Hard peg and monetary unions.Main lessons from the Argentine experience

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Resumen

El régimen de caja de conversión fue una solución extrema para la hiperinflación argentina. Sin embargo, el balance final del mismo es controversial. Especialmente respecto a su capacidad de funcionar como un régimen de largo plazo. En el trabajo se evalúan los diez años del régimen y se establecen las principales lecciones. Estas se orientan principalmente al debate académico sobre uniones monetarias y dolarización. Se discute: 1) la capacidad del régimen de absorber shocks nominales y reales, 2) la consistencia fiscal y la dinámica de la deuda, 3) los problema financiaros en un contexto de sustitución de monedas, 4) la caja de conversión comparada con la dolarización y 5) la viabilidad de un régimen fijado a una sola moneda en un contexto internacional de flotación.

Abstract

Currency board (CB) was a corner solution for Argentine hyperinflation, however its balance is controversial. How does a CB work as a long run regime? After evaluating the result of ten years CB regime, we obtain important lessons for a monetary union and for dollarization proposals. We discuss: 1) the capacity of such a regime to deal with real and nominal volatility, 2) fiscal problems and debt dynamics, 3) financial problems under currency substitution, 4) CB regime compared with dollarization and 5) the feasibility of a single–peg CB in a flexible exchange rate world.

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By JORGE CARRERA [*]

> *"Nonetheless, within the limitations imposed by the relatively small and specific sample countries with CB, the evidence in their favor appears unequivocal", Atish Gosh et al. (1998).*

> *"…the outstanding example (of CB) in the modern world is, of course, Argentina", Robert Mundell (2000).*

There is an important theoretical and empirical disagreement about which is the best exchange rate regime (ERR) for medium-size countries. In the 1990's, the Currency Board (CB) resuscitated as a player in this field, introducing a new option of hard peg (for different opinions, see --among others-- Tomás Baliño et al. (1997), Atish Gosh et al. (1998), Jeffrey Frankel (1999), Steve Hanke and Kurt Schuler (1999), Guillermo Calvo and Carmen Reinhart (2000), Robert Mundell (2000), Rudiger Dornbusch (2001), Ricardo Hausmann (2001) and Nouriel Roubini (2001)).

Argentina, a country with a population of 36 million people and a GDP of 300 billion dollars in 1998, is the most important example of a CB (John Williamson, 1995). Since this country was under such a regime for over ten years, it constitutes a perfect case study to analyze the costs and benefits, along with the dynamic properties, of a CB regime. More importantly, the lessons learned from this process will be useful in the future analyses of dollarization proposals. This issue should also be taken into account when considering a potential monetary union at the hemispheric or subregional --NAFTA or Mercosur-- level in the Western Hemisphere.

The results of Argentine hard peg experiment are very contrasting. A dollar peg CB, as was implemented in Argentina, appears to have had key problems that caused its failure. These problems are connected with the adjustment mechanism, the fiscal dynamics, the countercyclical policy of the leader country, the induced financial distortions and the political consequences of such a regime.

This paper has two main purposes: to describe the stylized facts that characterize the CB regime and its implementation in Argentina, and provide some useful lessons about "corner solutions" as dollarization or Currency Boards.

The paper is organized as follows. Section I provides a description of the CB implementation and its main policies. Section II documents the results for a ten-year period. Section III discusses the relevant lessons of the Argentine hard peg. Section IV analyzes dollarization and CB as corner solutions, and their implications for a monetary union. Finally, Section V summarizes and concludes.

I. The Argentine Currency Board: Implementation and Policies

The Argentine CB was implemented in April 1991 following the culmination of a period marked by high instability in nominal and real variables. The "lost decade" of the 1980´s was an especially harsh reality for Argentina, considering that the GDP per capita and the total GDP were in 1990 lower than ten years earlier. In addition to this stagnation, Argentina suffered one of the most intense inflationary

processes ever experienced by a country, which ended in two severe hyperinflation bouts between 1989 and 1990. Earlier, in 1988, Argentina had suspended its external debt payments, and in 1989, Carlos Menem assumed the presidency in the midst of chaotic economic and social situation. The Central Bank's reserves had almost disappeared (500 million), and inflation had soared to an alarming 4,923 percent per year. Prior to the implementation of the CB, there were two unsuccessful stabilization programs. Nevertheless, they made the future implementation of the CB possible by restructuring and dollarizing the unsustainable domestic debt, while simultaneously rebuilding international reserves.

A) Monetary and Exchange Rate Policy. The third stabilization initiative was preceded by a consensus regarding the importance of a fixed exchange rate regime to anchor expectations and reduce inflation in a permanent way. Taking this into account, in April 1991 Domingo Cavallo, the new economic minister, proposed a new institution: the convertibility law, which fixed the exchange rate (1 dollar = 1 peso). The law also required the Central Bank to back eighty percent of the monetary base with international reserves[1], and reduced its ability of financing the government or financial system (lender of last resort function). To break the so-called inflation inertia, the law prohibited any kind of indexed contracts in the economy.

Then, the choice was a fixed exchange rate regime with an unusually strong commitment, under which the monetary base could only change with a corresponding change in international reserves. Thus, the Central Bank was transformed in a CB. In 1992 a Charter of the Central Bank determining its independence from the federal government and the new rules of nomination of an independent governor was approved. Likewise, the Central Bank was prohibited from paying interest on reserve deposits and was held responsible for supervising the financial system. As a whole, the implementation of the monetary reform followed the typical advises outlined in the economics' literature about central banker credibility (Alex Cukierman, 1992).

The design of banking regulations endeavored to build a stronger financial sector capable of resisting systemic liquidity crises without the assistance of the Central Bank, while limiting the moral hazard problem. The new regulations basically consisted of capital requirements for credit as well as market and interest rate risk and liquidity requirements. In some cases, these requirements were implemented at standards even higher than those recommended by the Basle committee.

B) Dealing with Crises. The first attack against the peso occurred in 1992, and the CB allowed reserves to go down and the interest rate to increase. The CB mechanism worked efficiently and the crisis passed quickly.

The second attack took place in 1995 due to the contagion of the Mexican crisis. It caused a great loss in bank's deposits (18 percent in five months) that created a severe liquidity problem. Some banks lost more than 50 percent of their deposits, and those highly exposed to Mexican assets were closed. This meant a dramatic credit crunch and a huge recession for the real sector. The crisis forced a reform of the Central Bank's Charter to allow it to roll over discounts and repurchase agreements for longer periods[2].

Given the limitation of Argentina's CB as a lender of last resort, the government's attempts to play an active role during the liquidity crisis was subject to intense discussion. Hanke and Schuler (1999) consider that a CB reduces the moral hazard risk limiting the role of the lender of last resort. Williamson (1995) stated that the Tequila crisis ended after an international support package was determined, and it may have ended sooner if CB´s rules had not been bent, especially the attempt to avoid the automatic interest rate stabilizer of the CB by halving reserve requirements. However, he admitted that the cost might have been more severe in the automatic adjustment scenario. Despite Williamson's criticism, Ricardo Caballero (2000) considered that this action was an appropriate use of the limited degree of freedom the convertibility law allowed.

After the tequila crisis, there was a quick recovery, but in 1997 a sequence of negative shocks started. The Russian default in August 1998, the Brazilian devaluation in January 1999, the world Dollar

appreciation and a drop in agricultural prices generated strong doubts about the sustainability of Argentina's CB and caused a recession that began in 1998 and still continues.

At the end of 1999, a general election was held, and Menem was defeated by the opposition. Nevertheless, the De la Rua administration implemented economic policies that were fully oriented to preserve the convertibility system. These efforts were viewed favorably by the Clinton administration and Argentina appeared to have the strong support of the IMF and the U.S. government. In December 2000, the IMF approved a financial assistance package of $ 39.7 billion, and the main condition was a severe fiscal adjustment[3]. Because of difficulties in fulfilling the requirements, new restrictive goals were assigned during 2001, but these requirements were systematically unfulfilled as a result of the recession[4].

Cavallo, whose second period started in March 2001, introduced important measures with the intention of implementing reactivation policies, some of which infringed on the margins of the CB´s institutional arrangement (i.e. the governor of the CB was removed).

There was a noticeable contradiction in the economic policy of Cavallo's team. On the one hand, they wanted to restore confidence in the financial system; while on the other; they tried to reduce interest rates to spark growth. Due to the inability of restoring confidence, the banks continued to lose deposits throughout 2001.

First, depositors changed from peso to dollar deposits, which were then extracted from the system. In November 2001, after having lost an average of $500 million per day, the government placed severe restrictions on cash withdrawals from banks. This very unpopular measure generated an impassioned reaction among the middle class, provoking the resignations of Cavallo and De la Rua. Finally, after a period marked by high social and political instability, the new government implemented a free-floating system and a "pesoification" of the economy in January of 2002[5].

C) Fiscal Policy. While the fiscal deficit was very high in the 1980's (5 percent of GDP on average), there was an important reduction (to 1.4 percent) during the CB. Remarkably, in the golden period of 1991-94, the deficit was brought down to 0.3 percent of GDP, primarily due to an increase in revenues. However, expenditures increased at a slower pace, and the combination of increasing expenditures and revenues very sensitive to business cycle, as it is possible to see from Table 1 and Figure in the Appendix, generated a highly volatile fiscal balance.

The fiscal policy was marked by some important tendencies. Regarding taxes, the tendency was to concentrate revenues into few taxes: VAT, income tax, oil tax and labor taxes. The resources from external trade were reduced drastically, but there were extraordinary revenues from privatizations. There were also supply-side experiments and structural reforms that engendered huge fiscal costs. The creation of a private pension system was one example of these costs. The inability to cover the transition fiscal gap of 1.2 percent of GDP, corresponding to the mismatch between the payment to pensioners in the old public system, and the transferred income to the new private pension funds was the central problem of this system. Taking as permanent the positive shock in revenues of 1991-94, the policymakers thought that this transition would be easy, but they were wrong. Paradoxically, only a few years later, the government had to borrow from the pension funds to finance the deficit, at high interest rates.

Another example of supply-side policies was the reduction of firms' contributions to the social security system. This measure tried to improve competitiveness by reducing labor cost in the context of a growing economy (1991-94), where reductions in salaries and prices were difficult. However, when tax revenues declined during the recession, these policies were partially reversed. In general, these fiscal efforts were not considered permanent improvements in the producer's cost, thus they did not encourage investments.

From the fiscal point of view, a CB has a strong advantage, especially in terms of fiscal financing transparency. The only way of financing deficits is with debt, thus the real measurement of fiscal deficit is the growth of the country's debt (see Figure 1). Convertibility started with a public debt of 87 billion in 1991 (40 percent of GDP) and reached, in 2001, 145 billion (53 percent of GDP). This represents a 67 percent increase. Public and private foreign debt expanded even further: from 32.7 percent of GDP to 51.7 percent[6], while the interest burden of public debt grew from 1.8 percent of GDP to 3.7 percent.

In 2001, external credit was closed and the government was forced to use domestic resources as pension funds to finance fiscal deficit. Because financial markets started to consider unsustainable the public debt in 2001, the government tried to implement a voluntary debt-restructuring plan, paying astronomic rates of 15 percent in dollars. Months later, the government attempted something different cutting interest payments. By December 2001, the default on public debt was officially announced, and capital and exchange controls were imposed.

II. Results of Argentina's Currency Board

The results of the Argentinean CB are impressive for any international comparison. Inflation, that reached an average of 3,177 percent in 1989-90, fell drastically to 3.8 percent in 1994-5 (see Table 1 and Figure), later dropping to zero or negative. Underscoring an important difference from traditional stabilization plans, that require sharp decreases in economic activity to drop prices, convertibility generated an extraordinary rise in the level of GDP from the very beginning. Growth rates were on average 7.5 percent during the period (1991-94). After a mild recession in 1995 caused by the tequila effect, a new period of three year expansion emerged with a growth rate of 5.9 percent per year. The 1998-2001 recession meant an average decline in growth of 2.7 percent per year. Investment rose in the first four years at an average of 35 percent, then it fell sharply during the recessions (13 percent in 1995, and 18 percent on average in 1999-2001).

The external sector showed another dramatic change when compared with the 1980's. The access to capital flows allowed increasing current account (CA) deficits, prompting a reversal in their trend from a surplus of 0.4 percent in 1991 to a deficit of 4.3 and 5 percent in 1994 and 1998. Very high deficits, even during the recessions (see Table 1 and Figure), were a persistent weakness of the CB, probably as a result of an overvalued RER, which transformed Argentina into an import intensive economy. Additionally, augmented foreign direct investment (FDI), privatizations, and external debt caused increased profit remittances and interest payments. Seen in Figure 2 and Table 1, the trade balance was very sensitive to the business cycle. Imports were more dynamic than exports; the former grew 283 percent up to 1998, although the figure for the complete CB period was 185 percent. The exports grew only 150 percent.

Another important result of the CB was the restoration of confidence in the financial system. The total deposit started at 14.8 billion (7 percent of GDP) and continued to rise, even in the middle of the recession, until they reached 85.5 billion (32 percent of GDP) in February 2001. Examining the whole period, the composition of deposits changed drastically in each negative shock from peso to dollar denominated deposits (see Table 1 and Figure). However, in the final crisis the economic agents tended to remove themselves from the financial system and there was a general run on deposits. Reserves rose from 8 billion dollars in 1991 to a peak of 26 billion in 1999. During the last crisis their overall trend was marked by a slight decrease. At a level of 13.5 billion in December 2001, the Central Bank decided to stop currency convertibility.

Unemployment --very low in the 1980's (4 percent)-- increased from the onset. Even with the extraordinary rates of GDP growth observed in the earliest years, it rose to 11.5 percent in 1994, and to 17.5 percent the following year[7]. With the recovery of GDP, unemployment began to decline very slowly, settling at 12.9 percent in 1998. During the last recession, this rate reached 17.6 percent in 2001. Table 1 shows the stability of manufacturing salaries with a slightly decreasing trend. As a general result, it is possible to conclude that CB introduced a radical transformation in the labor market

behavior: the old pattern of stable quantities coexisting with highly variable real salaries valid during the 1980's changed to the exact opposite behavior in the 1990's (see Table 1 and Figure).

Last but not least, the deterioration of income distribution is a very important issue for a country that used to be one of the least unequal in Latin America. In 1991, the tenth wealthiest percent earned fourteen times the income of the tenth poorest percent. In 2001, this ratio escalated to twenty-nine times. Although the GDP per capita for this year was 7,537 dollars, 35 percent of the population was living in poverty according to official data (the figure was 21 percent in 1991). As we can see, the CB period showed contrasting results: exceptional ones in growth and inflation, and negative ones in the external sector, labor market and income distribution (see Table 1 and Figure).

III. Main Lessons from the Argentine CB Experience

The results of Argentina's CB were associated with some key problems from the origin, as well as others endogenous to the regime's behavior; however, these problems were not independent because they influenced each other. To discuss them is crucial to extract useful lesson about a hard peg in open emerging economies. The main macroeconomic issues were: A) the adjustment mechanism, B) the fiscal problem and debt dynamics, C) financial distorsive effects of CB, D) importing credibility and the (perhaps incorrect) countercyclical policy, and E) the purchasing power illusion effect.

A) The adjustment mechanism.

An important stylized fact that was observed in the economy is the trade-off between nominal and real volatility. Is it possible to hypothesize that the successful reduction in nominal volatility made the behavior of the "automatic" adjustment mechanism more difficult to reduce output volatility? To answer this key point, it is necessary to differentiate between the initial problem of competitiveness (the original level of RER) and the capacity of the regime to deal with external shocks (the adjustment to the changing equilibrium RER).

From Figure 2 it is possible to see that the initial level of RER in 1991 was over its long run equilibrium (Jorge Carrera et al., 1998). This overvaluation and the simultaneous tariff reductions facilitated a quick and sharp reduction in inflation, while it also increased the trade deficit as a result of boosting imports and discouraging exports. According to the literature, a CB has very few endogenous mechanisms to correct this misalignment: a reduction in domestic prices vis-à-vis international ones or an increase in productivity (Williamson, 1995). However, it is difficult to expect a general deflation in the context of a decentralized solution, particularly in the midst of a consumption boom as is seen in Argentina during 1991-94.

Another way of improving competitiveness was the strong incentive to import cheap capital goods (because of appreciated RER and the huge reduction in specific tariffs). Other instruments policymakers expected to help restore competitiveness were deregulation, financial-trade liberalization, labor market flexibility and a supply-side fiscal policy.

An initial overvaluation requires price and wage reductions that rarely occur during a consumption boom, while the consequence of current account deficits could create doubts about the sustainability of the regime. Argentina was able to sustain the overvalued RER for so long due to a series of favorable shocks in the early 1990's (world dollar devaluation, capital inflows and the Brazilian boom). When these favorable shocks reversed, the lack of competitiveness reemerged. Despite this "shock bonus" and the structural reforms, the CB was not as effective as expected to correct these initial bad conditions.

Therefore, in this case, the lesson is to avoid the implementation of a CB with an appreciated RER. This conclusion leads to the second problem related to the CB's adjustment mechanism: its capacity to deal with shocks. There are few instruments to counteract positive or negative shocks. Flexibility in labor markets, especially nominal-downward wage flexibility, is crucial in the occurrence of a negative shock. However, this capacity seems to be difficult in a complex economy, not only like Argentina's, but

also like the British situation in the 1920's (John M. Keynes, 1925) or the French experience in the 1980´s (Olivier Blanchard and Pierre Muet, 1993).

Thus, restoring competitiveness requires a sequence of increments in unemployment, wage reductions, and a competitive setup that passes this reduction from costs to prices leading to a deflationary stage that finally restores competitiveness. This process, when conducted at a decentralized level, needs enough time to allow all the economic agents involved to be informed and agree to a change in their relative prices. Notably, in a coordinated world, in order to correct shocks adjusting only prices and not quantities, the country would need a general agreement with unions that simultaneously accept a general nominal wage reduction and a general price reduction. Unfortunately, this behavior is rare in modern decentralized economies.

Hence, faced with a negative shock, the CB cannot exploit the coordinating role than nominal devaluations could assume to accelerate the adjustment process. So CB accrues important costs in wasted factor capacity and product "looses".

B) The Fiscal Incentives and Debt Dynamics.

It was shown that the procyclical reaction of revenues to GDP increases reduced the fiscal deficit from an average of 5 percent to 1 percent. Conversely, fiscal expenditure denoted a little downward sensibility to the cycle. Elastic revenues combined with rigid expenditure configured a scenario where fiscal balance changed dramatically with any negative shock (i.e., the tequila crisis and the crisis initiated in 1998). To finance the augmented deficit, given the CB´s restrictions on money printing, the public debt was increased (see figure 1). In fact, monitoring the increase in public debt is an accurate litmus test for analyzing fiscal deficits and their behavior within a CB because it is not subject to "creative accountancy".

Initially, the reduction in fiscal deficit triggered a misleading positive judgment, which implied that the CB was a definitive solution to the endemic fiscal deficit[8]. From a theoretical point of view, the Argentine CB experience clearly ascribes to the concept of exchange rate based stabilization under imperfect credibility and with an endogenous fiscal response (Ernesto Talvi, 1995). A plan based on a hard-peg exchange rate produces a reduction in interest rates that, added to a perceived appreciated RER, leads to a consumption boom (Calvo and Carlos Vegh, 1993). With a revenue system based on indirect taxes, the fiscal deficit is reduced or goes into surplus. Furthermore, there might be short-term capital inflows that additionally fuel consumption and a tax revenue boom. When an adverse shock occurs, the consumption goes down and the vicious circle begins again. The reduction in revenues generates a fiscal deficit that induces higher risk and capital outflows. Furthermore, in this model, due to the free mobility of short-term capital, the reserves increase until the crisis induces a misleading guarantee over the solidity of exchange rate fixing (Andrés Velasco, 1999).

In a panel analysis for 1972-1998, Enrique Alberola and Luis Molina (2000), concurring with conventional wisdom, found that CBs are intrinsically different from a normal fixed exchange rate regime and have better fiscal behavior (Williamson, 1995). However, Aaron Tornell and Andres Velasco (1995) present a model that reverses this standard view of greater fiscal discipline in a fixed exchange rate regime. Current bad fiscal behavior in a fixed regime induces a punishment tomorrow in the form of a speculative attack and reserve depletion, but under a free floating exchange rate, depreciation and inflation are an instant sign of a bad fiscal performance. Thus, exchange flexibility penalizes quickest than fixed regimes a bad fiscal behavior.

Without access to capital markets, the CB is superior to standard fixed and flexible regimes as a limit to fiscal financing by printing money. Otherwise, it is not clear whether hard or flexible pegs are better for avoiding excessive debt. However, under a CB there is an incentive to short term capital flows because it guarantees enough time to exit when problems occur. This exit insurance for short-term capital flows could distort the optimal maturity in debt structure.

In the case of Argentina, there was: 1) confusion between the cyclical increases in revenues and the permanent one, 2) easy access to external borrowing similar to the 1970's, 3) weak lender's monitoring about the fiscal situation, 4) the contradictory use of fiscal policies as supply-side experiments and as countercyclical policy and 5) lack of satisfactory rules about debt dynamics.

Hence, a CB is an adequate device to prohibit the printing of money to finance fiscal deficits, but it does not encourage the fiscal adjustment and the resolution of the systematic crowding out effect (Caballero, 2000). Even worse, because of the high level of reserves and the parity commitment, it encourages the debt financing of unsustainable deficits, and it may prolong a crisis when compared to a standard fixed or a flexible exchange rate regime. Therefore, the existence of an independent Central Bank, as institutional support for the CB, is not enough to guarantee sustainable debt dynamics and CB's survival. The CB needs not only a rule about printing money, but also a rule about debt dynamics.

Finally, regarding the tax system the Argentine experience shows that adjustment using fiscal policies could be counterproductive (it affects debt premia). Therefore, the important question here is whether a CB, by itself, guarantees a fiscal structure capable of implementing countercyclical fiscal policies in order to facilitate adjustment to shocks. The answer is negative. The inconsistency is that such a fiscal behavior implies a tax structure that is very difficult to implement in emerging countries, where taxes are based on consumption that is procyclical. Then, it seems that a simple monetary regime as CB would require a more complex tax system.

D) Financial Distorsive Effects of CB.

These financial effects concern the level and volatility of interest rate, as well as the incentive to currency mismatches.

The Level and Volatility of Interest Rate. A lower level of the domestic interest rate is identified as an important advantage of a credible peg against a flexible exchange rate system. Dornbusch (2001) argues strongly about the convenience of CB or dollarization. His central argument is the higher interest rate differential that countries with a flexible exchange rate have to pay. Therefore, according to this author, if a devaluation has a limited scope in labor markets --as new classical economists warn-- the exchange rate flexibility has important negative effects on capital cost. Following this reasoning, the option of devaluating implies lower real wages compared to the hard peg. The major advantages of a CB are a lower interest rate and the lengthening in the horizons of economic agents. Interestingly, Dornbusch takes Argentina as an impressive example of these gains. Hanke and Schuler (1999) suggest that dollarization could improve these benefits further. For them, a credible peg reduces or even eliminates the risk of devaluation. From that, a simple rule can be deduced: the harder the peg, the lower the domestic interest rate. Additionally, a positive income effect can be added to a lower interest rate in discounting intertemporal income (Jorge Carrera and Federico Sturzenegger, 2000)[9].

However, some authors point out a possible reverse effect: a decreasing currency risk could be accompanied by an increasing sovereign risk. Roberto Chang and Andrés Velasco (2000) developed a theoretical model that demonstrates a heighten probability of domestic bank runs because the Central Bank cannot act as a lender of last resort. Another argument comes from Andrew Berg and Eduardo Borensztein (2000) and is based on the greater capacity of the flexible exchange rate to deal with shocks when compared with fixed regimes. If a devaluation were expansive, at least in the medium run, it could improve fiscal revenues and reduce pressures towards default (Ilan Goldfajn and Gino Olivares, 2001).

Thus, the relationship between CB and risk is twofold. One facet clearly implies a direct reduction in the devaluation risk, while the other, more subtle, aspect could imply a higher sovereign risk for hard pegging countries due to the impossibility of having an available mechanism to compensate adverse shocks. This relationship affects both public and private debt premia.

In the case of Argentina, the risk augmented with the growing consensus regarding the difficulties that the economy would have to escape from the recession. In the middle of 2001, the JP Morgan country risk indicator reached 3000 basic points, and prior to the default, it reached 4500 (see Table 1 and Figure). Ironically, the necessary recession caused by the natural adjustment process of restoring competitiveness dramatically destroyed the confidence in the economy. The case of Argentine CB and some incipient international empirical evidence are showing that flexibility allows a country to decouple the domestic interest rate from the international interest rate, thus a fixed exchange rate regime should present a lower level of interest rate, but a higher volatility (Goldfajn and Olivares, 2001). Frankel et al. (2000) shows that domestic interest rates are, on average, lower; however, under a fixed exchange rate regime, they are more sensitive to international rates than under a flexible one. Similar results were found by Borensztein and Jeromin Zettelmeyer (2000) using a VAR Model to describe the effects of U.S. interest rates on domestic ones in Argentina. Ugo Panizza, Ernesto Stein and Ernesto Talvi (2000) stress the ambiguity of this debate by demonstrating that there is no absolute consensus in the empirical evidence related to this topic.

Currency Mismatches. Despite these expected differences in behaviors among regimes, some authors found that developing countries with a flexible exchange rate behave similarly to fixed ones, avoiding excessive volatility in their nominal exchange rate and allowing changes in reserves. This phenomenon is called "the fear of floating" and is presented by Calvo and Reinhart (2000). As a result of currency mismatches between foreign denominated liabilities and domestic income, devaluation could cause a situation of generalized insolvency. Moreover, Hausmann et al. (2000) identifies the problems currency fluctuations could generate in the balance sheets of firms as the cause of the observed fear of floating.

In the case of the Argentine CB, private agents had an underinsurance problem. The financial institutions' liabilities were perceived as having an implicit guarantee and so they lent dollar denominated loans to agents with peso revenues but the banks did not hedge these positions. Velasco (2000) remarks that announcements stating that the exchange rate would never be changed discourage prudent hedging. Hard and long-standing pegs generate an "exchange rate illusion" and generalized underhedging with the consequent moral hazard problem (Paul Krugman, 1999). In other words, there is a perceived free insurance given by the CB. In Argentina, as a result of its experiences from past decades, the private sector might have assumed that, in a widespread crisis, the government would have alleviate their debts. Consequently, the government, when faced with the possibility of a generalized bankruptcy in the private and banking sectors, is limited in its ability to construct a credible long run reputation.

The existence of foreign currency denominated debt imposes restrictions on the monetary policy, even in flexible exchange rate regimes. This balance sheet effect acts as a binding constraint on the monetary policy to compensate a shock[10].

Under this context, in any fixed exchange rate regime, easing money could finance a run against reserves and generate a liquidity crisis that deteriorates the financial system, and devaluating to compensate a permanent adverse shock could detonate a financial crisis due to currency and time mismatches. Again, the regime remains trapped, and the primary solution is the automatic adjustment mechanism. However, a solution based on deflation is also very dangerous for firms and banks because of high real interest rates and recession[11].

Even in a long-standing and well-backed hard peg, such as the CB in Argentina, the difficulties perceived in the public sector payments, the firms' losses due to recession and the lack of adjustment tools generate a widespread diffidence in depositors, and they run against the deposits to be the first to retrieve the "scarce" reserves.

In the case of a CB, when a reversal in flows occurs, the country must transform the current account deficit into surplus without changing the nominal exchange rate. Consequently, a mix of recession and

deflation is necessary. A reversal in capital flows (or the sudden stop problem) affects both the financial system and the real sector. Thus, the economy suffers an important welfare cost (Calvo and Reinhart, 2000).

If one country is suffering capital market volatility, a solution could be to introduce capital controls. First of all, it is important to distinguish between ex ante and ex post capital controls. The former are the most important in terms of policy lessons, while the latter are desperate measures, similar to those taken by Malaysia in 1998 and Argentina in 2001. As a result of the efficiency cost of ex ante controls, they must be oriented towards reducing the volatility and changing the composition of flows. Reserve requirements, taxes on short-term capital and incentives to FDI can reduce the probability of large sudden reversals.

During the tequila effect, the CB, using the tools provided by the convertibility law, managed to facilitate money allowing the reserve to fall down to 2/3 of the monetary base. These measures avoided a widespread financial bankruptcy. Throughout 2000-1, the Argentinean government took some measures to finance firms and banks, but they were insufficient to stop the losses in deposits and generated more uncertainty about the financial system. Nevertheless, the reserves coverage in relation to the monetary base was higher than during the tequila crisis.

Applied to the Argentine experience, the literature allows us to draw some conclusions: 1) a hard peg regime as CB encourages a generalized currency mismatch, 2) in economies with a large proportion of debt denominated in foreign currency, the monetary policy is ineffective, regardless of the exchange rate regime, because it depends on the relative importance of currency mismatch, 3) these economies have a higher probability of a self-fulfilling crisis and 4) deflationary adjustments could be as harmful as devaluation for firms and banks.

C) Importing Credibility and (Perhaps an Incorrect) Countercyclical Policy.

When a country selects an exchange rate regime and its associated monetary policy, it is making a choice between credibility and real volatility (i.e. GDP and unemployment changes). The literature on fixed exchange rate regimes focuses mainly on "importing" credibility by tying the hands of central bankers (Giavazzi and Pagano, 1988). Frankel (1999) called it a desperate need to import monetary stability because of the absence of credible institutions. However, with the importation of this stability, the country is importing the countercyclical monetary policy and the exchange rate policy from the leader country. When the currency is fixed, its domestic interest rate must copy the anchor interest rate of the country leader (disregarding changes in its spread by domestic reasons). In an uncooperative monetary union with the dollar --as CB or dollarization are (George von Furstenberg, 2001)[12]--, the Central Bank of the leading country sets the interest rate according to its countercyclical needs without regard to the needs of the follower country.

If the follower country suffers shocks positively correlated with the domestic shocks of the anchor country, mimicking the same policy is not that costly. However, if the shocks are negatively correlated, then the country that fixes its exchange rate is importing the opposite countercyclical policy, which would amplify the width of its economic cycle.

In addition, it is possible that these shocks could also be transmitted through other channels. Carrera et al. (2000) discusses a general approach to connect the real volatility in the leader and in the follower country using the framework of an asymmetric monetary union. The two main channels they detected are: the financial --whose behavior was analyzed in previous paragraphs-- and the commercial channel. The latter works in an opposite way to that of the interest rate channel (see in the appendix the diagram 1). When U.S. is growing, it increases its imports from the follower country and the opposite occurs during a recession.

For example, assuming a negative cycles' correlation (when Argentina is growing under its long run trend or suffering a recession, the U.S. is growing above its long run trend). A positive shock in the U.S.

means an increase in Argentina's exports and an increase in the domestic interest rate. However, the final effect on the Argentinean output will depend on the relative importance of each channel. When the follower country has strong financial links and little trade with the leader, the interest rate effect is more relevant. On the contrary, when the bilateral trade is relevant and the country is financially closed to capital movements, the commercial channel prevails. As a general proposition, Carrera et al. (2000) stated that, *"assuming the usual mechanisms for the transmission of the business cycle in a leader-follower framework, dollarization (or CB) will reduce real volatility, and thus the country risk, if one of the following conditions are fulfilled: a) the correlation between the business cycles is positive and the financial channel dominates the trade channel, b) the correlation between the cycles is negative and the trade channel dominates the financial one"*. This paper introduces a methodology based on a Vector Error-Correcting Model to measure the signs and relative importance of each channel for potential follower countries. In the case of Argentina, the main channel for explaining external sources of variance decompositions is the financial channel and, the correlation of cycles is, on average, positive. This could be interpreted as a preliminary result in favor of dollarization. However, the positive correlation between cycles is very unstable over time, and then, the authors do not consider this a stylized fact to recommend dollarization on solid grounds.

Under which conditions could a follower country have a positive cycles' correlation with U.S. or with any leader that sets up the monetary policy? First of all, there must exist a similar economic structure or a large trade channel or a higher factor mobility in order to expect a similar real shock correlation. On the contrary, if political or domestic real shocks prevail, a positive correlation will be unlikely.

E) Purchasing Power Illusion Effect.

The stable and overvalued peso meant an important improvement in the standard of living of Argentina's middle class, which could be identified as the "purchasing power illusion effect". This sector is very important in Argentine society, and it is the constituency of both major political parties, the Peronist and the Radical. With the convertibility, it had obtained access to cheap imported goods, international tourism and long-term dollar mortgages, something unthinkable during the last three decades of high inflation. Consequently, any possible change in this parity was viewed as extremely hazardous for family finances[13].

In some regards, a CB (or any kind of peg) with appreciated real exchange rate is a sophisticated, though inconsistent, populist policy as it was in the 1980's in others Latin American countries (Danielle Checchi, 1994, Rudiger Dornbusch and Sebastian Edwards, 1985). This time, however, it was oriented towards the middle class.

IV. CB and Dollarization: Corner Solutions or Currency Traps

It is interesting to evaluate the differences between a dollar-peg CB and dollarization. For example, is a CB a stable regime or rather a transition towards an eventual dollarization? While not long ago CB appeared as a radical straitjacket now, after Argentine failure, it seems an insufficient commitment. Even a dollar-peg CB does not seem to be a real corner solution compared to dollarization.

However, the lessons presented here about a dollar-peg CB are also valid when analyzing dollarization. This assertion is especially true regarding the relationship between the behavior of the regime and the economic performance. There are three main differences between a CB and dollarization: the CB has a higher devaluation risk, retains the possibility to construct a limited "monetary policy", and is able to earn "seigniorage" on its reserves (Carrera and Sturzenegger, 2000).

To apply the lessons presented in this paper it is important to differentiate countries inside the region of U.S. economic influence such as Mexico, Canada and Panama, from countries outside of this region such as Argentina, Brazil and Chile. For this latter group a way to combine the flexibility and the credibility of a CB could be to adopt a currency basket with reference to some important currencies (i.e. Dollar, Euro, Yen, Pound, Yuan). This mix reduces the purchasing power volatility and smoothes

external shocks. Additionally, it introduces some uncertainty that discourages short-term capital flows and currency and maturity mismatches. Another important lesson from Argentina *ä propos* a Western Hemisphere monetary union is that the U.S. does not seem to care about dollar fluctuations and this implies excessive exchange rate volatility on the pegged currency *vis-à-vis* the rest of the world. Under these conditions, a basket framework could be superior to dollarization. Some authors discuss an endogenous process that goes from monetary arrangements to the real economy, converting a non-optimum monetary area into an optimum one (Frankel, 1999). However, Argentina's long fixed period does not confirm such hypothesis.

Nonetheless, for the group of countries inside the region of U.S. economic influence, the lessons from the Argentine experience are still valid. The key question is how will these countries prepare to confront probable asymmetric shocks using automatic adjustment mechanisms.

Given the similarity of a CB and dollarization, Argentina was the largest country in the world close to dollarization. Therefore, it is vital to identify the reasons why it failed. Was it caused by political reasons or by economic ones? Of course, the relevance of any potential answer is an empirical issue that demands specific research to detect causality and the relative influence of each source of real volatility. However, the evidence shows a sequence of negative shocks that were impossible to adjust by simply using the automatic mechanism. In many countries (even in developed ones), it is quite difficult for political institutions to deal with a four-year recession, nominal wage reductions, explosive unemployment and impoverishment. From this perspective, economic reasons seem to be the main source of economic troubles for Argentine CB. In Argentina, this long-standing scenario, combined with elections every two years, generated political instability and political mistakes that aggravated the original shock. On comparative grounds, Brazil, Chile, Uruguay and most other emerging countries do not appear to have better political management than Argentina, but the exchange rate regime helped them to avoid irrevocable currency traps and collapses.

Thus, what seems clear is that a CB is not an adequate device for disciplining political and economic agents. Even worse, it could be counterproductive to coerce an economy into adopting a CB or dollarization, because this type of decision could lead the country into an explosive situation without a viable exit-strategy. Undeniably, an exchange rate regime is not a substitute for sound political and fiscal institutions, but an inconsistent exchange rate regime could induce dangerous traps and collapses.

V. Conclusions

At first sight, the results of CB as a stabilization program are impressive. In only four years, it reduced hyperinflation to almost zero and increased growth rates. However, some results regarding the external sector, unemployment and income distribution are very disappointing.

Hence, our study was not focused on the stabilization properties, but on the long run functioning of such a regime. The real test to determine a CB´s long-term sustainability is its capacity for dealing with shocks. In the case of Argentina, the CB´s automatic mechanisms of adjustment failed, even after four years of recession and deflation, leaving the country with a social, political and economic disaster.

The CB regime implies a trade-off between a reduction in nominal volatility and an increase in real volatility. When a country emerges from a very unstable period --as the 1980's in Latin America--, any cost seems low, but in normal times the cost of real volatility becomes high. The problem of internal coordination has an economic and social cost, which is expressed in wasted factor capacity and product losses (in addition to the political costs for the government that goes through the adjustment). Therefore, in principle, a CB seems inferior when compared to flexible regimes in terms of its capacity to deal with real volatility.

Concerning the stability of the regime, the ultimate success of the CB regime depends on questions that largely exceed the monetary rules. The main aspects determining a CB's capacity to survive are its fiscal policy and the financial system.

Policy recommendations regarding an appropriate fiscal structure suggest that the CB regime needs an autonomous fiscal authority, a countercyclical tax system, and strict limits to debt dynamics and public debt in foreign currency. It is necessary to avoid the use of a fiscal policy as a countercyclical policy and, simultaneously, as a supply-side mechanism to gain competitiveness.

On the financial side, a CB or dollarization implies a trade-off between lower levels and high volatility of interest rates. This volatility has important costs for the financial and real sectors. Since a CB does not offer a lender of last resort, the financial system needs strong and prudent regulations that are very costly. However, as seen from the Argentine experience, these could be insufficient.

Some policy recommendations concerning financial implementation are the following: 1) avoid currency mismatches and perceived free-insurance that promotes underhedging, even at the cost of higher interest rates; 2) establish incentives that lead to a balanced financing of current account, promoting FDI and discouraging short-term capital flows in order to mitigate the sudden stop problem.

Regarding the counter-cyclical properties of a CB, it is important to point out that when a country sets up a CB it is "importing" credibility and nominal stability along with the countercyclical monetary policy and exchange rate policy to which the leader country applies. A follower country with a negative shock-correlation with the leader could be importing the wrong countercyclical policy. In fact, it will suffer a higher amplitude in its cycle compared with an independent monetary policy. As a policy recommendation, when a country leaves behind problems of high nominal volatility, the real shocks correlations are crucial in selecting an exchange regime. If the shocks come mainly from real sectors it is difficult to expect --even after years of a peg-- cycles become positively correlated. In our discussion we pointed out the conditions under which a "single-peg" CB and dollarization could reduce real volatility.

Finally, to evaluate the CB or dollarization as a model for monetary unions, it is necessary to determine the feasibility of a CB in a world in which flexible exchange rate regimes are prevailing. Mundell (2000) argues that, from a financial point of view, a global currency or very few currencies is an optimum alternative. The reality is that floating rates dominate the world system. Except for countries that are very close to leaders (so, they fit traditional OCA criteria about shock correlation and interdependence), the benefits in fixing the currency and losing instruments to counteract shocks are quite ambiguous.

When the country is not dealing with high inflation problems, the optimal selection of a CB or any other kind of hard peg exchange rate regime is a context dependent choice. In fact, the commitment not to float is dangerous in a floating world in which competitive devaluations are the common strategy of competitors. Countries should therefore take into account the current behavior of the international monetary system when trying to decide if a fixed exchange rate regime is in their best interest. Only in a world with monetary coordination among the Dollar, Euro, Yen and new comers like the Yuan, could medium size countries adopt, without risk, one of these international currencies. Otherwise, regional monetary unions could be an efficient alternative.

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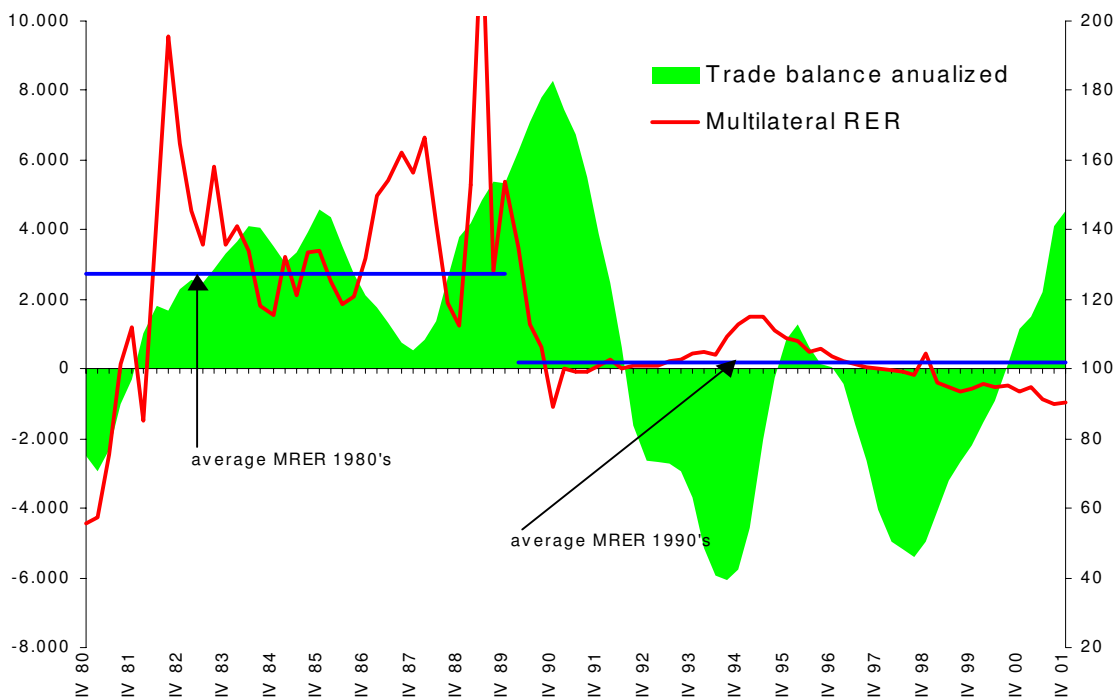
TABLE AND FIGURES

FIGURE 1. DEBT AND DEBT INTEREST PAYMENTS, 1980-2001.
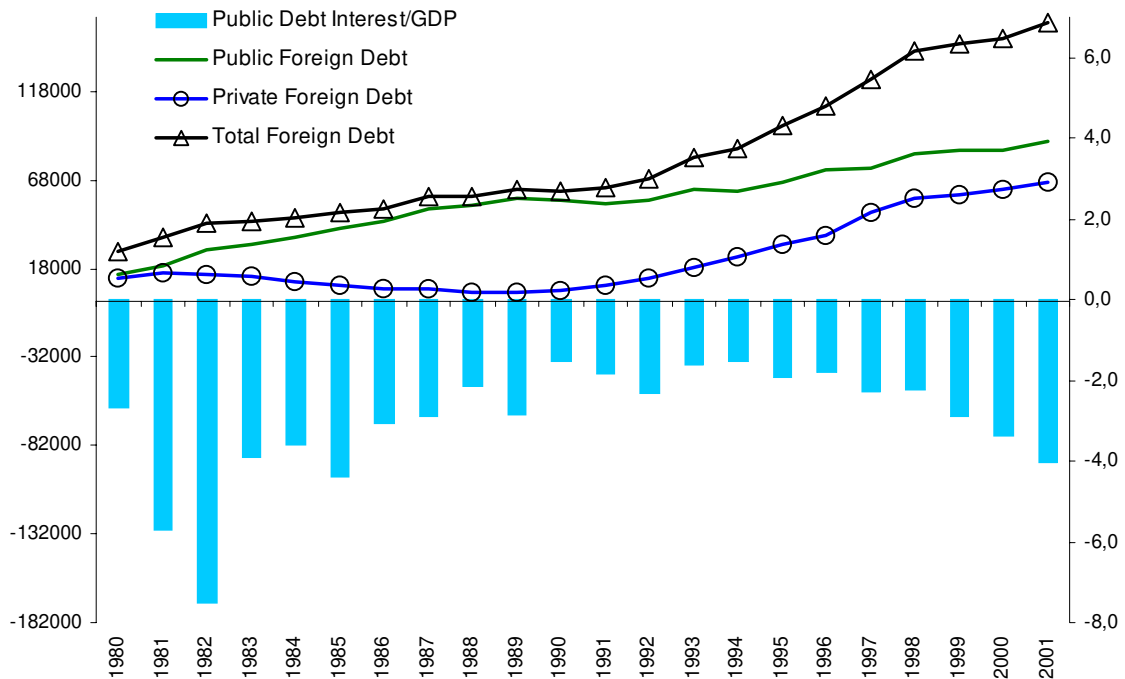
Source: INDEC and IEFE. Note: Debt is expressed in million in current dollars (left side) and Public Debt Interest Payments are expressed as a percent of nominal GDP (right side).

FIGURE 2. TRADE BALANCE AND MULTILATERAL REAL EXCHANGE RATE.

Source: INDEC and IEFE. Note: Trade Balance (left side) is expressed in million in current dollars and Multilateral Real Exchange rate (right side) was elaborated based on Argentine trade basket. It is expressed as an index 1991=100, see Carrera et al. (1998).

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FIGURE .LONG RUN GROWTH AND INFLATION, 1915-2001

GDP 1915=100 (Left)   INFLATION % (RIGTH)   1915-2001

- GDP 1915=100
- Inflation

1989 Inflation 3079%
1990 Inflation 2314%

1931 Inflation -14%
1932 Inflation -10%

FIGURE . EXTERNAL SECTOR, 1951-2001.

- trade balance
- services balance   } current account
- import
- export

millions u$s

Only two years with positive
current account balance in the
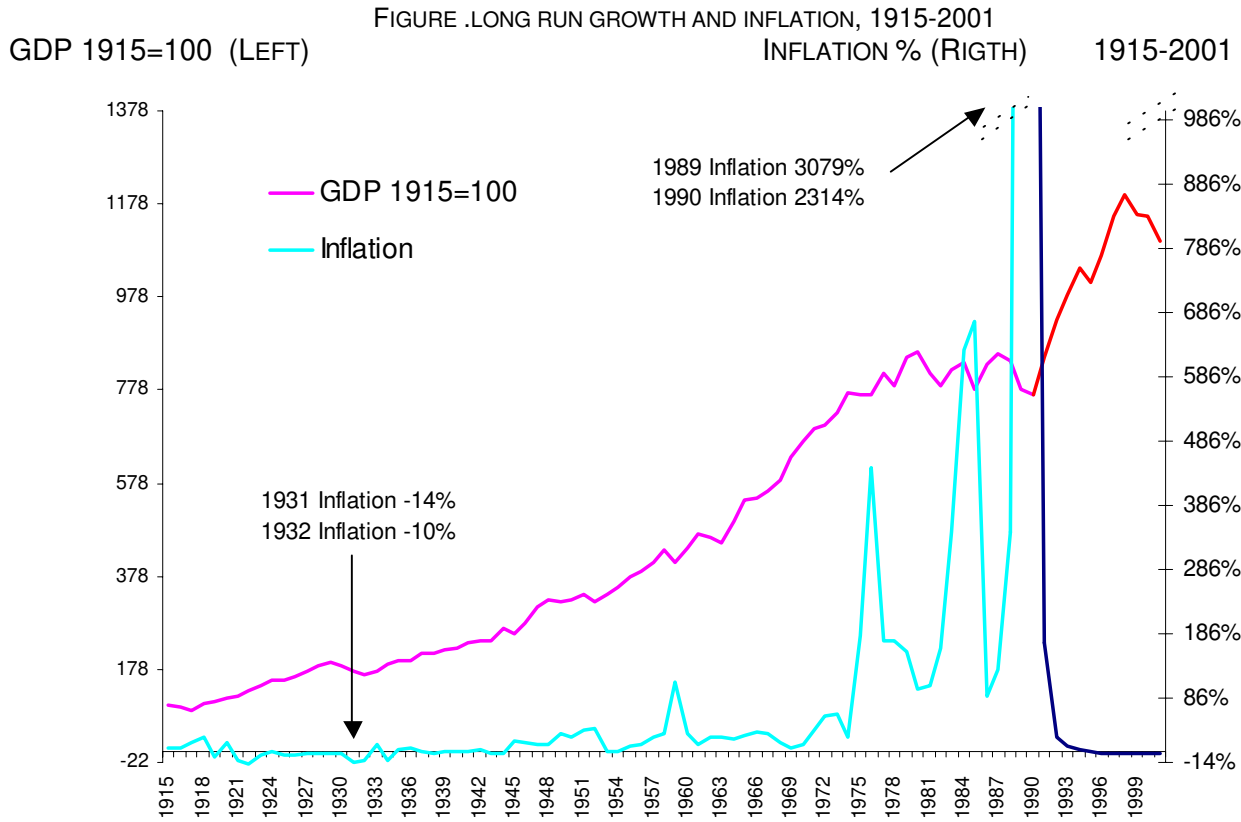
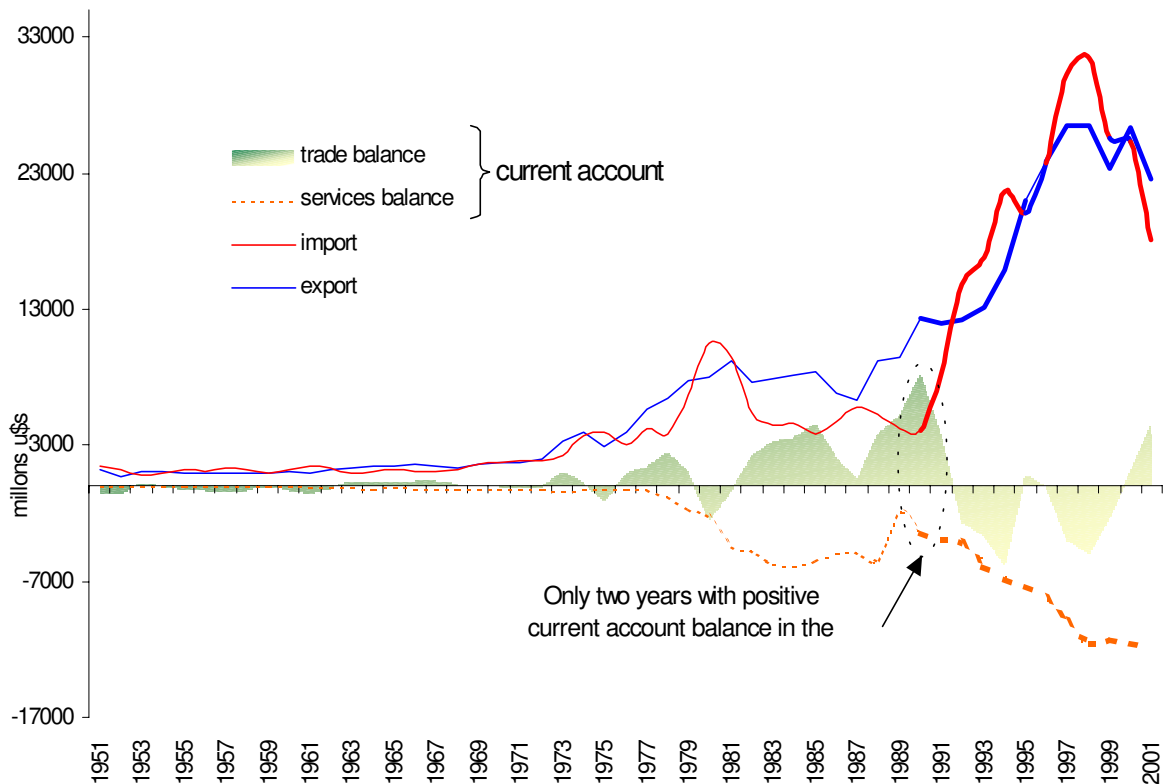18

FIGURE   LEVEL AND VOLATILITY OF INTEREST RATE VS GROWTH
RISK (ARG EMBI+LEFT)   GDP CHANGES (RIGHT)

FIGURE . DEPOSITS DOLLARIZATION, 1980-2001

Deposits dolarization (u$ deposits over total deposits)
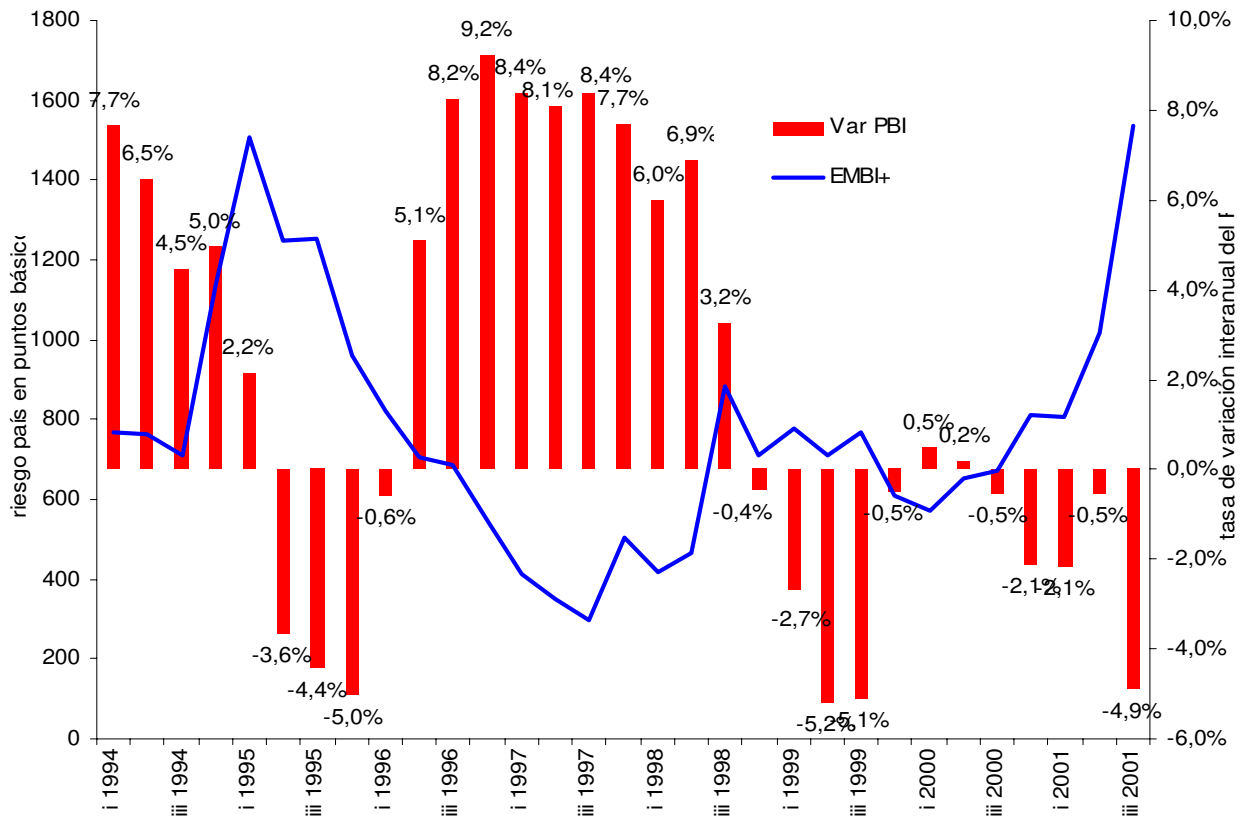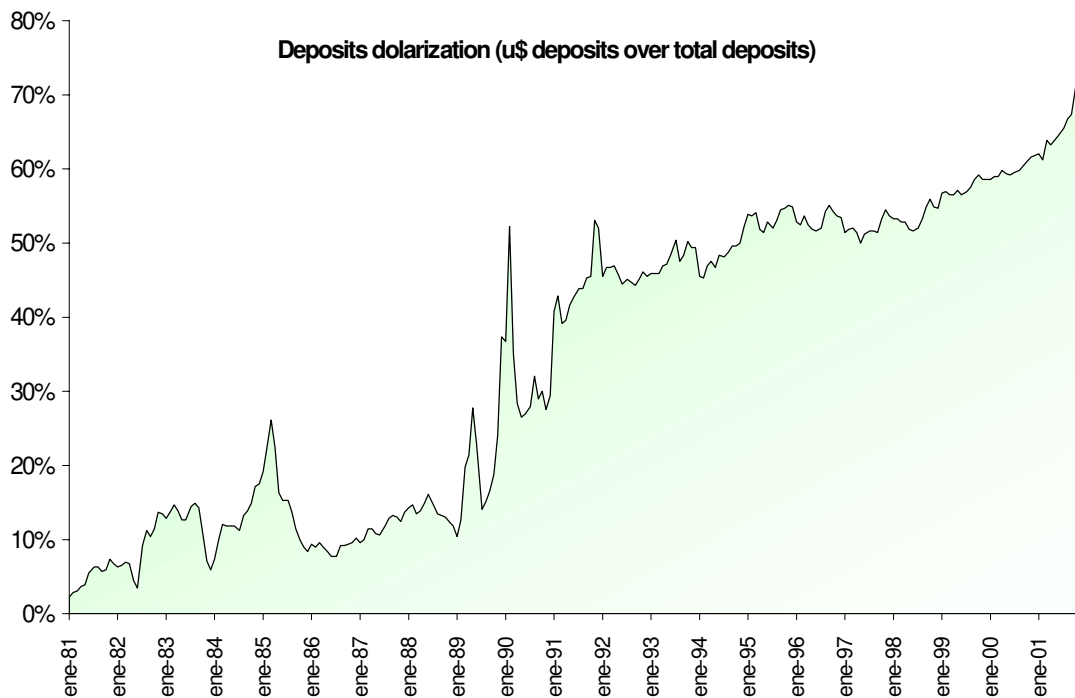
FIGURE   PROCYCLICAL FISCAL REVENUES. HP TREND OF GDP AND REVENUES CYCLES
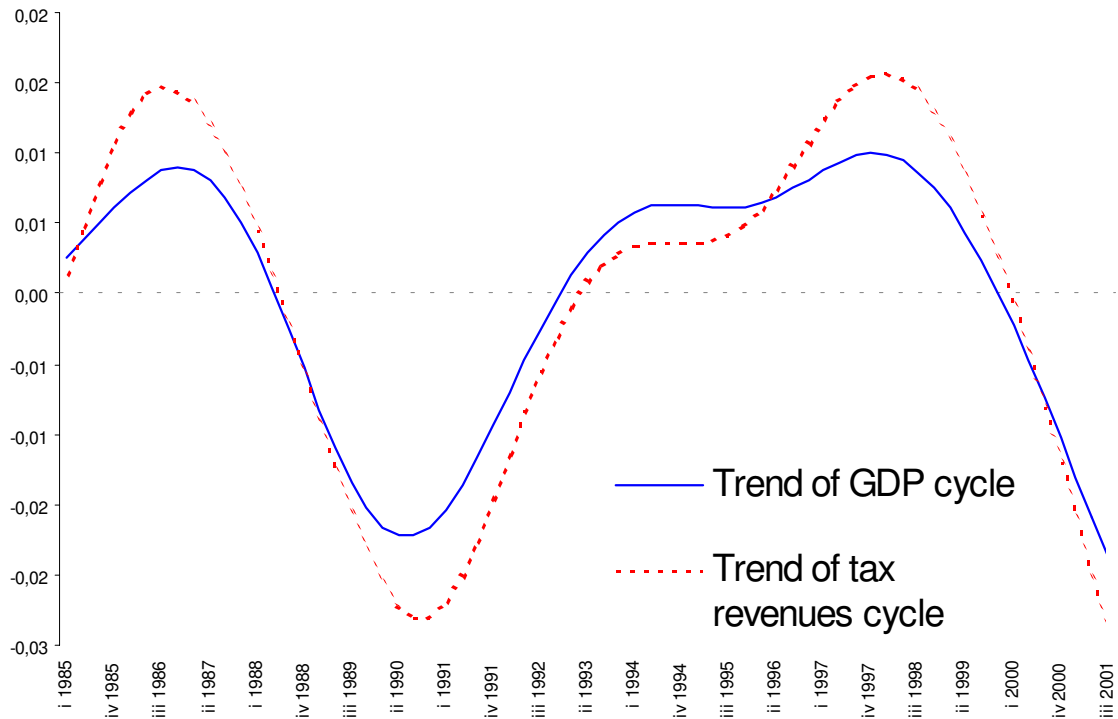
Note: Trend is extracted from Hodrick Prescott Filter

FIGURE . FISCAL SECTOR 1983-2001

Deficit million US$ (left)   Revenues, Expenditures and GDP 1991=100 (right)
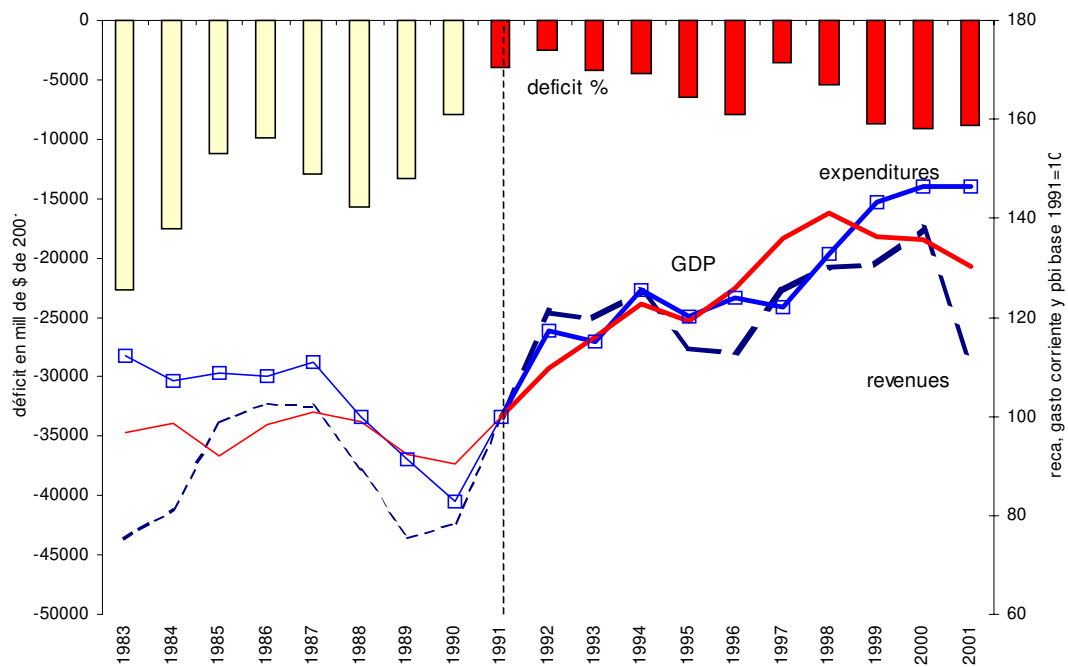
FIGURE . LABOR MARKETS 1974-2001

REAL SALARIES (LEFT)   **UNEMPLOYMENT % (RIGHT)**   1974-2001

— real wages 1991=100
— Rate of unenployment (right)

I-1974=267

II-2001 =90

industry and construction wage index 1991=100

rate of unenployment
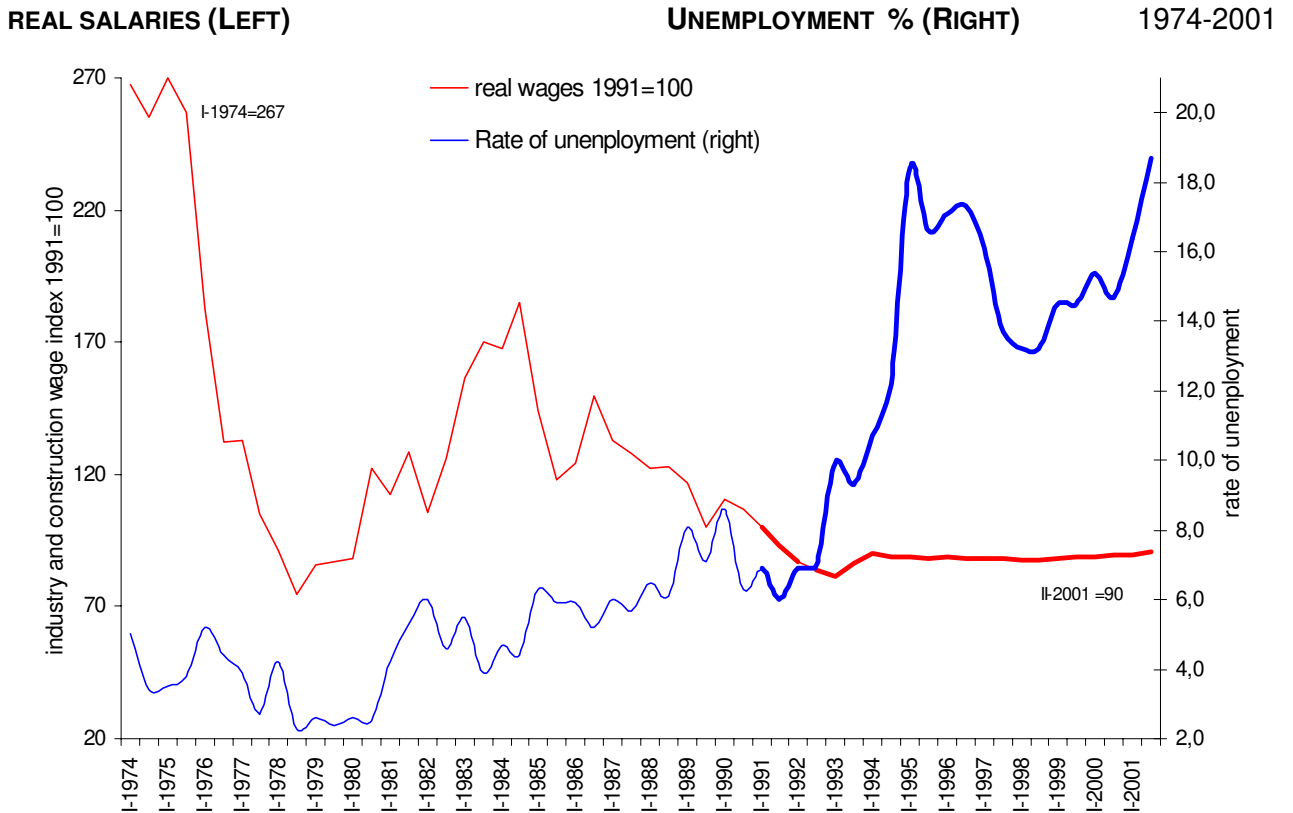
FIGURE . INCOME DISTRIBUTION. %RICHEST / %POOREST, 1974-2001
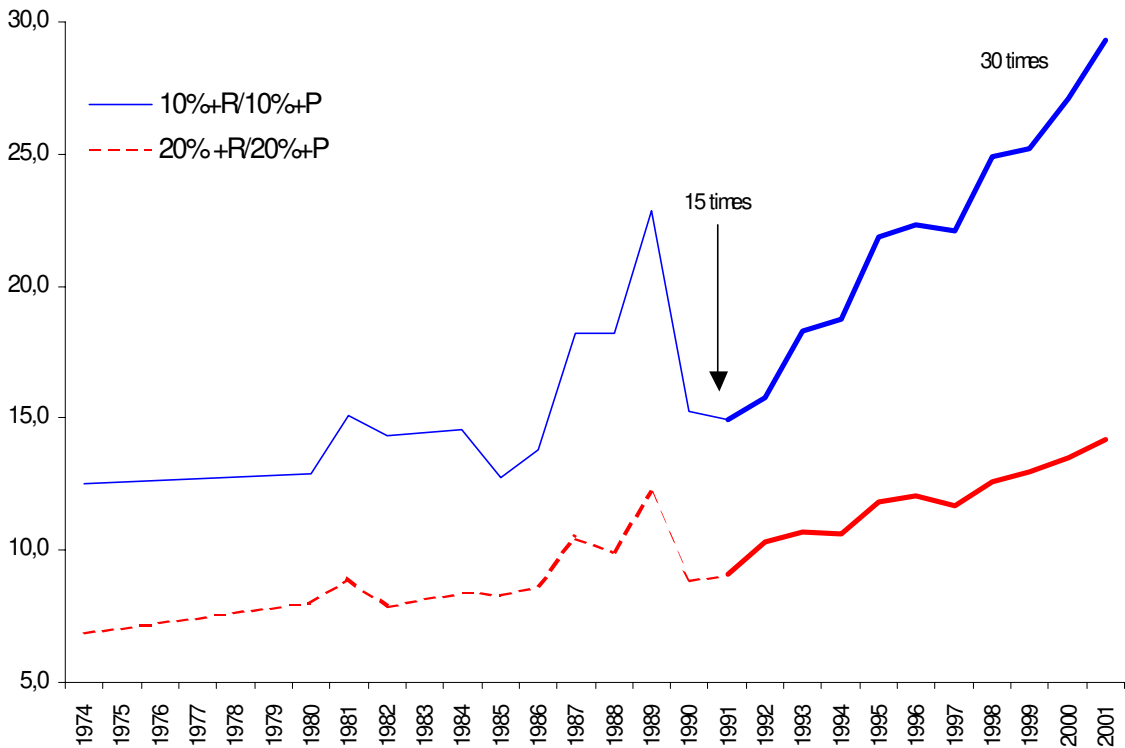
—— 10‰+R/10‰+P
- - - 20%+R/20%+P

15 times

30 times

21
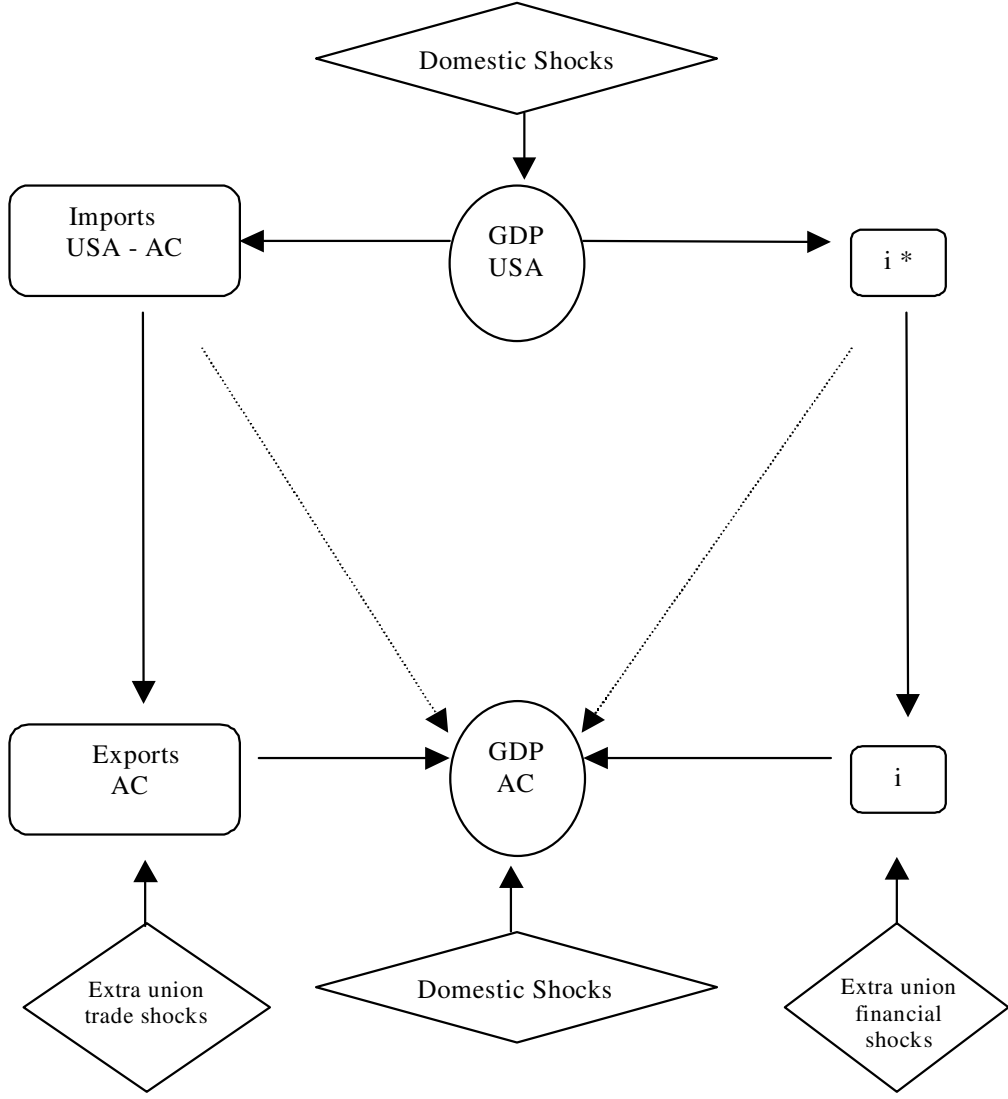
Source: Carrera; J.; Panigo, D. and Feliz, M. (2000). How does Dollarization Affect Real Volatility and Country Risk?

TABLE 1-STATISTICAL APPENDIX

Variables	Notes	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001e
GDP	1	213,365	215,458	236,505	257,440	258,032	272,150	292,859	298,948	283,260	284,960	271,550
Real GDP growth	2	9.9	8.9	5.9	5.8	-2.8	5.5	8.1	3.9	-3.4	-0.5	-3.4
GDP per capita	3	6,541.9	6,540.6	7,108.5	7,661.1	7,602.7	7,939.3	8,458.9	8,549.3	8,020.4	7,988.7	7,537.4
Investment	4	14.3	17.4	19.1	20.5	18.3	18.9	20.6	21.1	19.0	17.5	15.6
Consumer Prices (CPI)	2	171.7	24.9	10.6	4.2	3.4	0.2	0.5	0.7	-1.8	-0.7	-2.0
Producers Prices (PPI)	2	110.5	6.0	1.6	0.7	7.8	3.6	-0.6	-6.1	1.2	2.5	-6.0
Total Deposits	1	13,796	25,396	39,920	46,555	43,566	50,491	64,635	73,454	78,788	87,700	66,500
	4	6.5	11.8	16.9	18.1	16.9	18.6	22.1	24.6	27.8	30.8	24.5
Deposits		47.6	45.7	49.4	50.6	53.9	51.5	51.2	53.1	58.9	57.1	66.0
Credit to private sector	4	10.6	15.8	17.8	20.2	19.9	19.9	21.6	23.6	24.2	23.1	22.5
M1	4	3.1	5.4	7.0	7.4	7.1	8.0	8.6	8.6	8.9	9.1	6.1
Interest rate (passive)	6	19.8	25.3	8.7	9.6	9.2	7.6	8.0	8.1	10.0	12.3	15.0
Tax revenues	1	26,419	36,767	41,571	44,592	42,292	43,119	48,598	50,028	47,655	49,103	46,630
	4	12.4	17.1	17.6	17.3	16.4	15.8	16.6	16.7	16.8	17.2	17.2
Public expenditures	4	16.9	18.0	18.4	19.2	19.6	19.1	19.3	19.6	21.2	21.2	22.4
Public interest payments	1	3,939	4,344	4,047	3,089	3,860	4,608	5,745	6,664	8,224	9,656	9,958
	4	1.8	2.0	1.7	1.2	1.5	1.7	2.0	2.2	2.9	3.4	3.7
Fiscal Deficit	1	-1.2	-0.3	0.4	-0.3	-1.0	-2.2	-1.5	-1.3	-2.5	-2.3	-3.5
Total Public Debt	1	86,912	85,196	81,761	86,828	92,091	104,805	109,201	120,457	130,138	136,727	145,369
	4	40.7	39.5	34.6	33.7	35.7	38.5	37.3	40.4	46.0	48.0	53.5
Public Foreign Debt	1	54,996	56,474	62,617	61,274	67,200	73,511	74,912	83,111	84,750	84,615	89,963
Private Foreign Debt	1	14,800	12,100	18,600	24,404	31,690	36,263	49,893	58,048	59,852	62,882	66,857
Total Foreign Debt	1	69,796	68,574	81,217	85,678	98,890	109,774	124,805	141,159	144,602	147,497	156,820
	1	32.7	31.8	34.3	33.3	38.3	40.3	42.6	47.3	51.1	51.7	57.7
Exports (FOB)	1	11,977	12,234	13,118	15,839	20,964	23,811	26,431	26,442	23,333	26,409	29,181
Imports (CIF)	1	8,275	14,872	16,784	21,591	20,118	23,762	30,450	31,405	25,508	25,244	23,405
Trade balance	4	1.7	-1.2	-1.6	-2.2	0.3	0.0	-1.4	-1.7	-0.8	0.4	2.1
Current account balance	4	0.4	-2.5	-3.4	-4.3	-1.9	-2.4	-4.1	-4.9	-4.3	-3.1	-2.3
Non financial private sector	4	0.4	3.1	3.4	2.5	-1.4	1.2	3.5	1.8	0.6	0.2	-0.4
Non financial public sector	4	0.1	0.6	3.0	1.5	2.2	3.3	2.7	3.1	3.8	2.8	-0.7
Errors and capital flights	1	3,760	6,746	9,743	2,184	1,478	9,412	7,827	7,198	3,121	-434	-8,158
Changes in reserves	1	1,880	3,274	4,250	682	-102	3,882	3,273	3,438	1,201	-439	-9,329
Country Risk (JP Morgan)	7	N/A	N/A	676	683	1,314	796	436	675	868	783	1,543
Stock exchange (Merval)	8	455.4	619.3	437.5	576.2	423.2	560.5	749.2	556.5	487.3	495.6	397.1
Terms of trade	9	100.0	105.2	108.1	109.7	110.0	118.7	117.1	110.8	104.2	114.7	103.4
Multilateral basket RER	9	100.0	101.5	102.8	108.0	112.6	105.8	101.4	100.7	95.1	95.4	92.3
Bilateral RER Argentina/U.S.	9, 10	100.0	105.0	93.3	95.2	93.1	94.6	94.8	93.6	91.3	92.2	94.5
Manufacturing real wage	9	100.0	104.4	100.0	100.7	99.6	99.5	99.0	97.8	99.1	98.7	98.8
Unemployment	11	6.5	7.0	9.6	11.5	17.5	17.2	14.9	12.9	14.3	15.1	17.5
Income distribution	12	8.3	8.5	10.2	11.4	11.0	11.5	12.3	12.3	12.5	12.8	14.0

Source: INDEC, 2001 estimates from IEFE. Notes: 1) $ million, 2) percentage change over year earlier, 3) in current $, 4) percentage of GDP, 5) percentage of total deposits, 6) Nominal annual rate for 30-59 days time deposits, 7) Basic points of Argentina EMBI, 8) Merval Stock index, 9) index 1991=100 adjusted by CPI, 10) adjusted by productivity 11) Rate of active population, 12) 20 percent richest/20 percent poorest.

Endnotes.

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1 The possibility of backing the monetary base with foreign currency denominated government bonds at market prices allowed a loophole in the monetary policy. This possibility was amplified to one-third in 1995.

2 The stock of rediscount increased from 400 million dollars in March 1995 to 1,800 million in July 1995.

3 In 2000-1, the fiscal policy advised by the IMF was oriented towards reducing the deficit by increasing taxes or decreasing expenditures (especially cutting public salaries). It produced a textbook negative multiplier effect without changing the negative perception of financial markets about the sustainability of CB.

4 Mostly of the international support for the Argentinean CB came from the fear of a financial contagion, and not from a strong confidence in the Argentinean success. Nevertheless, throughout this period, investors had enough time to protect against Argentina's default.

5 There was a pesification of debts and deposits and the intention of to extend the use of domestic money in the economy. This follows, albeit partially, the advices of some authors like Hausmann (2001) and Roubini (2001).

6 Private Foreign Debt expansion was higher, from 14.8 billion in 1991 to 66.9 billion in 1991 (24 percent of GDP).

7 It is necessary to take into account that the number of people with problems in the labor market roughly doubles the number of openly unemployed when we incorporate under-unemployment.

8 The records of risk rating companies regarding Argentina could confirm the idea of procyclical evaluations based on fiscal results. They showed opinions that went from strongly positive to negative during the CB period.

9 Compared with the rates of floating regimes, interest rates in Argentina in the 1990's were lower, but higher than those in Panama. Thus, at first glance, the evidence seems to hold (Carrera and Sturzenegger, 2000).

10 Maturity mismatch is another financial problem of the CB, the regime is perceived as an incentive for short-term capital flows that could be the counterpart of domestic long-term credits. In a financially open economy as Argentina's, the sudden stop of capital flows generates a credit crunch and both a financial and a real crisis.

11 Official data show from January 1999 to July 2001 more than 3000 firms were closed and more than 4000 declared their insolvency.

12 The author considers the dollarization a second best solution compared with a cooperative monetary union.

13 It is easy to deduce the difficulties political actors have to propose any different program with a change in parity. In fact, even in the middle of the 2001 crisis, the opinion polls continue to show an impressive approval of the "convertibility rule".