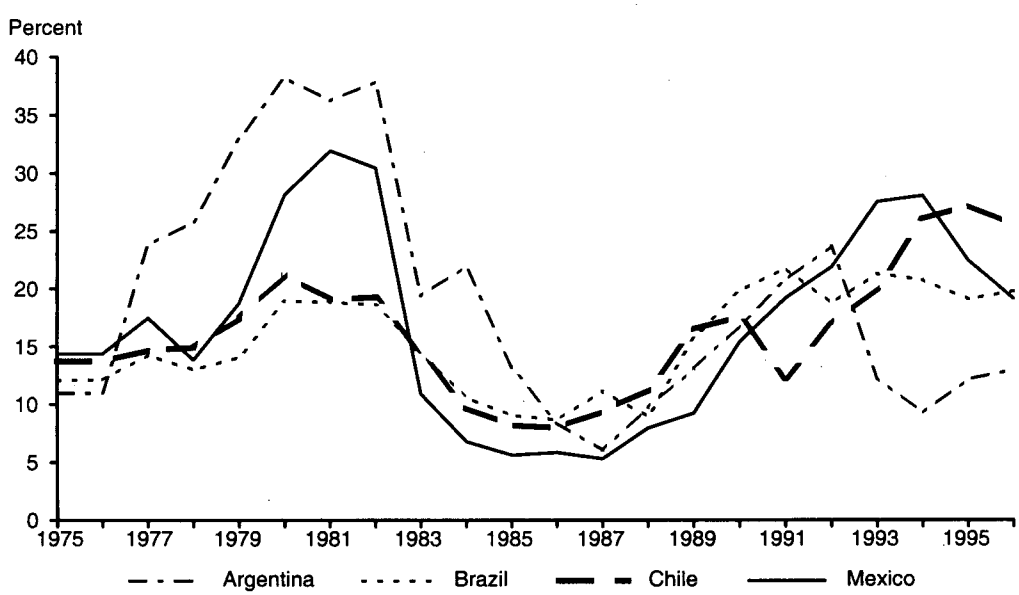
Evidence for Slovenia points much more clearly towards a change in the composition of bank lending towards longer maturities. Here, the share of short-term bank credits has been below the average for the region and has shown a clear downward trend throughout the period under study (1994–1998). Yet, as was already argued above, an impact of the URR on the overall structure of total capital flows, i.e., a decline of financial credits relative to FDI or portfolio capital, could not be found (Buch and Hanschel 1999).

The results from the BIS data are confirmed by information on the structure of total foreign debt (Figure 4). In Chile, the share of short-term debt in total foreign debt has increased, if anything, between 1991 and 1994. More recently, the share of short-term debt has declined. Overall, the maturity structure of foreign debt has tended to follow a similar pattern for the four Latin American countries under review.

For Slovenia, the share of total short-term debt has declined between 1993 and 1996 from 6.5 to 1.4 percent, hereby following a similar trend as the debt structure of Poland (World Bank 1999). In the Czech Republic and Estonia, short-term debt reached values of almost 30 percent in 1996, showing an upward trend over time.

A priori though, data on the maturity structure of foreign debt provides little evidence on the volatility of capital flows. From an empirical point of view, one of the main problems in reducing the volatility of capital flows by means of a "tax" on selective flows is that standard classifications provide only limited evidence on the actual volatility of different capital account items (Claessens et al. 1995). Short-term capital

Figure 4: Short-Term Debt as Percentage of Total Foreign Debt, 1975–1996



Source: World Bank (1999).

Table 3: Volatility of Capital Flows, 1969–1993[a]

	Foreign direct investment, net	Other long-term capital[b]	Portfolio investment	Short-term capital
Europe[c]	1.008	1.911	2.102	1.823
Latin America[c]	0.819	1.781	2.278	1.484
Japan	1.307	1.371	1.473	1.636
South-East Asia[c]	1.455	2.265	1.835	1.179
United States	1.302	1.469	1.188	1.297

[a]Volatility measures by the coefficient of variation = ratio of standard deviation to mean. — [b]Including long-term portfolio capital. — [c]Based on aggregate net flows to and from region.

Source: Lipsey (1999: Table 5).

flows are not necessarily the most volatile item in the capital account of the balance of payments, and the volatility of different capital flows varies from country to country.

This finding has been largely confirmed by recent evidence presented by Lipsey (1999, see also Table 3). His data support the view that foreign direct investment is stable relative to portfolio capital or financial credits. However, short-term capital is not necessarily the most volatile item in the capital account. In the transition economies of Central and Eastern Europe, for instance, the timing of the privatization process has often caused substantial volatility in foreign direct investment flows (Buch et al. 1998), i.e., in a capital account item which is typically considered relatively stable. In addition, it remains an open issue to what

Table 4: Volatility of Capital Flows and Exchange Rates before and after the Imposition of URRs[a]

	Mean of quarterly capital flows (millions of US dollars)			Standard deviation of quarterly capital flows (millions of US dollars)		
	before	after	probability[b]	before	after	probability[b]
			Slovenia			
FDI, net	29.6	47.9	0.07*	16.9	28.8	0.07*
Inflow	29.3	51.1	0.03**	16.6	29.6	0.05*
Outflow	0.3	–3.4	0.01**	3.5	3.2	0.78
Other investment, net	–23.4	60.7	0.23	91.2	220.2	0.00***
Inflow	41.5	91.2	0.29	78.4	140.6	0.05*
Outflow	–63.8	–30.4	0.55	101.9	169.5	0.08*
	Median of exchange rate to the US dollar[c]			Standard deviation of exchange rate to the US dollar[d]		
	before	after	probability[e]	before	after	probability[f]
			Slovenia			
Nominal	0.34	0.23	0.20	0.62	0.29	0.09*
Real	0.28	0.27	0.38	0.59	0.39	0.08*
			Chile			
Nominal	0.16	0.11	0.02**	0.21	0.19	0.12
Real	0.14	0.12	0.14	0.24	0.19	0.16

[a]Before imposition of capital controls = 1992:1–1994:4 for Slovenia (capital flows), 1992:1–1995:1 for Slovenia (exchange rates), 1983:1–1990:12 for Chile. After imposition of capital controls = 1995:1–1998:3 for Slovenia (capital flows), 1995:2–1997:12 for Slovenia (exchange rates), 1991:1–1998:12 for Chile.— [b]Results of t- and F-tests, respectively, on equality in means and variance (quarterly data). — [c]Median of absolute changes in exchange rates over previous month at an annual rate (monthly data). — [d]Standard deviation of change in exchange rates over previous month at an annual rate (monthly data). — [e]Results of Mann-Whitney *U*-tests on equality in the median. — [f]Results of Siegel-Tukey test on equality in the variance. — *, **, *** = significant at the 10, 5, 1 percent level, respectively.

Source: IMF (1999b); own calculations.

extent exchange rate volatility impinges upon the real sector.[13]

Evidence from Chile and Slovenia does not show a decline in the volatility of capital flows after the controls had been imposed. As for Chile, there was a relatively strong increase in the standard deviation of capital inflows subject to controls after the controls had been introduced. In the four years prior to the introduction of the URR, the coefficient of variation (standard deviation/mean) was 1.52, and it increased to 4.22 in the four subsequent years.[14] At the same time, there is support for a reduction in exchange rate volatility pursuant to the introduction of the URR. Yet, as Laurens and Cardoso noted (1998: 14), the effects of capital controls and of foreign exchange market intervention of the monetary authorities can hardly be isolated.

The results for Slovenia look similar: While the URR has not shielded the economy from an increase in financial market volatility as evidenced by increased volatility of capital flows, real and nominal exchange rates tended to be less volatile in the period following the introduction of the URR (Table 4). Mainly, this is the result of the exchange rate policy that the Slovene authorities have pursued: By defending an implicit exchange rate target vis-à-vis the D-mark, exchange market interventions have apparently been used to prevent an increased volatility of capital flows to transmit into increased exchange rate volatility.

3.3 Capital Controls and the Sequence of Financial Liberalization

Increased volatility in financial markets is a concern because inter alia it threatens the stability of banking systems. Recent episodes of banking and balance of payments crises, so-called "twin crises"[15], have thus shifted interest away from capital controls as a means of affording domestic policy with a greater degree of autonomy towards capital controls as a means of preventing banking crises. Hence, the debate on the optimal sequencing of external and internal financial liberalization has been revived (Eichengreen et al. 1999).

If distortions in the domestic banking system cannot be eliminated at short notice, McKinnon and Pill (1995) proposed to restrict short-term capital flows and to limit consumer borrowing and mortgage finance while liberalizing FDI flows as a second-best strategy. They argued that in the presence of an implicit deposit insurance system and of insufficient banking supervision, external financial liberalization exposes commercial banks to a variety of risks, including foreign exchange risks. Because of asymmetries in information about domestic fundamentals, market participants rely on the information that is provided by domestic banks. Yet, banks which operate in a distorted environment fail to take the downside risks of their activities into account and might thus signal overly optimistic beliefs about the domestic economy. If investor sentiment changes, foreign capital is suddenly withdrawn.

The optimal sequencing of internal and external financial liberalization has been an issue not only since the recent financial crisis. It has rather been discussed in the context of reforms in developing countries before. Blejer and Sagari (1987), for instance, argued that external financial liberalization should follow internal liberalization in order to shield temporarily domestic banks from competition from abroad. Focusing on the role of banks in reducing information asymmetries in financial markets, Aizenman (1998) showed that external financial liberalization by lowering deposit interest rates might increase banks' willingness to take risks and thus reduce their incentives to monitor firms. Hence, overall welfare might decline.

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13 Döpke and Pierdzioch (1999) reviewed the relevant empirical literature and found no evidence for a link between financial market volatility and the real sector in Germany.

14 These data were calculated from Labán et al. (1997: Table 1). In the *International Financial Statistics* of the IMF (IMF 1999b), on which the calculations of Table 4 are based, quarterly data for the Chilean balance of payments were available only from 1991 onwards.

15 See Buch and Heinrich (1999) for an overview and a theoretical discussion.

This would hold in particular if distortions such as an automatic deposit insurance system made banks prone to take risks, and if domestic banking supervision was weak. Consequently, it might be argued that by using a reserve requirement to drive a wedge between domestic and foreign interest rates, the resulting welfare loss might be reduced.

However, the case for a sequencing of domestic and external financial liberalization becomes less evident if two additional factors are taken into account. *First*, the ability to cover insufficient supervision of the domestic banking system and other distortions by means of capital controls must be questioned. As Valdés-Prieto and Soto (1998) argued, countries which lack the means to monitor the domestic banking system efficiently typically also lack the means to administer a system of capital controls efficiently. Evidence surveyed by Dooley (1996: 675) supports this argument, as in industrialized countries (with more efficient supervisory systems) capital controls tend to have a greater impact on the volume and the composition of capital flows than in developing countries (with less efficient supervisory systems). This led Laurens and Cardoso (1998: 21) to conclude that "such [Chilean-type] measures should not be recommended in countries whose institutions, in particular the central bank, do not have the expertise and resources to enforce them." Yet, these are precisely those countries for which the imposition of controls seems particularly warranted.

Second, opening up for foreign capital and granting market access to foreign banks can help to improve the efficiency of domestic financial intermediation. All too often, countries with financial systems that had been shielded from foreign competition previously found that they had little alternative to opening up for foreign banks after financial crises had hit. In those Asian economies which fell victim to financial market turbulences, market access of foreign banks has been liberalized recently. In the case of Russia, the central bank has stated its intention to drop existing entry restrictions for foreign banks, and foreign capital is hoped to play a role in the recapitalization of Russia's banking system.

In summary, these considerations show that the case for internal-before-external financial liberalization is less evident than the conventional wisdom might suggest. This holds in particular if limited external financial liberalization includes limited market access of foreign banks. In fact, those countries that have opened up for foreign competition in the financial services sector decisively have typically fared better than those that have taken a more cautious approach. Rather than trying to fine-tune liberalization steps, it seems that progressing simultaneously on internal and external financial liberalization is the preferable option. At the time of opening up for foreign capital, minimum prudential standards should be in place which might be established with the help of foreign technical assistance. At the same time, distortions such as automatic deposit insurance systems should be abolished as these may send false signals to foreign and domestic investors.

Again, evidence from Eastern Europe can serve as a useful reference.[16] In Estonia, for instance, most restrictions on the free flow of foreign capital were relaxed at the beginning of the reforms in 1992/93, and capital flows (including the market access of foreign banks) were fully liberalized in 1994. At the same time, the Estonian authorities have made clear that they would not bail out insolvent banks unconditionally and have closed down a fair number of banks in early 1993. Although the Estonian economy has been showing signs of overheating and has been running large current account deficits recently, it is not evident that the capital account regime has contributed negatively to these developments. Hungary presents another interesting case as the country has opened up its banking sector more rapidly for competition from abroad than the Czech Republic or Poland (*The Banker* 1999). If anything, this has enhanced the efficiency of the Hungarian banking system without jeopardizing the survival of the incumbent banks.

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16 For a more detailed analysis of the advanced transition economies and for an overview of the relevant literature see Buch et al. (1999a).

3.4 Capital Controls and Uncertainty

When discussing the welfare implications of capital controls, not only direct effects on the volatility of financial markets and on monetary autonomy but also more indirect effects on investment should be taken into account. Generally, empirical support has been found for the hypothesis that growth and investment, on the one hand, and the development of the financial sector, on the other hand, are positively related.[17] Williamson and Mahar (1998) reported evidence which looked directly at the implications of capital account liberalization for the access of firms to external credits and the efficiency of investment. On balance, the available evidence points to a positive link between liberalization and investment efficiency.

In contrast to earlier work on the links between external financial liberalization and growth, which were based on standard investment functions, recent theoretical contributions have employed models which feature investment under uncertainty.[18] Uncertainty about the course of domestic policies, and irreversibility of investment increase the willingness of investors to postpone their projects (Dixit and Pindyck 1994). This has implications for the volume and structure of capital inflows as well as for the sequencing of capital account liberalization. In the presence of uncertainty and irreversibility of investment, capital inflows will be biased towards relatively liquid, short-term investments (Buch et al. 1999b). Hence, measures that increase uncertainty and irreversibility (such as the imposition of capital controls) might have the unintended effect of tilting the structure capital flows towards short-term funds.

Bartolini and Drazen (1997) have used a framework of investment under uncertainty to show that, if foreign investors are incompletely informed about the actual intentions of a government, the introduction of capital controls can have negative effects on total investment as it sends negative signals about future policies. In their model, information about the type of a government is distributed asymmetrically between investors and governments. Governments can raise revenue by taxing the capital stock in their country, and they differ with respect to the alternative sources of income to which they have access. The imposition of capital controls sends a negative signal to investors that governments lack alternative sources of income and are thus likely to impose controls in the future. Conversely, abolishing controls on capital outflows sends a positive signal and increases net capital inflows.[19]

Using a similar framework, Labán and Larrain (1997) have taken issue with the common practice to be more liberal with the liberalization of capital inflows rather than outflows.[20] They show that a relaxation of controls on capital outflows, aimed at reducing the scope for a real appreciation of the domestic currency, may actually increase net capital inflows rather than lowering them. In the presence of capital controls, the option to defer the investment decision has a positive value to investors. This option value of waiting is positive if uncertainty about the future prevails, if the current investment opportunity is available also in future periods, and if capital controls make investment irreversible. Conversely, policy measures that reduce the option value and thus increase investment are those which either reduce the irreversibility of investment (for example, by lowering controls on capital outflows) or that reduce uncertainty about future investment conditions.

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17 See Levine (1997) and Rajan and Zingales (1998) for surveys of the relevant literature.

18 See Fry (1995) for a survey of the traditional literature.

19 This argument, however, does not apply necessarily if economic agents believe that an abolition of capital controls will be reversed in the future. Van Wijnbergen (1985) showed that if in the aftermath of trade liberalization uncertainty regarding a future reversal of economic policy remains, investors may postpone investments.

20 See Johnston and Tamirisa (1998) for the empirical evidence.

4. What Are the Alternatives?

The analysis so far has suggested that policymakers better expect little help from the imposition of URRs when trying to shield their economies from the adverse effects of fast-moving (short-term) capital flows. The imposition of capital controls, if orchestrated faultily, may even have the unintended effect of sending negative signals to both foreign and domestic investors about future policies and therefore may affect investment negatively. In short, capital controls cannot substitute for sound domestic policies, in particular in the banking sector. At the same time, structural policies cannot be adjusted quickly. Hence, implementing sound policies must be a long-term strategy and cannot be resorted to in the acute case of a financial crisis. In addition, negative spillover and contagion effects might affect also those countries which have already implemented sound policies. Hence, safeguard measures to shield otherwise sound countries from the adverse effects of international financial crises might have to be devised.

This section briefly discusses alternatives that are available to policymakers both at a national and at an international level to mitigate potentially negative effects of international capital flows. We start with a discussion of the links between domestic policies and contagion effects, using the response of the transition economies of Central and Eastern Europe to the recent economic and financial crisis of Russia as an example. In addition, recent proposals to reform the international financial system are reviewed.

4.1 Domestic Policies and Contagion: The Case of Eastern Europe

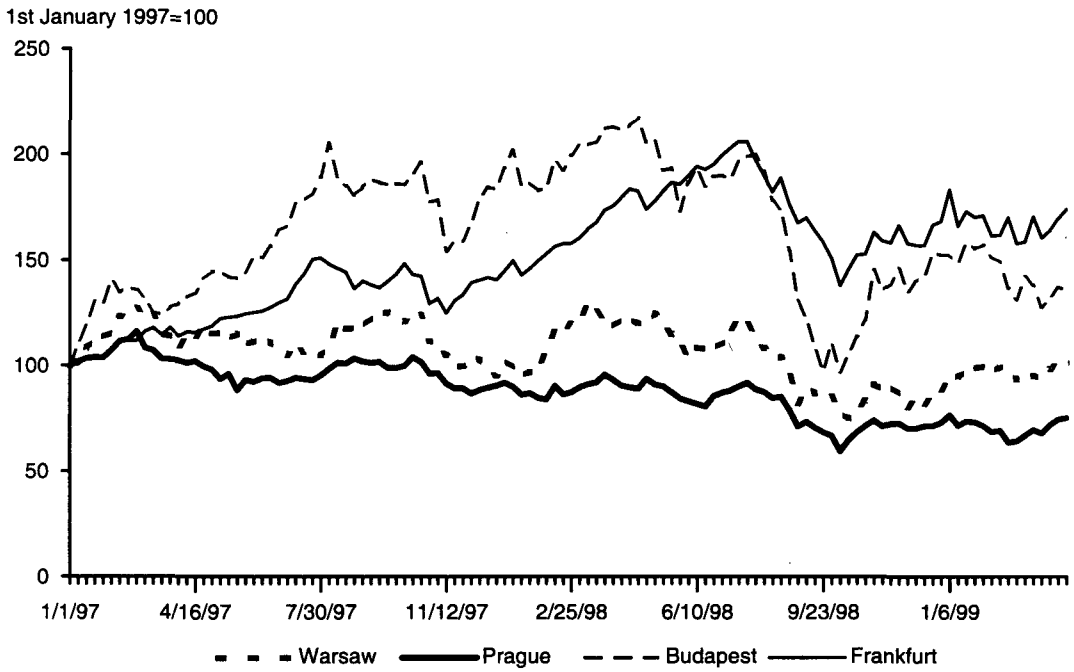
Although the literature tends to find little evidence for the effectiveness of Tobin-type capital controls on volatility or the volume of capital flows, the controls might nevertheless have had an effect in shielding countries such as Chile or Slovenia from adverse effects of acute financial crises elsewhere. Ultimately, the importance of spillover effects is an empirical issue. Edwards (1998a) assessed the contagion effects of the Mexican financial crisis of 1995 on Argentina and Chile. He found that nominal interest rates were more volatile in Argentina than in Chile in response to the crisis and that interest rate differentials in Chile adjusted less quickly after the imposition of capital controls. At the same time, it is difficult to argue that Chile was infected by the spillovers from Mexico to a lesser extent than, for instance, Argentina *because of* the controls, as other relevant policies might have differed as well.

This section discusses briefly the experience of the transition economies of Central and Eastern Europe with the Russian financial crisis. In contrast to Slovenia, these economies have opened up their capital accounts relatively quickly for foreign capital. This raises the issue of whether, by liberalizing their capital accounts, countries such as the Czech Republic, Hungary, and Poland have unduly exposed themselves to contagion from Russia. If contagion can sweep away countries whose major fault was to prematurely open their capital accounts and subject themselves to the whims of international financial markets, then the Russian crisis should be the litmus test.

In August 1998, the Russian ruble succumbed to a successful speculative attack which turned Russia into a severe economic and financial crisis. By the end of March 1999, the value of the ruble had plummeted to less than 75 percent of its pre-crisis value. Recent developments in Russia have undeniably taken their toll on these countries (Figures 5 and 6). Stock markets have fallen, currencies have at least temporarily been under pressure, and foreign financing has become more difficult to obtain. The question is whether these contagion effects would go beyond the direct effects, working through, for instance, trade links, and would thus lower longer-run growth prospects.

The first important observation is that the decline in stock prices and the increase in risk premia on bonds after the Russian crisis parallels developments on Western markets. The German stock index, for example, likewise declined, and

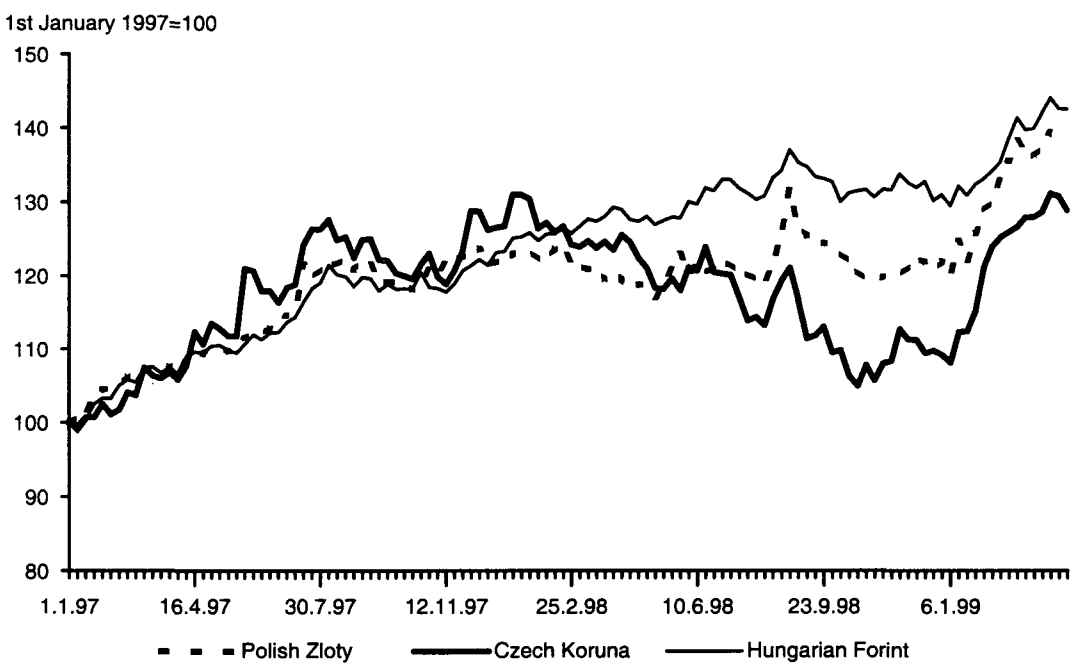
Figure 5: Stock Market Indices, 1997–1999[a]



[a]Price indices in local currency, 1997: 1 = 100.

Source: Datastream.

Figure 6: Exchange Rates to the US Dollar, 1997–1999



Source: Datastream.

Table 5: Changes in Bank Claims on Transition Economies, 1996–1998[a] (in millions of US dollars)

	1996	1997			1998		
		Year	Q3	Q4	Year	Q3	Q4
Eastern Europe	10,756	18,536	8,279	2,680	–461	–10,420	–961
Czech Republic	1,963	1,583	–81	973	–105	699	233
Hungary	784	2,057	801	866	2,074	–34	–66
Poland	–596	2,223	1,370	–301	2,861	220	307
Slovenia	770	147	–265	–10	174	76	–81
Russia	6,798	9,830	4,136	1,469	–6,333	–10,715	–1,604

[a]Estimated exchange rate adjusted changes.

Source: BIS (1999a).

spreads on corporate bonds issued by medium-sized borrowers from industrialized countries have increased in the wake of the crisis. Hence, it is difficult to argue that the Russian crisis has had particular spillover effects on the countries under study over and above the general trends in international equity and bond markets in the second half of 1998. Rather, contagion effects of the Russian financial crisis in the stock market seem to have been a European phenomenon whereas the effects of the Asian crises have had a decidedly more global dimension (Linne 1998).

Moreover, the temporary pressure on the currencies has not unduly constrained domestic economic policies. There have not been any forced devaluations, central banks have not lost reserves over a longer period, nor were they forced to raise interest rates significantly. At the end of 1998, Poland and the Czech Republic even lowered key interest rates. Finally, possible adverse effects on the ability of these countries to access the international capital market seem to have been short-lived (Papi 1998). In the third quarter of 1998, claims of foreign banks on Russia plummeted (Table 5), and the contraction continued through the fourth quarter. In the same period, claims on other transition economies, notably the Czech Republic and Poland, increased while claims on Hungary decreased only slightly. Likewise, claims on Slovenia declined in the fourth quarter of the year. This may have been one of the reasons why the Bank of Slovenia eventually set the reserve requirement for foreign financial credits to zero in early 1999.

A number of explanations for this outcome can be found. One is that direct trade links with Russia are relatively small. The immediate impact of reduced demand from Russia on these countries' real economies has therefore been limited. This may have helped steady the nerves of international investors who were wondering whether it was time, after pulling out of Russia, to pull out of the Czech Republic, Hungary, or Poland. Hence, the substantial trade re-orientation and diversification that has taken place during transformation has made the countries less vulnerable to negative shocks spilling over from Russia. As regards financial linkages, macroeconomic implications also seem relatively minor as exposure to countries in the former Soviet Union is confined to individual banks from the region (Turtelboom 1998). Moreover, the prospect of EU membership may have provided added stability to the advanced reform states, essentially because the EU has conditioned entry talks on progress in reforms.

The key factor that emerges from the experience of the accession states is that, in contrast to Russia, the countries have backed up their integration into international capital markets by deep-reaching reforms in other relevant areas. International capital markets have so far rewarded their reform efforts by clearly discriminating between these countries and Russia.[21] Overall, the impact of the Russian crisis on those countries has been limited thus far, and average growth and inflation forecasts

[21] A similar conclusion was reached in the most recent transition report of the EBRD (1998). See also Fries et al. (1998).

for 1999 are only somewhat less favorable than those for 1998 (EBRD 1998).

Evidence from Asia likewise suggests that structural reforms at the domestic level can reduce the exposure of emerging market economies to volatile capital flows. In Asia, a major factor behind changes in the composition of capital inflows away from long-term FDI towards short-term flows have been sterilization policies which held domestic interest rates at high levels (Kaminsky and Reinhart 1998). Moreover, exchange rate policies must be sufficiently flexible to adjust to external shocks.

Perhaps the most important policy implication apart from the need for sound structural reforms is the crucial need to disseminate transparent, timely, and reliable information to the international investment community. Better information policies would substantially reduce the costs of obtaining information for market participants and thus stimulate long-term investment. Although this would not eliminate financial market volatility, improved availability of information is likely to increase the stability of capital flows and the importance of market fundamentals for international investment decisions.

4.2. Reforming the International Financial Architecture

Apart from adjustments of domestic policies, institutional changes in the international financial architecture can potentially help to reduce the probability that basically innocent bystanders are hit by financial crises in other countries. As the relevant contributions to the on-going debate have been discussed and comprehensively summarized elsewhere (Eichengreen 1999), only two proposals will be sketched here. The first relates to an adjustment in the lending policies of the IMF by providing Contingent Credit Lines (CCLs) to its member countries. The second proposal is representative for a class of suggestions which intends to rely more heavily on market mechanisms to alter the structure of foreign debt. More specifically, we will discuss briefly the Universal Debt Rollover Option with a Penalty (UDROP) which has been suggested by Buiter and Sibert (1999).

Essentially, all proposals for reforming the international financial architecture are based on the notion that asymmetries in information and uncertainty prevent financial markets from telling insolvent and merely illiquid borrowers (or countries, for that matter) apart. Under perfect information, markets would be able to distinguish illiquid from insolvent borrowers. They would extend additional finance to the former, but would deny fresh finance to the latter.[22] Under imperfect information, such a separating equilibrium is not reached necessarily. Rather, borrowers are likely to be pooled together, and finance might be denied to all applicants. Should a financial crisis strike somewhere, markets would reassess the probability that other countries might be affected. In this situation, the inability of a borrower to service its external debt would be taken as a negative signal about solvency.

Recently, the IMF has decided to provide a Contingent Credit Line to its member countries.[23] The CCL aims at assisting those countries which are fundamentally sound but which are exposed to the risk of contagion effects from financial crises elsewhere. Hence, it precisely aims at granting liquidity to illiquid countries which might otherwise be pooled together with insolvent countries. Obviously, in order to mitigate significantly moral hazard in financial markets, at least three issues need to be resolved. *First*, the decision which countries qualify for assistance under such program has to be made ex ante, i.e., prior to the emergence of a crisis. Essentially, access to the CCL would thus be on a case-by-case basis. As quick action is typically required when a financial crisis hits, this requires relatively efficient decision mechanisms. *Second*, the discretionary nature of the process potentially opens the field for political lobbying and for a renegotiation of initial terms.

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22 Note that in a national context, refinancing for illiquid borrowers (banks) is provided via the lender-of-last-resort facility of the central bank. However, such facility does not exist in an international context, i.e., for foreign-currency-denominated debt (Buiter and Sibert 1999).

23 This paragraph draws on Golder (1999).

Third, defining clear access criteria will be difficult, and the actual refinancing needs are still an open issue.

In parallel to this new lending facility, market-based schemes which are based on an adjustment of international bond terms are thus under discussion. One of these proposals has been advanced by Buiter and Sibert (1999). They have suggested to attach a mandatory roll-over option (UDROP) to any cross-border financial contract. Should a borrower have insufficient funds to cover its foreign liabilities, it would be granted the option to roll over its external debt at a penalty rate. This would give merely illiquid borrowers the opportunity to raise additional finance. As borrowers would decide unilaterally whether to exercise this option, there would be no need to assess the borrower status externally. Hence, the asymmetric information problem would be mitigated. The option would be priced on the market, i.e., the costs of foreign borrowing would rise.

The authors discussed several objections to their proposal. Most importantly, adverse selection and moral hazard problems would arise because both illiquid and insolvent borrowers could make use of the option. Therefore, Buiter and Sibert proposed to grant the right to roll over a loan only once, i.e., a potential insolvency would eventually come to the surface after an additional period has elapsed. Also, UDROP should be mandatory for all financial contracts in order to prevent bad risks to mimic good risks (which would not make use of the option were it voluntary). Obviously, even with these modifications, UDROP would not solve the problems on international financial markets entirely. Under asymmetric information, the fair pricing of the roll-over option would remain an open issue. Also, effective supervising whether all contracts actually have the option attached to them would need to be ensured. Yet, the proposal shows that it is feasible to invent new contract designs which might be superior to non-market based solutions.

5. Concluding Remarks

The main result of this paper is that (Chilean-type) capital controls are no panacea. This, by itself, should not be very surprising as there is no economic policy measure which, seen in isolation, has beneficial effects always and everywhere. In fact, proponents of capital controls and in particular of taxes and reserve requirements on short-term capital flows would argue that these instruments should be part of a consistent overall reform program. Without safeguards against volatile capital flows, otherwise sound economic policies may be derailed, and financial crises elsewhere may hit innocent bystanders.

Essentially, the case for Chilean- or Tobin-type capital controls is based on the notion that financial markets react faster than goods markets. This market imperfection may cause fluctuations in the real economy which are not linked to fundamentals and, hence, a corrective tax may enhance welfare. This argument has hardly been challenged by the present paper. Yet, the introduction of restrictions on short-term capital flows will be welfare-enhancing only under a set of special conditions. These, in turn, are hardly found in reality.

On a rather practical level, the actual design and enforcement of the tax is an open issue. If current and capital account transactions have been liberalized in general, various mechanisms to evade the tax can be devised. While these do not erode completely the effectiveness of the tax, they still reduce its impact. Moreover, as additional (scarce) resources must be freed to supervise the enforcement of the scheme, other policy areas might suffer.

In addition, Chilean-type capital controls and other taxes on cross-border financial flows have the potential of reducing the overshooting of exchange rates. Yet, the imposition of these taxes by itself can lead to an overshooting process because it is conceptually identical with a negative shock to the domestic interest rate. This mechanism cautions particularly against the imposition of temporary controls.

Even though Chile's and Slovenia's URRs might have lowered inflows of short-term financial credits, this has not necessarily reduced the volatility of capital flows. One reason for this finding is that there is no clear evidence as to which type of capital flows is the most volatile and how volatility changes after the imposition of controls. In contrast to the conventional wisdom, short-term capital flows are not necessarily the most volatile capital account item. Exchange rate volatility, in contrast, has tended to come down in the period following the imposition of URRs. Yet, the extent to which this decline is a result of exchange market intervention of the monetary authorities rather than the capital control regime, remains an open issue.

The ability of URRs to provide both the monetary authorities with greater autonomy and leeway to implement structural reforms must be questioned. In Chile and Slovenia, the controls have not halted an increased inflow of foreign capital. Generally, URRs cannot prevent speculative attacks on misaligned currencies but may at best delay the timing of a speculative attack. Proponents of a tax would argue that it is precisely this additional breathing time that governments gain which makes the tax attractive. Yet, this window of opportunity may fail to deliver what it promises if domestic authorities are not willing or able to act quickly and to tackle structural problems.

It is often argued that capital controls could be used to shield banking systems that are poorly supervised from adverse effects of external financial liberalization. Yet, the administrative capacity to enforce such regulations is typically poor precisely in those countries for which the controls would seem most desirable. This paper has argued that internal and external financial liberalization could proceed in parallel if the authorities are willing to implement basic banking standards (possibly with the help of foreign technical assistance), to withdraw implicit deposit insurance schemes, and to open up for foreign banks.

Alternatives to taxes on cross-border capital flows suited to reduce exposure to volatile capital flows and to contain contagion in financial markets have been discussed. Evidence from Eastern Europe has shown that countries with relatively open capital accounts and, in principle, sound policies could handle contagion effects from the Russian financial crisis relatively well. This suggests that domestic policy has room to maneuver even in globalized financial markets. Sufficiently flexible exchange rate policies and reforms of the banking sector have helped the successful transition economies to stave off adverse external shocks. Hence, by pursuing structural reforms, by disseminating clear and transparent information, and by using market mechanisms to alter the structure of foreign debt, governments can significantly reduce exposure to external shocks and can most efficiently use scarce administrative resources. Hereby, international institutions have an important role to play in designing and enforcing an institutional framework in which such mechanisms can be implemented.

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