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# The Anatomy of a Multiple Crisis

Why was Argentina Special  
and What Can We Learn from It?

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## Abstract

The Argentine crisis has been variously blamed on fiscal imbalances, real overvaluation, and self-fulfilling investor pessimism triggering a capital flow reversal. Perry and Servén provide an encompassing assessment of the role of these and other ingredients in the recent macroeconomic collapse. They show that in the final years of convertibility, Argentina was not hit harder than other emerging markets in Latin America and elsewhere by global terms-of-trade and financial disturbances. So the crisis reflects primarily the high vulnerability to disturbances built into Argentina's policy framework. Three key sources of vulnerability are examined: the hard peg adopted against optimal currency area considerations in a context of wage and price inflexibility; the fragile fiscal position resulting from an expansionary stance in the boom; and the pervasive mismatches in the portfolios of banks' borrowers. While there were important vulnerabilities in each of these

areas, neither of them was higher than those affecting other countries in the region, and thus there is not *one* obvious suspect. But the three reinforced each other in such a perverse way that taken jointly they led to a much larger vulnerability to adverse external shocks than in any other country in the region. Underlying these vulnerabilities was a deep structural problem of the Argentine economy that led to harsh policy dilemmas before and after the crisis erupted. On the one hand, the Argentine trade structure made a peg to the dollar highly inconvenient from the point of view of the real economy. On the other hand, the strong preference of Argentinians for the dollar as a store of value—after the hyperinflation and confiscation experiences of the 1980s—had led to a highly dollarized economy in which a hard peg or even full dollarization seemed reasonable alternatives from a financial point of view.

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This paper—a product of the Office of the Chief Economist, Latin America and the Caribbean Region—is part of a larger effort in the region to understand the causes of macroeconomic volatility. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Ruth Izquierdo, room I8-012, telephone 202-458-4161, fax 202-522-7528, email address [rizquierdo@worldbank.org](mailto:rizquierdo@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [gperry@worldbank.org](mailto:gperry@worldbank.org) or [lserven@worldbank.org](mailto:lserven@worldbank.org). June 2003. (57 pages)

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## **THE ANATOMY OF A MULTIPLE CRISIS:**

### **WHY WAS ARGENTINA SPECIAL AND WHAT CAN WE LEARN FROM IT\***

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## I. INTRODUCTION AND SUMMARY

The severity of the Argentine crisis and its dire social cost have come as a surprise to most observers, even to those that had been predicting it since the Brazilian devaluation of 1999. There were very few that predicted it before 1999. Indeed, the Argentine economy appeared to be in relatively good shape at least until before the Russian crisis. Even then the attention of the markets and the International Financial Institutions was focused on Brazil, which had more apparent macroeconomic imbalances and had suffered severe speculative attacks in October 1997 and again after the Russian crisis, leading to the demise of the exchange rate band and a sharp devaluation of the Real in January 1999.

Argentina outperformed most other economies in the region until 1997 in terms of growth per capita -- though income distribution did not improve and unemployment stayed at high levels -- in a relatively benign external environment (terms of trade, capital inflows and spreads, world growth), in spite of a short-lived interruption in 1995 when it suffered severe contagion from the Tequila crisis. But after the major slowdown in growth in 1999 that affected the whole region, mainly due to capital flow retrenchment after the Russian crisis, other countries in the region began a modest recovery, while Argentina plunged into a protracted recession, reversing most of her previous gains at poverty reduction. We explore in Section II if this difference in performance can be attributed to Argentina receiving more severe external shocks than other economies in the region. We find that Argentina was not hit harder than other Latin American countries by the terms of trade decline after the Asian crisis, nor by the US and worldwide slowdown in 2001, nor by the capital flows reversal and the rise in spreads after the Russian crisis. As a consequence, the fact that Argentina did worse than other countries after 1999 must be attributed to her higher vulnerabilities to shocks, weaker policy responses or a combination of both. Indeed, we find in Section II that the large capital flow reversal in 2001 was driven by Argentina-specific factors. We view this as evidence that "sudden stops" of capital flows acted more as an amplifier than as a primary cause of the crisis.<sup>1</sup>

Thus, the bulk of this paper is devoted to examine to which extent and why was the Argentine economy more vulnerable to adverse external shocks than other Latin American economies, and to what extent were policy mistakes (particularly during the De la Rúa Government) the main culprit, as has been often claimed.<sup>2</sup> We examine the vulnerabilities associated with deflationary adjustments to shocks under a hard peg in Section III; those associated with a large public debt and a fragile fiscal position in Section IV and those hidden under a façade of strength in the banking sector in Section V. We conclude that although there were important vulnerabilities in each of these areas, neither of them on its own was larger than those affecting some other countries in the region, and thus there is no *one* obvious suspect. However, we also find that they

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<sup>1</sup> This view is in contrast with the interpretation put forward in Calvo, Izquierdo and Talvi (2002), though in most other aspects our conclusions agree with those in that paper.

<sup>2</sup> There is by now an extensive literature analyzing the causes of the Argentina crisis. See for example the papers by Hausmann and Velasco (2002), Mussa (2002), Powell (2002) and Teijeiro (2001)

reinforced each other in such a perverse way that taken jointly they led to a much larger vulnerability to adverse external shocks than in any other country in the region.

In particular, the hard peg and inflexible domestic nominal wages and prices imposed a protracted deflationary adjustment in response to the depreciation of the Euro and the real, the terms of trade shocks and the capital market shock of 1998, leading to a major overvaluation of the currency and a rapidly deteriorating net foreign asset position. Such imbalances were aggravated by weak fiscal policies during the decade, especially after 1995. In Section III we estimate that all these factors led since 1997 to an increasing overvaluation of the currency that peaked in 2001 at over 50 percent. The need to address the rising concern with solvency – given the large debt, the weak primary fiscal balance and low growth – led to tax hikes and budget cuts in 2000 and 2001 that deepened the economic contraction. The endogenous capital flow reversal and increased risk premium in 2001 amplified these problems by requiring a large external current account adjustment. To aggravate matters, such an adjustment under the hard peg had to take place mostly through demand reduction and aggregate deflation – a lengthy, costly and uncertain process.

The hard peg actually hid from public view the serious deterioration in fiscal solvency and the mounting financial stress. Indeed, the protracted deflationary adjustment required to realign the real exchange rate under the hard peg would have unavoidably eroded the debt repayment capacity of the Government, households and firms in non tradable sectors – the debtors whose incomes would be more adversely affected as a direct result of the deflation.<sup>3</sup> The collapse of the peg in 2002 revealed in full force these latent problems and made them much worse due to the exchange rate overshooting and the disruption of the payments system derived from the deposit freeze (the so called “corralito”) -- which might have been partially avoided by better policy responses. Financial stress was amplified by the large exposure of banks and Pension Funds to increasing Government risk. Thus a vicious circle of economic contraction, fiscal hardship and financial stress ensued.

The authorities and the Argentine polity were indeed faced with very harsh dilemmas after 1998 (as discussed in Section VI). They were placed between a rock and a hard place. One option was to accept a painful and protracted deflationary adjustment while keeping the Currency Board – and attempting to retain market confidence in the meantime. This would have entailed a severe test of the fragile Argentine political and fiscal institutions.

An early adoption of full dollarization might have reduced somewhat the pains and duration of the deflationary adjustment, and thus increased the likelihood of success of such an option. But it would have left the Argentine economy exposed to a repetition of these problems in the future.

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<sup>3</sup> While some debtors from the tradable sector might be affected by an economy-wide deflation as well, the increase in the real value of the debt relative to real income due to the recession and price deflation would have impacted most strongly on the nontradable sector. On this see also the discussion in Roubini (2001).



The other option was to allow a nominal devaluation and adopt a float, in an attempt to shortcut the protracted deflationary adjustment. However, this would have precipitated a latent corporate, banking and fiscal crisis, given the open currency exposures in the balance sheets of both the public and the private sectors and the large degree of overvaluation of the currency. In order to avoid such scenario, financial contracts would have to be *pesified* before floating. But this in turn posed the serious danger of a deposit run, which would have forced a deposit freeze and/or some kind of Bonex plan, fatally eroding the public's confidence in money as a store of value.

In the event, the authorities did not use well their limited margin of maneuver, by engaging in too little and too late fiscal adjustment (which actually should have been done in the boom years before 1999), by hesitating on the ultimate choice of exchange rate regime, by postponing too long the needed public debt restructuring, and by precipitating a major financial and payments crisis – first reducing the liquidity buffers of the banking system and over-exposing it (along with the Pension Funds) to Government risk, and later adopting an arbitrary asymmetric *pesification* of assets and liabilities and a particularly disruptive deposit freeze, which was held for an excessively long period of time without resolution. Such actions and omissions deepened the crisis and created additional unnecessary problems for the recovery.

These hard choices were a reflection of a deep structural problem. On the one hand, the Argentine trade structure made a peg to the dollar highly inadequate -- from a real economy point of view. On the other hand, the strong preference of Argentines for the dollar as a store of value (since the hyperinflation and confiscation experiences of the 1980s) had led to a highly dollarized economy in which a hard peg or even full dollarization seemed a reasonable alternative from a financial point of view, not only to avoid massive capital gains and losses resulting from exchange rate changes, but also as an expeditious shortcut to nominal stability and monetary credibility. No wonder that informed analysts favored –and still do- opposite exchange regime choices depending on the relative weight they assign to real economy or financial considerations.

With the benefit of hindsight, the boom years up to mid 1998 were a major lost opportunity. Staying with the hard peg but minimizing the risks associated with adverse external shocks would have required four supporting ingredients: First and foremost, significant fiscal strengthening, not just to protect solvency but with the broader objective of providing some room for counter-cyclical fiscal policy. This contrasts with the expansionary pro-cyclical stance actually followed during most of the decade, and especially during the boom from end-1995 up to mid-1998 – once the implicit pension debt (as well as other implicit liabilities) had been brought in the open by pension reform (as documented in Section IV). Second, considerable flexibilization of labor and other domestic markets (including utilities). Third, significant unilateral opening to trade. None of this was done in the nineties. And fourth, even stricter prudential regulations for banks than actually adopted (in spite of the significant progress achieved in this field), including harder provisioning and/or capital requirements for loans to households and firms in non tradable sectors, a “firewall” between banks and the Government and some form of

earmarking of liquidity to demand deposits in order to protect the payments system in the event of a systemic deposit run (as discussed in Section V).

Alternatively, those years would have been the right time to engage in a more orderly change of the exchange rate regime. But the exit, whether towards a successful flexible exchange rate regime with a monetary anchor or to full dollarization, would have also required significant structural reforms and institution building. Instead, this was a period of inaction and laxity on many fronts.

Just too often in Latin America the seeds of crisis are planted in good times by imprudent behavior or lack of precautionary action, whose consequences are only revealed when bad times arrive. There are deep political economy factors that help to explain such bad outcomes. A key lesson from Argentina is the need to adopt economic and political institutions that align incentives to face hard choices and facilitate timely reforms, and in particular that are less prone to amplifying economic cycles.

The analysis of the Argentine crisis yields many other useful lessons for other Latin American economies. After all, the exchange rate system dilemma faced by a highly dollarized economy that conducts only a fraction of its trade with the US, in a world economy characterized by highly volatile currencies, is not exclusive to Argentina. But even economies with less stringent structural dilemmas often face some form of tension between the convenience of adopting and maintaining a flexible exchange rate regime with a monetary anchor in order to achieve flexibility in responding to shocks, and balance sheet vulnerabilities to major real exchange rate adjustments originated in unhedged foreign-currency debt of firms in non-tradable sectors and of Governments themselves.<sup>4</sup> Even those could draw useful policy lessons from the Argentine debacle. And so can we, in the International Financial Institutions, as we must admit that we were slow in understanding some of the deep problems discussed here and in reacting to them.

## **II. ECONOMIC PERFORMANCE AND EXTERNAL SHOCKS IN THE 1990s: The endogeneity of capital flow reversals**

Over 1990-97, Argentina outperformed most other economies in the region in terms of growth (Table 2.1). The external environment (terms of trade, capital inflows, sovereign spreads and world growth) was relatively benign in those years, apart from a short-lived but abrupt interruption in 1995 due to the Tequila crisis, from which Argentina suffered a severe contagion. The growth performance remained fairly satisfactory even in 1998. But after the region-wide growth slowdown of 1999 – largely a consequence of capital flow retrenchment following the Russian crisis – other Latin American countries began a modest recovery, while Argentina plunged into a protracted recession.

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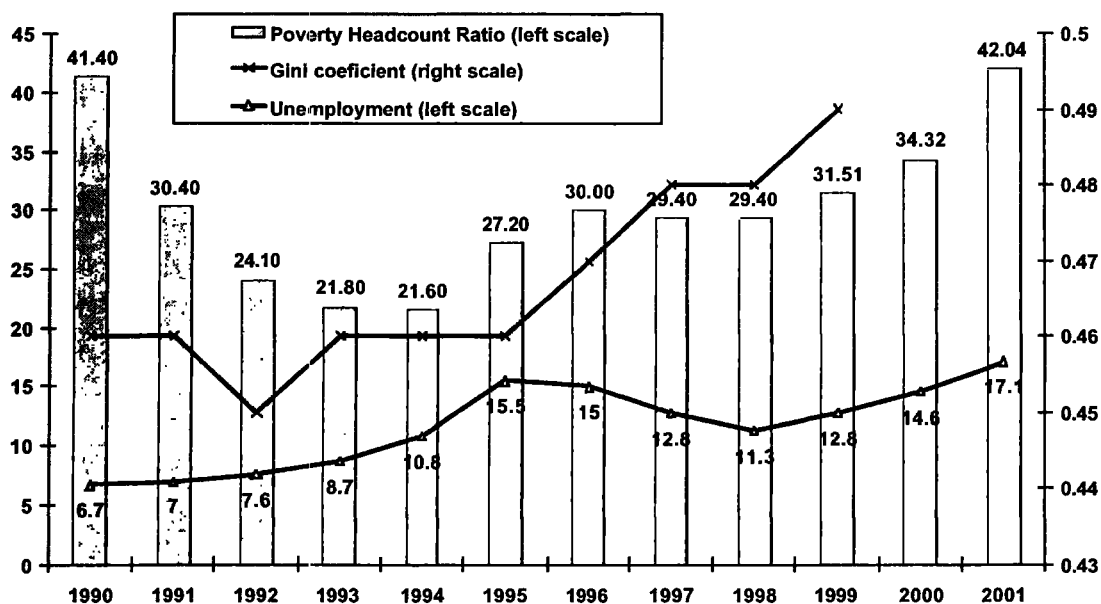
<sup>4</sup> What Calvo and Reinhart (2000) have described as “liability dollarization” that leads to “fear of floating” and Hausmann et al. (2000) have attributed to the inability to issue long term debt in local currency.

**Table 2.1. Real GDP Growth Rate**  
(Percent per year)

	1981-90	1991-97	1998	1999	2000-01
<b>Argentina</b>	-1.3	6.7	3.9	-3.4	-2.6
<b>Bolivia</b>	-0.4	4.3	5.0	0.4	1.8
<b>Brazil</b>	2.3	3.1	0.1	0.8	3.0
<b>Chile</b>	4.0	8.3	3.9	-1.1	3.6
<b>Colombia</b>	3.4	4.0	0.6	-4.1	2.0
<b>Costa Rica</b>	2.4	4.8	8.4	8.2	1.6
<b>Ecuador</b>	2.1	3.2	0.4	-7.3	4.0
<b>Mexico</b>	1.5	2.9	5.0	3.6	3.2
<b>Peru</b>	0.0	5.3	-0.5	0.9	1.7
<b>Venezuela</b>	0.3	3.4	0.2	-6.1	3.0
<b>Average</b>	1.4	4.6	2.7	-0.8	2.1

Source: World Development Indicators Database and the Unified Survey.

**Figure 2.1. Poverty, Inequality, and Unemployment**



Data for urban areas. Sources: Unemployment from INDEC, Gini Coefficient and Poverty Head Count ratio from World Bank Poverty Assessment Report (2000) except for the 1999-2002 ratios which are estimated using the trend observed for the Greater Buenos Aires headcount ratios from INDEC.

Unemployment kept a slightly increasing trend up to the Tequila crisis, when it jumped sharply (Figure 2.1). The fact that unemployment was rising even when the economy was growing at full steam reflects a combination of rising participation rates

(likely stemming from an ‘encouragement effect’ due to the growth upturn), declining labor-intensity of production techniques (encouraged by the real appreciation of the peso), productive restructuring towards less labor-intensive activities, and probably also the poor operation of the labor market.<sup>5</sup> The unemployment rate declined in the boom years 1996-1998, to resume an upward trend during the ensuing recession.

Poverty indicators display a similar trajectory (Figure 2.1). Poverty declined sharply until 1994, but rose again with the Tequila crisis and then continued on an upward trend during the recession of 1999-2001, so that by 2001 the gains at poverty reduction achieved in the early part of the decade had been wiped out. Even more striking is the trajectory of inequality, which appears to have risen without interruption from 1993 on, after an initial decline in 1990-92.

Was Argentina’s poor growth performance from 1999 onward a reflection of more adverse external shocks than those affecting other Latin American and Caribbean (henceforth LAC) countries? To answer this question, we first consider real shocks stemming from terms of trade changes and global growth and then look at capital flow disturbances.

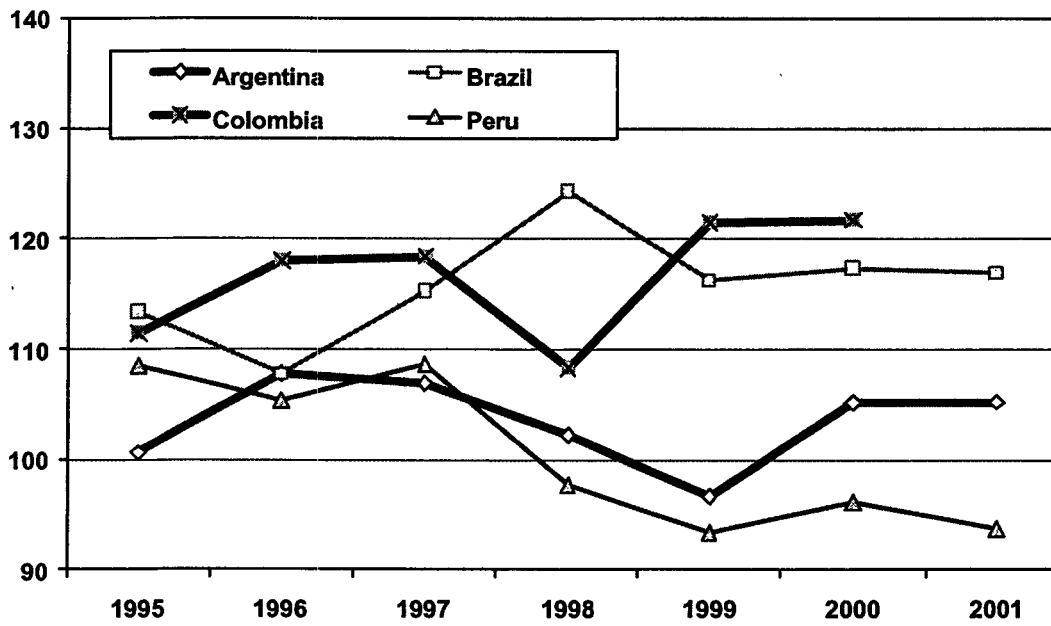
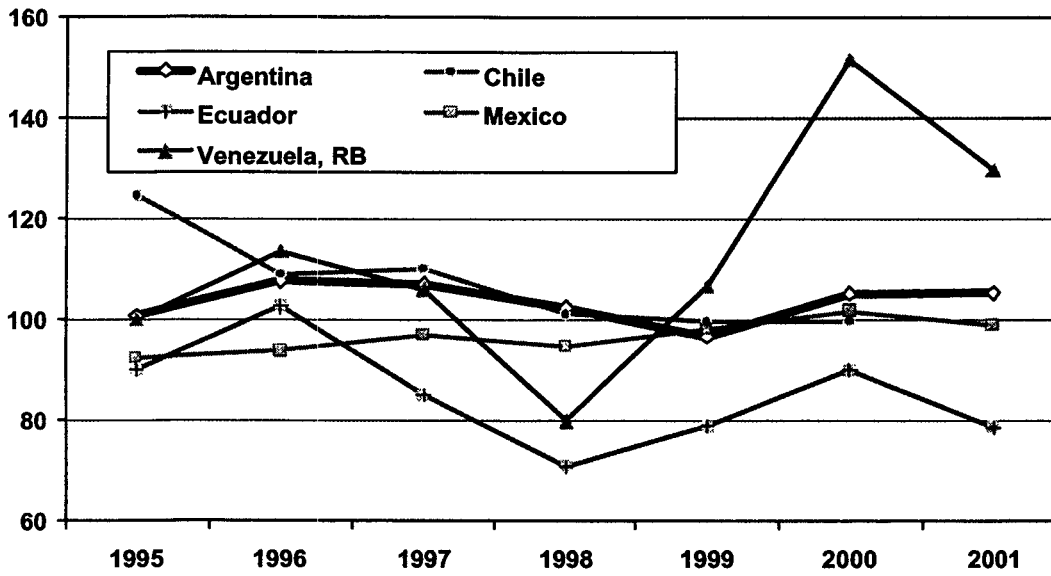
We begin by looking at terms of trade changes. Argentina’s terms of trade declined by over 10 percent in 1998/99, but recovered fairly quickly in 2000/01. Moreover, the temporary drop followed a rise that had occurred in 1996/97. Relative to other countries, Argentina’s terms of trade decline in 1998/99 was less severe than that suffered at first by oil exporting countries like Venezuela and Ecuador, which as a consequence suffered a much deeper contraction in 1999 (Figure 2.2a). Likewise, the cumulative terms of trade decline from 1997 through 2001 was less pronounced for Argentina than for Chile, and much less than the one experienced by Peru.

In any case, the economic impact of these gyrations in the terms of trade was much less significant for Argentina than for other countries. The reason is that Argentina is a fairly closed economy, and thus terms of trade changes entail only modest changes in real income. This is highlighted in Figure 2.2b, which portrays the terms of trade *shocks* suffered by various LAC economies, calculated multiplying the changes in import and export prices by the respective magnitudes of imports and exports relative to GDP. It is immediately apparent that Argentina’s terms of trade shocks over the second half of the 1990s were smaller in magnitude than those of any other country in the graphs, perhaps with the only exception of Brazil (which is also fairly closed). Indeed, Argentina’s real income loss from the terms of trade fall in 1998-99 amounted to less than 0.5 percent of GDP.

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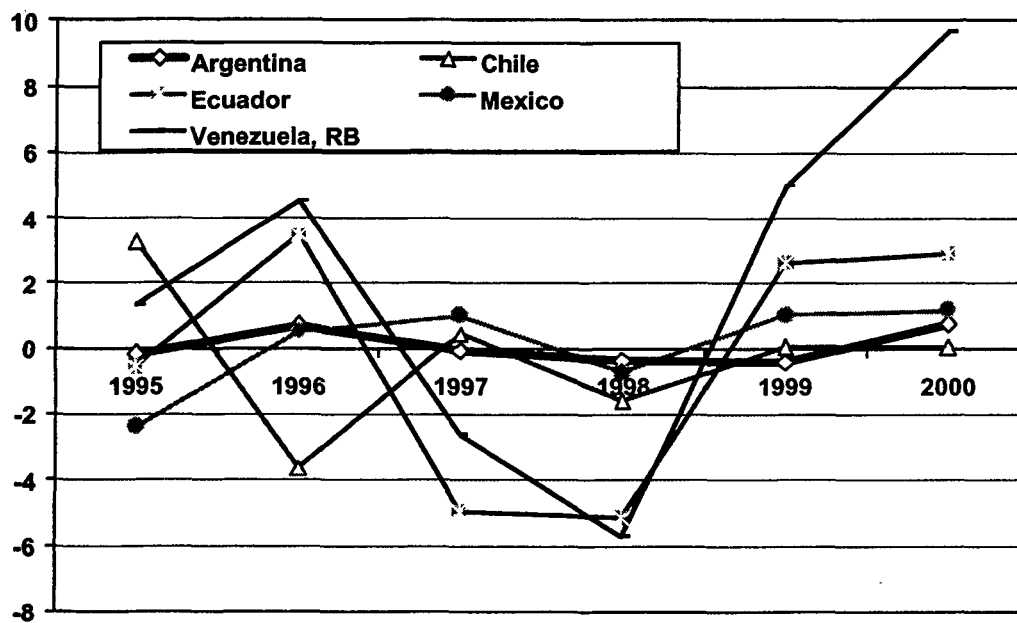
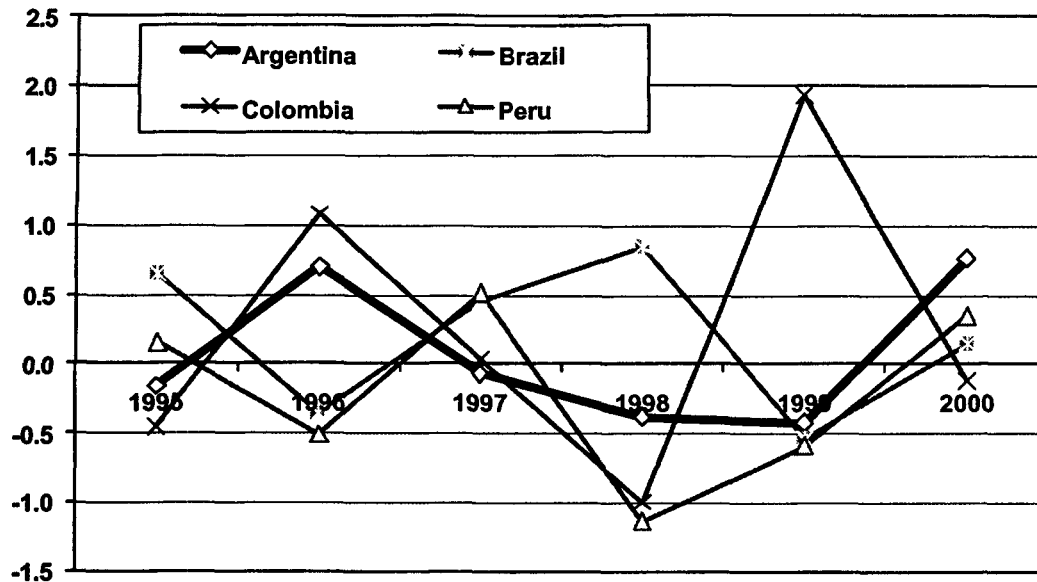
<sup>5</sup> See Galiani (2001) for a recent assessment of the state of Argentina’s labor market.

**Figure 2.2 a. Terms of Trade**  
1992=100



Source: WDI 1995-00 and domestic sources 2001.

**Figure 2.2 b. Terms of Trade Shocks  
(Percent of GDP)**



Source: World Development Indicators - World Bank.

The other source of adverse real shocks was the global growth slowdown that started in 2000. Relative to that year, in 2001 real GDP growth declined by 3 percentage points both in the U.S. and the industrialized world as a whole. Like with the terms of trade decline, however, Argentina was much less affected than other countries in the region, again because of its lower degree of openness. As a result, the growth deceleration and the ensuing slowdown in export markets translated into a fairly modest aggregate demand decline for Argentina – the smallest among the countries shown in Table 2.2.<sup>6</sup>

**Table 2.2. Impact of the Global Slowdown 2001:  
The Income Effect via Trade Volume**

	Exports / GDP (%)	Exports of goods to US/Total Exports (%)	Exports of goods to OECD/Total Exports (%)	Impact of the decline in U.S. growth (% of GDP) (c)=[(a)*(b)* 2.2]*0.03	Impact of the decline in OECD growth (% of GDP) (d)=[(a)*(c)* 2.2]*0.03
	(a)	(b)	(c)		
Argentina	10.81	10.90	33.09	-0.08	-0.24
Bolivia	17.55	13.86	25.27	-0.16	-0.29
Brazil	10.81	24.70	57.11	-0.18	-0.41
Chile	31.85	18.48	62.44	-0.39	-1.31
Colombia	21.34	43.45	60.22	-0.61	-0.85
Costa Rica	48.09	41.38	72.01	-1.31	-2.29
Dominican Rep.	29.93	86.47	94.37	-1.71	-1.86
Ecuador	42.43	38.55	67.05	-1.08	-1.88
Guatemala	19.93	56.40	70.80	-0.74	-0.93
Jamaica	42.94	30.86	85.80	-0.87	-2.43
Mexico	31.06	88.55	94.31	-1.82	-1.93
Peru	15.98	25.39	63.55	-0.27	-0.67
Venezuela, RB	28.45	53.81	64.14	-1.01	-1.20

**Notes:**

(a) Exports of Goods and Services and GDP of 2000, source: WDI.

(b) Exports of goods in 2001 source: IMF Direction of Trade.

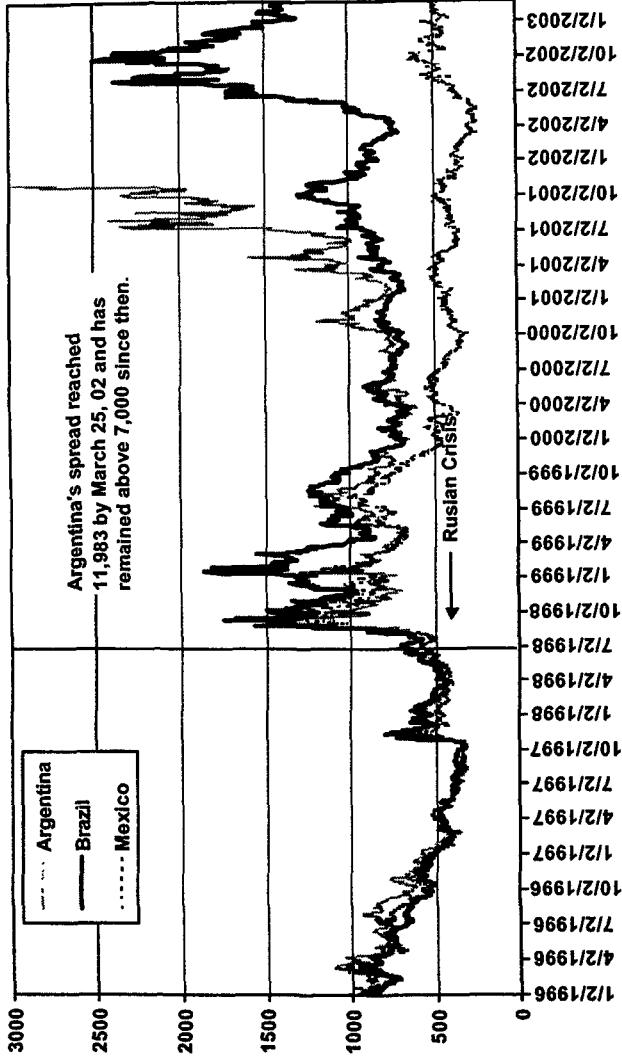
(c) 2.2 is the U.S. expenditure elasticity (Clarida, 1994), and 3% is the decline in the U.S. economic growth between 2000 and 2001 (d) 3 % is the decline in the OECD economic growth between 2000 and 2001.

Next, we turn to the disturbances stemming from world financial markets.<sup>7</sup> Following the Russian crisis, Latin American countries – like other emerging economies – had to face a generalized increase in the cost of market borrowing. Figure 2.3, which offers a comparative perspective on the sovereign spreads faced by different countries, shows that Argentina did not fare worse than the rest of the region in this regard. As a matter of fact, Brazil's spreads rose above Argentina's in 1997-99, with speculative attacks on the real taking place in October 1997 and October 1998. It was only in late 2000 that the Argentine spread began to drift above Brazil's. And the same happened with Venezuela and Ecuador, whose spreads (not shown to avoid cluttering the graph) increased more than Argentina's in 1998 and remained higher until 2001.

<sup>6</sup> The impact on export demand shown in the table is calculated using an income elasticity of 2.2 for both U.S. and OECD imports.

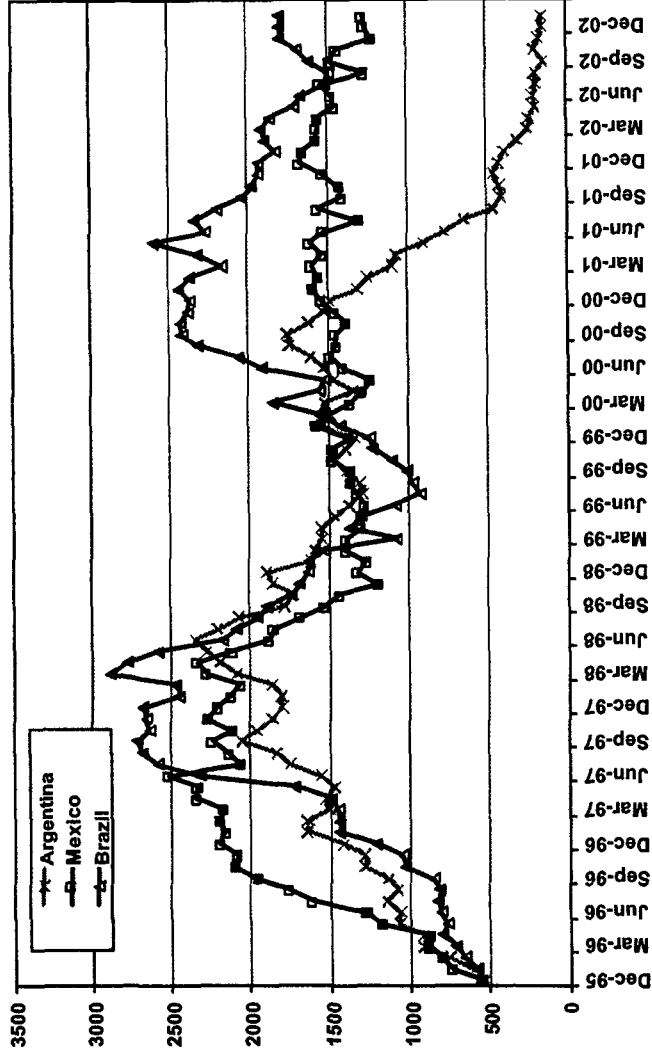
<sup>7</sup> The role of external financial shocks in the Argentine crisis has been underscored in particular by Calvo, Izquierdo and Talvi (2002).

**Figure 2.3. Sovereign Spreads  
(Basis points)**



Source: JP Morgan.

**Figure 2.4. Gross Capital Flows  
(12 month moving average, million US\$)**

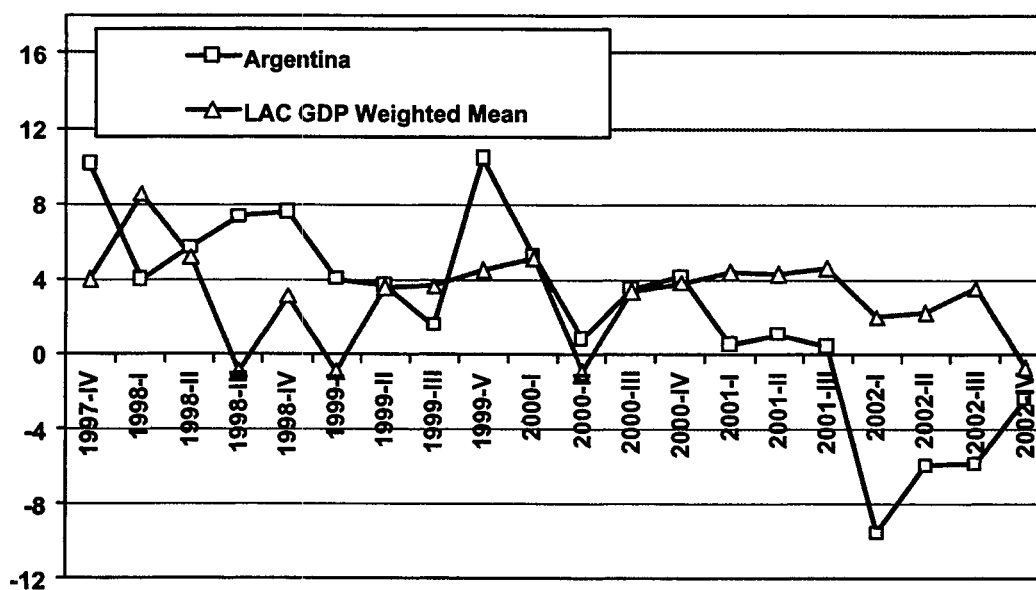


Source: Harver.



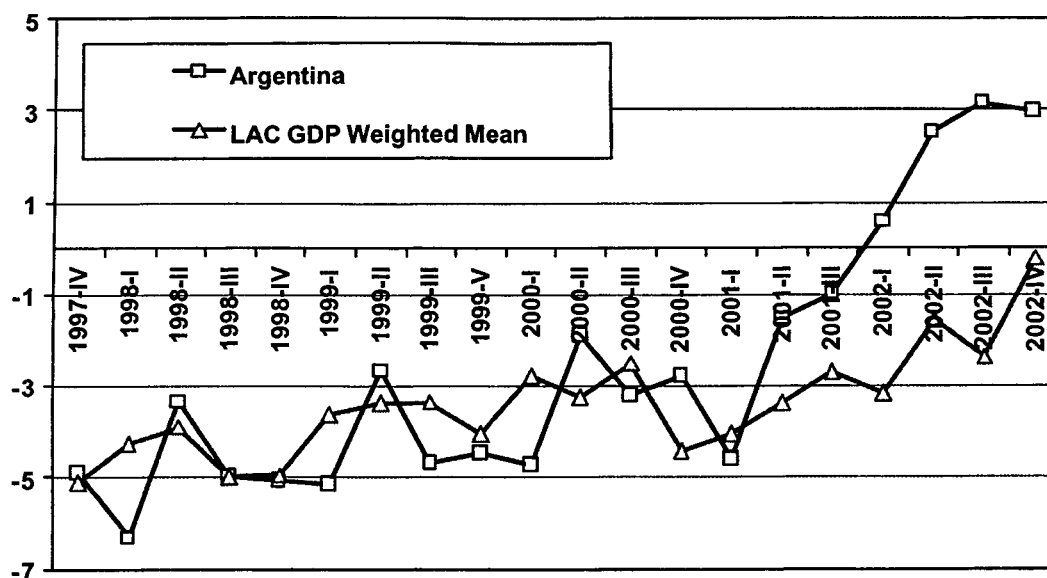
The comparative evolution of the current and capital accounts across LAC countries tells the same story. Until late 2000, Argentina's capital account surplus (as percentage of GDP) remained above the regional average (Figure 2.5a). Its current account deficit likewise exceeded the region's norm (Figure 2.5b). Indeed, the current account adjustment that Argentina, like most Latin American countries, undertook in 1999 – a result of the capital flow decline that followed the Russian crisis – was fairly modest by regional standards. Among the larger countries, it exceeded only Mexico's, and was dwarfed by the current account correction undertaken by Chile, Colombia and Peru – not to mention the dramatic adjustments of oil-exporting Ecuador and Venezuela (Table 2.3).

**Figure 2.5 a Capital Account  
(Percentage of GDP)**



In summary, while the global contraction in capital flows that occurred in 1999 reached virtually all Latin American economies, Argentina was not affected as severely as (and certainly not more severely than) other countries in the region. Thus, Argentina was able at first to continue running large current account deficits, as it had done in the previous years. After 1999, however, capital flows to most LAC countries recovered somewhat, except for Argentina (and Venezuela), where they continued to fall, especially sharply in 2001. Thus, the tentative conclusion is that the deterioration of capital flows to Argentina at the end of the decade reflected mostly Argentina-specific factors rather than global factors.

**Figure 2.5 b. Current Account  
(Percentage of GDP)**



Source: Balance of Payments from domestic sources via HAVER. Latin America average includes Arg, Bra, Chi, Col, Mex, and Pe.

**Table 2.3. Current Account Adjustment**

	as share of GDP		as share of Imports	
	1998/99	2000/01	1998/99	2000/01
<b>Argentina</b>	0.77	1.29	7.16	14.51
<b>Bolivia</b>	1.44	1.54	4.96	7.83
<b>Brazil</b>	1.11	-0.55	13.83	-7.33
<b>Chile</b>	5.56	-0.86	22.38	-3.64
<b>Colombia</b>	5.20	-3.14	34.37	-22.55
<b>Costa Rica</b>	-0.91	-0.34	-2.07	-0.83
<b>Ecuador</b>	15.84	-12.20	56.03	-41.16
<b>Mexico</b>	0.37	0.31	1.13	0.92
<b>Peru</b>	3.19	0.50	20.75	3.37
<b>Venezuela, RB</b>	7.24	-5.56	42.99	-41.67
<b>Average</b>	3.98	-1.90	20.15	-9.06

**Note:**

Current Account adjustment is defined as the year on year difference in the Current Account surplus as share of GDP or imports.

Sources: Imports (US\$) from Direction of Trade (IMF); GDP and Current Account Balance (US\$) from WDI (World Bank).

We can assess more formally the relative role of global and country-specific factors in the observed pattern of capital flows to Argentina and other countries using a suitable statistical decomposition separating the common component of sovereign spreads from their country-specific component. Loosely speaking, the common component reflects global conditions (both interdependence and ‘contagion’), and hence captures global risk, while the country-specific component reflects each country’s economic fundamentals (or, more precisely, investors’ perceptions about them) and thus provides a measure of its pure risk premium.<sup>8</sup>

This procedure yields a synthetic “global factor”, whose role in the observed evolution of emerging-market spreads is depicted in the top panel of Figure 2.6. The figure plots the degree of comovement of the spreads, as measured by the fraction of their total variation (computed over moving 48-month windows) attributable to the global factor. The graph shows that the global factor accounts for the vast majority of the variation in spreads up to 1998. After that date, there is a steady decline in the degree of co-movement of spreads, reversed only in part in September 2001.

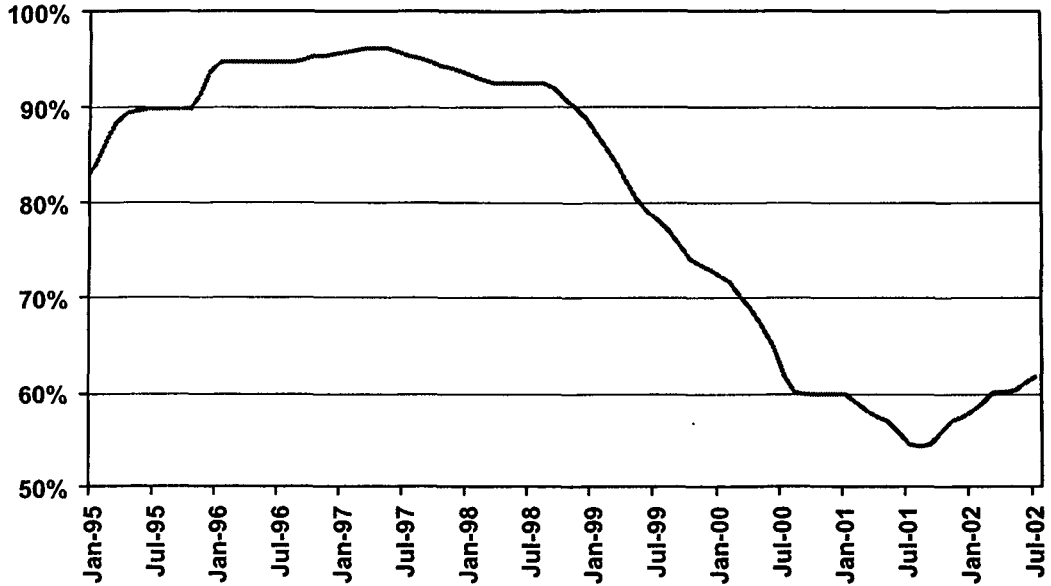
The bottom panel of Figure 2.6 performs the same exercise for Argentina, Brazil and Mexico. For each of these countries, the figure shows the fraction of the total variation in its spread attributable to the global factor just described. In all three countries analyzed, sovereign spreads reflect both global and country-specific risk. The roles of these two factors are not the same across countries and time periods, however. In accordance with the previous figure, the global factor plays the main role up to 1998. Indeed, in 1997-98 it accounts for the bulk of the variation in spreads in all three countries. After the Russia crisis in 1998, however, the contribution of the global factor declines for the three countries. Importantly, the extent of the decline differs across countries. In the case of Argentina, it is much more marked and accelerates noticeably in the second half of 2000. In fact, after that moment global factors account for less than half of the observed variation in Argentina’s spreads. The conclusion is that such variation increasingly reflects country-specific factors after 1998, and especially so from 2000 onward.

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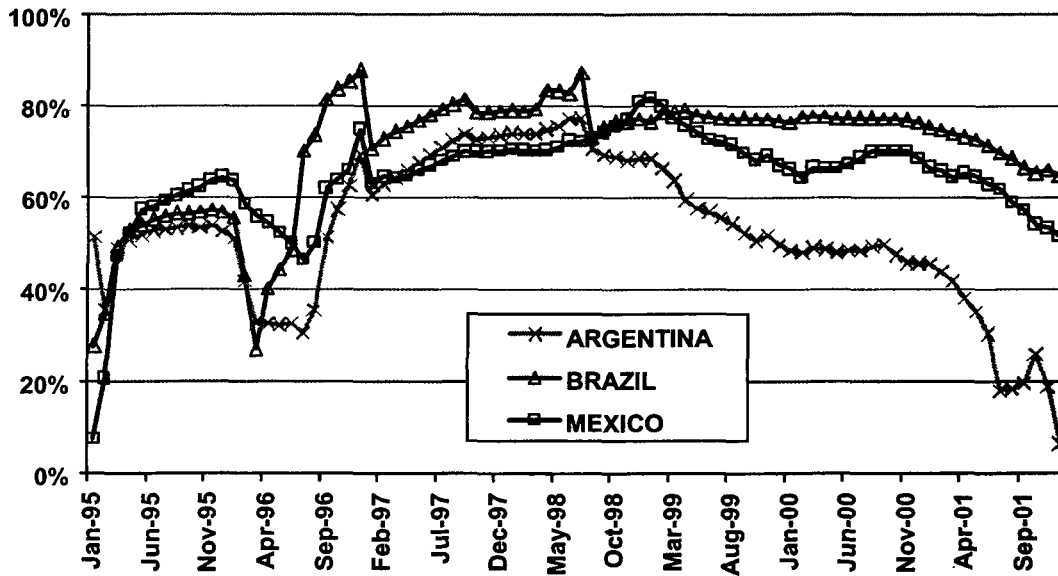
<sup>8</sup> The full details are spelled out in Fiess (2002). In a nutshell, we use principal component analysis to construct an indicator of global comovement of spreads using end-of-the-month JP Morgan EMBI data for Argentina, Brazil, Mexico, Venezuela and the non-Latin EMBI index over the period from January 1991 to March 2002. The indicator is the percentage of the total variance of the (normalized) spreads explained by their first principal component, constructed using a rolling window of 48 months. We smooth the resulting series by averaging the values obtained for each data point over the 48 windows in which it appears. As a robustness check, we redo the exercise using a broader set of countries – Argentina, Bulgaria, Brazil, Ecuador, México, Nigeria, Panama, Peru, Poland, Russia and Venezuela. However, not all of them possess observations over the entire sample period. We also construct alternative global indicators incorporating the effects of US interest rates on country spreads. Finally, we redo these experiments with alternative window lengths. All these specification changes have only minor effects on the qualitative results. See Fiess (2002) for details.

**Figure 2.6. Sovereign Spreads: The Role of Global Factors**

**a. Contribution of First Principal Component to Overall Variation of Spreads (Percent)**



**b. Contribution of First Principal Component to Variation in Individual Country Spreads (Percent)**

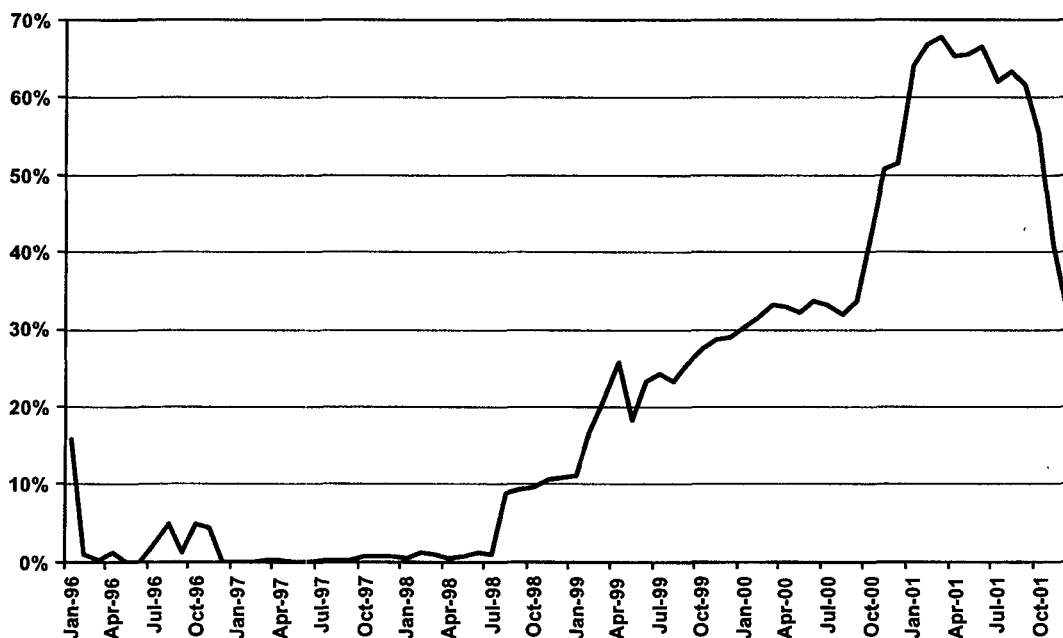


Source: Fliess (2002)

The above analysis of country spreads can be extended to capital flows with the aid of a suitable econometric model of their determinants, a task undertaken in Fiess (2002). In brief, the model describes the simultaneous determination of flows and spreads making use of the decomposition of the latter into their global and local components shown above. Empirical implementation of this framework shows that capital flows are negatively affected by both global and local risk. In turn, local risk rises with the total volume of debt and the primary fiscal deficit, both expressed as ratios to GDP.

Using this framework, we can assess the roles of local and global factors in the observed time path of capital flows to Argentina. This is done in Figure 2.7, which plots the variation in flows to Argentina attributable to local factors, as a fraction of the total variation explained by the model.<sup>9</sup> The figure shows that Argentina-specific factors played a negligible role until 1998, but became increasingly important following the Russian crisis, and especially after October 2000. Indeed, from the latter date up to September 2001, local factors account for two-thirds of the total variation in capital flows to Argentina explained by the model.

**Figure 2.7. Capital Inflows to Argentina: Contribution of Local Factors (Percent of Total Variance Explained)**



Source: Fiess (2002)

<sup>9</sup> Like in the previous figures, we use a 48-month moving window for these exercises. Alternative window lengths result in qualitatively similar results.

On the whole, these model-based results reinforce the more informal evidence shown earlier that Argentina was not affected as severely as other countries by the global slowdown in capital flows from 1999 onwards. On the contrary, the econometric models confirm that the sharp reversal of flows to Argentina in late 2000 and 2001 was mainly driven by country-specific factors. This strongly suggests that the “sudden stop” of capital flows in 2000/2001 acted as an amplifier of the effects of domestic factors, rather than being the primary, exogenous cause behind the crisis.

We can summarize this section by noting that Argentina was not hit harder than other LAC countries by the terms of trade decline after the Asian crisis, nor by the global capital flow reversals and spread increases that followed the Russian crisis, nor by the U.S. and worldwide slowdown that started in 2001. On the contrary, the sharp capital flow reversal from 2000 onwards was primarily an Argentina-specific phenomenon driven mostly by Argentina-specific factors.

Since external shocks were no worse in Argentina than in the rest of the region, the fact that after 1998 Argentina’s performance fell short from that of other LAC countries must reflect either higher vulnerabilities or weaker policy responses, or both. It is true that Argentina was particularly affected by other external events, such as the appreciation of the dollar and the depreciation of major trading-partner currencies. But such differential effects were a consequence of policy decisions – the peg to the dollar under the Currency Board arrangement – and the handicaps that they created. Most important among the latter were the significant balance sheet vulnerabilities to external shocks that plagued the Argentine economy. We next turn to these issues.

### **III. OVERVALUATION AND DEFLATIONARY ADJUSTMENT UNDER THE HARD PEG: Why old lessons about optimal currency areas should not be forgotten**

Our next task is to assess the role of the dollar peg in Argentina’s malaise – how it added to the economy’s external vulnerability and how it hampered adjustment to real shocks.

The pros and cons of irrevocable pegs, such as that adopted by Argentina under Convertibility, have been traditionally assessed in the framework of Optimal Currency Area (OCA) theory. In brief, the latter suggests that an irrevocable peg is more likely to be beneficial for the client country if it trades a lot with the anchor, and if client and anchor are not exposed to significant asymmetric shocks which would demand monetary policy responses of different sign in the two countries. If the scope for asymmetric shocks is substantial, the peg might still make sense if the client country can easily adjust to real shocks through nominal price and wage flexibility, or through other mechanisms such as a system of fiscal transfers and/or unrestricted labor mobility with the anchor.

Argentina did not meet any of these conditions for an OCA with the U.S. dollar. The U.S. accounted for less than 15 percent of Argentina’s total trade, equivalent to

under 3 percent of its GDP, leaving a very large scope for asymmetric shocks (Table 3.1).<sup>10</sup> Wage and price flexibility were limited, making adjustment to real shocks difficult.

**Table 3.1. Argentina's Trade Structure (2001)**

	Geographical composition of imports plus exports (percentage of the total)
Brazil	25%
Main LAC w/o Brazil (*)	17%
USA	14%
Europe (**)	20%
<i>Rest of the world</i>	24%

**Notes:**

(\*) Bolivia, Chile, Colombia, Ecuador, Guatemala, México, Perú, Paraguay, Uruguay, and Venezuela.

(\*\*) Austria, Belgium, Switzerland, Czech Republic, Germany, Spain, Finland, France, United Kingdom, Greece, Italy, Netherlands, Norway, Poland, Portugal, Sweden, and Switzerland.

**Source:** International Monetary Fund - Direction of Trade.

Indeed, the adoption of Convertibility was not guided by OCA arguments, but by the credibility-enhancing effect that renouncing monetary discretion was expected to have after many years of acute monetary instability, as well as by Argentinean investors' stated preference for dollar-denominated assets. As we shall see below, however, this purported shortcut to credibility left the economy highly exposed to disturbances.

**A. WAS THERE AN OVERVALUATION? WHERE DID IT COME FROM?**

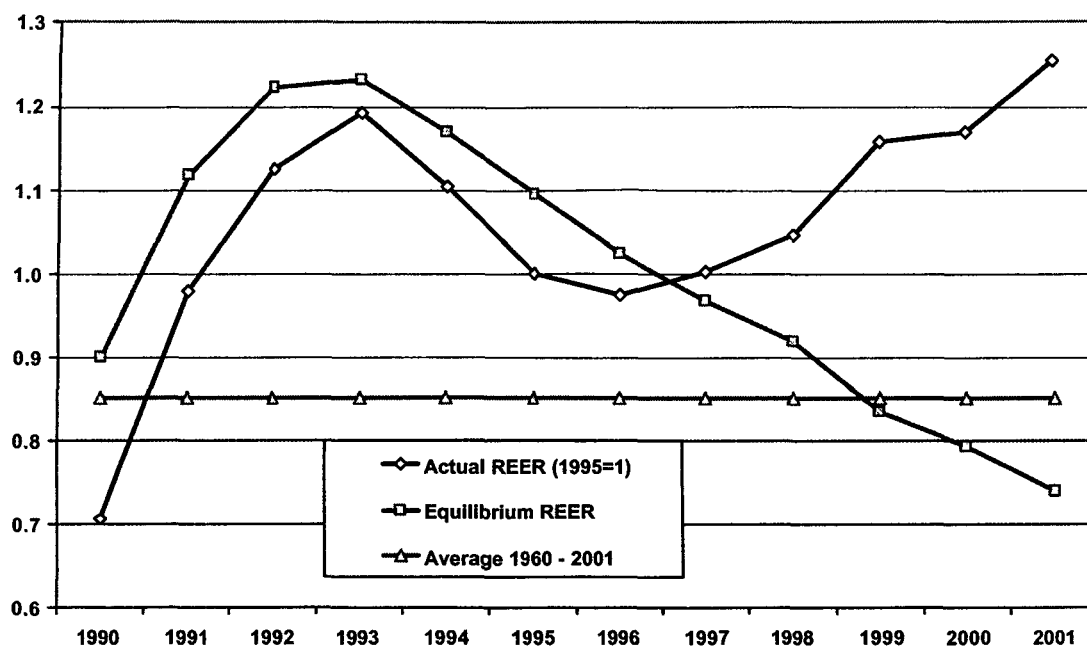
Argentina's real effective (that is, trade weighted) exchange rate (henceforth REER) experienced a considerable appreciation during the 1990s.<sup>11</sup> Between 1990 and 2001, the REER rose<sup>12</sup> by over 75 percent (Figure 3.1). The bulk of the appreciation developed before 1994. In fact, the REER depreciated after that date and until 1996, but then appreciated again to reach its peak in 2001.

<sup>10</sup> In fact, on these grounds a peg to the Euro would have made more sense than a peg to the U.S. dollar. See Alesina, Barro and Teneyro (2002).

<sup>11</sup> Trade weights are taken from the IMF's *Direction of Trade Statistics* and correspond to 1995. They refer to goods trade (imports and exports).

<sup>12</sup> Throughout this note we define the RER so that an increase represents a real appreciation.

**Figure 3.1. Actual and Equilibrium REER**



Source: Alberola, López and Servén (2003)

This evolution of the REER was duly reflected in Argentina's export performance. While real exports did show positive growth over the decade, they grew less than in comparable countries, and their rate of expansion was closely associated to the evolution of the REER. During the initial real appreciation at the time when the currency board was established, Argentina's exports stagnated. As the REER depreciated after 1993, exports expanded vigorously, at rates similar to, or higher than, those experienced by other countries. When the REER started appreciating again in 1997, export performance fell significantly behind that of comparable countries. (Table 3.2).

Real appreciation is not necessarily a symptom of imbalance in need of correction. Indeed, during the 1990s – especially in the early part of the decade -- a number of reasons were offered by different observers in order to explain the persistent real appreciation of the peso as an equilibrium phenomenon. Most importantly, it was argued that the efficiency-enhancing reforms of the early 1990s had led to a permanent productivity increase in the tradable sector of the Argentine economy, which would have justified a permanent REER appreciation. Nevertheless, over the final two or three years of Convertibility an increasing number of independent observers and financial market actors expressed the view that the peso was overvalued – although the precise extent of the overvaluation was disputed, depending on the measure of the equilibrium REER used as benchmark of comparison.<sup>13</sup>

<sup>13</sup> For example, Deutsche Bank perceived the peso to be some 20 percent overvalued in real terms in mid-2000. See also Sachs (2002), Rodrik (2002) and Hausmann and Velasco (2002) for various assessments of the degree of overvaluation of the peso.



**Table 3.2. Average Annual Growth of Real Exports  
(Goods and Non-Factor Services, Percentages)**

	1992-1993	1994-1997	1998-2001	1992-2001
Argentina	1.8	14.4	3.6	7.6
7 major LAC countries w/o Argentina (*)	7.7	11.1	7.8	9.1
Upper middle-income LDCs (**)	7.8	11.9	8.9	9.8
World	3.8	8.4	6.6	6.8
<i>Memo Item:</i>				
Argentina's REER growth (appreciation + )	10.4	-4.1	5.8	2.8

**Notes:**

(\*) Bolivia, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela.

(\*\*) World Bank classification: American Samoa, Antigua and Barbuda, Argentina, Barbados, Botswana, Brazil, Chile, Costa Rica, Croatia, Czech Republic, Dominica, Estonia, Gabon, Grenada, Hungary, Isle of Man, Latvia, Lebanon, Libya, Lithuania, Malaysia, Malta, Mauritius, Mayotte, Mexico, Oman, Palau, Panama, Poland, Puerto Rico, Saudi Arabia, Seychelles, Slovak Republic, St. Kitts and Nevis, St. Lucia, Trinidad and Tobago, Uruguay, and Venezuela.

**Source:** World Development Indicators - World Bank.

Such views were most often based on simple comparisons of the prevailing real exchange rate with its historical value, under the view that the equilibrium REER is constant – the so-called *purchasing power parity* (PPP) view. Figure 3.1 illustrates the use of this approach to assess the misalignment of the Argentine REER over the 1990s, taking as equilibrium value the REER average over the last four decades (1960-2001). The latter is depicted by the horizontal line in the figure. Comparison with the actual REER suggests that the peso was initially undervalued in 1990, but became increasingly overvalued after the introduction of the Convertibility Law in 1991. The overvaluation peaked initially in 1993, declined later through 1996, and rose again to nearly 50 percent in 2001.

However, this approach neglects two important factors that may cause the equilibrium REER to change over time. The first one is the relative level of productivity across countries. Other things equal, an increase in productivity in traded goods sectors relative to nontraded goods sectors in a given country above that experienced by its trading partners should lead to a REER appreciation -- precisely the argument advanced by some observers to justify the rapid real appreciation of the Argentine peso in the early 1990s.<sup>14</sup>

The second ingredient is the adequacy of the current account to sustain equilibrium capital flows. The real exchange rate must be consistent with a balance of payments position that does not lead to explosive accumulation of external assets or

<sup>14</sup> This is the so-called Balassa-Samuelson effect.

liabilities. In this framework, the equilibrium REER is that which allows the economy to achieve a sustainable long-run net foreign asset position.<sup>15</sup>

Our assessment of Argentina's equilibrium real exchange is based on an analytical model encompassing these two ingredients. Thus, we take into account simultaneously the internal (productivity) and external (asset position) equilibrium of the economy to draw inferences about the overall equilibrium or disequilibrium position of the real exchange rate.<sup>16</sup>

Empirical application of this analytical framework to Argentina using data for 1960-2001 yields the estimated equilibrium REER shown in Figure 3.1. The figure suggests that the trajectory of the equilibrium REER consists of two stages. First, an initial real appreciation in 1991-93 – particularly sharp in the first two years. Second, a steady depreciation from 1994 on, which by 2001 has brought the equilibrium REER below its 1990 value.

The equilibrium and actual REER are compared in Figure 3.2, which presents the percentage deviation of the actual REER from its equilibrium value, along with the 95 percent confidence bands derived from econometric estimation of the equilibrium real exchange rate model. In the figure, a positive value indicates overvaluation, and a negative one means undervaluation. The graph reveals two stages of real misalignment. Between 1990 and 1996, the REER was undervalued, although after 1991 the degree of undervaluation was fairly small. From 1997 on, however, the REER exceeded its equilibrium counterpart by a widening margin, resulting in an increasing overvaluation. By 2001, the REER exceeded its equilibrium value by 53 percent.<sup>17</sup>

Notice the contrast between the degree of misalignment derived from the equilibrium model and that arising from the simple-minded PPP calculations mentioned earlier. While by both yardsticks the peso was substantially overvalued by 2001, the PPP calculations imply that the overvaluation of the peso developed basically between 1991 and 1993, with little change afterwards, while the latter suggests that the overvaluation arose only in the last few years of Convertibility. What lies behind these contrasting assessments? As discussed earlier, the analytical model used here encompasses two key determinants of the time path of the equilibrium REER: (i) the relative productivity differential between Argentina and her trading partners, and (ii) Argentina's net foreign asset position. It is useful to examine them in turn.

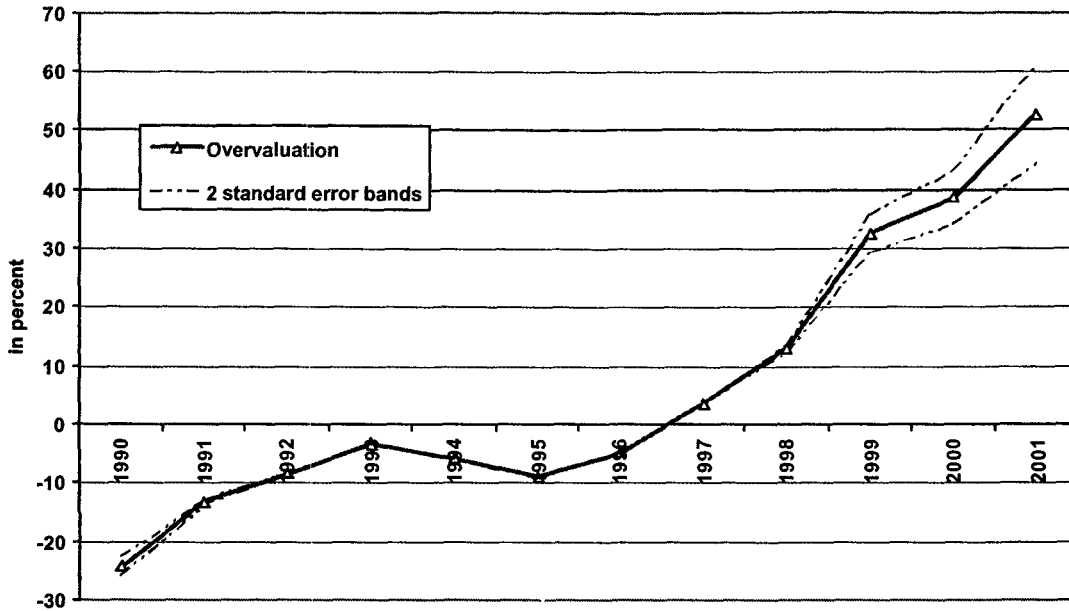
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<sup>15</sup> While this stock-based asset view of real exchange rate determination has become mainstream, an alternative *flow*-based view assigns to exogenous capital flow fluctuations a dominant role in the determination of the equilibrium REER. According to this approach, the equilibrium level of the real exchange rate is that which makes the current account balance equal the (exogenously given) supply of net foreign financing.

<sup>16</sup> The details are spelled out in Alberola et al. (1999) and Alberola, López and Servén (2003).

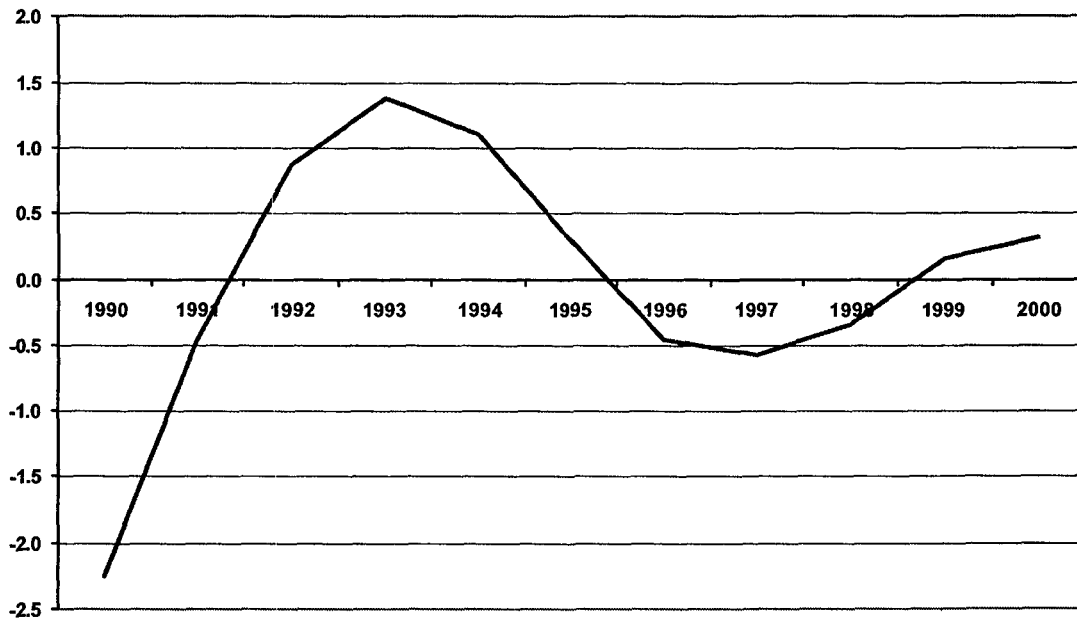
<sup>17</sup> To be specific, this figure is the difference between the logarithms of the actual and equilibrium REER.

**Figure 3.2. Argentina: Real Overvaluation of the Peso**



Source: Alberola, López and Servén (2003)

**Figure 3.3. Relative Productivity**

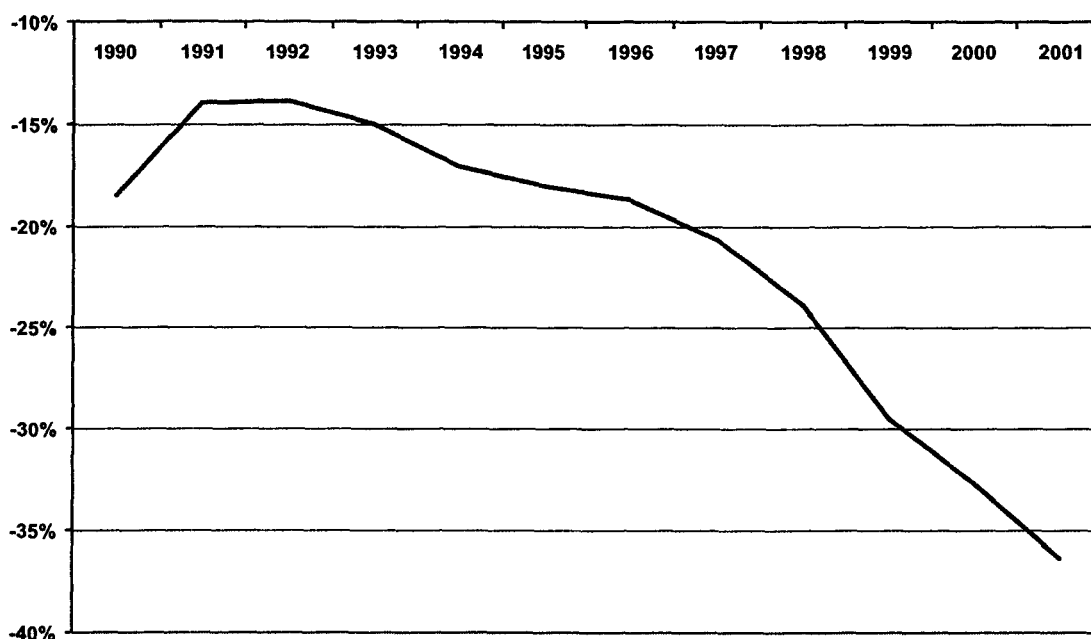


Source: Alberola, López and Servén (2003)

Figure 3.3 portrays the time path of a measure of the productivity differential, based on the (log) ratio of non-tradable to tradable prices of Argentina relative to its trading partners.<sup>18</sup> An increase represents an improvement in Argentina's productivity differential, and calls for an appreciation of the equilibrium REER. The figure suggests a clear rise in relative productivity in the early 1990s and hence, given other things, an appreciation of the equilibrium REER between 1990 and 1993. Much of this gain in productivity is likely to reflect efficiency gains derived from the end of hyperinflation achieved in 1991. After 1993, however, there were no additional gains in relative productivity, and in fact a partial reversal appears to have taken place after 1994. This absence of further productivity gains appears consistent with the stalling of Argentina's structural reform process in the second half of the decade.

If the initial productivity gains are largely responsible for the appreciation of the equilibrium REER in the early 1990s, its depreciation in the late 1990s is driven by the changes in Argentina's net foreign asset position, shown in Figure 3.4. In the figure, an increase represents a rise in Argentina's NFA position (relative to GDP) and hence calls for an appreciation of the equilibrium REER, given other things.

**Figure 3.4. Net Foreign Assets  
(Percent of GDP)**



Source: Alberola, López and Servén (2003)

<sup>18</sup> See Alberola, López and Servén (2003) for more details on the construction of this measure. An alternative measure based on ratios of aggregate labor productivity yields broadly similar qualitative results.

The figure displays an initial rise of NFA in 1991, followed by a steady decline between 1993 and 2001, during which the NFA/GDP ratio falls by over 20 percentage points. The decline proceeds at a particularly fast pace after 1997. In the face of a stagnant productivity differential, as shown above, this deterioration in the NFA position is the driving force behind the steady depreciation of the equilibrium REER in the late 1990s.

The falling NFA/GDP position is largely a reflection of the rising trend in Argentina's foreign liabilities relative to GDP over the late 1990s, which resulted from the combination of substantial current account deficits – particularly large in 1997-99 – and, in the final years of the decade, a persistent growth deterioration. It is true that by 1999-2000 Argentina's current account imbalance, while large, was not far above the region's norm -- at least if the wide surpluses of the oil importing countries are excluded from the comparison. But Argentina's deficits were being incurred in the midst of a severe recession with escalating unemployment. This suggests that the full-employment current account deficit would have been much bigger than that actually observed.<sup>19</sup> In the next section we examine how these persistent current account imbalances relate to the fiscal gaps that developed over the decade.

Our empirical framework allows us to reassess the role of external shocks in the misalignment of the Argentine peso. In particular, we can gauge the impact of changes in the real exchange rates of third currencies. It has been argued that much of the overvaluation of the peso can be attributed to the appreciation of the U.S. dollar in the late 1990s relative to the currencies of major trading partners of Argentina – especially the Euro --, and also to the Brazilian devaluation of 1999, which abruptly reduced Argentina's competitiveness vis-à-vis its top trading partner.<sup>20</sup> Arguably, these are not 'external shocks' in the strict sense of the term, but self-inflicted ones resulting from Argentina's choice of currency regime – they are a result of 'pegging to the wrong currency'.

We can assess the contribution of these factors to the overvaluation of the peso by decomposing the latter into three parts. The first one is due to the divergence in fundamentals between Argentina and the U.S., which causes the equilibrium REERs of the dollar and the peso to diverge. This reflects primarily the pursuance of policies inconsistent with the dollar peg, which must eventually lead to misalignment if the peg is 'right' for the Argentinean economy. In turn, the other two components reflect the inadequacy of the dollar peg itself. One is just the overvaluation of the dollar, which is translated to the peso through the dollar peg. The other results from changes in the real exchange rates of third currencies whose weight in Argentina's total trade is different from their weight in the U.S. total trade – clearly the case of the Brazilian real.<sup>21</sup> Note

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<sup>19</sup> This point is underscored by Roubini (2001).

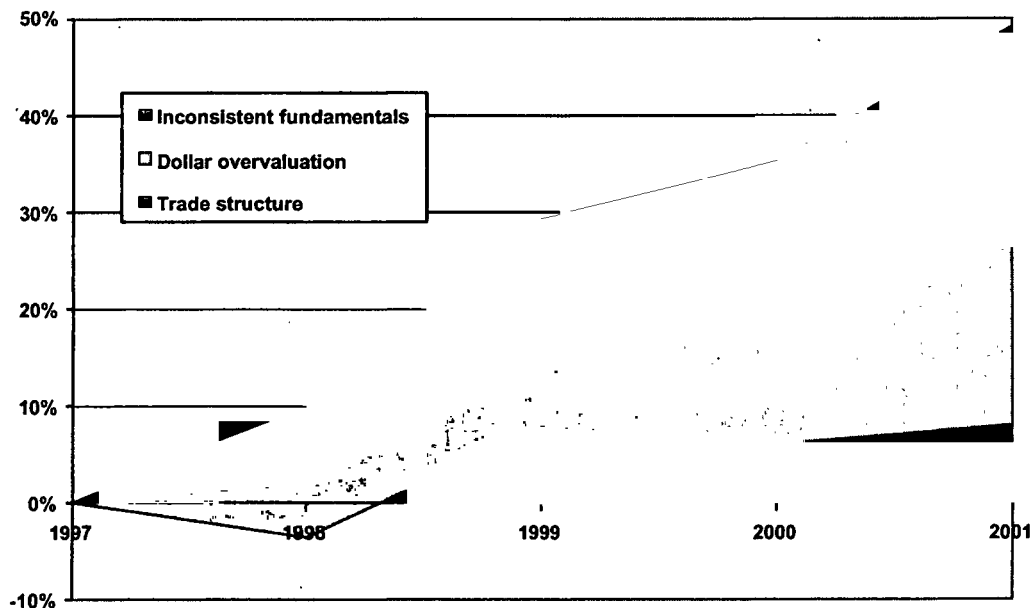
<sup>20</sup> In contrast, adverse terms of trade shocks had presumably a very modest impact on the extent of misalignment of the peso. As already discussed, in 1998-99 Argentina's terms of trade declined by some 11 percent. However, the shock was only temporary, and was reversed in 2000. In addition, the decline followed a terms-of-trade windfall in 1995-96.

<sup>21</sup> See Alberola, López and Servén (2003) for further details on this decomposition.

that, in the former case, misalignment results from pegging to a misaligned anchor currency, while in the latter it results from asymmetries in the trade structure of the client and anchor countries.

The decomposition is presented in Figure 3.5, which shows the contribution of each of the three ingredients to the cumulative change in the misalignment of the peso between 1997 and 2001. As shown earlier, these were the years during which the overvaluation developed. Between those dates, peso overvaluation rose by 50 percent.<sup>22</sup> The figure suggests that both the wrong choice of peg and inconsistent fundamentals were behind the mounting overvaluation of the peso in the final years of Convertibility. Indeed, the former accounts for 27 of the 50 percentage points of overvaluation accumulated between 1997 and 2001, while the latter contributed the remaining 23 percentage points.

**Figure 3.5. Sources of cumulative peso overvaluation, 1997-2001**  
(Percentages)



Source: Alberola, López and Servén (2003)

The graph also shows that most of the misalignment due to inadequacy of the peg can be traced to the overvaluation of the U.S. dollar in the late 1990s. In contrast, trade structure asymmetries worked *against* overvaluation prior to 1999, because the Brazilian real was itself appreciating in those years. The figure clearly shows that Brazil's abrupt devaluation in 1999 added significantly to the misalignment of the peso. In fact, Figure 3.2 above showed that the overvaluation of the peso increased by almost 20 percent in

<sup>22</sup> As before, this figure and the ones that follow refer to logarithmic deviations.

1999. Numerical calculations suggest that the depreciation of the real was directly responsible for about half of this amount (11%).<sup>23</sup>

Finally, it is important to note that these calculations may understate the true contribution of the dollar overvaluation and the depreciation of the real to the misalignment of the peso. To the extent that the overvaluation due to these two factors led to larger current account deficits over time, and hence declining net foreign assets and a falling equilibrium REER, such factors would be indirectly responsible for additional peso overvaluation. All in all, it is safe to conjecture that the choice of a 'wrong peg' accounts for the majority of the observed overvaluation of the peso.

In summary, we conclude that the peso had become substantially overvalued after 1997, in the face of stagnant productivity and mounting net foreign liabilities relative to GDP. We find that the appreciating U.S. dollar and the depreciating Brazilian real accounted directly for over half of the overvaluation. The rest can be attributed to the divergence in fundamentals between Argentina and the U.S. Such divergence largely reflects the external imbalances that Argentina incurred throughout the decade, which, as we shall see later, were mainly the result of persistent public deficits.

Importantly, we reach these conclusions in a framework in which exogenous capital flow fluctuations play no role in the determination of the equilibrium REER. This is consistent with the analysis in the preceding section, which found that factors governing global capital flows became relatively less important in explaining the observed pattern of flows to Argentina in the late 1990s.

#### B. PERSISTENCE OF MISALIGNMENTS AND DEFLATIONARY ADJUSTMENT UNDER HARD PEGS

Real misalignments can and do occur under both fixed and flexible exchange rate regimes. But the key difference is that under a floating regime a real misalignment can be eliminated quickly through a nominal exchange rate adjustment. Thus, if a temporary spending boom, say, causes the real exchange rate to appreciate above its equilibrium value, as the spending boom unwinds the nominal exchange rate will typically depreciate, helping eliminate the real overvaluation.<sup>24</sup>

In a pegged regime, in contrast, the real exchange rate adjustment has to occur through changes in the domestic price level vis-à-vis foreign prices. Disturbances requiring a real depreciation – such as the Brazil devaluation or the U.S. dollar appreciation just reviewed – call for a decline in the inflation differential vis-à-vis trading partners in order to restore REER equilibrium. If trading partner inflation is low, this means that domestic prices need to fall in *absolute* terms. Under nominal inertia – of wages and other prices – deflation in turn requires a recession, making the adjustment process slow and costly in terms of output and employment. This generates a second

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<sup>23</sup> See Alberola, López and Servén (2003). This figure is in fact very similar to those reported at the time by financial market analysts.

<sup>24</sup> Because of this, large and persistent overvaluations are less frequently observed under floating than under fixed regimes. See Goldfajn and Valdés (1999).

difference with floating regimes: in the presence of a large overvaluation, the fact that the required adjustment process may entail large (and politically unpalatable) output losses can in turn undermine confidence in the sustainability of the peg itself – especially when fiscal institutions are weak, as was the case in Argentina (see Section IV below).

The cost of adjustment under a hard peg can be illustrated on the basis of empirical evidence on the adjustment to real disturbances from a large sample of industrial and developing countries under different exchange rate regimes. Figures 3.6 and 3.7 portray the adjustment of countries with floating regimes and hard pegs (such as Argentina's currency board) to a trajectory of the terms of trade similar to that experienced by Argentina in 1998-99 – a cumulative drop of 11 percent.<sup>25</sup> The figures show the time path of output and the real exchange rate, in percentage deviation from the initial (pre-shock) level.

Figure 3.6 shows the adjustment of real GDP. In floating regimes the output loss is small – it never exceeds 0.5 percent of initial GDP. In hard pegs, in contrast, the terms of trade deterioration leads to a sizable output contraction in the short-run – up to 2.5 percent by the second year. The initial contraction is followed by a partial recovery of GDP, which approaches the level of the floating regime by the fifth year.

The other side of the coin is shown in Figure 3.7, which presents the time path of the real exchange rate, again distinguishing between floating regimes and hard pegs. In floating regimes, the terms of trade loss causes an immediate real depreciation. The RER depreciates by over 1.5 percent on impact, and continues to depreciate over the following periods – by up to 5 percent by the third year. In contrast, under hard pegs the real depreciation is gradual and of very modest magnitude – less than 2 percent after ten periods – in spite of the sharp output contraction. Moreover, it is possible to show that the adjustment patterns under both regimes are significantly different in the statistical sense.

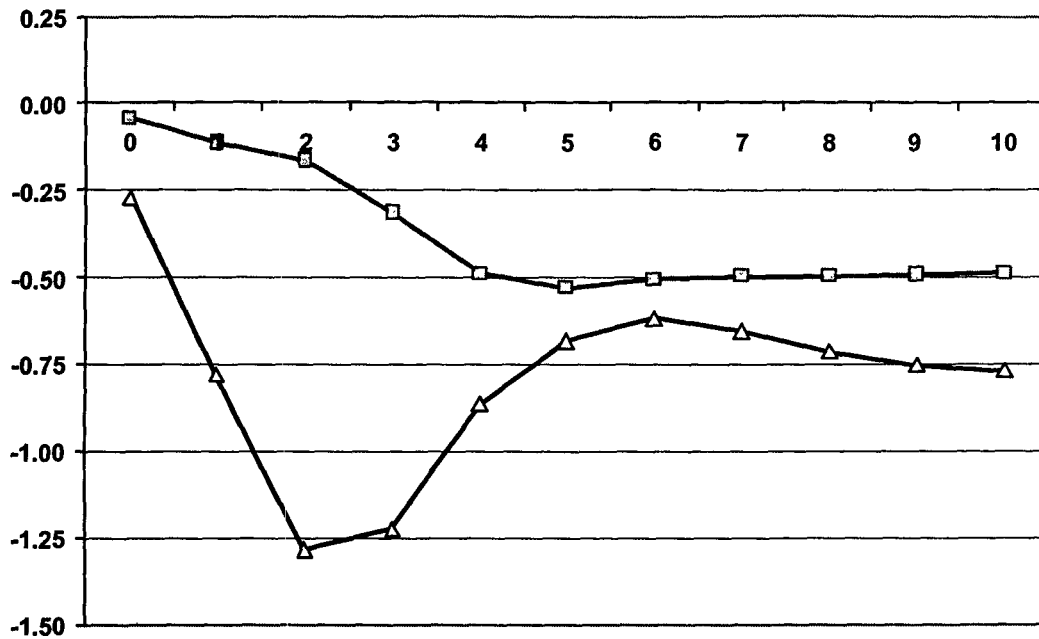
These empirical results conform with the experience of Argentina. As noted earlier, Argentina's REER overvaluation was partly a reflection of specific disturbances to which the currency board was vulnerable – such as the appreciation of the US dollar and the Brazilian real devaluation. In the adjustment to these disturbances, prices did fall, but by a very modest magnitude – a total around 3 percent over 1998-2001. This price deflation was wholly insufficient to offset the impact of the shocks on the misalignment of the REER -- even though nominal deflation was the only way to achieve REER adjustment under the hard peg. However, a faster deflation would have been politically very difficult, as it would have required an even deeper recession and higher unemployment than actually witnessed in 1999-2001.

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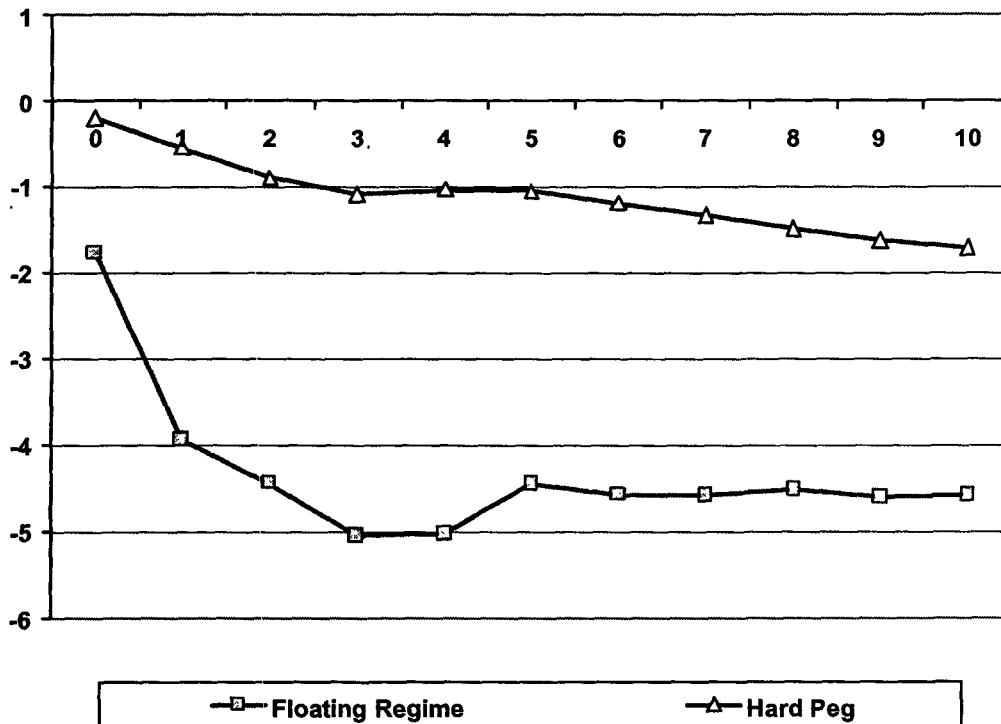
<sup>25</sup> This is based on an extension of earlier work by Christian Broda (2001).



**Figure 3.6. GDP Response to a Terms of Trade Deterioration**



**Figure 3.7. RER Response to a Terms of Trade Deterioration**



### C. SUMMING UP

To sum up, we can highlight four facts that emerge from the discussion. First, taking into account developments in both Argentina's relative productivity and its foreign asset position, we find that the appreciation of the peso up to 1993 was to a large extent an equilibrium phenomenon, reflective of efficiency improvements that took place at the beginning of the 1990s. On the other hand, we also find that the peso had become grossly overvalued by 1999-2001. We reach these conclusions in a framework in which exogenous shifts in capital flows play no role.

Second, a considerable portion of the overvaluation of the peso by 2001 can be traced to the U.S. dollar appreciation against the Euro, as well as the Brazilian real depreciation. This shows the dangers of a hard peg adopted in violation of standard OCA criteria, which in the case of Argentina pointed clearly against the U.S. dollar as anchor currency – even though finance-based arguments may have pointed in the opposite direction, as we shall discuss later.

Third, the experience of Argentina also provides a vivid illustration of the rigidities imposed by a hard peg. The observed degree of downward price flexibility proved wholly insufficient to absorb the adverse real shocks that impacted on the economy in the late 1990s.<sup>26</sup> While deflation provided the only mechanism for REER adjustment under the peg, the deflation required to adjust to the shocks would have been politically hard or impossible to achieve.<sup>27</sup> In this regard, the hard peg offered the mechanism for a persistent and large REER misalignment to go unchecked. As we shall see below, it also hid from public view a rapidly mounting fiscal solvency problem.

Finally, a key ingredient behind the mounting overvaluation of the peso after 1996 was the persistent decline in Argentina's equilibrium NFA position. This in turn can be traced to the large external imbalances that developed over the 1990s, which led to an escalation in external liabilities relative to GDP – especially in the context of slow or negative growth at the end of the decade. As we shall discuss below, public sector imbalances were a major element in this process.

### **IV. FISCAL VULNERABILITIES: Mismanagement in the boom and large fiscal contingencies associated with adverse external shocks**

Many observers have blamed the Argentine crisis on the lack of fiscal discipline which was essential to preserve the Currency Board.<sup>28</sup> Others, in contrast, have argued that even until mid-2001 conventional debt and fiscal indicators appeared no worse in

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<sup>26</sup> This is also in accordance with the international evidence reported by Goldfajn and Valdés (1999). They show that once a real overvaluation exceeds some threshold (around 30%), it becomes very difficult to reverse via nominal deflation., and a collapse of the nominal exchange rate is virtually assured to occur.

<sup>27</sup> This view is also stated by Rodrik (2002) and Sachs (2002).

<sup>28</sup> See in particular Teijeiro (2001) and Mussa (2002).

Argentina than in other emerging markets in Latin America and elsewhere (Table 4.1), and view the fiscal deterioration mainly as a casualty of the recession. The contribution of Social Security reform to the fiscal imbalances of the 1990s has also attracted attention.<sup>29</sup> In this section we assess those claims.

**Table 4.1. Debt Indicators in Emerging Markets**

	Public Debt	Public Debt Interest Payments		
	Percentage of GDP	Percentage of GDP	Percentage of Tax Revenue	Percentage of Debt
<b>Argentina</b>	62.2	5.4	30.8	8.7
<b>Brazil</b>	65.0	9.5	33.8	15.5
<b>Colombia</b>	50.8	5.0	25.3	9.8
<b>Mexico</b>	27.7	2.6	25.7	9.4
<b>Venezuela</b>	35.3	3.3	18.7	9.3
<b>Poland</b>	39.1	2.9	11.0	7.4
<b>Russia</b>	52.3	3.0	7.9	5.7
<b>Turkey</b>	85.1	23.7	133.1	27.8

**Source:** Goldman Sachs and IMF.

**Note:** Data are for 2000 except for Argentina (2001).

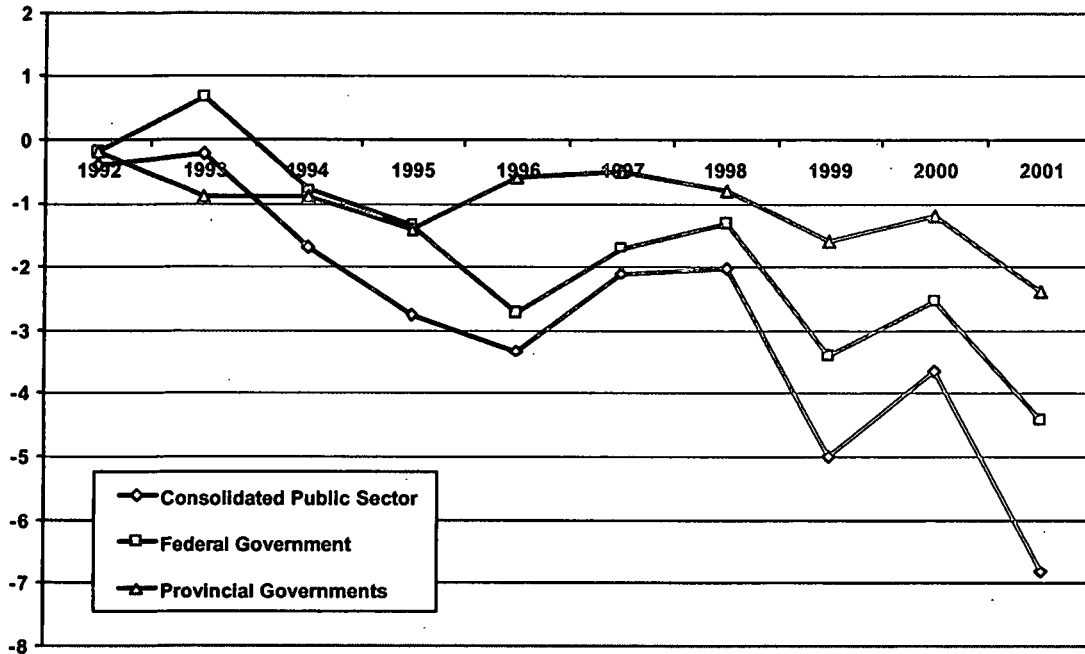
#### A. FISCAL POLICY DURING BOOM AND BUST

We begin our inquiry by examining how and when fiscal vulnerabilities developed during the nineties. Most analysts have pointed to the deterioration of fiscal balances (both at the Federal and provincial levels) and the corresponding increase in debt indicators since 1995 and, especially, since 1999, which are shown in Figures 4.1 and 4.2 respectively.<sup>30</sup>

<sup>29</sup> See Teijeiro (2001) and Hausmann and Velasco (2002).

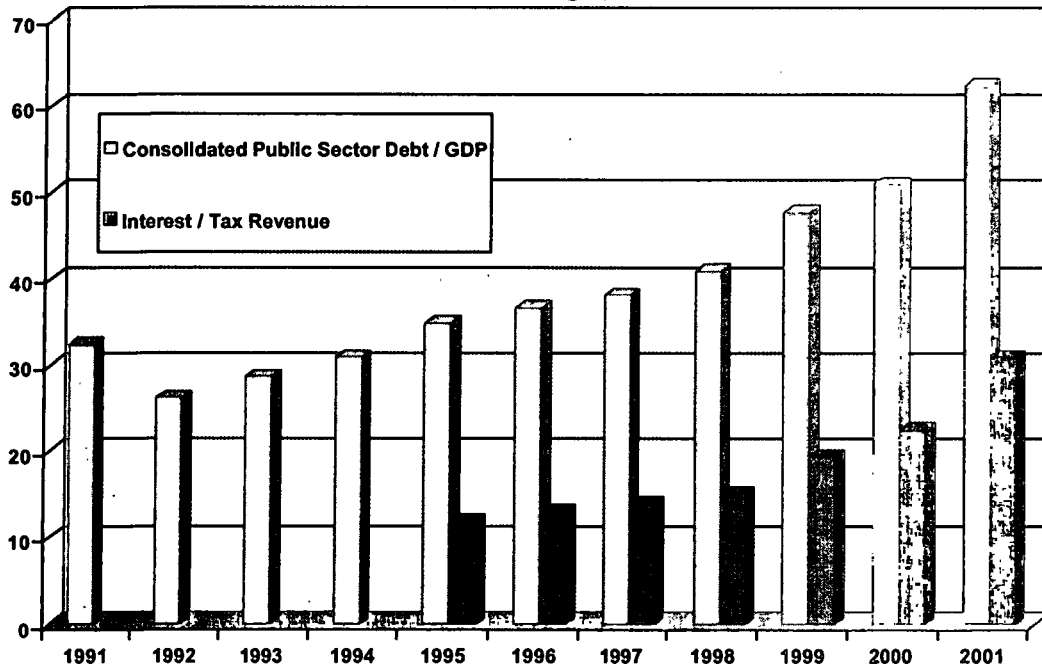
<sup>30</sup> Argentina's fiscal balances during the first part of the nineties look better than they actually were, as they include some privatization receipts above the line and hide important fiscal liabilities (in both Federal and Provincial pension systems and other items) that were later partially recognized, especially from 1994 onwards. Public debt decreased up to 1993 thanks to large privatization receipts and the Brady deal, while from 1994 onward the debt path reflects the recognition of some of the previously hidden liabilities (see Teijeiro 2001). Also, from 1995 on the Federal Government absorbed cash flow deficits previously included in the Provincial pension system. This latter change does not affect the consolidated (Federal + Provinces) deficit but only its composition.

**Figure 4.1. Overall Budget Balance excluding privatization revenues  
(Percentage of GDP)**



Source: Ministerio de Economía de la República Argentina and World Bank.

**Figure 4.2. Consolidated Public Debt and Service  
(Percentages)**

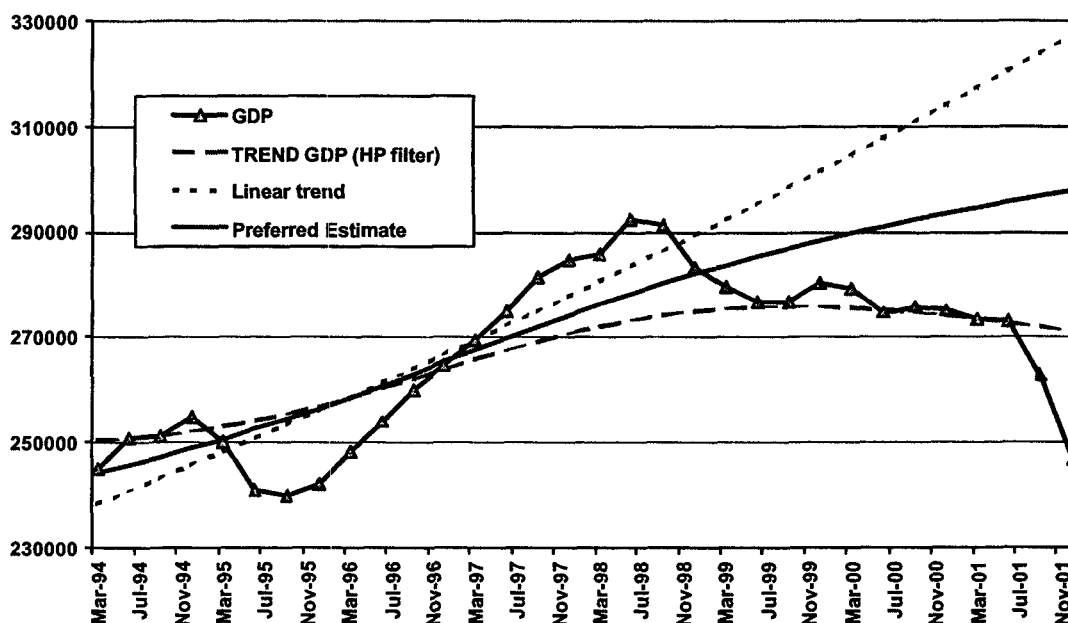


Source: International Monetary Fund.

However, it is true that the observed deterioration in Argentina's fiscal balance in the final years of the decade reflects in part the effects of declining growth on tax collection and those of rising interest rates on debt service. To assess the fiscal stance adopted by the authorities, we need to gauge the effects of these factors beyond their immediate control.

Consider first the effects of cyclical variation in output on the fiscal balance. Unfortunately, we do not have sufficient data to correct for this factor at the level of the consolidated public sector, but only for the Federal government. Nevertheless, Figure 4.1 shows that the time profile of the Federal and consolidated deficits is roughly similar, so the cyclically-adjusted fiscal stance should also be fairly similar for both government definitions.

**Figure 4.3. GDP and Potential GDP  
(Hodrick-Prescott Trend and Linear Trend)**



Source: Ministerio de Economía de la República Argentina and Ministerio de Obras y Servicios Públicos.

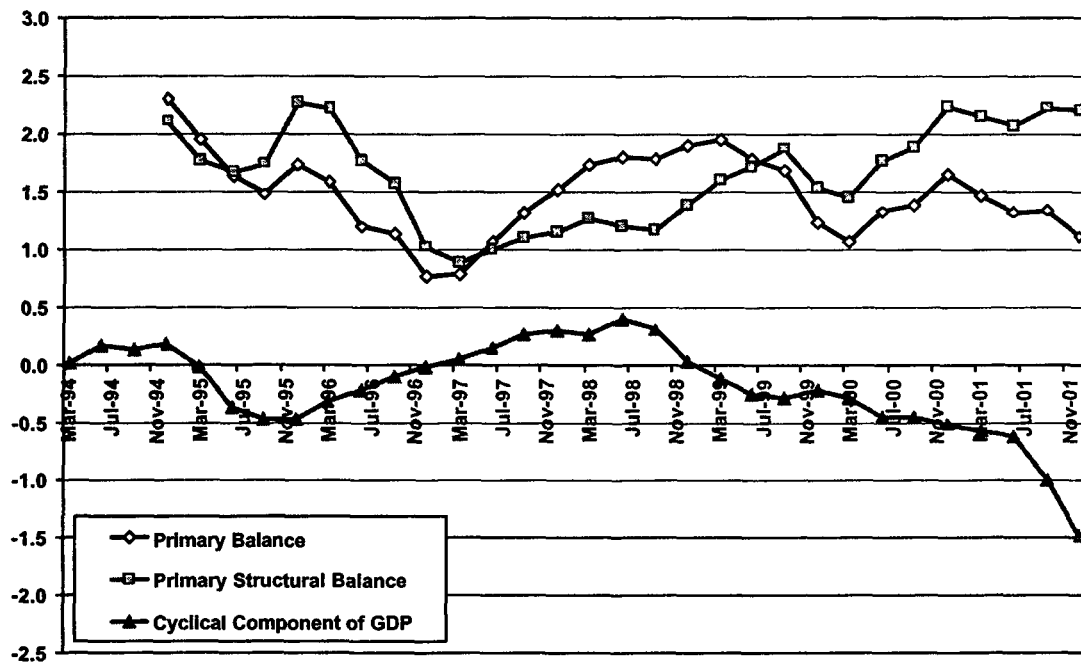
Construction of cyclically-adjusted fiscal figures typically requires estimates of potential output, whose calculation near sample endpoints is subject to considerable inaccuracy due to the difficulty in distinguishing between temporary output movements and changes in trend at the beginning and end of the sample period.<sup>31</sup> To partially remedy this problem, we construct two potential output estimates – one through a Hodrick-Prescott (HP) filter, and another using linear extrapolation. Figure 4.3 shows that the HP method appears to underestimate potential output at the end of the period -- as it projects zero or even negative potential growth -- while the linear extrapolation probably

<sup>31</sup> See Orphanides and van Norden (2002) for a discussion.

overestimates it. Thus, we opt for a middle-of-the-way estimate (shown in the figure) between these two.

Using this estimate, we can correct the Federal primary balance for cyclical revenue effects.<sup>32</sup> This yields the structural primary balance of the Federal government, shown in Figure 4.4. It deteriorated markedly (by nearly 1.5 % of GDP) during the boom period from the end of 1995 to mid 1998, and improved significantly hereafter. The improvement was punctuated by brief periods of relaxation, mostly during the run up to the election at the end of 1999.<sup>33</sup>

**Figure 4.4. Current and Structural Primary Budget Balance of Federal Government**  
(Percentage of potential output and percentage deviation from potential output)



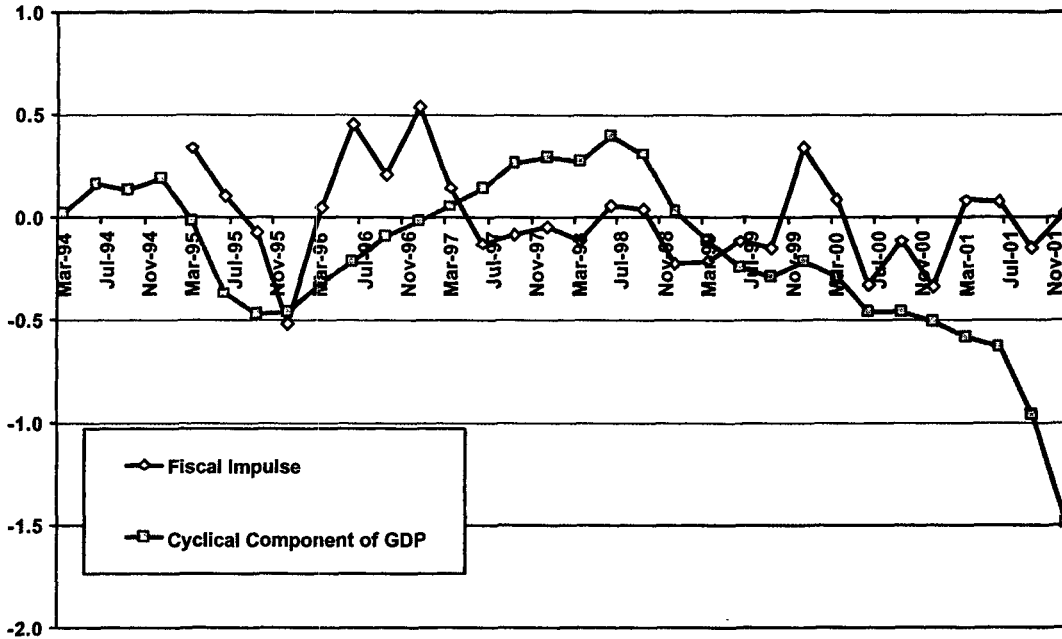
Source: Ministerio de Economía de la República Argentina and Ministerio de Obras y Servicios Públicos.

Indeed, estimates of the fiscal impulse, defined as the change in the structural primary deficit relative to GDP, also reveal a significant expansionary change in the stance of the Federal government during the boom period, followed by progressive adjustment after mid 1998 except for a few months in the run up to the 1999 election (Figure 4.5).

<sup>32</sup> To do this, we use a revenue elasticity to cyclical GDP of 1.14, which is obtained from a regression of current revenues on trend and cyclical GDP.

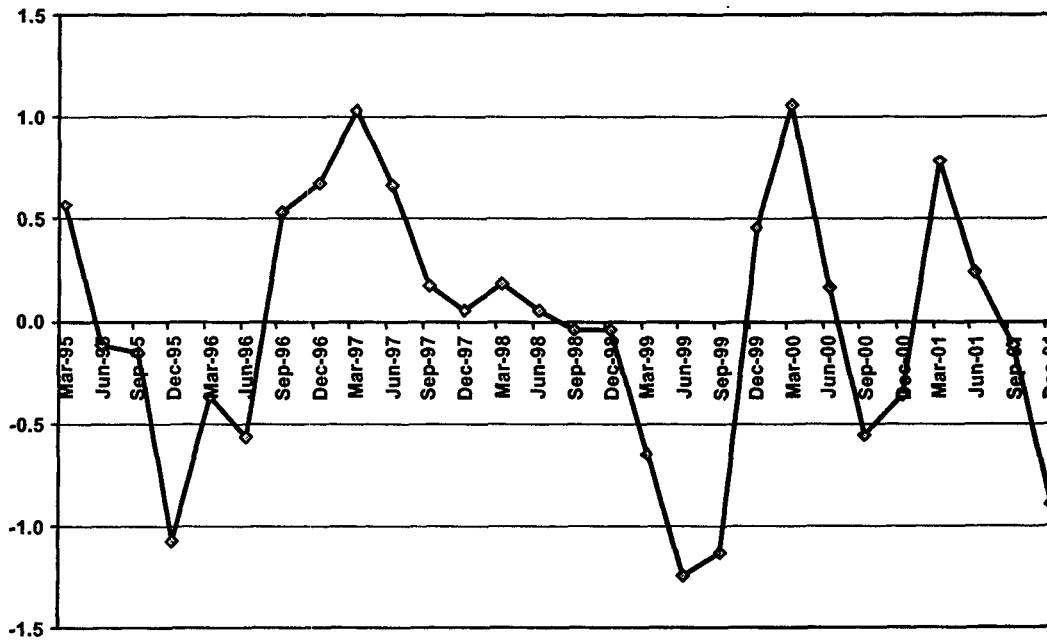
<sup>33</sup> Powell (2002) suggests that inclusion of the Provinces in the analysis would reveal an even larger relaxation in that year.

**Figure 4.5. Fiscal Impulse of Federal Government**  
(% change and deviation from potential output)



Source: Ministerio de Economía de la República Argentina and Ministerio de Obras y Servicios Públicos.

**Figure 4.6. Blanchard's Indicator of Fiscal Impulse**  
(Percentage of GDP)



Source: Our elaboration using data from Ministerio de Economía de la República Argentina.

The above analysis is based on the cyclically-adjusted primary deficit estimates described earlier. To assess its robustness, we can examine an alternative measure of the change in the fiscal stance, due to Blanchard (1993), which avoids taking a stand on the nature of business fluctuations or on trend-cycle decomposition techniques. It compares actual revenue and expenditure with those that would have happened if the previous period's "economic environment" (as described by unemployment and trend output) had prevailed. Such calculation is reported in Figure 4.6. The qualitative pattern is very similar to that shown earlier in Figure 4.5: a major expansionary change in fiscal policy from mid 1996 to 1998, reversed after that date (with brief interruptions in 2000 and 2001).

**Table 4.2. Interest Payments on Public Debt**

	<b>Interest Payments on Debt</b>	<b>Change in Interest Burden</b>	<b>Contribution to Change in Interest Burden</b>	
	Percent of GDP	Percent of GDP	Debt Volume Effect	Interest Rate Effect
<b>1991</b>	2.8			
<b>1992</b>	1.6	-1.1	-0.4	-0.8
<b>1993</b>	1.4	-0.2	0.1	-0.3
<b>1994</b>	1.6	0.1	0.1	0.0
<b>1995</b>	1.9	0.3	0.2	0.1
<b>1996</b>	2.1	0.2	0.1	0.1
<b>1997</b>	2.3	0.3	0.1	0.2
<b>1998</b>	2.6	0.3	0.2	0.1
<b>1999</b>	3.4	0.8	0.5	0.3
<b>2000</b>	4.1	0.7	0.3	0.4
<b>2001</b>	5.4	1.3	1.0	0.3
<b>TOTAL</b>				
<b>1991-2001</b>		2.6	2.2	0.5
<b>1993-2001</b>		3.9	2.4	1.5

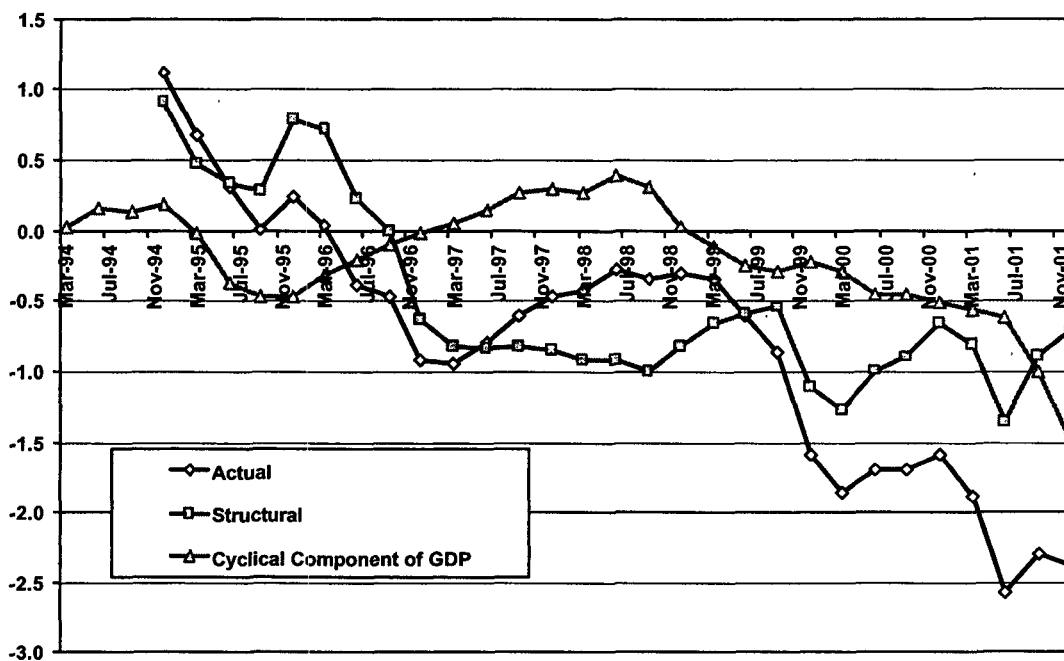
**Source:** Ministerio de Economía de la República Argentina and International Monetary Fund.

However, the adjustment in the structural primary balance after 1998 was not enough to compensate for growing interest rate payments. Figure 4.7 shows how the Federal government's structural overall balance, calculated as the structural primary balance plus actual interest payments, was kept in negative territory (around 1% of GDP) since the end of 1996. Indeed, interest payments rose from around 2% of GDP in 1995/96



to 4.1% in 2000 and 5.4% in 2001. As Table 4.2 shows, however, less than half of the increase in the interest bill between 1995 and 2001 can be attributed to the rise in implicit interest rates on public debt -- which accelerated after the Russian crisis and especially in 1999-2001 due to the perceived weakening of Argentine fundamentals. The rest of the increase in the interest burden was due to the growth in the stock of outstanding debt. The additional deterioration in the Federal government's overall balance, beyond that due to changing fiscal stance and interest charges, can be attributed to the effects of the slowdown, and is captured by the gap between the two deficit measures in Figure 4.7.

**Figure 4.7. Current and Structural Overall Federal Budget Balance (Percentage of potential GDP)**



Source: Ministerio de Economía de la República Argentina and Ministerio de Obras y Servicios Públicos.

More often than not Latin American fiscal problems have originated in booms, when weak fiscal institutions and policy complacency do not facilitate the achievement of surpluses. As a consequence fiscal policy has to be pro-cyclical also in bad times, contributing to a deepening of recessions and social tensions, and occasionally ending up in a severe fiscal crisis. Argentina in the nineties was no exception to this unfortunate Latin American policy tradition.<sup>34</sup>

<sup>34</sup> The procyclicality of fiscal policy in LAC has been examined in Gavin and Perotti (1996); Gavin, et al. (1996) and Perry (2002)

## B. FISCAL SOLVENCY ASSESSMENTS

We next explore debt sustainability. First, we attempt to mimic debt sustainability exercises on the basis of growth expectations formed using the information available in each year. These exercises, reported in Table 4.3, reveal that declining future growth projections (influenced by the deflationary adjustment under the hard peg) may have been even more important than implicit public debt interest rate increases in shaping perceptions about fiscal sustainability. Indeed, assuming that markets assessed long-term growth potential based on a (3 and 5-year) moving average of past growth, the simulations indicate that by the year 2000, and certainly by 2001, debt sustainability was clearly open to question, in the sense that the required primary balance of the consolidated government approached or even exceeded 4% of GDP, a figure that looked unlikely given Argentine fiscal history and institutions. In practice, although fiscal discipline had been a concern for years, it is fair to say that most analysts in investment banks and elsewhere began to seriously question fiscal solvency in these years and not before. It should be pointed out, however, that Argentine economists centered the debate in the electoral year of 1999 on the need for further fiscal adjustment and that the Fiscal Responsibility Law was enacted in mid 1999 as a means to guarantee fiscal solvency. Non-compliance with its goals in the run up to the election and afterwards contributed to undermine confidence in solvency.

**Table 4.3. Indicators of Fiscal Sustainability**

	<b>Average Growth Rate</b> (three preceding year average)	<b>Implicit Interest Rate on Gov. Debt</b>	<b>Consolidated Gov. Primary Balance</b>	<b>Sustainable Balance (a)</b> (av. growth rate based on last 3 year observations)	<b>Sustainable Balance (b)</b> (av. growth rate based on last 5 year observations)
	Percentage	Percentage	Percentage of GDP	Percentage of GDP	Percentage of GDP
<b>1991</b>	0.7	8.6	-0.4	2.7	2.8
<b>1992</b>	5.7	6.2	1.4	0.1	1.4
<b>1993</b>	7.3	5.0	1.2	n.s.p.	0.5
<b>1994</b>	6.5	5.1	-0.1	n.s.p.	n.s.p.
<b>1995</b>	2.6	5.4	-1.0	0.8	0.1
<b>1996</b>	2.8	5.6	-1.3	0.9	0.4
<b>1997</b>	3.6	6.1	0.2	0.9	0.6
<b>1998</b>	5.8	6.4	0.6	0.2	0.9
<b>1999</b>	2.9	7.1	-1.6	1.7	2.0
<b>2000</b>	-0.1	8.0	0.3	3.9	2.5
<b>2001</b>	-2.9	8.7	-1.4	6.0	4.0

**Note:**

n.s.p. means no sustainability problem.

**Source:** Estimates based on IMF and Ministerio de Economía de la República Argentina data.

The protracted deflationary adjustment to the external shocks imposed by the hard peg to the dollar (as discussed above) had thus a major effect on debt sustainability

perceptions, through two channels. On the one hand, it reduced future growth expectations, and on the other it made further fiscal adjustment more difficult and painful as the ratio of revenues to GDP collapsed. In this context, further tax hikes (like the “impuestazo” in 2000) or expenditure cuts (like those undertaken during the second half of 2001) aggravated the recession and the ensuing social and political tensions.

**Table 4.4. Fiscal Sustainability and the Exchange Rate**

	Debt Output Ratio	Debt Output Ratio Adjusted for RER Misalignment	Consolidated Gov. Primary Balance Percentage of GDP	Sustainable Balance (av. growth rate based on last 3 year observations) Percentage of GDP	Sustainable Balance Adjusted for RER Misalignment Percentage of GDP
<b>1991</b>	32.3%	28.0%	-0.4	2.7	2.1
<b>1992</b>	26.1%	23.9%	1.4	0.1	0.1
<b>1993</b>	28.7%	27.7%	1.2	n.s.p.	n.s.p.
<b>1994</b>	30.9%	29.1%	-0.1	n.s.p.	n.s.p.
<b>1995</b>	34.8%	31.6%	-1.0	0.8	0.8
<b>1996</b>	36.6%	34.9%	-1.3	0.9	0.9
<b>1997</b>	38.1%	39.4%	0.2	0.9	0.9
<b>1998</b>	40.9%	46.2%	0.6	0.2	0.2
<b>1999</b>	47.6%	63.2%	-1.6	1.7	1.9
<b>2000</b>	50.9%	70.6%	0.3	3.9	5.1
<b>2001</b>	62.2%	95.0%	-1.4	6.0	8.4

**Note:**

n.s.p. means no sustainability problem.

Even more, the observed adjustment in the structural primary balance was clearly insufficient if we take into account both the direct and indirect effects of exchange rate overvaluation since 1997 on the balance sheet of the government. The overvaluation implied that measures of sustainability based on the observed ratio of public debt to GDP understated by a considerable margin the public sector’s difficulties, as most public debt was denominated in dollars while government assets (in particular its capacity to tax) were not. Thus, a real depreciation restoring real exchange rate equilibrium would have raised public debt ratios by a large amount – up to 20-30 percentage points of GDP in 2000-2001, as shown in Table 4.4. It is important to note that this would have occurred irrespective of whether the real depreciation was achieved under Convertibility through nominal deflation or through a nominal devaluation and thus a collapse of the Currency Board.<sup>35</sup> In either case, the real depreciation would have eventually revealed the reduced capacity of the government to pay back its debt. Table 4.4 shows that once this is factored into the analysis, by 2001 government solvency would have required an additional primary surplus of about 2% of GDP annually. The peg actually hid from public view the increasing precariousness of the fiscal situation, and thus made it more difficult to elicit political support for an adjustment while there was still time for an orderly correction.

<sup>35</sup> This is underscored by Roubini (2001).

In the same vein, even if the Currency Board had not collapsed, households and firms in non tradable sectors would have suffered severe financial stress through the required real exchange rate adjustment, as their capacity to repay dollar and peso debts would have been eroded through the deflationary process. This would have had a major impact on the quality of bank portfolios, and the government would have been faced with significant fiscal contingencies -- though probably not as large as those that arose in fact after the nominal devaluation. This is further discussed in Section V below.

### C. THE ROLE OF SOCIAL SECURITY REFORM

It has been noted that much of the observed deterioration in Argentina's fiscal accounts reflects the widening deficit of the Social Security system following its reform in 1994. As a consequence of the reform, workers' Social Security contributions were diverted from the public sector towards the new private pension funds.<sup>36</sup> Figure 4.8 plots the Social Security surplus along with the primary and overall balances of the consolidated public sector. It is apparent from the figure that from 1995 on (and especially in 1997-98) the deficit of the Social Security accounted for a large portion of the overall public sector deficit. Further, comparison of the public sector primary deficit with the deficit of the Social Security system reveals that from 1993 on the non-Social Security component of the public sector ran a primary surplus every year except 1995.

However, not all of the observed deterioration in the Social Security balance is attributable to the reform. Specifically, between 1994 and 2000-2001 the Social Security deficit increased by roughly 2 percent of GDP. About half of this total (i.e., around 1 percent of GDP) was due to the reform. The rest resulted from a reduction in employers' contributions and other factors.<sup>37</sup> Such figure of 1 percent of GDP is small relative to the extent of the fiscal correction that would have been required to address the fiscal sustainability problem identified in the previous tables. Thus, the fact that public finances were headed for insolvency after 1999 is not just a consequence of the reform-induced increase in the Social Security deficit.

Nevertheless, it is true that such deficit increase added to the conventionally-measured fiscal imbalance in the post-reform years. In this regard, it is important to emphasize that the reform aimed at improving the long term structural fiscal position of the country in the first place. Pension reform just revealed a hidden public sector debt (just like nominal devaluation in 2002 revealed the true volume of explicit public debt), which had been kept out of sight by the former Pay as You Go System (just like the hard peg did after 1997 with conventional debt).<sup>38</sup> The implication is that the Argentine fiscal situation up to 1994 had been worse than shown by the published figures.<sup>39</sup> In this sense,

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<sup>36</sup> See Hausmann and Velasco (2002). The economic, as opposed to accounting, merit of this view is disputed by Teijeiro (2001).

<sup>37</sup> In spite of the reform, some hidden liabilities still remain in the system. See Teijeiro (2001).

<sup>38</sup> As mentioned before, in Argentina the hidden liabilities also refer to Provincial pension systems, which were absorbed after 1995 by the Federal Government.

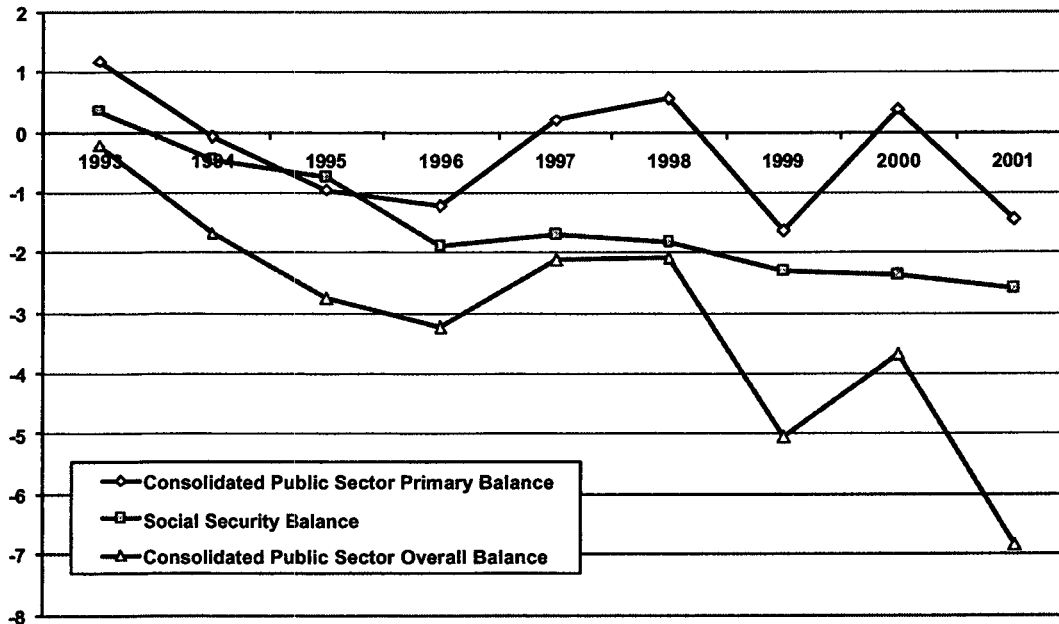
<sup>39</sup> Strictly speaking, the same is true for any other country with unfunded pension liabilities.

it must be concluded that fiscal imbalances (both explicit and implicit) were prevalent during the whole decade.

Yet the fact that the reform led to a higher measured fiscal deficit still carries a lesson. From the economic, as opposed to accounting, perspective, the higher deficit had existed all along, and the ‘lifting of the veil’ just put it in the open. But the conversion of the implicit into explicit debt did impact on two dimensions, however. First, public sector financing needs were raised by the amortization of the newly-recognized debt -- as measured by the benefits that the public sector had to keep on paying -- and this entailed additional demands on domestic and/or foreign financial markets. Second, perceptions of Argentina’s fiscal position may have been affected as well, to the extent that markets did not see fully through the veil separating explicit from implicit government debt.

The lesson is that extra care is needed regarding the consequences for financial markets of revealing and floating hidden pension liabilities. Even if doing so improves the long term fiscal position, it must be accompanied by further fiscal adjustment in the short term (to absorb at least part of the increased medium term cash deficit) and appropriate long-term domestic debt instruments. With the benefit of hindsight, the boom years from the end of 1995 to mid 1998 were a major lost opportunity to tackle the fiscal imbalances revealed by the pension reform.

**Figure 4.8. The Social Security Deficit in Perspective  
(Percentage of GDP)**



Source: Ministerio de Economía de la República Argentina and International Monetary Fund.

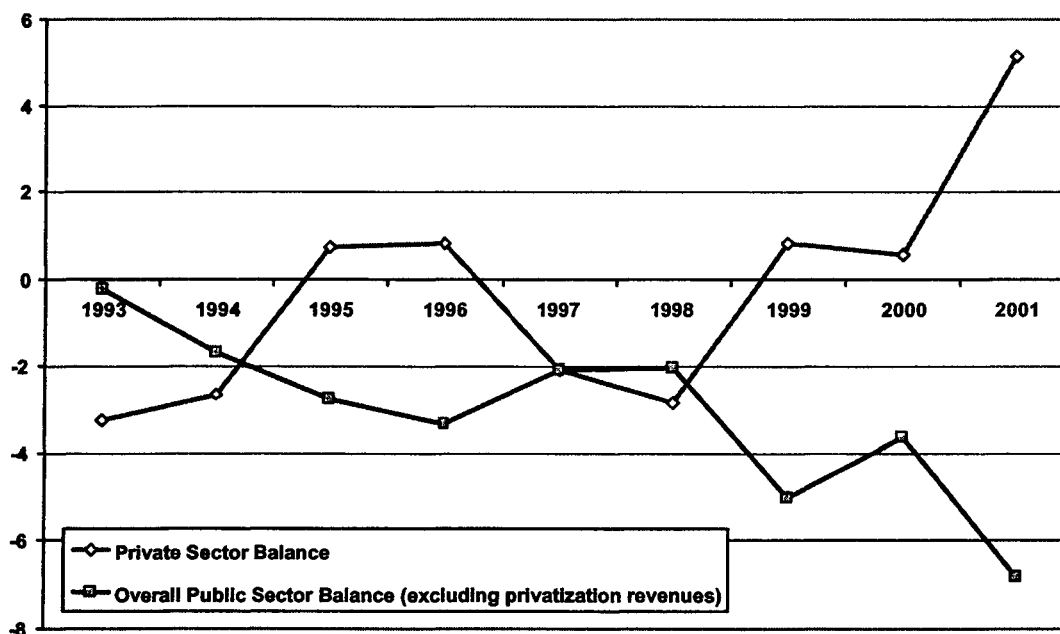
#### D. PUBLIC DEFICITS, EXTERNAL DEBT AND THE CURRENT ACCOUNT

Finally, we explore to what extent fiscal imbalances contributed to the persistent current account deficits of the nineties. The latter posed two risks: they increased vulnerability to capital flow reversals, and also added to the overvaluation of the currency – since, as we found above, much of the peso overvaluation can be traced to a steady deterioration of the net foreign asset position of the country.

What were the contributions of the private and public sectors to Argentina's external imbalance? Figure 4.9 depicts the overall fiscal balance of the consolidated government (exclusive of privatization revenues) and the private sector overall surplus – with the latter defined as the difference between the current account and the fiscal balance; thus, the sum of the private and public deficits equals the current account deficit by construction.

The figure reveals a contrast between the private and public sectors. While the public sector exhibited a deficit every year since 1993, the private sector alternated between deficit and surplus. In particular, after 1994 the private sector exhibited a current account deficit only in the boom years of 1997-98. By 1999 it had moved to a position of surplus, while the public sector continued to show large deficits.

**Figure 4.9. Private and Public Current Account Balances  
(Percentage of GDP)**



Source: Ministerio de Economía de la República Argentina and World Bank.

Likewise, we can also examine the roles of the private and public sectors in Argentina's foreign debt build-up process. Table 4.5 shows that the economy's total external debt increased from 27.7% to 52.5% of GDP between 1993 and 2001. About half of this change reflects higher public indebtedness, while the other half seemingly reflects aggressive private sector borrowing abroad. Indeed, private external debt increased from 5.6% of GDP to 17% during the period. One could view this as evidence that the private sector, as much as the public sector, was behind the accumulation of foreign liabilities.

However, Table 4.5 also shows that at the same time the public sector was borrowing massively from the private sector in the domestic capital market. Indeed, between 1993 and 2001 domestic public borrowing rose by over 20 percentage points of GDP. This effectively means that the private sector was borrowing abroad on behalf of the government.

In summary, Argentina's large external imbalances and its deteriorating net foreign asset position reflected the action of both the private and public sectors at different times. During the boom of 1997-98, the private sector was the one showing the larger imbalance. However, the public sector failed to put its finances on firm footing in those years (especially after part of the hidden liabilities in the pension system had become explicit as a consequence of pension reform). In turn, after 1998 the expanding saving-investment gap of the public sector was the main force at work behind the rising foreign liabilities of the Argentine economy.

**Table 4.5. Debt Stocks  
(Percentage of GDP)**

	Total External Debt	Consolidated Government Debt Total	of which:		Nonfinancial Private and Financial External Debt	Private External Debt Net of Gov. Bond Holdings
			External	Domestic		
				(I)	(II)	(III)=(II)-(I)
1993	27.7	28.7	22.1	6.6	5.6	-1.0
1994	29.6	30.9	23.5	7.4	6.2	-1.3
1995	39.0	34.8	26.8	7.9	12.2	4.2
1996	41.8	36.6	27.4	9.3	14.4	5.1
1997	44.8	38.1	28.2	9.9	16.6	6.7
1998	48.6	40.9	30.2	10.6	18.3	7.7
1999	52.6	47.6	33.4	14.3	19.2	5.0
2000	52.7	50.9	33.8	17.1	18.9	1.8
2001	52.5	62.2	35.4	26.8	17.0	-9.7

Source: World Development Indicators World Bank.

## V. THE BANKING SYSTEM: Vulnerabilities behind a strong façade <sup>40</sup>

### A. STRENGTHS

Hyperinflation and deposit confiscation at the end of the eighties<sup>41</sup> wiped out confidence in the peso and domestic financial intermediation. After Convertibility was enacted, a major effort was launched to recreate a solid financial sector mostly based in dollar-denominated deposits and loans. In 1995 Tequila contagion led to a run on 18% of total deposits and to systemic illiquidity which, in the absence of a domestic lender of last resort, required prompt support from the IFIs to avoid a collapse of the banking and payments systems. The authorities responded by “building” a large liquidity buffer and through other ambitious reforms in order to consolidate a highly resilient financial system. Results were impressive. By 1998 Argentina ranked second (after Singapore, tied with Hong Kong, and ahead of Chile) in terms of the quality of its regulatory environment, according to the CAMELOT rating system developed by the World Bank <sup>42</sup> (Table 5.1).

**Table 5.1. Camelot Ratings for Banking System Regulation**

<b>Country</b>	<b>Total Score*</b>
Singapore	16
Argentina	21
Hong Kong	21
Chile	25
Brazil	30
Peru	35
Malasya	41
Colombia	44
Korea	45
Philippines	47
Thailand	52
Indonesia	52

**Note:**

\*Lower numbers indicate better ranking.

**Source:** World Bank. Argentina Financial Sector Review (1998).

<sup>40</sup> This section, and part of the next, is based on a technical note prepared for the first version of this paper by Augusto de la Torre and Sergio Schmukler, which later on evolved into a full-fledged paper (De la Torre, Levy Yeyati and Schmukler 2003) in which the summary analysis presented here is developed in much more detail.

<sup>41</sup> The so-called Bonex plan instituted in 1989.

<sup>42</sup> The CAMELOT index combined separate rankings for capital requirements (C); loan loss provisioning requirements and definition of past-due loans (A); management (M), defined by the extent of high-quality foreign bank presence; liquidity requirements (L); operating environment (O) as measured by rankings with respect to property rights, creditor rights, and enforcement; and transparency (T), as measured by whether banks are rated by international risk rating agencies and by an index on corruption. Argentina ranked 1 for C (tied with Singapore), 4 for A, 3 for M, 4 for L, 7 for O, and 2 for T. For further discussion see World Bank (1998).



The banking system was apparently in a very solid position not only by 1998, before the Brazilian devaluation of January 1999, but also afterwards and through the end of 2000, despite the post-1998 continued economic contraction. In effect, through the year 2000 conventional indicators of financial health depicted a well-capitalized, strongly provisioned, and highly liquid banking system, although it was experiencing losses and increasingly burdened by bad loans after 1998 (Table 5.2).<sup>43</sup> The banking system's prudential buffers were sufficient to enable it to withstand sizeable liquidity and solvency shocks—including a flight of more than one-third of the system's deposits as well as a sudden and complete default in up to 10 percent of the loan portfolio—without endangering the convertibility system.<sup>44</sup> The important presence of reputable foreign banks in the domestic system (they accounted for over 70 percent of total banking assets in 2000) was broadly perceived to implicitly augment these liquidity and solvency cushions (Table 5.3). These banks were expected to stand behind the capital and liquidity of their affiliates in Argentina, at least in the context of bad states of the world associated with bad luck (few were thinking then of bad states of the world caused directly by confiscatory government policy).

**Table 5.2. Selected Banking System Indicators**  
(Percentages at end-year)

	1997	1998	1999	2000
Net Worth/Assets	12.11	11.44	10.72	10.52
Capital / Risk Weighted Assets	18.13	17.64	18.56	21.18
Non Performing Loans/Total Loans (a)	8.23	5.98	7.14	10.21
Provisions/Total Loans	7.70	7.10	7.82	8.65
Provisions/Non Performing Loans (a)	108.64	140.40	122.25	77.13
Systemic Core Liquidity (b)	42.98	39.58	40.89	38.69
Return on Equity before Provisions	22.59	10.61	8.43	7.76
Return on Equity after Provisions	7.41	-2.24	-6.71	-9.42
Return on Assets after Provisions	1.04	-0.27	-0.77	-1.01
Leverage Ratio (not in percent)	6.11	7.26	7.74	8.33

**Notes:**

(a) Non performing loans is defined as the sum of loans with problems (category 3), loans with high risk (category 4) and non-recoverable loans (categories 5 and 6).

(b) Defined as the ratio of international reserves of the Central Bank in foreign currency and other liquidity requirements held abroad, and total deposits.

**Source:** Central Bank of Argentina.

<sup>43</sup> Profits had turned negative already in 1998, and became deeply negative during 1999-2000 mainly because of the need to constitute provisions in the face of rising bad loans. NPLs spiked to 10.2 percent of total loans in 2000, from 7.1 percent the year earlier, and the increase in provisions started to lag behind (Table 5.3).

<sup>44</sup> Table 5.3 puts systemic core liquidity (disposable international reserves of the central bank plus foreign exchange in cash or near-cash held abroad by banks) at above 35 percent of banking system deposits. However, there was a significant variance in the distribution of such liquidity across banks. This may explain why the "corralito" was imposed at the end of 2001 before deposits had fallen by 30 percent.

**Table 5.3. Consolidation and Internationalization of the Banking System**

	Dec.1994	Dec. 1998	Dec. 2000
Number of total banks	166	104	89
Foreign banks			
Number of banks	31	39	39
Number of branches	391	1,535	1,863
Share of total assets (%)	15	55	73
Number of public banks	32	16	15

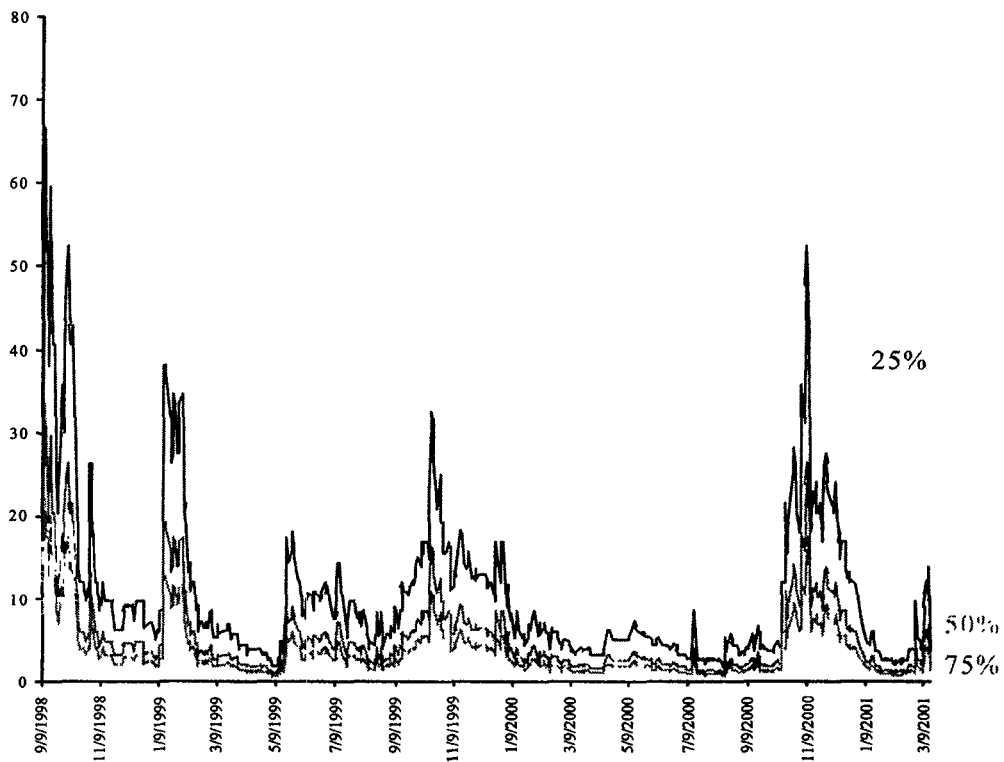
Source: Central Bank of Argentina.

## B. VULNERABILITIES

As the policy intent was to reinforce the viability of convertibility, it made no sense for the authorities to issue prudential norms that would dissuade the use of the dollar in financial contracts *per se*. To be sure, the markets did not take the permanence of the Currency Board completely to heart—the peso problem continued throughout the 1990s, as evidenced by the always positive “currency risk” implicit in forward contracts, which showed spikes during turbulent times (Figure 5.1). But the authorities could not signal the possibility of a *nominal* devaluation through prudential norms without undermining their own quest to raise the credibility of Convertibility above all doubts. The hard peg and prudential regulation thus contributed to the high and increasing share of dollar deposits and dollar loans in the domestic financial system (Figure 5.2). The share of dollar deposits increased after the Russian crisis and the Brazilian devaluation, and especially after mid 2001 when expectations of devaluation soared.

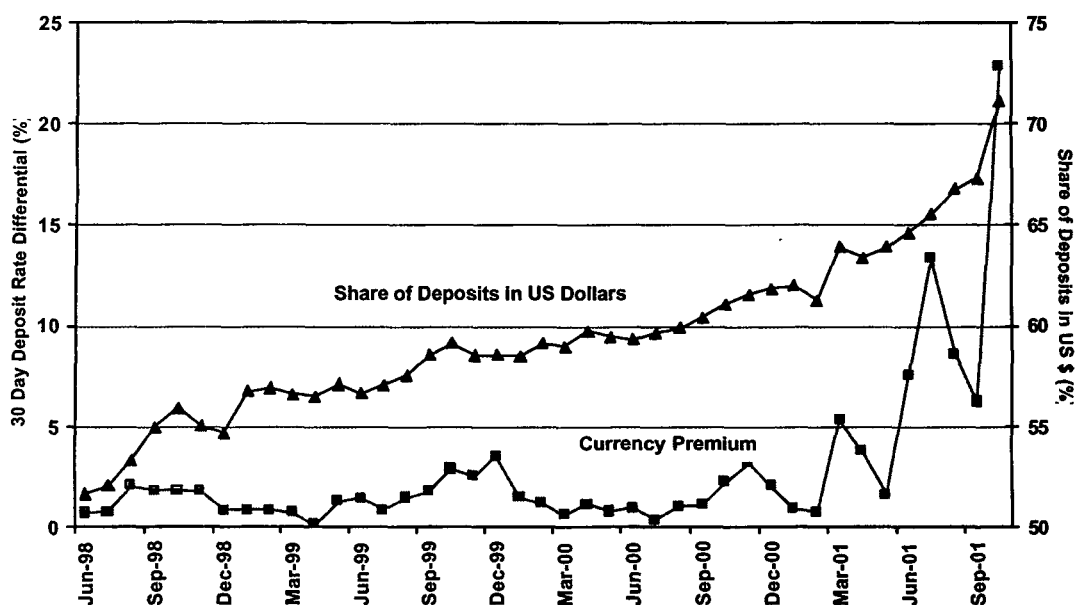
It was thus no secret that a disorderly breakdown of the rule of one-peso-one-dollar would wreck the banking system, and this was the main reason why many Argentine economists and external analysts preferred an exit from the Currency Board towards full dollarization over an exit towards a flexible exchange rate regime and a monetary anchor – and some still hold this view.

**Figure 5.1. Anticipated devaluation implied by the 30-day NDF discount -- up to 3/15/01 (at different perceived probabilities, percentage)**



Source: Schmukler and Servén (2002)

**Figure 5.2. Deposits in Dollars and Interest Rate Differential**



Source: Deposits from Ministerio de Economía (<http://www.mecon.org>); 30 day deposit interest rates in pesos and dollars from Bloomberg. Currency premia is defined as the difference of domestic interest rates in pesos and US dollars.

However, with the benefit of hindsight we can now identify at least three crucial vulnerabilities in the financial sector and weaknesses in the regulatory framework, even in the hypothesis that the Currency Board was to be permanent. The shortcomings relate to:

- the link between debtor capacity to pay and the required deflationary adjustment to a more depreciated equilibrium real exchange rate;
- the growing exposure of the banking system to government default; and
- the insufficient realization that *general* liquidity buffers, even if high, do not adequately protect the payments system from a run.

The first vulnerability had to do with credit risk—the latent non-performing loans (NPLs) in the context of an overvaluation of the *real* exchange rate (RER) relative to its *equilibrium* level. As mentioned, it is estimated that, by the year 2001, the Argentine RER was overvalued by more than 50 percent. Under convertibility, the adjustment of the RER towards equilibrium was bound to imply a protracted and painful deflation and recession, which would have certainly eroded the capacity to pay of debtors whose earnings came from the non tradable sector.<sup>45</sup> Hence, the first prudential shortcoming was the failure to recognize the special risk of loans to debtors in the non tradable sector—a credit risk that would materialize in the event of significant adverse shocks that

<sup>45</sup> By contrast, in a country with a flexible exchange rate (i.e., where a fixed parity is *not* part of the social contract) and *without* a liability dollarization problem, the adjustment to a more depreciated equilibrium RER would come through a nominal depreciation, which would be associated with an *improvement* (through debt dilution) in the capacity to pay of debtors in the nontradable sector.

led to a deflationary adjustment.<sup>46</sup> Taking the one-peso-one-dollar rule as a given, it would have been advisable for the authorities to require tougher loan classification criteria (higher loan-loss provisions and/or a higher weight for the purposes of measuring capital requirements) in the case of loans to the non tradable sector, regardless of whether the loans were peso or dollar-denominated.<sup>47</sup>

The second vulnerability and prudential shortcoming also had to do with credit risk, but derived from exposure to Government risk. It consisted in the failure to isolate the solvency of the banking system from the solvency of the government. In countries with recurrent fiscal problems, like Argentina, it appears worthwhile to endeavor to de-link financial system solvency from fiscal solvency, through the use of prudential norms. The authorities moved in this direction belatedly, in 2000, when they introduced mark-to-market requirements for government bond holdings and established a positive weight for loans to the government for the purposes of determining capital requirements. It would have been advisable to complement this prudential approach by not allowing government securities to count as part of the assets eligible to meet liquidity requirements. In this manner, the stability of the banking system and the viability of convertibility would have been better insulated from the vagaries of the fiscal process, including an event of government debt default. Direct exposure of banks to Government risk was not high until 2000 – less than 20% of total assets. However, in 2001 the Government began to fund itself using available liquidity in the banking system in response to increasing external borrowing constraints (see Figure 5.3 and Section VI). Other components of the financial system, most notably private pension funds, had even higher exposure to Government risk.

The third vulnerability and prudential regulation shortcoming relates to the insufficient realization that *general* liquidity safeguards, even if high, do not adequately protect the payments system from a run. To be sure, high liquidity requirements, like those in effect in Argentina during the second-half of the 1990s, enhance the resiliency of the banking system—they cushion the system vis-à-vis liquidity shocks and deter runs, thereby reducing the scope for multiple equilibria. Thanks to its liquidity requirements, the Argentine banking system withstood a prolonged and severe process of deposit withdrawal during 2001. At the same time, however, the Argentine experience illustrates that once a run is under way, relaxing liquid reserve requirements can have adverse signaling effects that exacerbate the run on the peso (instead of spurring credit growth as Minister Cavallo had wrongly hoped<sup>48</sup>), further weakening confidence.

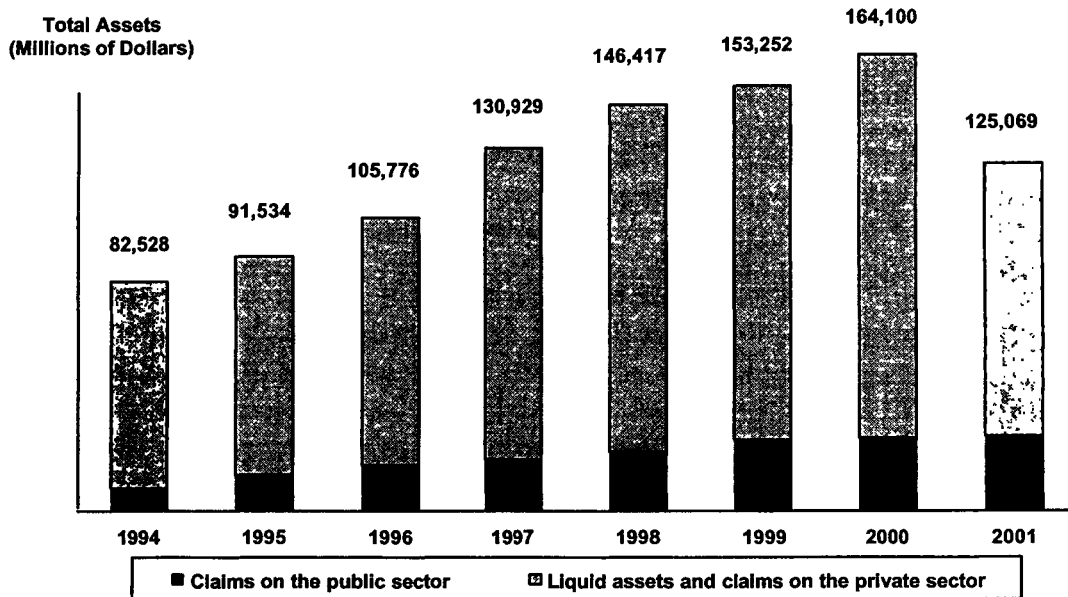
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<sup>46</sup> In a private communication to the authors, Andrew Powell noted the use of an “interest rate factor” in determining the required capital weight for individual loans, as an indirect way to take into account, among other things, such currency risks. However, as De la Torre et al (2003) argue such factor failed to capture the specific risk of loans to the non tradable sector associated with eventual RER depreciations, and might have even encouraged further dollarization (as peso loans carried higher interest rates than dollar loans).

<sup>47</sup> These suggestions apply also to fully dollarized economies such as Ecuador. The same prescription should apply, *but only to dollar loans* to households and firms in the non tradable sectors, in countries with a high degree of domestic financial dollarization but that keep flexible exchange rate systems, such as Uruguay, Bolivia and Peru among others. See De la Torre et al (2003)

<sup>48</sup> Many analysts actually cautioned about the potential negative effects of this move, and the extent of the reduction was a major cause of dispute between the Central Bank and the Government.

**Figure 5.3. Financial System: Exposure to Public Sector**



Source: Central Bank of Argentina.

Moreover, Argentina illustrates that, as confidence collapses, a *general* liquidity requirement (available to all deposits) fails in its most basic intended function—it does not protect the payments system. The lesson is sobering. In the absence of a credible lender of last resort, the payments system is vulnerable and can collapse under a run even where liquidity is high, but still a fraction of deposits, and equally available to finance *any* deposit withdrawal. It thus would appear that, under a currency board and formal dollarization, the protection of the payments system from bank runs may actually require a structure where there is either full liquidity backing for transactions balances – a sort of narrow banking for demand deposits -- or at least liquidity is earmarked for those balances under specified conditions, to allow the payments system to continue functioning (without deposit freezes and payments interruptions) even in the extreme scenario where banks are unable to honor withdrawals of time deposits <sup>49</sup>.

<sup>49</sup> De la Torre et al (2003)

## VI. POLICY OPTIONS BEFORE AND AFTER 1999

### A. THE ARGENTINE VIA CRUCIS: POLICY UNDER THE DE LA RUA GOVERNMENT AND BEYOND.

Right from the beginning, the De la Rúa administration (which assumed power in December 1999) was caught in a trap of low growth, high and increasing debt rollover requirements, and an overvalued and inflexible exchange rate. The government's strategy to break free from this trap focused on reviving growth while reducing fiscal imbalances, although the means to achieve this objective changed dramatically after April 2001, when Mr. Cavallo took the post of Minister of Economy (See Annex 1). During 2000, growth resumption was sought indirectly—trying to regain investor confidence through fiscal adjustment. It was hoped that improved confidence would eventually lead to lower interest rates, more capital inflows and growth, making the debt and current account sustainable. To be sure, the authorities also tried to address the problem of currency overvaluation directly, through the flexibilization of labor markets. But the passage of labor reform through Congress was linked to a bribery scandal that led to the resignation of the Vice President, further exacerbating confidence problems and weakening governance. In addition, as confidence was not restored and growth failed to pick up, the authorities shifted their attention towards calming fears of a possible debt default. The December 2000 IMF package (US\$40 billion) was negotiated with this latter objective prominently in mind. However, none of these actions achieved the expected results and hopes of reviving growth faded away.

Minister Cavallo brought his prestige to attempt the rescue. He also focused on rekindling growth, but this time more directly, through heterodox measures (in addition to enacting a revenue enhancing financial transactions tax). These included imposing a tax on imports and subsidizing exports (a fiscal devaluation for trade flows), lowering reserve requirements, and announcing the eventual peg of the peso to the dollar *and* the euro (with equal weights), once these two currencies reached parity. With hindsight, it is clear that this growth-focused strategy, particularly in Cavallo's heterodox version, was naïve. Not only did it fail to yield growth, it also increased uncertainty about the two other components of the trap, namely the debt rollover and the currency arrangement. The trap thus tightened.

Doubts about convertibility soared—the one-peso-to-one dollar rule had already been broken through the back door for trade transactions and could be easily broken also for financial transactions. Perhaps more importantly, the government procrastinated in taking a decision on the debt front. Instead of recognizing that debt restructuring was becoming a necessity following the failed attempts to restore confidence and growth, the government averted debt service arrears by draining the financial system's liquidity, as shown in Figure 5.3 above. This increased the financial system's exposure to a government default and heightened concerns about a potential abandonment of the currency board -- as choices to finance the deficit through debt rapidly shrank, the specter of money printing loomed larger.

In the process, the fates of public finances, the banking system, and the dollar peg became tightly linked. This link foreshadowed the catastrophe—a disorderly abandonment of the one-peso-one-dollar rule in an economy with widespread balance sheet vulnerabilities (i.e., dollar debts of non-dollar earners) both in the public and the private sector. As a result, the little confidence that remained was splintered, and the crisis exploded as investors and depositors ran for the exit, forcing a deposit freeze (the “corralito”<sup>50</sup>) and a change in government.<sup>51</sup>

## B. POLICY DILEMMAS AND OPTIONS

We now return to the discussion of the harsh policy dilemmas that Argentine authorities confronted after 1998. Keeping the hard peg, that had served so well until then, required a protracted deflationary adjustment to bring back the REER to equilibrium, given the large degree of overvaluation that had developed as a consequence of adverse real shocks and insufficient price flexibility, as well as the deterioration of the economy’s net foreign asset position. This deflationary adjustment would have reduced the debt repayment capacity of households and firms – especially those in the non tradable sectors -- and, together with the long recession, deteriorated the loan portfolio of banks. It would have also reduced the debt repayment capacity of the Government, increasingly raising the doubts about debt sustainability and requiring large expenditure cuts, faced with declining revenues. The harsh fiscal adjustment that had to be unavoidably imposed to restore solvency would also add to the recession, further complicating the adjustment for households, firms, banks and the Government. Argentine fragile institutions –both economic and political- were to be put to a major test.

Accelerating the required REER depreciation, in order to shortcut such a protracted and painful deflationary adjustment, would have required a large nominal devaluation. This, however, would have brought immediately to bankruptcy a large number of households and firms in the non tradable sector with dollar denominated debts, suddenly deteriorating bank portfolios. The ratio of public debt to GDP would have ballooned and the Government might have found itself suddenly cut off from credit. Although all these effects would have happened gradually anyhow under the hard peg, the abruptness of the balance sheet effects might have precipitated an even larger wave of bankruptcies than in the alternative scenario and, as a consequence, the insolvency of the banking system and a major deposit flight. A plain devaluation in an economy with such

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<sup>50</sup> The fact that the crisis had been widely anticipated for several months made it worse because depositors (mostly large and informed ones) had time to withdraw around 18 percent of total deposits, leaving only small depositors in the system.

<sup>51</sup> It has been argued that actions taken during Cavallo’s tenure were instrumental in raising doubts about the permanence of the Currency Board and hence perceptions of fiscal unsustainability (given the large contingencies associated with a nominal devaluation), thus precipitating the final collapse. Careful inspection of the time path of currency and country premia shows that some of those actions – the announcement of changes in the peg, adoption of the ‘Convergence factor’, the ousting of the Central Bank president, the changes in banks’ liquidity requirements – did provoke rises in currency risk, followed by increases in country risk. However, these effects were only transitory: both currency and country premia returned to their previous levels after a while. Irreversible effects began to appear only by July 2001, although it is difficult to identify any single event as the trigger.



large balance sheet mismatches in both the public and private sector would in all probability have led to an immediate banking and fiscal crisis –as many analysts, including ourselves, predicted at the time.

What were the alternatives? The authorities might have attempted an earlier forced *pesification* of all domestic contracts before devaluing, in order to limit adverse balance sheet effects of the devaluation to firms in non tradable sectors with foreign debts and to the Government foreign debt, thus largely protecting the financial sector <sup>52</sup>. However, forcefully breaking dollar deposit contracts would in all probability have led to a major deposit flight and would have required a deposit freeze in order to protect the payments system. In addition, this option would have demanded significant efforts to restore confidence in the peso as a store of value and achieve credibility in the new monetary authorities, as well as the creation of an alternative anchor to the hard peg. The disorderly way in which this process was actually conducted, the increased financial sector exposure to Government debt, the widespread violation of property rights through arbitrary asymmetric *pesification* and discriminatory practices, the maintenance of a deposit freeze for a long period of time with changing rules and high uncertainty about the actual possibility of recovery, the almost unlimited lender-of-last-resort support to the weakest banks (instead of confronting the need for their resolution through equity injections or liquidation), all contributed to magnify these –to some extent unavoidable–adverse effects.

The authorities might have accepted the need of a protracted deflationary adjustment and gone the opposite route, establishing full dollarization, in order to eliminate currency risk and hopefully achieve a reduction in interest rates, thus limiting somewhat the duration of the recession and alleviating the required fiscal adjustment. This might have been the option with lower short term costs if it had succeeded in avoiding a deposit run <sup>53</sup> – and if it had been politically viable. However, debtors would have had to cope eventually with the adverse, although delayed, impact of the deflation on their repayment capacity and, most importantly, Argentina would have remained liable to similar episodes in the future, in which large adverse external shocks would have required slow and painful deflationary adjustments. To minimize these potential future costs, the authorities would have had to engage in significant fiscal strengthening (not just to protect solvency, but more broadly also to provide some room for counter cyclical fiscal policies), stricter prudential regulations (harder provisioning or capital requirements to lend to households and firms in non tradable sectors, a “firewall” between banks and the Government, and liquidity earmarking to protect the payments system in the event of a systemic run) and considerable flexibilization of labor and other domestic markets (including the pricing of utilities). Those actions would have had salutary effects also under an eventual floating exchange rate regime, but were sorely needed under a hard peg or dollarized system.

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<sup>52</sup> This was publicly proposed by Ricardo Hausmann , at the LACEA Conference in 2002.

<sup>53</sup> Such an outcome, of course, was far from assured, as De la Torre et al (2003) recognize.

One variant<sup>54</sup> that could have reaped the short term benefits of full dollarization while avoiding its long run inflexibility costs, would have been to follow the full dollarization of financial stocks with “pesification at the margin” through the introduction of a new domestic currency, initially circumscribed to transactions purposes.<sup>55</sup> Although this could have been in principle the best exit option at the time the crisis erupted,<sup>56</sup> it must be recognized that forging the necessary consensus and implementing it smoothly would have been no easy matter under the circumstances.

Obviously, implementation of any of these alternative courses would have been easier (political economy considerations aside) and less costly before solvency doubts had arisen. The boom years of 1996/97 were the “best” period for an orderly exit into either *pesification* and floating or full dollarization. Any of these courses of action should have been accompanied by fiscal tightening, instead of the fiscal expansionary policy at the time, and by considerable institutional strengthening, to permit a credible monetary policy under the options of *pesification* (whether in full or at the margin, as just explained), and to reduce the deflationary consequences of future adverse external shocks under the option of full dollarization. However, this was precisely the time when everything was going fine, nobody was asking for a change and it might have been difficult to get political support for a major shift of policy and institution building. This is by no means a new finding: we have always known that the exit from an exchange rate regime should be undertaken in good times, precisely when nobody sees the need for it. Still, it would have been convenient at least to strengthen the fiscal position – instead of the structural weakening that was taking place, even after the pension reform and the recognition of other hidden liabilities had revealed the true extent of the fiscal problems - - as well as to adopt even stricter prudential regulations in the boom period.

As mentioned in the Introduction, these hard choices were just a reflection of a deep structural problem. On the one hand, the Argentine trade structure made a peg to the dollar highly inconvenient -- from a real economy point of view. On the other, the strong preference of Argentines for the dollar as a store of value since the hyperinflation and confiscation experiences in the eighties had led to a highly dollarized economy in which a hard peg or even full dollarization seemed reasonable alternatives – from a financial point of view.

Facing such a dilemma, either the authorities succeed in restoring confidence in the peso as a store of value – so that a floating exchange rate regime and a monetary anchor have a fair chance of success -- or they will have to opt for full dollarization, achieve enough market flexibility and adopt an especially strong fiscal stance and strict prudential regulation, allowing the economy to adjust in less painful ways to adverse external shocks in the future. In either case, they will have to build stronger and more resilient institutions. After the recent confiscation of deposits and forced breach of

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<sup>54</sup> This option was first proposed by Levy Yeyati and Schmukler (2001), and its adoption was indeed announced by president Rodriguez Saa during its short tenure.

<sup>55</sup> In fact, the new currency could have channeled the disorderly issuance of quasi-monies by cash-strapped provinces and the Federal Government.

<sup>56</sup> This option is discussed in detail by De la Torre et al (2003).

contracts, restoring confidence in institutions, in the peso and the financial system – under whatever exchange rate regime and monetary arrangements emerge -- will be a major challenge. Most likely Argentina will have to move forward for a while with a domestic banking system basically limited to current transactions – a situation which will give an extra premium to the development of a sound capital market and to restoring prompt access to external credit. Deep crises, however, offer the opportunity for bold changes and we can only hope that the Argentine society grabs the chance to construct stronger institutions than those of the past and a more resilient economy, free of the major vulnerabilities and harsh dilemmas that characterized the one that has just collapsed.

## Annex 1. Argentina via crucis

- President De la Rúa assumes power in December 1999 when the country is already in recession and public debt has reached high levels.
- The government tries to gain confidence, and thus restore growth, through fiscal adjustment.
- The “impuestazo” is implemented in January 2000. The new tax scheme includes, among other things, an increase in the taxation on consumer goods, an extension of VAT to health insurance and transportation, and an expansion of the income tax base.
- The fiscal adjustment does not bring growth. Rather, the recession deepens and doubts about debt sustainability increase dramatically.
- The political weakness of the De la Rúa’s administration becomes evident when vice president Carlos Alvarez resigns in October 2000.
- In December 2000, Minister Machinea negotiates a US\$40 billion package with international financial institutions and domestic financial institutions to extend the public debt maturity and try to ease fears of default. The deal implied a much lower amount of fresh funds, around US\$12 billion.
- The government’s bet is that once these fears were eased, growth would resume, but growth does not pick up and Mr. Machinea resigns in March 2001.
- The newly appointed economy minister Lopez Murphy resigns after two weeks in office, upon strong opposition to the new fiscal austerity package he sent to Congress on March 16.
- Mr. Cavallo becomes economy minister once more. He is empowered by Congress with special powers and tries different, more direct, measures to revive growth. On April 16, 2001, he proposes to congress an amendment to the convertibility law, according to which the peso would be pegged to a basket consisting of US dollars and euros with equal weights, when the dollar-euro rate reaches 1:1. Congress approves the amendment in mid-June 2001. This change aims at better aligning the peso more with Argentina’s trading partners.
- On April 25, 2001, the president of the central bank, Mr. Pedro Pou, resigns amid disagreements with Mr. Cavallo and other members of the government. Mr. Roque Maccarone replaces Mr. Pou.
- On July 10, 2001, the government, after being forced to pay 1,410 basis points over US Treasuries to place a short-term bond, announces a “zero deficit” rule. It thus becomes obvious that the government cannot tap capital markets without the debt exploding. To implement the zero deficit rule, the government pushes hard for an IMF-supported program. But to obtain it, an agreement with the provinces on tax revenue sharing is needed.
- Mr. John Taylor, US Treasury under secretary, declares that there will not be any external help for Argentina until it can comply with its objective of a zero deficit.
- On October 26, 2001, negotiations toward an agreement with the provinces on the distribution of tax revenues fail (again).
- On October 28, 2001, minister Cavallo starts negotiations to obtain resources from the IMF and the US Treasury to purchase collateral for new bonds to be issued in an exchange for the nearly US\$100 billion of local and external debt.

- On October 29, 2001, Mr. Cavallo defines the debt exchange operation as voluntary. The old debt is to be exchanged for bonds paying 7% per year and guaranteed by taxes revenues. However, the IMF and US Treasury ask for compliance with the zero deficit and an agreement with the provinces on the tax revenue sharing before any kind of financial support is given. The negotiations last for more than a month.
- On November 19, 2001, the IMF announces that it would not make any new disbursements to Argentina without being satisfied that the country has secured the goals previously defined.
- On December 2, 2001, the government announces measures restricting deposit withdrawals (the corralito). Withdrawals are limited to 250 pesos (dollars) per week per account.
- On December 19, 2001, Mr. Cavallo and all other ministers resigned.
- On December 20, 2001, President De la Rúa resigns and Mr. Ramon Puerta becomes interim president.
- On December 23, 2001, Mr. Rodriguez Saa, governor of one of the provinces, becomes the new interim president. His period is supposed to last 60 days, until elections are called on March 3, 2002. He declares the suspension of external debt payments for at least 60 days.
- On December 24, 2001, the government announces that a new fiat currency (i.e., without foreign-currency backing) would be created, the "argentino."
- On December 30, 2001, Mr. Rodriguez Saa resigns and the legislative assembly chooses Mr. Eduardo Duhalde as new president. He assumes power on January 2, 2002, and officially ends the currency board and announces the floating of the peso.

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