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KOREA INSTITUTE FOR
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INTERNATIONAL CONFERENCE ON EXCHANGE RATE REGIMES IN EMERGING MARKET ECONOMIES

17-18 December 1999 – Tokyo, Japan

Session 1 : Lessons from recent crisis

«Exchange Rate Policy : Lessons from the Chilean Experience»

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Document n° 5

With the support of



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Exchange rate policy: Lessons from the Chilean experience

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Abstract: This paper deals with the Chilean experience with exchange rate bands, both in the perspective of the economic developments of the last decade and in particular during the turbulent times of the international crisis. A conclusion of this article is that a critical condition for an exchange rate band to succeed, despite the theoretical argument against it, is the way intramarginal intervention is made. This is one reason why we find that the Chilean band most of the time, and certainly during the Asian crisis, did not enjoy of enough credibility. The deep source of this is that the central parity followed a PPP rule which on the one hand failed to recognise that in the nineties Chilean country risk fell and productivity increased. This lack of credibility is probably due to the past history of the exchange rate band and in 1998, to the inconsistency between the inflation target and the need to accommodate a real exchange rate depreciation. This latter two elements resulted in a diminished capacity of the central bank to cope with the expectation of realignment.

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Introduction

The Asian crisis has given new impetus to an old discussion among economists, that concerning the optimal exchange rate policy. In the late eighties and the beginning of the nineties, upon the intellectual influence of Williamson (1985), some consensus gradually emerged in favour of regimes that lay in between pure floating regimes and definitely fixed systems. Indeed, many emerging countries including Chile, Colombia, and Israel adopted exchange rate bands¹.

For instance Bufman and Leiderman (1996) recall that the European and the negative Mexican experiences before their crisis had led to a sort of consensus on exchange rate policy along the following lines. First, pegged systems have shown weaknesses, in particular when they have been used as an anti-inflationary device. Second, some flexibility makes macroeconomic adjustments quicker and more efficient. In addition, some flexibility may bring some monetary independence, useful for stabilisation purposes in the short run. Thirdly, flexibility has not ended up in more inflation and, conversely, before 1996 domestic inflation in countries that had pegged its currency had not converged quickly to international levels. Finally, flexible rates have not avoided nominal shocks to be transmitted between countries. All these arguments led naturally to choose crawling exchange rate bands.

The incipient consensus was somewhat challenged by Wyplosz (1996) who recalled three problems with this view. First, that the choice of a band assumes that the central parity, its level and/or its dynamics, is the appropriate. Second, given that a band's credibility needs to be constructed over time, too emphasis on short term flexibility may erode the long run objective. Finally, he stressed that if realignment may be reasonable for isolated countries, in regions where an important process of integration is taking place they may induce competitive devaluations, which may threaten the integration process itself.

In any case, despite their intellectual attractiveness, the adoption of exchange rate bands was not really massive. Some countries continued with crawling pegs, in particular Asian countries. Others adopted extreme versions of a pegged such as Argentina who since 1991 has a currency board. On the other hand, beyond the case of major world currencies, no developing country had a (non-dirty) floating regime until Mexico adopted a version of it after the *tequila crisis* in 1994-95².

That plethora of systems and the incipient consensus around bands have to some extent vanished because of three different events. The most important single one was the Asian crisis itself. Crawling pegs and massive capital inflows in Asia led to overvalued currencies, which in its turn and among other factors favoured a non optimal allocation of resources. A second event, important in the context of the Latin American discussion, was the problems Chile, and to some extent Colombia, faced with their exchange rate bands during 1998. In particular, as it shall be described later, Chile experienced three episodes of illiquidity in the interbank market. Two of them, in January and June 1998, had a weak link to international events whereas that of September, which was the longest and strongest was caused by the international liquidity crisis after the Russian default and the bankruptcy of LTCM. Most of the countries that once had a band, including Chile, Colombia and Israel, now have moved into a float. Finally, the end of

¹ See Helpmann, Leiderman and Bufman (1994)

² In principle, after a while after the adoption of the float, Mexican authorities established publicly known intervention rules which implied significant flexibility in the nominal exchange rate.

the EMS and the launch of the Euro put over the table the issue known in Latin America as *dollarization*.

Apparently exchange rate bands have passed and the mood now is to look for extremes systems. We still do not know whether that is a simple mood or whether there are good economic reasons for that. The exhaustive examination of the events that led to the abandonment of the bands in the countries mentioned above will hopefully shed some light into these issues.

This paper explores the Chilean experience with its exchange rate band and the rationale of abandoning it. It also explores briefly the post-band experience, indeed a very short one.

The main lessons that can be drawn from the Chilean experience are the following:

- (a) The exchange rate band almost never worked properly. Most of the time was spent with the dollar in the limits of the band with only two periods of exception, 1995 and later during 1999, periods in which the common factor is an external crisis and a relative lack of capital inflows, specially debt and portfolio flows.
- (b) Some of the reasons why the band did not work include
 - *The band lacked credibility.* The deep source of this is that the central parity followed a PPP rule which on the one hand failed to recognise that in the nineties Chilean country risk fell and productivity increased both significantly. On the other hand, it was not in accordance with the main goal of the Central Bank, namely to reduce inflation *systematically*. Occasionally the Central Bank subordinated the band to the achievement of an always-shrinking inflation target. The peso was *de facto* revalued several times and therefore the band lost credibility.
 - Even if in theory *intramarginal interventions* are not necessary, in practice they are the only way to enforce the *central parity* of the band. The honey moon effect may appear only if the Central Bank makes something in order to induce what we could call a central parity reversion³. The practical way intramarginal intervention takes place is therefore crucial as a signalling device. In Chile, the Central Bank was not clear about when and how it accumulated reserves or did so ex-post missing the announcement effect. In general, it did not give opinions with respect to the level of the nominal exchange rate (as Alan Greenspan does it so often with respect to assets prices).
- (c) Considering that the band often did not work well and that there was the perception among the public opinion that the authorities did not fully believe in it, then such policy was not totally adequate to deal with the Asian waves. The way the international crisis was handled did not reinforce the credibility of the band. The decision to move into floating and stop disinflating the economy has finally let Chile with a coherent set of policies.

The critical concepts stated in this paper about exchange rate policy are applicable to the last decade at least, where many different persons were involved in policy making. In this sense, these criticisms can be considered as reflecting the other side of the coin of the successful reduction in inflation achieved since 1990. At the time, the inflation rate was at 27% per annum whereas today it stands only at 2.5%, the lowest inflation rate

³ Alternatively, one can conceive Krugman's model as being in a steady state where the Central Bank has already earned reputation to defend the extremes of the band so now reputation works instead of intramarginal intervention.

ever since the CPI exists. Among other things, this paper suggests that such an achievement has not been cost free and in particular, we analyse the costs paid by exchange rate policy. The benefits speak on their own.

1. The causes of the disarray in 1998

It was previously said that the current discussion concerning exchange rate policy and particularly the mood towards extreme policies had something to do, at least in the context of the Latin American discussion, with problems Chile faced with its exchange rate band during 1998. It is useful therefore as a background to what follows to have some references concerning the macroeconomic situation of Chile during the Asian crisis, the policies implemented and the outcomes.

Cause I: Huge external shock

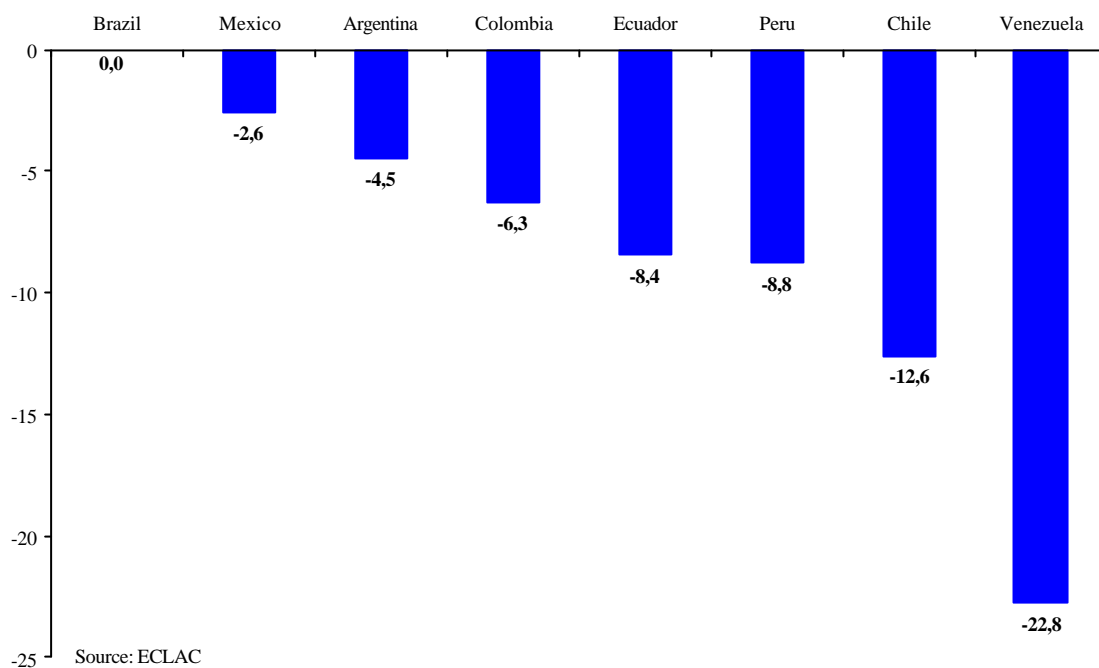
Chile's foreign trade is both quite concentrated and quite diversified. Chilean exports are still dependent on copper but its regional diversification is remarkable. Before the Asian crisis, in 1997, Chilean exports were directed in similar proportions to the Far East (Japan and South East Asia), the Americas and Europe. The main individual trading partner was the US, which accumulated 15.9% of total exports, followed by the Japan with 15.7%. When the Asian crisis started, Chile was the country in the Americas that traded the most with Asia. As such, Chile was the country in the Americas that was most exposed to the Asian woes.

By 1997, the exposure to trade risk arising from other Asian countries was limited. Indeed, Thailand represented 0.8% of total exports, Malaysia 0.6% and Indonesia 0.9%. Korea, the fourth Asian country to enter in crisis represented 5.8%. Only after this happened, Chile started suffering a significant shock. And things complicated even more with the recession in Japan since mid-1998.

The Russian default did not create problems directly. Indeed, if there had been no worldwide credit crunch *and* exchange rate policy had not been modified in June 1998, Chile should have not suffered as it did with it. The reason is that the increase in emerging market spreads had only limited effects on Chile as financing requirements were small relative to international reserves, exports or compared to other Latin-American countries and there was no public debt in international markets.

If Chile was well equipped to deal with recession in Asia or significant increases in emerging markets sovereign spreads, although not extreme, the dependence of its export revenues on a few bunches of commodity prices heavily shocked the country. Indeed, in 1998 Chile was second most affected country in Latin America in terms of a reduction in its terms of trade, as seen in the next graph

Terms of trade variation in Latin America, 1998



Recession in major trading partners, international financial crisis and a drastic cut in terms of trade, all that represented a huge and violent external shock.

Cause II: Cyclical position of Chile

For all practical purposes, the Asian crisis started for Chile in late 1997. In one month the Hong Kong Stock Exchange suffered a crash, Brazil's currency was attacked and Korea entered in crisis. At the time, Chile was at the end of a third quarter of economic expansion after a macroeconomic adjustment initiated two years before.

Table 1: Selected macroeconomic indicators of Chile, 1994-1999

| GDP | Total Demand | Nominal Copper Price US\$/pound | Real Exchange Rate | Real Interest Rate 90 days | Real Interest Rate 8 years | Current Account Deficit | Total Capital Inflow | Net Foreign Direct Investment | Net Foreign Portfolio Investment | Net Medium and long term capital flow | Net Short term capital flow | |
|--------|--------------|---------------------------------|--------------------|----------------------------|----------------------------|-------------------------|----------------------|-------------------------------|----------------------------------|---------------------------------------|-----------------------------|-------------|
| | | | | | | | | | | | | annual chng |
| 1994-1 | 5,0 | 2,0 | 84,5 | -0,8 | 6,5 | 6,2 | 5,4 | 1036 | 297 | 301 | 273 | 165 |
| 1994-2 | 6,4 | 7,8 | 96,3 | -6,0 | 6,5 | 6,1 | 5,2 | 856 | 789 | -22 | 98 | -9 |
| 1994-3 | 5,3 | 5,4 | 78,1 | -2,3 | 6,5 | 6,1 | 4,5 | 1115 | 159 | 327 | 530 | 99 |
| 1994-4 | 6,2 | 6,8 | 126,0 | -1,7 | 6,1 | 5,9 | 3,1 | 2330 | 427 | 303 | 424 | 1176 |
| 1995-1 | 8,9 | 13,1 | 133,2 | -2,7 | 6,1 | 6,2 | 1,7 | -40 | 814 | 23 | 64 | -942 |
| 1995-2 | 10,5 | 13,8 | 131,1 | -5,6 | 6,0 | 6,2 | 1,0 | 788 | 594 | -168 | 164 | 198 |
| 1995-3 | 11,5 | 18,8 | 136,5 | -9,3 | 5,8 | 6,0 | 1,4 | 558 | 463 | -138 | -315 | 548 |
| 1995-4 | 11,7 | 18,7 | 131,8 | -5,1 | 6,7 | 6,7 | 2,1 | 972 | 334 | 318 | -165 | 485 |
| 1996-1 | 8,9 | 12,6 | 116,7 | -7,0 | 6,8 | 6,6 | 3,0 | -343 | 918 | 454 | -625 | -1089 |
| 1996-2 | 7,5 | 7,7 | 112,3 | -4,7 | 7,4 | 6,6 | 3,2 | 951 | 517 | 440 | -85 | 78 |
| 1996-3 | 5,5 | 3,0 | 89,8 | -2,2 | 7,4 | 6,3 | 3,8 | 2087 | 1191 | 280 | 557 | 60 |
| 1996-4 | 7,7 | 8,7 | 97,7 | -4,9 | 7,4 | 6,2 | 5,1 | 2647 | 820 | -74 | 657 | 1244 |
| 1997-1 | 5,1 | 1,8 | 109,5 | -9,2 | 7,1 | 6,3 | 4,1 | 2241 | 395 | 785 | 1222 | -161 |
| 1997-2 | 6,4 | 9,2 | 113,4 | -6,4 | 6,8 | 6,4 | 4,3 | 2264 | 980 | 756 | 514 | 13 |
| 1997-3 | 8,9 | 12,0 | 103,3 | -9,0 | 6,6 | 6,7 | 4,4 | 2638 | 1227 | 483 | 848 | 80 |
| 1997-4 | 9,9 | 13,0 | 87,0 | -9,0 | 6,6 | 6,9 | 4,9 | 238 | 750 | 341 | 663 | -1516 |
| 1998-1 | 8,0 | 15,5 | 77,2 | -1,4 | 8,4 | 7,3 | 6,6 | 911 | 916 | -39 | 900 | -866 |
| 1998-2 | 5,9 | 7,3 | 78,6 | -1,5 | 8,3 | 7,4 | 7,2 | -300 | 308 | -467 | 1328 | -1470 |
| 1998-3 | 2,9 | 1,0 | 74,4 | 2,7 | 12,5 | 8,6 | 7,3 | 1514 | 585 | -334 | 195 | 1068 |
| 1998-4 | -2,8 | -13,2 | 70,1 | 2,6 | 9,0 | 7,6 | 5,7 | 1129 | 32 | 10 | 889 | 197 |
| 1999-1 | -2,7 | -14,3 | 63,8 | 1,6 | 7,2 | 6,8 | 3,9 | -1154 | -622 | 211 | 521 | -1263 |
| 1999-2 | -3,7 | -14,2 | 66,3 | 1,6 | 6,1 | 6,4 | 2,4 | 314 | 3506 | -222 | 126 | -3096 |
| 1999-3 | -1,5 | -8,5 | 76,2 | 5,6 | 5,1 | 6,4 | 1,0 | 417 | 1387 | 29 | -396 | -603 |

Source: Central Bank of Chile

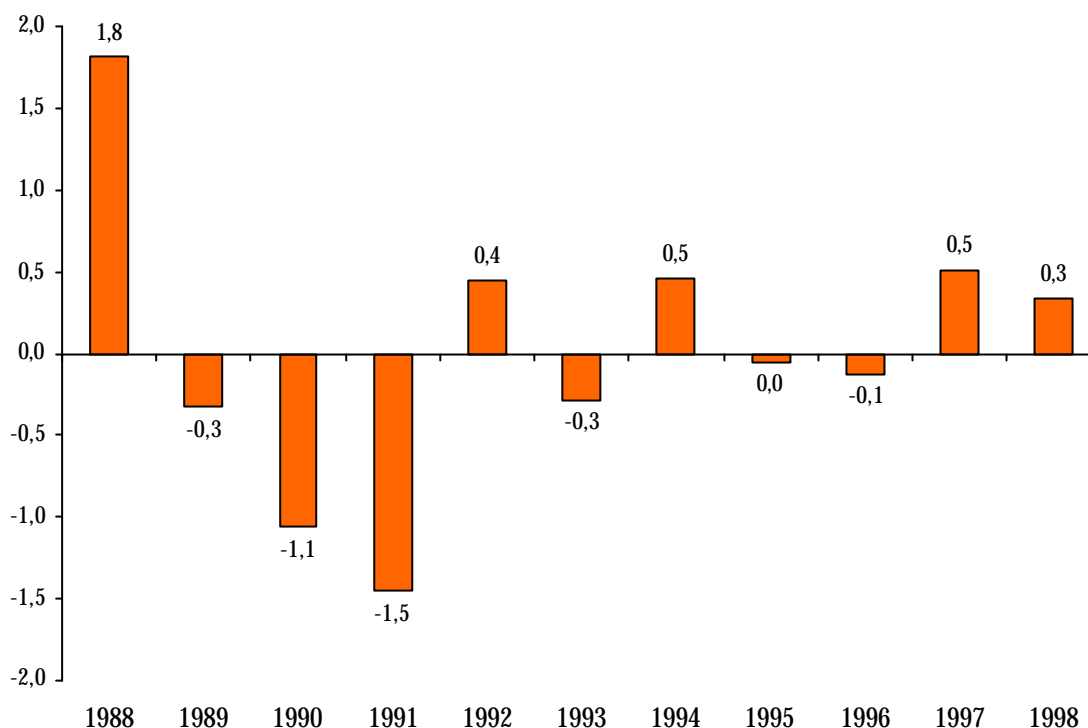
The main reason behind the adjustment initiated in 1995 was the excessive growth of domestic demand with respect to output as seen in Table 1. That adjustment started to be relaxed in the first quarter of 1997. By the end of that year, when the Asian crisis was declared and the external shock started hitting the economy, domestic demand was again booming at 13% annual growth far beyond GDP growth that was at 9.9%.

The bulk of the explanation for this impressive dynamism of domestic demand lies in external factors. International capital markets, which were very liquid before the Mexican crisis, cooled down somewhat in 1995 but since 1996 they resumed liquidity. In 1996 and 1997 Chile received massive inflows of capital. Only in 1997 net capital inflows totalled 10% of GDP. This was clearly the single most important stimulative factor to domestic demand when the Asian crisis erupted. Another expansionary factor was that Chile enjoyed a significant improvement in its terms of trade in 1996 – 1997 with the price of copper increased by 30%; this stimulated demand through a wealth effect.

As a consequence of these two positive external shocks in 1996 and 1997, the real exchange rate appreciated significantly, far beyond any reasonable productivity differential. That appreciation not only fuelled more demand but also biased it towards tradable goods. As a result, the current account deficit deteriorated significantly in 1995 and had not recovered when by the end of 1997.

Fiscal policy was neutral on average in the period 1990-1998. In terms of fiscal impulse, according to the IMF definition, this was negative in 1996 (-0.1% of GDP) and positive in 1997 (0.5% of GDP).

Fiscal impulse, IMF definition (% of nominal GDP)



The budget, as during all this decade, was in surplus so the public sector was source of national savings. Indeed, public savings grew to 5.8% of GDP in 1996 from 5.4% the previous year and then fell slightly to 5.5% of GDP in 1997. The macroeconomic impact of this is of a second order of magnitude compared with the effects of capital inflows and the terms of trade shock mentioned above.

2. Shocks and policies during 1998

A. November 1997 - February 1998

After the developments in Hong Kong, Brazil and Korea in November 1997, the Central Bank let the currency depreciate at a moderate pace. In so doing, international reserves fell from US\$18.8 billion in October 31st to US\$ 17.8 billion in December 31st. The nominal depreciation in the same time period reached 4,5%. The main force behind the slide in the domestic currency was the need of the corporate sector to cover open positions in foreign currency.

However, the public perceived that there was an inconsistency between the exchange rate policy and the inflation target of the Central Bank. Indeed, by early November 1997, the nominal exchange rate was just above the floor of the exchange rate band. At that time, the exchange rate band had a width of 25%. The inflationary impact of such a potential depreciation was clearly a threat to the inflation target of the Central Bank.

Therefore, since the very beginning the Central Bank engaged in intervention in the foreign exchange market so as to permit an ordered depreciation of the currency and prevent overshooting. Two elements indicated that overshooting could be harmful. One is that the economy was overheated as is clear from seeing the differential rates of growth between output and domestic demand. The second one is that Chile was (and still is) quite an indexed economy. In this context, the *persistence* of the potential inflationary shock could have been large, in particular, large enough so as to prevent a slide of the currency even within the exchange rate band.

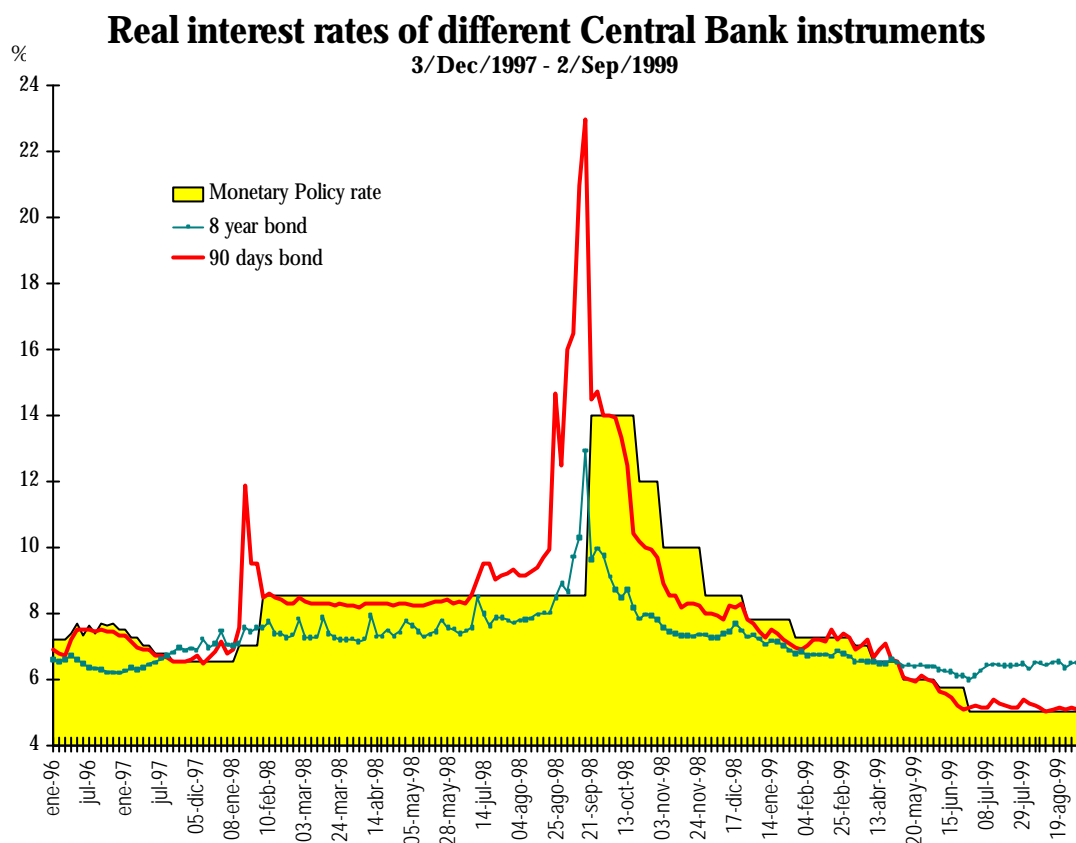
Should the only source of demand for foreign currency had been the corporate sector in need to cover open positions in foreign currency, then the policy of selling international reserves could have been correct. Nevertheless, the above mentioned inconsistency of exchange and inflation policy built up in speculation against the Central Bank. In late December 1997, the Central Bank let for the first time diverge its benchmark one-day interest rate from the interbank interest rate, which in normal times coincide. In the first week of January 1998, with a confirmed panorama of the deterioration in the trade figures, the Central Bank adopted a slightly more stringent monetary policy in an attempt to signal the desired evolution of demand and to contain inflationary expectations that could be arising.

Such a move was insufficient to prevent the peso to further depreciate as were insufficient the fiscal measures announced on January 17th, which included a cut in investment by public enterprises equivalent to 5.5% in real terms. It must be noted that confusion arose with respect to the right size of the fiscal effort so the signal effect linked to it was minimised⁴.

At the end of January, the peso suffered an attack. The policy answer first contemplated high one-day interbank interest rates for two weeks⁵ but calm arrived only once economic authorities gave a strong signal of tackling down the real problem. The fundamental problem at that time was the need to adjust to a major external shock in the context of an economy where domestic demand was amplifying the effect of the external shock on the current account deficit. As shown in the following graph, calm then came once the Central Bank adopted the most stringent monetary policy since 1991 increasing its monetary stance from 7% in real terms to 8.5%.

⁴ The relevance of this point is highlighted if we consider that the size of the public sector in Chile is so small that the announcement effect probably dominates the pure multiplier effect of fiscal policy measures.

⁵ Svensson (1994) discuss defence strategies used in Europe in the EMS crisis in the summer of 1993.



B. 1998: March - June

Financial markets calmed down after the monetary shock. However, interbank interest rates remained stable but in a higher level than the monetary stance of the Central Bank. They converged towards it only in March at the time when a new fiscal package was in preparation. It was announced by the President, so political support for the contractionary macroeconomic stance was explicitly given. This package amounted to a budget cut of 0.4% of GDP, half of which involved public enterprises and half of which involved current expenditures of the Central Government. The signalling effect of this package was strong and the economy remained relatively stable until the first week of June.

In the meantime, the world economy continued evolving. In June South Africa suffered an attack and the *rand* was devalued 20% approximately in two months that followed. As Japan entered into a recession, growth prospects for the entire Asian region worsened and the way out of the Asian recession became less imminent. In Chile, all this determined a more binding constraint for the current account.

On 25 June, a new package was announced jointly by the Minister of Finance and the President of the Central Bank. The strategy wanted to convey the message that the economic authorities were acting with good co-ordination and so economic agents understood it. These new measures had the following objectives:

- Reduction of the rate of growth of central government expenditure to 5.5% in 1998⁶. This number coincided with the revised estimate of GDP growth for 1998 and which had consensus among private analysts at the time.
- A programmed delay of a series of large scale investment projects.
- Give a clear signal of the fiscal policy stance for 1999.

Box 1: Fiscal measures adopted on June 25th, 1998

- 1 Measures with immediate impact during the second semester of 1998
 - a. Third reduction of central government expenditure by US\$ 200 million. This reduction affected all ministries and amounted to a 3.1% reduction in total variable expenditures. This did not affect the social program of the Government.
 - b. The constitution of a \$ 150 million Infrastructure Fund in the Central Bank. These resources were frozen until the end of 1999.
- 2 Measures with Budget Effects in 1999 and beyond
 - a. The government committed to a budget proposal for 1999 in which expenditure would grow, at the most 0.5% less than the GDP growth forecasts for 1999.⁷
 - b. Temporary suspension of aeroplanes acquisition by the Air Force.
 - c. Temporary suspension of the bidding process for private sector participation in the southern railway passenger service and all infrastructure projects associated with it.
 - d. Revision with sectorial Ministries of infrastructure project execution calendars⁸.

The Central Bank announced a stretching of the exchange rate band from 25% to 5.5% and it changed other parameters so as to permit a more aggressive nominal depreciation of the centre of the new band. At the same time, the Bank announced the reduction in the rate of the *encaje* (the non-remunerated reserve requirement on capital inflows) from 30% to 10%. Finally, it issued a new bond indexed to the dollar but payable in pesos at 3 and 4 years maturity.

All these measures are worth to put them in perspective. On the fiscal side, public discussion at the time was around the idea that the excess expenditure of the economy had its roots in supposedly expansionary fiscal policies. In terms of fiscal impulse or public expenditures as share of GDP, a decline in the surplus took place in late 1997 and early 1998. The reason was not because expenditures were growing on an annual basis much beyond output growth but because there was an unexpected reduction in tax revenues.

As far as exchange rate policies are concerned, public discussion in the first two quarters of 1998 was concentrated in to what extent the peso was overvalued. In general, the question was to calculate the degree of overvaluation rather than to assess if it was or not overvalued. Most serious estimates stated that the overvaluation reached

⁶ This excludes interest payments, "bonos de reconocimiento" and financial investment that does not affect aggregate demand. Bonos de reconocimiento are state transfers to the Pension Fund system for those workers who switched to the private system but had already contributed to the public system.

⁷ Therefore, fiscal policy in 1999 will be contractive with public expenditures growing less than expected output by at least 0.5%.

⁸ More details of this will be announced soon.

around 8%; with a range between 5% to 10% by the fourth quarter of 1997. Some analysts proposed to let the peso depreciate in nominal terms to stop the overvaluation.

At the time the authorities were still concerned with the pass-through from nominal devaluation to inflation following the same rationale mentioned above. The tightening of the band was a clear signal that the Bank was committed with exchange rate stability. This goal prevailed against the perception that existed at that time among most analysts and observers of the Chilean economy, that the peso was somewhat overvalued. In principle, the new band could have afforded normal variability as the one displayed by the peso in previous years. However, no one could have foreseen that the Russian crisis and the international credit crunch were very close. These were two huge and unprecedented shocks, which the narrow band simply could not afford.

C. 1998: June - September

On August 17th, Russia declared default on its external obligations. To a large extent, this was a non-expected shock that launched a wave of confusion to world capital markets. The Asian crisis had originated a world discussion around the *new architecture of international finances*. The Russian crisis accelerated that debate as the most advanced financial centres fell into a liquidity squeeze. Interest rates, particularly spreads of emerging markets sovereign debt, increased significantly and stock exchanges crashed around the world.

Chile also felt the consequences of the worldwide credit crunch. In the illiquidity episodes of January and June mentioned above, long run interest rates did not increase. In these episodes, it was short-term interest rates that increased. On the contrary, in the credit crunch of September all interest rates suffered major increases.

In the wake of the worldwide credit crunch, policy measures were again adopted. At the time the government announced macroeconomic forecasts for 1999. GDP was forecasted to grow at 3.8% in 1999 even if, for purposes of projecting fiscal revenues the government used 3% as a conservative stance. This forecasts were at the bottom side of private forecasts and were a clear signal that deceleration would be significant. In terms of fiscal policy, these forecasts implied that fiscal outlays could increase at 3.3% at most by virtue of the policy engagements of June 1998.

In its turn, the inflation target for 1999 was set at 4.3% down only 0.2% below the target for 1998. This represented an important signal. All over the nineties macroeconomic policy intended to reduce inflation and was quite successful in doing so. Having reduced by so little the inflation target for 1999 signalled that macroeconomic policy should be built around another variable, namely, the current account deficit.

The Central Bank made important policy announcements in September 16th. The main objective of them was to induce a change in exchange rate policy, given that the new external environment proved to be inconsistent with a narrow exchange rate band. Hence, a one-step widening of the band of 1.5% was announced followed by daily changes so as to widen it to +/-10% by December 31st. This measure was supported by two parallel measures:

- (a) significant tightening of monetary policy. Indeed, benchmark one-day interbank interest rate passed from 8.5% in real terms (already the highest figure in the nineties) to 14%.
- (b) further reduction in the rate of *encaje* from 10% to 0%.

As seen in a previous graph, market interest rates went down dramatically. In one month time they came back to the levels prior the credit crunch. As those rates descended, the Central Bank also relaxed its monetary policy. By the end of the year, market interest rates followed suit. The events in Brazil had no significant impact on the level of interest rates.

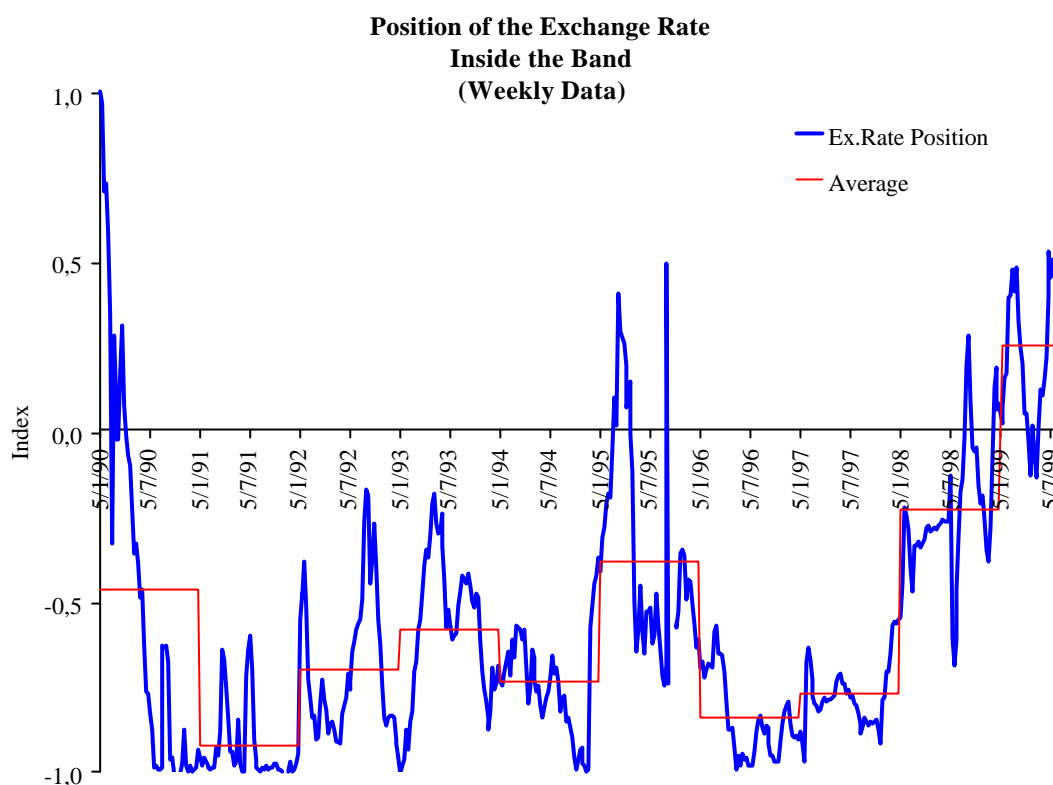
3. Topics concerning the Chilean exchange rate band 1990-1999

The exchange rate band was established in 1984 as a narrow band with crawling central parity. The philosophy behind the rate of crawl during all of its existence was a PPP rule which in its simplest form was given by the inflation differential between Chile and the rest of the world. The following Box show the main adjustments made to the band during its entire existence.

Box 2: Evolution of the Exchange Rate Band

- 1/ **August 1984**
-Exchange rate band was created, $\pm 0.5\%$ width with respect to the central parity. The band moved according to the inflation differentials between Chile and an estimated long run external inflation of 2,4%.
- 2/ **June 1985**
-The Central Bank broadened the band to $\pm 2\%$.
- 3/ **January 1988**
-The Central Bank broadened the band to $\pm 3\%$.
- 4/ **June 1989**
-The Central Bank broadened the band to $\pm 5\%$. Exchange rate was 2,8% above the floor and 3,3% below the ceiling the day before, but about 0% distance of the floor a quarter before.
-Since July 1989 until the beginning of January 1990 the exchange rate was on the ceiling of the band.
- 5/ **March 1991**
-External inflation discount factor is eliminated in the calculation of the Referential Exchange Rate (central parity).
- 6/ **June 1991**
-Exchange rate is revalued in 2%.
-External inflation discount factor is re-introduced in the calculation of the Referential Exchange Rate.
- 7/ **January 1992**
-The Central Bank broadened the band to $\pm 10\%$. The exchange rate had been around 0% distance of the floor since July 1991.
-The central parity is revalued in 5%.
- 8/ **July 6th, 1992**
- A basket of currencies (Referential currencies basket RCB) is introduced to diminish the influence of the dollar in the calculation of the central parity. The dollar reduced its participation to 50%, leaving 20% in yens and 30% in marks.
- 9/ **November 30 th 1994**
-RCB is now calculated increasing the participation of the yen to 25% and reducing the dollar's to 45%.
-Central parity is revalued in 9,7%.
- 10/ **November 9th 1995**
-A discount factor for productivity gains of 2% is introduced in the calculation of the RCB.
- 11/ **January 21st 1997**
-RCB is now calculated increasing the share of the dollar to 80%, leaving 15% to the german mark and 5% to the yen.
-The Central Bank broadened the band to $\pm 12,5\%$. Just before this, the exchange rate was around 0% distance of the floor of the band.
- 12/ **June 25th 1998**
-The Central Bank stretched the band to 5,5%. Additionally, the newly defined band became asymmetric with -3,5% the floor and +2% the ceiling. The central parity was maintained.
-The 2% productivity discount factor, is eliminated in the calculation of the RCB.
- 13/ **September 17th 1998**
-The Central Bank broadened the ceiling of the band to make it symmetric at $\pm 3,5\%$, and then gradually widening it to $\pm 5\%$ until december 31st, 1998.
-External inflation discount factor is eliminated in the calculation of the RCB.
-Inflation target is included in the calculation of the RCB, instead of past inflation.
- 14/ **December 23rd 1998**
-The Central Bank broadened the band to $\pm 8\%$ and then gradually to $\pm 13\%$ until december 31st, 1999.
- 15/ **January 18th 1999**
- The german mark is replaced by the Euro in the calculation of the RCB, with the same 15% of participation.
- 16/ **September 2nd 1999**
- Exchange rate band is suspended. A floating exchange rate system is implemented.

As stated in the Introduction, the band did not work satisfactorily. One of the main reasons is the many changes implemented, which often contradicted previous changes. They diminished the band's credibility and gave economic agents bad signals concerning the authorities commitment with it. One proof of the regular performance that on average showed the band is that, as the next graph shows, the exchange rate spent most of the time very close to the floor of it.

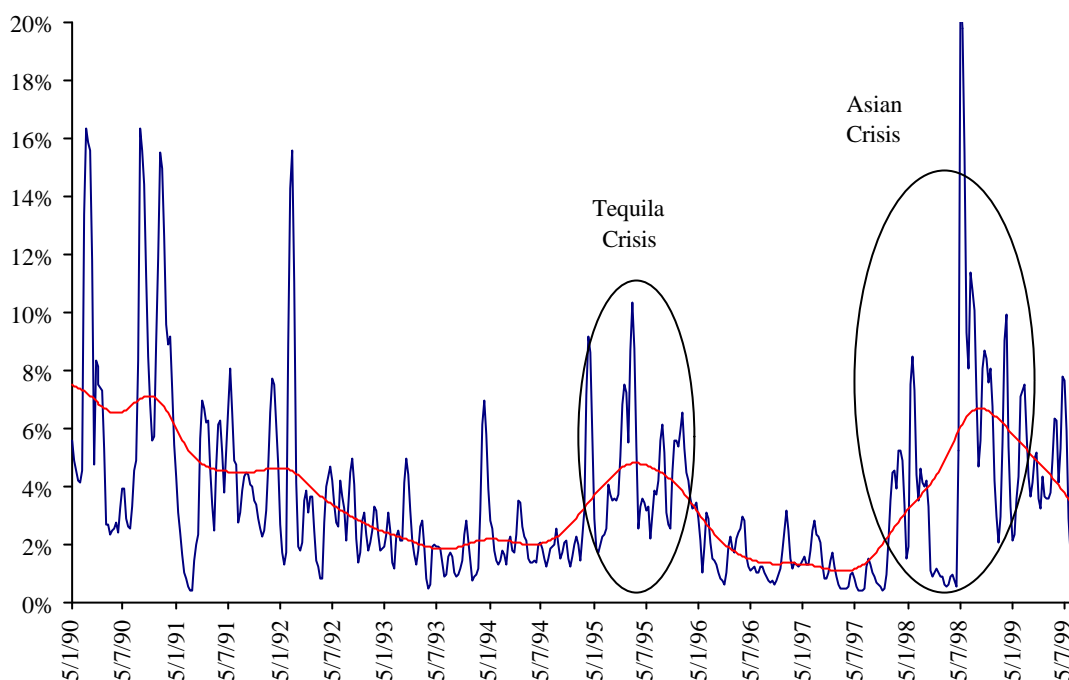


Note: The index is defined as one when the nominal exchange rate at the top of the band, and minus one at the floor. Consequently it is zero over the middle of the band.

On the other hand, one important outcome of the exchange rate band was apparently a contribution to the steady decrease in the exchange rate variability⁹, which was only interrupted by international events as shown in the next graph.

⁹ As stated by Bénassy-Queré et al (1999), this may be an important determinant of FDI flows.

**Weekly Coefficient of Variation
of Exchange Rate
Normalized by Band Width**



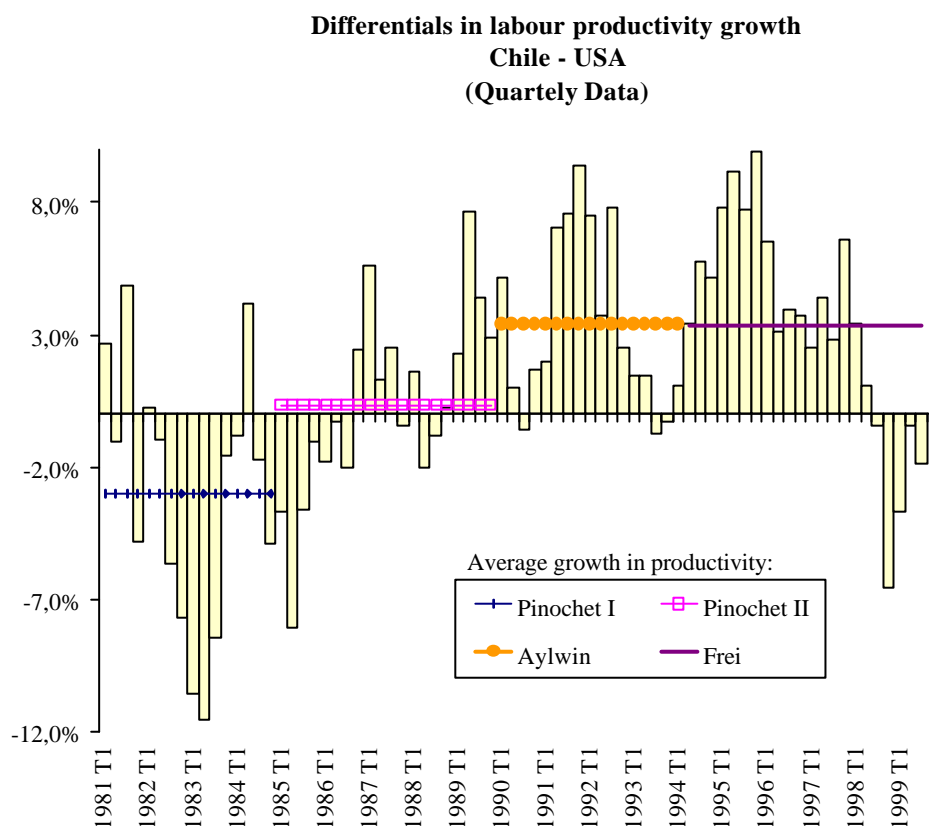
Most of the adjustments, especially in the nineties, were implemented to deal with pressures to revalue the national currency. Three reasons may be given for that:

a. Sovereign risk coupled with highly liquid international markets

Despite the fact that many important reforms were undertaken in the eighties, they were done under a dictatorial political regime. The continuation of those reforms and the validation of the new ownership of the capital stock structure needed a democratic support. Hence, it is likely that the country risk was perceived as being quite high before the return to democracy. The strategy implemented by the democratic governments of maintaining the macro guidelines of economic policy greatly influenced a downward revision of country risk. As a consequence, the equilibrium real exchange rate changed while the band's PPP rule did not permit such a change. In the context of increasingly highly liquid international capital markets, Chile became a *vedette* in Latin American and emerging markets finances. This is one cause of the persistent upward pressure in the value of the peso. It is worth emphasizing that this element asked for a once and for all (possibly significant) real appreciation.

b. Productivity differentials

The high rate of growth of the second part of the eighties was basically the outcome of the low initial capacity utilisation in the period. In particular, productivity growth was extremely low in the eighties (see graph below). But since 1989, productivity gains and capital accumulation started to become the main source of growth. The implication is that under a PPP rule that neglected the productivity differential¹⁰, the nominal exchange rate started to pressure the lower limit of the band (Latin-American definition). Later in 1995 this was officially recognised by the inclusion of productivity discount that was established at 2%. As it can be seen in the following graph, in many years the productivity differential exceeded that number. Hence the inclusion of the productivity discount minimised the problem but it did not solve it.



c. Signalling effect and incentives

The two previous elements constituted a powerful force towards an appreciation of the currency. Given the narrow width on the initial band and the significant capital inflows the Central Bank was constantly forced to sterilise the inflows: it bought dollars and issued domestic debt driving real interest rates upwards. These higher interest rates were in its turn an incentive for more capital inflows. Three considerations need to be made at this point:

- (i) Encaje or unremunerated reserve requirement (URR). One way to deal with the *impossible trinity* was to establish a tax on capital inflows. This was done in June 1991. But as recent research shows, the URR did not

¹⁰ Among others, Larráin (1997) and Céspedes and De Gregorio (1999) stress the importance of the productivity argument both on the theoretical and empirical grounds.

stop capital inflows, it changed its maturity (a major contribution given the international experience since 1995 on)¹¹. Hence, the URR could not stop the upward pressure in the value of the peso.

- (ii) Inflation target policy. De Gregorio et al (1999) show that the URR was able to create a wedge in interest rate parity creating some room for an independent monetary policy. However, at the time the independent Central Bank was facing quite high inflation rates and had all in place to successfully reduce it. Hence, it basically used the entire wedge.
- (iii) Revaluation. Many times since 1990 the authorities were forced to accept discrete realignments of the band accepting an appreciation of the peso. These, realignments which totalled 10 between June 1985 and 1998, implied huge benefits for those agents engaged in dollar debts so its persistence probably induced more capital inflows against which a small tax as the URR was not designed to fight with. This is likely to have sent a bad signal to foreign investors that is likely to have induced more capital inflows. A circle, whether it is vicious or virtuous is an open question, was created by this policy. The argument is the opposite as the one often made when the domestic currency suffers from pressures to depreciate. A one step appreciation involves significant gains for those who had debts in dollars. Hence, by giving the signal that faced to enough pressure the band could be widened and the exchange rate could appreciate, the Central Bank may have induced a bias towards positions against de dollar and in favour of the peso. By so doing, investors had the incentive to proceed taking debts in dollars, which was easy given the high liquidity in international financial markets.

4. Credibility of the band and intramarginal intervention

An efficient exchange rate band needs to be credible. Credibility implies that there should be self-correcting mechanisms such that, if by some reason the exchange rate is close to the limits of the band, stabilizing market pressures *in anticipation* of Central Bank intervention will correct the level of the exchange rate. If the band is credible, then the Central Bank should not need to intervene except in the margin (Krugman, 1991).

In practice intervention need to be made precisely because the Central Bank needs to build up reputation about its commitment with the existing limits. Intervention may occur within the band (for instance, trying to stabilise the exchange rate in the neighbourhood of the central parity) or closer to the limits. The seminal Krugman piece conceived intervention in this latter way.

Intra-marginal intervention may take many forms. The traditional instruments include the acquisition of international reserves in foreign exchange markets or the temporary use of short-term interest rates to accommodate the nominal exchange rate. But there are also less orthodox instruments as public opinions of high level Central Bank officials. Their appearances convey a lot of information concerning their thoughts on economic policy and serve the market to understand their commitment with the band, their

¹¹ See De Gregorio, Edwards and Valdés (1999)

feelings concerning the level or the direction of the exchange rate and so on. That information is useful independently if the authority is credible or not.

Public opinions of monetary authorities

We start the discussion about credibility and intramarginal intervention analysing public opinions and will come back later with the more orthodox instruments. Box 3 displays a non-exhaustible revision of public opinions of senior officials of the Central Bank concerning exchange rate policy.

| Box 3: Central Bank public comments on exchange rate policy: 1994-1998 | | |
|--|------------------|--|
| (Non exhaustible sample) | | |
| Type of Comment | Frequency | Dates |
| 1 Band realignments are justified because of structural changes | 3 | Dec'12-94, Jun'26-96, Nov'13-95 |
| 2 Nominal exchange rate movements have to be according to fundamentals | 3 | Mar'94, Jul'12-95, Nov'2-97 |
| 3 Band realignments are justified because external effects threat domestic inflation | 2 | Jan'22-97 |
| 4 The band will be in place as long as it is useful | 2 | Jan'22-97, Feb'3-97, Dec'22-98 |
| 5 Band realignments are justified because the band was poorly designed | 2 | Jan'26-97 |
| 6 Central Bank takes measures to defend the floor (expost) | 7 | Dec'2-94, Sep'14-95, Jan'22-97, Nov'2-97, Nov'8-98 |
| 7 Nominal exchange rate cannot affect the real exchange rate | 2 | Mar'94, Dec'97 |
| 8 Nominal depreciation only conveys more inflation | 2 | Mar'94, Jan'26-97 |
| 9 Adjustments to the band are not link to inflation concerns | 4 | Aug'22-95, Jun'26-96, Jan'26-97, Dec'97 |
| 10 Central parity has no link with market variables | 1 | Jan'26-97 |
| 11 Central Bank has no enough instruments to change the trend of the dollar | 1 | Dec'97 |
| 12 Exchange rate measures do not have the purpose to support exports | 2 | Dec'2-94, Jul'12-95 |
| Memorandum | | |
| Time of Analysis | Jan'94-Dec'98 | |
| Number of Newspapers | 5 | |
| Number of Reviews | 3 | |

Public opinions were in great part made to explain policy changes (see Box 2). Some of them gave similar explanations for contradictory measures (for instance when the basket of currencies was introduced instead of a pure dollar, or when the basket was changed). Opinions in some cases weakened the band in itself suggesting for instance that the central parity had no link to fundamentals, or that the band could disappear if it is no longer useful. Opinions also sought to minimise the ability of the Bank to affect the exchange rate (for instance, saying the nominal exchange rate has no link to the real exchange rate, or that the exchange rate needs to be determined by fundamentals). In our view, in general terms the way the Bank referred to the band transmits an underlying feeling of discomfort. The obvious implication was that the Bank was probably not fully committed to the band.

The Bank also insisted in that they were not using exchange rate policy as anti-inflationary device. At one point in time, before the Asian woes, it was argued publicly that, as the exchange rate was not being used to fight inflation, the Bank did not want either that a depreciation would eventually affect inflation. When the peso started to depreciate, the pass-through from devaluation to inflation became the main argument to avoid the depreciation.

Exchange rate policy as anti-inflationary device

One crucial aspect mentioned above is to what extent the market perceived that the Central Bank could have been using exchange rate policy to fight inflation. If that had been the case, then the band would have lost credibility. In this section we test to what extent the market perceived if the exchange rate was being used as anti-inflationary device.

As a matter of fact, the constitutional mandate of the Bank is very clear with respect to the achievement of price stability as the main objective (the stability of external payments being the second one). Rational agents will incorporate this fact, i.e. they will assume that all instruments, particularly the exchange rate, could be determined by the inflation gap¹², defined as the difference between current inflation and target inflation¹³ ($\pi - \pi^*$). We expect that increases in inflationary pressures will induce the Central Bank (at the margin) to accept some appreciation.

To control by other variables we regress the spot exchange rate respect to the difference between the one-day nominal interbank rate and the international interest rate¹⁴ ($r - r^*$).

We will call *spot*, the monthly average of the spot exchange rate, *infgap* and *intgap* are the inflation and the interest gap respectively. Finally *progap* is productivity gap. The lag Spot variables are either to fit the data en to control for autocorrelation. We run the regressors against the natural logarithm of the spot exchange rate, in order to get the semi-elasticity of the different variables.

The final equation is:

$$\ln(\text{spot}_t) = \alpha_0 + \alpha_1 \text{infgap}_{t-1} + \alpha_2 \text{intgap}_t + \alpha_3 \text{progap}_t + \alpha_4 \ln(\text{spot}_{t-1}) + \alpha_5 \ln(\text{spot}_{t-2})$$

The results are presented in the next table:

¹² Is necessary to use the gap of the previous month, because the inflation is determined with a month's lag, and the agents foresee in that gap the future exchange rate movements.

¹³ To get this variable we calculate the implicit monthly CPI necessary to get the annual, december-december, inflation rate. Then we get the difference between the twelve month CPI and the CPI target.

¹⁴ In this case we use the effective Federal Funds Rate.

Sample : 1991:04 1999:09

Included observations: 102

| Variable | Reg. 1 | Reg. 2 | Reg. 3 |
|--------------------------|--------|--------|--------|
| α_0 | 6.285 | 6.268 | 6.188 |
| | 15.189 | 16.975 | 30.954 |
| Inf-Gap _t | 0.552 | 0.678 | 0.687 |
| | 2.555 | 3.667 | 3.680 |
| Int-Gap _t | -0.028 | | |
| | -1.109 | | |
| Pro-Gap _t | | | -0.001 |
| | | | -0.642 |
| Ln(Spot _{t-1}) | 1.450 | 1.455 | 1.451 |
| | 15.856 | 16.102 | 15.881 |
| Ln(Spot _{t-2}) | -0.460 | -0.465 | -0.465 |
| | -4.983 | -5.103 | -5.068 |
| R^2 | 0.982 | 0.981 | 0.980 |
| Adjusted R^2 | 0.981 | 0.981 | 0.980 |
| F-statistic | 1310.8 | 1743.3 | 1209.9 |
| Prob(F-statistic) | 0.000 | 0.000 | 0.000 |
| LM(12) | 0.891 | 0.824 | 0.780 |

The results are as expected. We estimate in regression 2 a semi-elasticity of -0.68 for the inflation gap in the general model. This means that if the target lies 1% below current inflation, the nominal exchange rate will appreciate 0.7% approx. The models show that the inflation gap is an important factor determining the evolution of the nominal exchange rate. The interpretation is that the decreasing inflation target has had an impact on the foreign exchange market towards a nominal appreciation of the peso.

Credibility and intramarginal intervention in 1998

Following Svensson (1993), Magendzo, Rojas and Vergara (1996) developed a model with which they test the properties and credibility of the Chilean band for the period from 1990 to 1994. The evaluation was made having in mind the predictions of the Krugman basic model. They also developed an instrumental to estimate the expectations of realignment of the central parity to evaluate the performance of the band in terms of credibility. They concluded that during the period under analysis the spot exchange rate inside the band had a probability distribution that is not coherent with the predictions of the Krugman model. They also found the non-existence of a negative correlation between the level of exchange rate inside the band and the interest rate differential. They reject the possibility that this could be explained by an intervention of the central bank in order to maintain the spot exchange rate under the central parity or close to the floor as it happened in that period. They gave a better chance to the explanation of fundamentals being consistently under the central parity.

The econometric estimation made by the authors seems to support that the expectations of realignment are positively correlated with the position of spot exchange rate inside the band and the level of economic activity. The level of international reserves as well as copper prices are negatively related with this expectation. Finally, they conclude that in certain periods the band has been operating under partial credibility with respect to

the limits announced by the authorities. This partial credibility has been supported and fed by the changes that the band has been suffering under those episodes and through its history.

We now update that model with the purpose of analysing the 1998 illiquidity episodes. During that period, the exchange rate could have floated significantly within the limits of the band.

In order to calculate the expectations of realignment of the central parity we express the logarithm of the spot exchange rate, s_t , as the sum of the of the log central parity, c_t , and the log deviation of the spot exchange rate with respect to the central parity pos_t :

$$s_t = c_t + pos_t \quad (1)$$

We can express equation (1) in terms of variations and applying expectations with all the available information at t ; we have an expression for the expected devaluation of the exchange rate:

$$E_t \Delta s_{t+1} = E_t \Delta c_{t+1} + E_t \Delta pos_{t+1} \quad (2)$$

Under the assumption of non-covered interest rates parity, the left-hand side term of (2) can be measured by the interest rate differential ($i_t - i_t^*$). The first term of the right hand side can be decomposed into three terms according to the Chilean exchange rate band system:

$$E_t \Delta c_{t+1} = E_t \Delta c_{t+1}^{inf} + E_t \Delta c_{t+1}^{par} + E_t \Delta z_{t+1} \quad (3)$$

The first term of the right-hand side of (3) comes from the rule to calculate the central parity and it is the difference between the one month lagged rate of domestic inflation and an assumption for the external inflation also given by the central bank. Here the second term is the expected depreciation of the central parity as a consequence of expected movements in the dollar/mark and dollar/yen parities. Following Magendzo et al (1996), we assume that this expectation is zero. The last term of (3) is the expectation of realignment of the central parity. If the band were fully credible, this expectation must tend to zero. In order to calculate this term we can express (2) and (3) as follows

$$E_t (z_{t+1} - z_t) = i_t - i_t^* - E_t \Delta pos_{t+1} - E_t \Delta c_{t+1}^{inf} \quad (4)$$

Computed the cost of the *encaje* and the country risk spread, (4) delivers the expectation of realignment of the central parity. The first and the last term are known. The central term is not observable. We proceed doing two alternative assumptions: perfect foresight and adaptative expectations. Using them, we compute a series for $E_t \Delta z_{t+1}$. We next use the computed values to run the following regression:

$$E_t (z_{t+1} - z_t) = \beta_0 + \beta_1 pos_t + \beta_2 E_t (z_t - z_{t-1}) + \beta_3 (z_{t-1} - z_{t-2}) \quad (5)$$

We would expect that β_1 the parameter of the relative position of the spot exchange rate in the band to be positive; in other words, the closer the spot exchange rate to the ceiling of the band, the greater the expectation of realignment of the central parity. We also would expect that the past realignment expectations contribute to form the expectation of future realignment. Regression 1 in the Table below shows the result for this estimation. We used weekly data and the period considered is between January 1990 and the first week of September of 1999, the last week of the exchange rate band. The

results are statistically significant, they have the expected signs and are consistent with the results of Magendzo et al (1996). These results indicate that there is a positive relation between the relative position of the spot exchange rate respect to the central parity and the expectation of realignment of the central parity.

In order to find other information that can help agents to form their expectation, we expand the model in the following way

$$E_t(z_{t+1} - z_t) = \beta_0 + \beta_1 pos_t + \beta_2 E_t(z_t - z_{t-1}) + \beta_3 (z_{t-1} - z_{t-2}) + \beta_4 RIN + \beta_5 Difinter \quad (6)$$

In this equation we explore the effects of intramarginal intervention in the foreign exchange market. We estimated the equation during a shorter period of time where data is available. We included the international reserves, RIN, as a measure of the central bank intervention in the exchange rate market to support the credibility of the band. In this sense we would expect that a good intervention in foreign exchange market would reinforce the credibility of the band and would repress any attack on the currency (in favour or against it). In other words, β_4 must be positive.

We also include an indicator of the credit squeeze measured as the deviation of the interbank interest rate with respect to the monetary stance. This difference in normal times is equal to zero but during the episodes of illiquidity the central bank used this rate to fight speculation against the domestic currency. We expect β_5 to be negative, as if the attack is not sustainable¹⁵, higher interest rates should stabilise the foreign exchange market.

The results, computed for the period between December 1997 and the first week of September 1999, are reported in the Table as regressions N°2 and N°3. In regression 2 the parameters are statistically significant and there is no autocorrelation. Looking at the results, we found that an increase in the relative position of the spot exchange rate introduces expectations of realignment of the centre of the band as we expected.

To realise what this means we can replicate the sudden depreciation of the peso during the first illiquidity crisis in January, 1998. A depreciation of 1.7% that week implies an increase 50% in the relative position of the spot exchange rate and 0.4% short run expected realignment (depreciation) of the centre of the band. This result is reinforced in the long run.

Hence, this suggests that in the context of a band that lacked credibility, a strong and quick depreciation affected the credibility of the band. In this sense, the depreciation appears as being self-fulfilling in the sense that as the band was losing credibility, the stronger were the incentives for a faster depreciation.

The parameter of the international reserves β_4 shows the opposite sign we expected. This can be interpreted as a non-fully credible intervention of the central bank or that there were real problems in the economy so that selling reserves was not useful. Or in other words, the bigger the amount of international reserves the central bank sells, higher is the expectation of central parity depreciation. This effect can be understood in an economy with financial fragilities but is difficult to explain it in the Chilean context. Hence we have the intuition that this is more related with the band's lack of credibility. This result is in concordance with Magendzo et al (1996), which suggests that the intervention of the monetary authority fed realignment expectation. In this way sales of 10% of the international reserves generates expectations of realignment of 1.5%.

¹⁵ It may be because macroeconomic policies are consistent or the Central Bank is perceived as being fully committed with the band.

The equation shows that the intervention through the money market controlled the spot exchange rate in the short run but generated expectations of realignment of the central parity. In other words, the intervention hiking interest rates had a dividend only in the short run, but it was not able to increase the credibility of the band. The results of equation 3 confirm the results of equation 2 and can be interpreted in the same way.

Regression 4 is estimated assuming an adaptive expectations mechanism for the $E_t \Delta \text{pos}_{t+1}$. This equation has a better R^2 and the LM test rejects the hypothesis of serial correlation. These results go in the same direction as the previous ones. Here the change in the relative position of the spot exchange rate has in net terms a positive effect over the expectations of realignment of the central parity. The equation also shows that international reserves have a negative effect over the expectations of realignment. This suggests that intervening in the forex market selling reserves did not bring the desired outcome. We cannot state clearly to what extent this is due to the practical way those sales took place or it is simply that this sort of policies do not work, as stated by Svensson (1994) commenting the European crisis of the 1993 summer,

| Regression 1 | | | Regression 2 | | | Regression 3 | | | Regression 4 | | |
|---------------------|---------------------|---------|---------------------|---------------------|---------|---------------------|---------------------|---------|---------------------|---------------------|---------|
| Dep.Var. | DIFZ | T-Stat. | Dep.Var. | DIFZ | T-Stat. | Dep.Var. | DIFZ | T-Stat. | Dep.Var. | DIFZ | T-Stat. |
| C | 0,0022 | 2,795 | C | -0,0015 | -1,23 | C | -0,0011 | -1,135 | C | -0,0010 | -1,226 |
| POS | 0,0043 | 3,791 | POS | 0,0081 | 2,25 | D(POS) | 0,0665 | 6,546 | D(POS(-1)) | 0,0531 | 6,391 |
| DIFZ(-1) | 0,9856 | 22,632 | DIFZ(-1) | 0,7740 | 12,99 | DIFZ(-1) | 0,9765 | 17,040 | D(POS(-2)) | -0,0185 | -1,928 |
| DIFZ(-2) | -0,1805 | -4,164 | DRIN(-3) | -0,1574 | -1,940 | DRIN(-3) | -0,2071 | -3,018 | DIFZALT(-1) | 1,1984 | 12,972 |
| | | | DIFINTER(-4) | 0,0003 | 1,592 | | | | DIFZALT(-2) | -0,3665 | -3,568 |
| | | | | | | | | | DRIN(-4) | -0,1310 | -2,328 |
| Adj. R ² | 0,73 | | Adj. R ² | 0,67 | | Adj. R ² | 0,77 | | Adj. R ² | 0,79 | |
| Number of Obs. | 502 | | Number of Obs. | 89 | | Number of Obs. | 89 | | Number of Obs. | 88 | |
| Period | 26-12-97 3-09-99 | | Period | 26-12-97 3-09-99 | | Period | 26-12-97 3-09-99 | | Period | 02-01-98 3-09-99 | |
| D-W | 1,97 | | D-W | 1,77 | | D-W | 1,85 | | D-W | 2,14 | |

Conclusions

An important conclusion of this article is that a critical condition for an exchange rate band to succeed is the way intramarginal intervention is made. In this regard, and particularly considering the post Tequila Mexican experience, the following doubt appears: if emerging markets cannot tolerate a lot of exchange rate volatility so a pure float does not work, Central Banks will necessarily be active in FX markets. As the Mexican float suggests, this means that the only thing we are changing is passing from discretion in the context of a band to rules in the context of a float.

The paper also shows that the inflation target has had some impact on the exchange rate or, otherwise said that a portion of the decrease in inflation was at the expense of the exchange rate. In terms of policy implications, the actual scenario with a permanent inflation target (a range between 2% and 4% of CPI inflation) and with current inflation already inside that range, makes the nominal exchange rate less relevant as a variable to alter the inflationary path, at least as before.

The model of expectations of realignment and the determinants behind this give us support to say that the band lacked credibility to cope with the external events Chile faced during 1998 and 1999. This lack of credibility is probably due to a past history of frequent and often contradictory changes to the parameters of the exchange rate band. In 1998, it also played a role the inconsistency between the inflation target and the need to accommodate a real exchange rate depreciation. The latter two elements resulted in a diminished capacity of the central bank to cope with the expectation of realignment. In this context the evidence shown in this paper suggests that the intervention of the central bank in the foreign exchange or in the monetary market did not prevent the expectations of realignment.

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