The monetary policy follows a very simple procedure, monetary authority will issue domestic currency only against a defined foreign reserve currency, for example the US dollar\textsuperscript{307}. Therefore the monetary base will equal the amount of reserves that the central bank holds. The economic interpretation is that the monetary base is fully backed by the designated foreign reserve currency\textsuperscript{308}. The Covertibility Law\textsuperscript{309}, was the "key" element of this new stabilization plan, whose objective was, through a "shock therapy", to finish with almost fifty years of inflation rates higher than the international averages, including two explosive hyperinflations\textsuperscript{310}. This law has two main objectives, on the one hand, to convince economic agents that to hold domestic currency is exactly the same as to hold US dollars, on the other hand, to force the Treasury not to finance any fiscal deficit through monetary expansion. This system demonstrates some advantages over full dollarization as it allows the government to collect some form of "seignorage". Thus, if economic agents hold domestic currency instead of US dollars, then the currency board can gain interest on the foreign reserve assets. These monetary measures plus the elimination of fiscal deficit allowed the inflation rates to reduce sharply towards the international level. However, this new stabilization plan consisted not only of monetary and fiscal packages to contain inflation, but was part of an overall structural reform whose objective was to reach a more efficient allocation of resources. The plan was based on three main pillars: monetary reform, fiscal reform, including a restructure of debt with domestic and foreign creditors, and a deregulation process. The monetary reform, as previously explained was based on, the so called Covertibility Law (May 1991) and transformed the central bank into a currency board\textsuperscript{311}. Therefore, the only feasible source of monetary expansion was the purchase of international reserves. By implication, the central banks are not allowed to finance any fiscal deficit. The fiscal reform was concentrated on three sets of actions: a) a tax reform, b) an expenditure reform and c) the privatization of public enterprises.

a) The tax reform implied an improvement in the tax revenue, through a much broadened and uniform VAT and improvement in the tax administration though the reduction of corruption and tax evasion.

b) The expenditure reform was implemented in March 1990 through civil service reform (Law of economy emergency) which allowed a reduction in public employment.

\textsuperscript{307}At the time of designing the currency board system the country determines against which currency domestic money will be issued. Estonia for example established a currency board against the DM.

\textsuperscript{308}The rationale on why a so strong rule was needed is based on the credibility arguments presented in chapter 2.

\textsuperscript{309}The currency board implemented through a law. This law can only be modified by simple majority rule.

\textsuperscript{310}For details see Canavese and Gerchunoff (1996).

\textsuperscript{311}The Argentinian central bank committed itself by law to maintain a fix parity (1:1) between the domestic currency and the US dollar. As previously explained, this parity is guaranteed by backing 100 percent of the monetary base through foreign reserves.
c) The privatization of public assets was the main source of resources and allowed the government to reach fiscal equilibrium. The restructuring of liabilities with domestic creditors was implemented in December 1989 (BONEX\textsuperscript{312} Plan). Short term central bank debt within the banking system was converted into ten year Treasury Bonds (BONEX). This measure allowed the elimination of the quasi-fiscal deficit. The restructuring of liabilities with external creditors was reached in June 1990. The Argentinian government restarted partial payment of external debt after having suspended payment since 1988. External debt, which had reached 61 billion US dollars, was allowed to be used in exchange for government assets in the privatization process. In September 1992 a Brady Plan relief was granted to Argentina, and permitted the reduction of external debt by 7 million US dollars and the rescheduling of the external debt into a 30 years repayment scheme. The total amount, including the principal and interest was reduced by 35 percent. The deregulation process was introduced through the so called Deregulation Decree of October 1991, allowing the freeing up of three principle, highly regulated areas: a) domestic industry, b) foreign trade, and c) capital markets. Many regulations referring to trade unions were lifted. For example, since 1991 they were allowed to negotiate wages on a firm by firm basis, instead of industry-wide. Most of the quota restrictions were removed and tax exports were eliminated.

The Effect of the Currency Board on the Argentinian Economy

The new package of measures undertaken by Argentina allowed the economy to reach a new growth path. GDP grew by 30 percent in real terms between 1991 and 1994\textsuperscript{313}, price stability was reached, and the inflation rate was reduced from over 2500 per cent per annum to 3.5 per cent in 1994 and 1.6 in 1995\textsuperscript{314}. The reforms introduced into the economy, especially the privatization process, induced profound changes in labor markets. Employment as a proportion of the population has increased by one per cent, with new entries encouraged by new opportunities which have exceeded the increase in the demand for labor. As a result unemployment has risen since 1991, reaching 12 per cent in 1994. The second phenomenon observed following the stabilization measures has been the attraction of a huge amount of portfolio investment, although the gap between the domestic and the foreign interest rate decreased over time. The explanation of this trend can be found not only in the success of macroeconomics reforms\textsuperscript{315} but can also to have been originated in external factors\textsuperscript{316}. Although the inflow of

\begin{footnotesize}
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  \item \textsuperscript{312}BONEX plan was called the restructure of the domestic debt with the private sector. The holder of government debt titles received a new bond, which was denominated in US dollar (BONEX). Debt holders suffered a capital loss, and in addition the maturity of the bonds was postponed.
  \item \textsuperscript{313} This output growth was led by the non-tradable sector.
  \item \textsuperscript{314} Notice that Argentina has not reached one digit yearly inflation rate in the last 50 years.
  \item \textsuperscript{315} Part of the capital inflows are explained by the extremely low US interest rate, which induced portfolio diversification with a larger participation of investment in developing economies.
  \item \textsuperscript{316} Calvo, Reinhart, Leiderman (1992) estimates the effect of external and internal factor as determinants of portfolio capital inflows.
\end{itemize}
\end{footnotesize}
capital is welcomed as a sign of the overall improvement in the macroeconomic situation, they have introduced additional problems into the Argentinian economy. Capital inflows increased the domestic aggregate demand, part of which is directed to non-tradable goods and as long as supply of the non-tradable goods is inelastic in the short run, the adjustment process is evident in price increases.

Under a currency board system, which committed the central bank to fix the domestic currency to the US dollar on a 1:1 ratio, the result was a distortion in the relative prices in favor of non-tradable goods and a consequent currency appreciation followed by a current account deficit. In December 1994 the impact of the Mexican devaluation imposed a huge negative shock on the Argentine economy, and the convertibility law was severely tested. The capital account showed a negative result for the first time since March 1991 due to private capital flights, and the deficit in the current account reversed into a surplus without a devaluation taking place. Under the currency board system the consequence of the capital outflows was followed, predictably, by a fall in the international reserves (from 16 million to 10200 million US dollars between January and May 1995) with a consequent reduction in the monetary base. Although the adjustment mechanism implicit in the currency board can be seen to have worked relatively well in the sense that there was a tendency to correct relative prices, the process was extremely painful and output fell by 4.4 per cent and unemployment rose to 16.6 per cent. As the fall in the reserves reduced the liquidity of the system, the impact on the financial and banking system was high and is probably irreversible. From December 1994 to March 1995 approximately 7.4 billion US dollars left the banking system (some 16 per cent of the total of deposits), and M3 fell by some 8.4 billion US dollars (a 15 % reduction)\textsuperscript{317}.

Consequently the government, in an attempt to increase liquidity inside of the narrow margin provided by the Convertibility Law reduced the reserve requirements from 43 per cent to 30\textsuperscript{318} per cent. In addition, Argentina's Convertibility Law was relaxed and during this period only 80 per cent of reserves backed the money supply, and 20 per cent of reserves could be held in the form of dollar denominated Argentinian sovereign bonds (Powell, 1995). In order to avoid a massive crash, fusion and merger were facilitated. From 205 banks at the end of December, only 167 survived at the end of June 1995. Although the authorities could overcome the crisis, the costs were extremely high in terms of output and employment. The experience showed that the currency board was an exceptional instrument to start a new monetary history. However, the absence of an escape clause highlights both its strengths and weakness because it increased credibility but made adjustment extremely painful

\textsuperscript{317} M3 is in Argentina a broad measure of money demand including both peso and dollar bank deposits.

\textsuperscript{318} Central bank estimations showed that the reduction of the reserve requirements injected up to 3.4 bn US dollars into the financial system relative to a total drop in deposits of some 7.4 bn US dollar.
Recent Developments and Evaluation

The Argentinian government has sought to respond swiftly to the challenges faced through 1994 so as to ensure that the plan could be suitably adjusted to exogenous variables by adhering firmly to convertibility. The government concentrated their efforts on fiscal matters and new measures were announced in 1995\textsuperscript{320}. Provincial governments were encouraged to balance their finances, even privatizing provincial enterprises and banks. Since the Mexican crisis, foreign accounts have become unpredictable, as represented by the behavior of international capital flows. Due to the importance of winning the confidence of foreign investors the government has sought a closer contact with the IMF\textsuperscript{321}. Although the economy was slowly overcoming the recession no prospects for major improvements in employment are present due to both the structural nature of some of the unemployment and the sharp reduction in the size of the public sector. There has however been an important improvement in the export performance although it is too weak to absorb the excess of labor supply originated in the output fall of the non-tradable sector.

Whilst the government relies on the effect of a labor market flexibilization, the scope has been very limited because of the strong opposition of the labor unions. In terms of the public debt, since 1994 it has been steadily increasing and at the same time changing its profile. Helped by favorable market conditions, in March 1993 it enabled Argentinian borrowers to return to the international capital market. However, the terms on which this new public debt was contracted shows that maturity became shorter, until early in 1996 when a 15 year DM bond was issued. Moreover, as the dollar market becomes progressively more saturated the government has begun to take advantage of borrowing conditions in other markets. Seizing the opportunity presented by greater liquidity on the international capital market, Argentina issued bonds worth more than 3.4 billion US dollars in the first quarter of 1996. Liquidity in the Argentinian system returned to pre-Mexico crisis levels and the conditions agreed with the IMF\textsuperscript{322} allowed the public sector to borrow again on the local market and even in local currency.\textsuperscript{323,324} Although the Convertibility Plan has been a success in terms of reducing inflation and initially even in terms of GDP growth, the system is extremely harsh and procyclically biased, thus inducing the expansion of the non tradable sector and causing relative price distortion in times of positive external shocks. However in response to negative external shocks the economy is pushed into a deep recession which implies high output losses and unemployment. This effect is the result of the high vulnerability that the system introduces in the form of unrestricted high capital mobility. Currency boards

\textsuperscript{320} New fiscal measures were introduced to reach higher revenue collection and to reduce government spending.

\textsuperscript{321} For details see Mastroberardino (1996).

\textsuperscript{322} April 1996 IMF approved stand-by credit for US$ 1 billion.

\textsuperscript{323} The issue of the domestic debt was interrupted after the hyperinflation.

\textsuperscript{324} According to official figures, an estimated two billions pesos (2 billions US dollars) of credit will be raised this year in the form of LETES (short term paper). See Argentinian Economic Report (1996).
are devaluation-proof instruments, yet they have no control over financial crises\textsuperscript{324}. The main problem can be attributed to the fact that in the past the Argentinian authorities have frequently applied escape clauses, and therefore the system needs to be reassured that this time they are absent, in order to generate credibility. Alternatively, in the presence of severe shocks, such as has been the case in the Mexican crisis of December 1994, no instruments at all are available to moderate the impact, making the economy highly vulnerable in response to external shocks. The new challenge consists in how to introduce some flexibility into the system without destroying credibility. In this sense, an external agreement, as for example through MERCOSUR could provide some improvements in this direction.

4.4.2 The Brazilian Real Plan

In December 1993, the Brazilian government launched a new stabilization plan. This comprised three stages, starting with a fiscal reform, followed by the introduction of a new unit of account: the Real (hence the name given to the stabilization plan). The Real plan constitutes the most innovative mechanism to break inertia inflation without the use of wage and price controls; instruments that have failed in previous experiences of stabilization.\textsuperscript{325} The basic principle was a phased introduction of a new currency pegged to the US dollar\textsuperscript{326}.

As one of the channels of price inertia in Brazil had been the backward-looking wage indexation, rather than dollarization as in the Argentinian case,\textsuperscript{327}, the authorities recognized that any immediate exchange rate stabilization of the cruzeiro would not achieve stability. The Real plan was an astute approach that attempted to destroy the inertial inflation through a super-indexation of the economy. There were several reasons for its introduction. Primarily, by linking prices to URV (unity of real value) agents could observe that even as prices rose daily, the pattern of increases would gradually converge towards a single rate in terms of URV. Once relative prices were perceived to have been adjusted and were moving together, the past memory of inflation, perpetuated by indexation would disappear (Sachs and Zini, 1996)\textsuperscript{328}. The plan was set in place in three phases. During the first, from January to February 1994, budgetary controls were enhanced through the congressional approval of certain emergency deficit-cutting measures. The second stage, which was the most innovative, began in March 1994. Wages, prices and taxes were re-denominated in a new unit of account the URV (unit of real value). At the same time, the use of indexation in URV wage contracts was prohibited for the following 12 months. In fact, the program in-

\textsuperscript{324} The Argentinian financial crisis started with the liquidity squeeze of Bank Extrader, a very small bank which was heavily exposed in Mexican bonds securities. When the value of those assets fell in the aftermath of the Mexican devaluation, the bank no longer could cover its short term liabilities. See Mastroberardino (1996).

\textsuperscript{325} See Calcagno and Fritz (1996)

\textsuperscript{326} For an official explanation of the Real Plan see Banco do Brasil (1993).

\textsuperscript{327} This is also the reason why the financial sector was more developed in Brazil than in Argentina.

\textsuperscript{328} For additional details see Macedo (1996) Baer and Pavia (1996), Boletim Mensal (1996).