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MERCOSUR: IN SEARCH OF A NEW AGENDA

Exchange Rate Instability in MERCOSUR: Causes, Problems and Possible Solutions

José Luis Machinea

Special Initiative on Trade and Integration

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This study is part of the Initiative's first component.

This study was presented in the conference "MERCOSUR: In Search of A New Agenda", which was held in the Getulio Vargas Foundation in Rio de Janeiro in June 2003. In view of the trends in emerging policies, which point to a renewed interest in furthering the initiative after the turbulence of the 1999-2002 period, the aim of the meeting was to discuss activities in the various areas geared to deepening the integration process. The preparation of the documents and the program were supported by the Inter-American Development Bank's Integration and Regional Programs Department through the Special Initiative on Trade and Integration.

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C O N T E N T S

MERCOSUR: IN SEARCH OF A NEW AGENDA

- EXCHANGE RATE INSTABILITY IN MERCOSUR: CAUSES, PROBLEMS AND POSSIBLE SOLUTIONS -

José Luis Machinea *

Contents

I. INTRODUCTION

In March 1991 the governments of Argentina, Brazil, Paraguay and Uruguay signed the Treaty of Asunción, thereby establishing the Southern Common Market (MERCOSUR).[1] Devised to lead to the creation of a customs union and, eventually, a common market, the treaty activated the most important integration strategy in Latin America. MERCOSUR experienced an increase in intra-group trade in its early years, combined with a substantial opening to the rest of the world, the encouragement of structural reforms designed to boost the role of the market in resource-allocation, and the opening of all the areas of the economy to foreign investment. In terms of trade (Table I) and investment (Table II), as well as the accelerated elimination of import tariffs within the group, the results marked a significant break with past integration efforts and the treaty might therefore be considered part of what was later termed the "New Regionalism" (ECLAC [1998]; Devlin and Estevadeordal [2000]).

TABLE I
GROWTH RATE OF TOTAL AND INTRAREGIONAL EXPORTS IN MERCOSUR, 1990-2000
(Percentages)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average annual growth 1990-2000
MERCOSUR												
Total exports	-0.3	-1.1	10.0	7.3	14.8	13.3	6.5	9.8	-1.2	-8.6	13.9	5.9
Extraregional exports	-1.0	-0.4	6.0	2.0	13.7	11.7	3.5	7.5	-2.1	-3.0	13.2	4.7
Intraregional exports	7.6	23.6	41.4	38.9	19.3	20.3	18.5	17.7	1.5	-25.5	16.7	16.4
MERCOSUR + Chile + Bolivia												
Total exports	0.5	-0.5	10.0	5.0	17.0	17.6	4.2	9.7	-3.4	-6.0	14.0	6.2
Extraregional exports	0.1	-3.6	6.0	-0.3	16.5	16.4	1.2	7.5	-4.4	0.1	12.6	4.7
Intraregional exports	3.1	23.4	33.6	30.4	18.6	22.0	14.4	16.5	-0.7	22.2	18.6	14.3

Source: IDB [2001]

* Consultant for the Special Initiative on Trade and Integration of the Inter-American Development Bank's Department of Integration and Regional Programs.

[1] Bolivia and Chile became associate members of MERCOSUR in 1996.

TABLE II
FOREIGN DIRECT INVESTMENT IN MERCOSUR, 1984-1999
Annual averages, in US$ and percentages

Country/region	1984-1989		1990-1993		1994-1996		1997-1999	
	Amount	%	Amount	%	Amount	%	Amount	%
World total	115,370	100.0	197,282	100.0	321,783	100.0	67,287	100.0
Developed countries	93,117	80.7	132,906	71.0	190,206	59.1	46,410	69.0
Developing countries	22,195	19.2	5,106	27.3	120,611	37.5	18,863	28.0
Latin America and the Caribbean	7,739	6.7	1,508	8.1	3,626	11.3	7,780	11.6
MERCOSUR	*1.594*	*1.4*	*3.880*	*2.1*	*1.204*	*3.7*	*4.002*	*5.9*
Argentina	663	0.6	2,875	1.5	539	1.4	1,441	2.0
Brazil	906	0.8	98	0.5	6,187	1.9	2,620	3.9
Paraguay	6	0.0	87	0.0	16	0.1	22	0.0
Uruguay	29	0.0	88	0.0	29	0.1	33	0.1

Source: Chudnovski [2001], on the basis of UNCTAD data.

In a context of strong exchange rate appreciation, Argentina imposed a 10% statistical tax on imports from all sources in 1992, but it was from 1995 onwards in particular that the process began to evince little progress. There were clear difficulties in eliminating non-tariff trade barriers, completing the common external tariff (CET) and applying special import regimes. Few steps were taken to establish a common customs code or common procedures for addressing unfair trade practices, and institutional frameworks were lacking. Such difficulties attracted little attention at the time because of the strong growth of MERCOSUR's two main trade partners. In 1997, facing a growing current account deficit, Brazil imposed import restrictions that affected the other partners. Once more, the appreciation of the exchange rate gave rise to trade restrictions that affected the other members, and the trend towards the elimination of trade barriers was thus overtly interrupted.

Finally, when macroeconomic conditions began to change from 1998 onwards - partly the result of the new international situation - the weaknesses of MERCOSUR's integration process became more evident as the recession heightened sensitivities to trade problems and further damaged relations between the member countries.[2] In recent years MERCOSUR has been in crisis. No progress been made on issues that are crucial to the deepening of integration (such as institution-building[3] or legislative harmonization in certain areas) and it has proven impossible to consolidate the customs union.[4] Additionally, new non-tariff barriers have been created, raising questions about MERCOSUR's achievements in the area of the free movement of goods. As a result of these restrictions and of lower growth in the region, intra-MERCOSUR exports stood at 18% of total exports in 2001, in contrast to 25% in previous years (IDB [2001]).

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[2] Growth averaged 3.7% in 1991-1998 and fell to 0.8% in 1999-2001 (Table III).

[3] Except for the creation of a Technical Secretariat in 2002, although its functions are as yet undefined.

[4] The exceptions to the common external tariff attest to this.

The difficulties facing the member countries in the early months of 2003 constrain the prospect of the integration process making significant progress in the near future, although the governments' political will to take concrete steps will be a basic determinant of the group's future. An explanation of MERCOSUR's lack of progress and its reversals in recent years fosters understanding of the problems of the integration process in general and of south-south associations in particular. It is hard to say now if the lessons of MERCOSUR's twelve years, apart from their usefulness to similar processes, will be helpful for improving MERCOSUR itself. Such an outcome requires economic normalcy in the member countries, since only then will significant progress be possible on the regional agenda.

MERCOSUR is facing problems both political and economic. In political terms, these include some members' weak conviction that the integration process is preferable to other options, the absence of a country to act as the leader of the process (securing consensus and compensating when necessary), and the resistance to ceding sovereignty that has been evident from the outset in the region's institutional weaknesses (Bouzas [2001]). In economic terms, the problems have included the member countries' lack of a sound macroeconomic reputation; dependence on extraregional financing,[5] which motivates countries to distinguish themselves from a member state facing difficulties; and the instability of the exchange rate between them.

TABLE III
CURRENT ACCOUNT DEFICIT AS A PERCENTAGE OF GDP IN MERCOSUR, 1991-2000

Countries	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	1991-2000	1996-2000
Argentina	-0.3	-2.5	-3.5	-4.3	-2.0	-2.5	-4.2	-4.9	-4.4	-3.2	-3.2	-3.8
Bolivia	-4.9	-9.7	-8.8	-1.5	-4.5	-5.2	-7.0	-8.0	-6.7	-5.6	-6.2	-6.5
Brazil	-0.4	1.6	0.0	-0.2	-2.6	-3.0	-3.8	-4.4	-3.3	-4.1	-2.0	-3.7
Chile	-0.3	-2.3	-5.7	-3.1	-2.1	-5.1	-5.0	-5.7	-0.1	-1.4	-3.1	-3.5
Paraguay	1.4	-0.9	0.9	-3.5	-2.6	-5.2	-2.6	-1.5	-3.0	-4.0	-2.1	-3.3
Uruguay	0.4	-0.1	-1.7	-2.7	-1.2	-1.2	-1.3	-2.1	-2.9	-3.0	-1.6	-2.1
Average (*)	-0.7	-2.3	-3.1	-2.6	-2.5	-3.7	-4.0	-4.4	-3.4	-3.5	**-3.0**	**-3.8**

Notes: (*) Simple Average

Source: *World Development Indicators* [2001].

[5] The MERCOSUR countries' current account deficit n 1991-2000 was equivalent to 3% of GDP (simple average) and reached 3.8% in 1996-2000 (Table III). By contrast, in the 1980s the European countries had an average current account deficit equivalent to 1.5% of GDP, largely financed by the other members of the group.

TABLE IV
GDP GROWTH RATE IN THE MERCOSUR COUNTRIES

Countries	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Average 1991-1998	Average 1999-2001
Argentina	-2.4	12.7	11.9	5.9	5.8	-2.9	5.5	8.1	3.9	-3.4	-0.5	-4.4	6.4	-2.8
Brazil	-4.3	1.3	-0.5	4.9	5.9	4.2	2.7	3.3	0.2	0.8	4.5	1.5	2.7	2.3
Paraguay	3.1	2.5	1.8	4.2	3.1	4.7	1.3	2.6	-0.4	0.5	-0.3	2.6	2.5	0.9
Uruguay	0.3	3.5	7.9	2.7	7.3	-1.5	5.6	5.1	4.5	-2.9	-1.3	-3.1	4.4	-2.4
MERCOSUR	-3.6	4.4	3.0	5.1	5.9	2.2	3.5	4.6	1.3	-0.4	3.0	-0.2	3.7	0.8
Bolivia	4.64	5.27	1.65	4.27	4.67	4.68	4.36	4.95	5.23	0.44	2.37	1.2	4.4	1.3
Chile	3.7	7.97	12.28	6.99	5.71	10.63	7.26	7.54	3.92	-1.14	5.38	2.8	7.8	2.3

Source: *World Development Indicators* [2001] and WEO/IMF [2001].

It is beyond the scope of this study to analyze these and other factors. The aim here is to assess the importance of (and suggest possible solutions to) the last of the problems mentioned: exchange rate variability between member countries. This is one of the main problems facing the bloc, and in many cases it has been the source of subsequent economic and political difficulties.

Exchange rate variability can stem from changes in the parities between countries. Nonetheless, the type and scale of exchange rate volatility evident in MERCOSUR is more than a simple reflection of variations in the equilibrium exchange rate. The problem merits close attention in view of its importance and because excessive exchange rate variability is usually a problem in other integration agreements.

Figure 1 shows the real bilateral exchange rate between the partners in the last two decades. It is clear that the variation has been considerable, although less so in the 1990s than in the previous decade.[6] The lower variability is largely the result of the region's greater macroeconomic stability in that decade. That circumstance seems to have changed with Argentina's abandonment of convertibility at the start of 2002. It might be argued that the exchange rate between countries has returned to some average or normal values following sharp fluctuations (Fanelli [2001]), or that the most significant explanatory factor in the development of intraregional trade is the level of economic activity and not the value of the real exchange rate (Heymann and Navajas [2000]; Fanelli [2001]). The argument here, however, is that if regional agreements display exchange rate variations similar to those of MERCOSUR in recent years, political and economic disputes will hamper deeper integration. The European experience, beginning in 1972 with the "snake in the tunnel", later with the "exchange rate mechanism" in 1979, and finally with the monetary integration initiated by the Maastricht Treaty, reveals the importance of avoiding wide exchange rate fluctuations in integration processes.

[6] In Figure 1 the stability of exchange rates in the 1990s seems wholly exaggerated because of a problem of scale. The figure measuring the bilateral rate between Argentina and Brazil shows that its variation from the start of convertibility to 2002 was a minimum of 58 and a maximum of 160 (1995=100). This is the volatility referred to in the discussion of excessive exchange rate variability.

On the basis of a discussion of the importance of exchange rate variability in integration agreements, the aim of this study is to show what could have been done from the viewpoint of macroeconomic policy coordination in order to avoid or lessen the fluctuations, and what lessons can be drawn from the experience. As regards the past, the conclusion is that little could have been done from the perspective of macroeconomic coordination, especially in view of the member countries' choice of different exchange rate regimes. This is not to say that macroeconomic coordination is inadvisable among member countries of integration agreements. Rather, it is to say that macroeconomic coordination requires political will and greater internal and external incentives for integration. Otherwise, efforts at coordination will simply be wishful. Finally, while exchange rate instability is being reduced, it might be useful to implement mechanisms to compensate for variations in the real exchange rate. Such mechanisms would have helped attenuate trade disputes among the member countries in recent years, and thus would have fostered an environment more conducive to progress on integration.

The study is organized as follows. Section II discusses the problems caused by exchange rate variability between member countries of a free trade area, both from a strictly economic viewpoint and from the perspective of the political economy of the integration process. It also examines how exchange rate variability between member countries can stem from the adoption of different exchange regimes, particularly in regions subject to severe external shocks. The section concludes with a discussion of the alternatives that could have been used to avoid sharp exchange rate variability within MERCOSUR, or at least to lessen its effects.

The subsequent sections discuss the following options: creation of a monetary union, coordination of macroeconomic policies, and a compensation mechanism for exchange rate variability. Section III analyzes how MERCOSUR could establish a monetary union and, in particular, the main weaknesses of this option. In this context the study assesses the nature of external shocks to the region, the magnitude of regional trade, the flexibility of prices, salaries and fiscal policy, the movement of factors, and the possibility of creating an independent central bank.

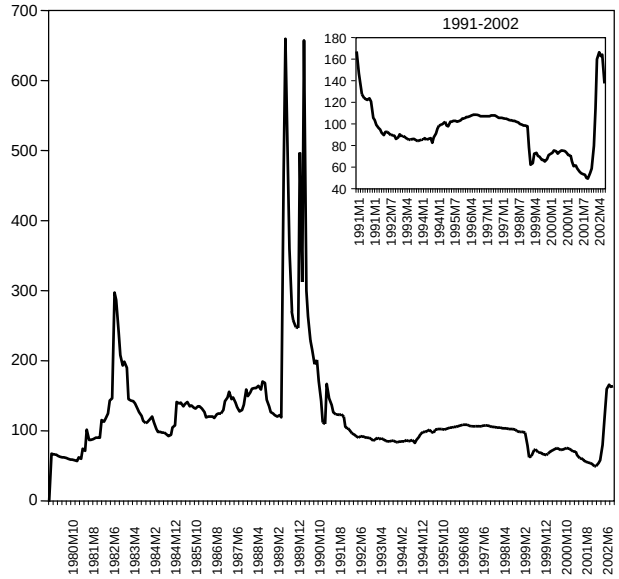
Section IV discusses the most important requirements for macroeconomic cooperation in the region and the extent to which this could lessen exchange rate variability if exchange regimes are excluded from such coordination. This section analyzes the prospect of creating a regional fund to offset some external shocks and discusses what incentives might be created to enable countries to take steps in that direction.

Section V analyzes the mechanisms that could be used to diminish the effects of exchange rate variability in the region while making progress on macroeconomic policy coordination and the eventual creation of a monetary union. Section VI presents the conclusions.

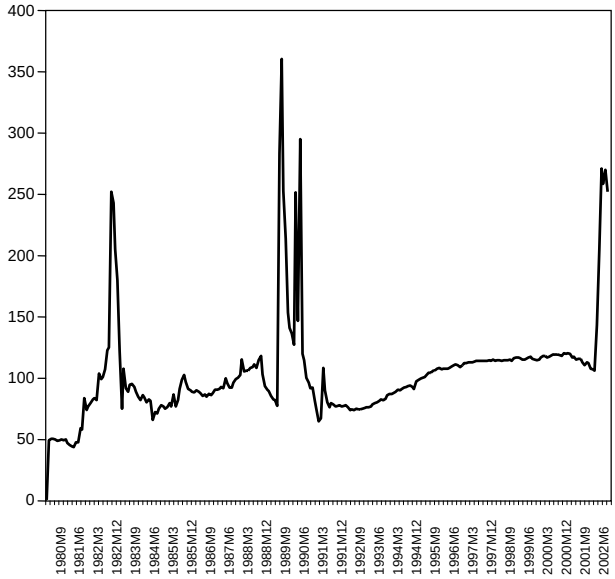
Finally, one comment on the countries included in the assessment. In some cases Chile and Bolivia are included as parts of the "enlarged MERCOSUR". Although to date these countries only have free trade agreements with MERCOSUR, it is useful to include them in order to assess the possible impact of their participation as full members of the bloc.

FIGURE 1
BILATERAL EXCHANGE RATES, 1991-2002
1995=100

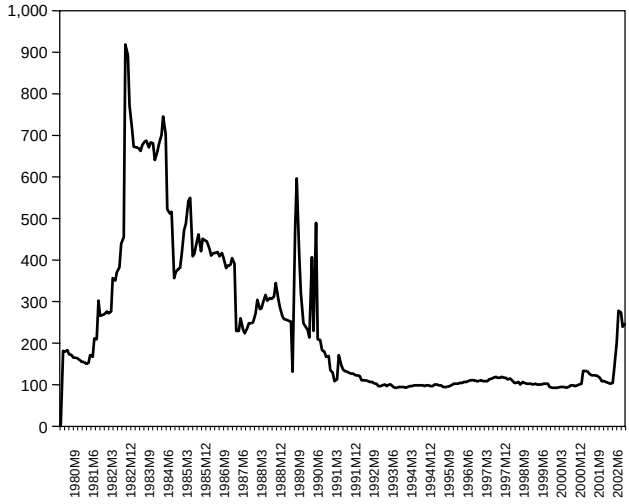
1A. Argentina- Brazil



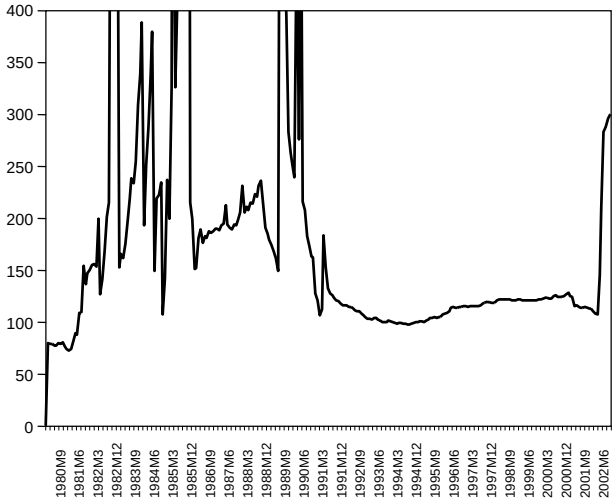
1B. Argentina-Uruguay



1C. Argentina-Paraguay

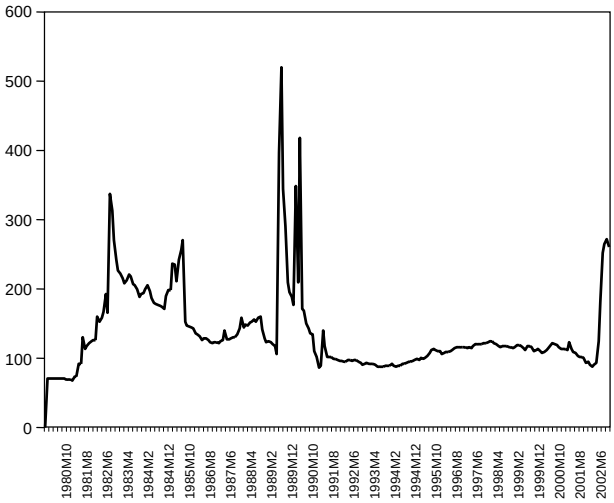


1D. Argentina-Bolivia

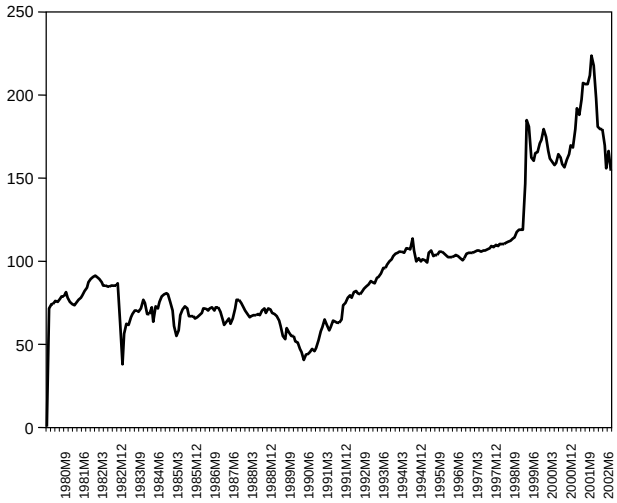


Source: Author's calculations on the basis of IFS/IMF [2001].

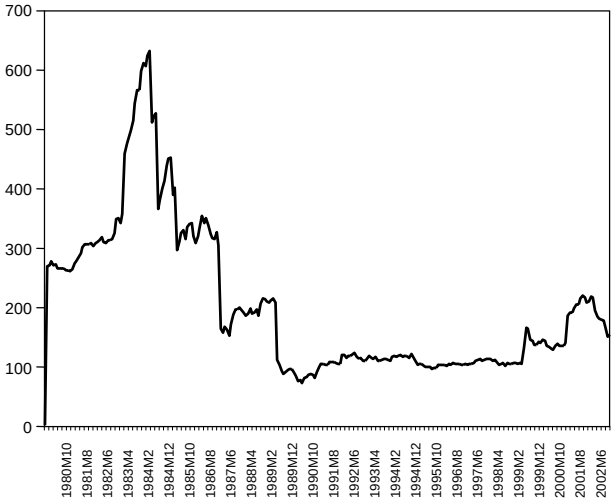
1E. Argentina-Chile



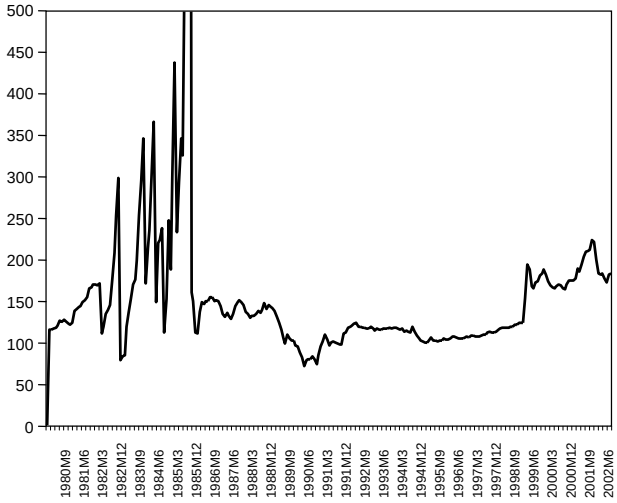
1F. Brazil-Uruguay



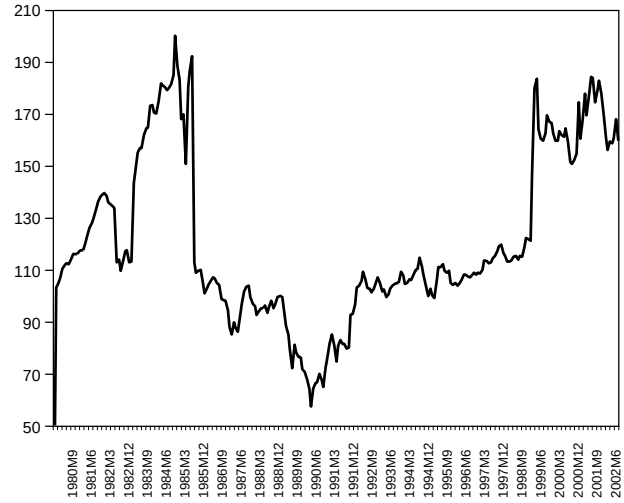
1G. Brazil-Paraguay



1H. Brazil-Bolivia



1I. Brazil-Chile



Source: Author's calculations on the basis of IFS/IMF [2001]

II. THE IMPORTANCE OF THE EXCHANGE RATE

Contents

A. The Impact on Trade

The importance of the exchange rate and its variability in explaining trade between countries has spawned long debates and many empirical studies. The variation of a relative price that makes a specific activity or sales in a specific market more attractive affects demand and supply in the short term and investments in the medium term. As with any other relative price, exchange rate variations can affect a specific country's exports and imports.[7] In the case of MERCOSUR this effect has been revealed in several empirical studies (Devlin, *et al*. [2001]; Heymann and Navajas [1991 and 1998]). A later study, using a significant sample of developed and developing countries, found that although the imbalance in exchange rates is significant in explaining the behavior of exports, it is more important when the imbalance occurs relative to other countries of the group than to the rest of the world (Fernández-Arias, Panizza and Stein [2002]). The reason is the presence of "regional goods" that it is difficult to export beyond the region.

The exchange rate is important in explaining trade volumes but its variability is also significant, since it is evident that relative prices do not send the same message in a context of uncertainty as in stable conditions. When the economic agents are risk-averse, therefore, higher exchange rate volatility should affect trade negatively.[8]

Surprisingly, the empirical evidence on the negative effects of exchange rate variability on trade is inconclusive. It should be recalled, however, that most empirical studies analyze the effects of variability in developed countries, where increasingly sophisticated financial instruments offer coverage between currencies and therefore lessen the economic effect of exchange rate uncertainty.[9] In developing countries, where volatility is higher and instruments for coverage are not wholly available, it might be expected that exchange rate variability has a greater negative impact. This is demonstrated in studies analyzing the effect of exchange rate volatility on developing countries' trade (Devlin, *et al.* [2001]; Estevadeordal, Frantz and Sáez [2001]; and Giordano and Monteagudo [2002]).

The empirical evidence shows that the adoption of a common currency, as would be the case in a monetary union, has a positive impact on trade (Rose [2000]; López-Córdova and Meissner [2003]; Estevadeoral, Frantz and Saez [2001]; Micco, Stein and Ordóñez [2002]). The idea is that monetary unions lower transaction costs between currencies. Additionally, a monetary union permanently eliminates exchange rate volatility and drastically reduces the possibility of raising

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[7] At times the discussion of the effect of the exchange rate on exports seems to be confused with advisability of changing it. The fact that the exchange rate matters to an explanation of trade does not mean that a change in the nominal exchange rate is the best economic policy. Other factors affect such an assessment, such as the impact of a change in the exchange rate on the inflation rate or on the credibility of economic policy, and, if the economy is highly dollarized, on the "balance sheet" of the various economic actors.

[8] From a technical standpoint it is possible to build models in which the actors prefer or are neutral to risk, and in which exchange rate volatility has a positive effect on trade. For a review of the literature, see McKenzie [1999].

[9] It is interesting to note that the estimates showed that volatility has less of an impact with an improvement in coverage for foreign currency operations (Frankel and Wei [1998]).

non-tariff barriers between member countries. This facilitates trade-related investment in production, and in the creation of trade channels in other countries.

In sum, it can be said that lower exchange rate volatility positively affects trade between developing countries. It can further be said that the creation of a monetary union increases this effect by eliminating uncertainty surrounding the exchange rate and by lowering transaction costs.

B Political Economy

The other factor to be taken into account is the effect of strong exchange rate variations on the political economy of the integration process. In principle, the loss of competitive advantages by producers in the country whose currency has appreciated should reduce the number of sectors that support integration, while simultaneously giving additional arguments to those sectors that have always opposed it. In other words, a sharp modification of the exchange rate within the region changes the producers' idea of the "normality" of relative prices. In this context, devaluations are seen as an opportunistic behavior by the other countries, thereby weakening solidarity within the region and increasing political pressure for greater protectionism on the government that has revalued its currency. One example consists of the devaluations in several countries during 1992 and 1993, which triggered protectionist reactions in the European Common Market (Eichengreen [1993a]). Another example is the substantial growth of protectionist measures in MERCOSUR countries as a result of the devaluation of the real in 1999. Exchange rate modifications within NAFTA do not seem to have had a similar effect. First, the level of output within the region at the time when one of its members devalues must be taken into account. In NAFTA, exchange rate variations occurred in a context of strong regional growth. The devaluations in Europe, in contrast, occurred in a context of low growth, largely the result of the high interest rates associated with German reunification. The devaluation in Brazil occurred against the backdrop of a regional recession, partly explained by the scale of the negative external shock. These observations support the perception that trade pressures attendant on the devaluation of a partner country should be substantially lower in a context of economic growth.

Second, the scale of the reactions are related to the size of the country that devalues. The effect of the 1994 Mexican devaluation on the members of NAFTA, where Mexico accounts for 4% of output, is not the same as the devaluation in Brazil, which accounts for over 65% of MERCOSUR's GDP. The European countries (Italy, the United Kingdom, Spain, Ireland and Portugal) that devalued in 1992 and 1993 accounted for 35% of EU output. This falls between the former two cases and perhaps offers a partial explanation of why pressures for protectionist measures in other countries were controlled. In any case, it should be noted that these devaluations spurred proposals to hasten the transition to a single currency because of fears that further movements in the exchange rate could endanger not only monetary union but also the European integration process (Eichengreen [1993a]; Goodhart [1995]; Broder [1992]). This prompts a second conclusion: the bigger the country that devalues, the stronger the reaction among member countries.

Hence the political economy of the integration process goes beyond exchange rate-related issues (Goodhart [1995]). Nevertheless, exchange rate variability strengthens the arguments of sectors that oppose greater external competition, gives rise to trade restrictions and, in general, reduces

governments' capacity to cooperate. The European "obsession" with limiting exchange rate variability should be taken into account by all those who want to sustain and deepen an integration process. This is especially true in those cases where the volatility is caused by relatively bigger countries.

C. The Reasons for Exchange Rate Variability

Many economists have tried to explain exchange rate variability, and a large body of literature has arisen as a result. During the mid-1990s, Taylor [1995] summarized the discussion on the conduct of exchange rates and argued that "... new efforts to explain short- and medium-term exchange rate movements solely on macroeconomic grounds might be unsuccessful". The assertion derives from the fact that most participants in the exchange market use allegedly recurrent patterns in exchange rate movements rather than macroeconomic fundamentals for their interventions in the market. In the same article, Taylor suggested giving further consideration to the role of microeconomic fundamentals, such as "heterogenities in behavior and in access to information between participants in the market, and the transmission of information between operators, which may cause contagion or herd conduct". Subsequent studies did consider these issues further, giving rise to the second and third generations of exchange crisis models.[10]

Nevertheless, it is evident that the fundamentals are important when there are evident excesses in the management of monetary and fiscal policies. In particular, stocks are normally more important than flows. The stock of public debt and short-term foreign debt has been, and in the coming years certainly will be, a significant variable in explaining exchange rate variability in Latin America, especially in MERCOSUR. This is not to say that macroeconomic variables explain all exchange rate volatility in this period.

Another explanation for exchange rate variations are changes in the international context, normally termed external shocks from the viewpoint of a specific country or region. Shocks that have different consequences for countries by affecting the equilibrium exchange rate cause real exchange rate variations. In their turn, and in line with the theory of optimal monetary areas, these external shocks tend to have a greater effect on the exchange rate between two countries when there is little bilateral trade between them and their economic cycles are only modestly synchronized (Bayoumi and Eichengreen [1997]; Eichengreen and Taylor [2002]). These issues are examined in the following section.

Finally, it is worth emphasizing the importance of different exchange rate regimes in explaining variations in the real exchange rate between countries. In a world with complete flexibility in prices and wages, the choice of the exchange rate regime has no effect in determining the real exchange rate. As is well known, prices and wages are not wholly flexible, purchasing power parity does and Rogoff, 1995; Rogoff [1996]; Obstfeld, 2001). In a world with inflexible prices and wages, therefore, the choice of the exchange regime is important in explaining the real exchange rate.

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[10] For a discussion of these issues see Krugman [2000]. Allen *et al*. [2002] Box 1 offers a good summary of the different models of exchange rate crises.

Take the case of external shocks that alter the equilibrium exchange rate of the countries of a region relative to the rest of the world, but that do not alter the equilibrium exchange rate between them. In a context of different exchange rate regimes, these shocks might lead to significant fluctuations in the real exchange rate between those countries because of the different adjustment path towards the new equilibrium. In countries subject to large-scale external shocks, this might suffice to generate a high degree of volatility in the real exchange rate. An example might help explain this point. If two countries that depend to a large extent on external financing suffer a substantial reduction in capital inflows over a long period, that will affect the equilibrium exchange rate. Assuming similar degrees of opening, macroeconomic policies and productive structures, the equilibrium exchange rate should change similarly in both countries. Let us then suppose that the two countries have different exchange rate regimes, that one has a free exchange rate and the other has a convertibility system. In the former case the nominal exchange rate will be altered immediately and in such a way that it might be close to equilibrium in the short term, or its initial variation might be greater than that required (Dornbush [1976]). The country with a convertibility regime will embark on the process towards the new equilibrium through the deflation of prices and wages, which could (depending on the flexibility of the nominal variables) take a long time. Consequently, in the transition period there will be variations in the real exchange rate between the two countries.

Since prices and wages are more flexible upwards than downwards, the exchange rate volatility might be higher in the face of shocks that depreciate the equilibrium rate than in the case of those that cause it to appreciate. The same argument holds true for a real shock, such as a variation in the terms of trade that affects both countries similarly.

In a study of several countries classified according to their exchange rate regime, Broda [2000] evaluates the behavior of the real exchange rate and the level of output in a context of variations in the terms of trade. Adjustment of the exchange rate to the new equilibrium is faster with flexible exchange rate systems. The more rigid the exchange rate, the higher the variability of the output level.[11] The results should be similar in the case of financial shocks. This financial turbulence is often more important for the balance of payments than are variations in the terms of trade. In the case of capital flows, the impact on the exchange rate is greater when the economy is more closed to the movement of goods (see Calvo, Izquierdo and Talvi [2002]).

The foregoing argument does not imply that exchange rate variability must necessarily be higher when exchange regimes differ. As pointed out by Fanelli [2001], the MERCOSUR experience shows that exchange rate variability was higher in the decade before Argentina’s adoption of the convertibility system. In that period, the countries of the region generally had a bilateral crawling peg exchange rate. The exceptions were the periods of stabilization programs, during which the exchange rate was used as an "anchor". Figure 2 shows the variability of the Argentine and Brazilian exchange rates measured as the differences in the logarithms of the original series. An examination

[11] The level of output changes more with a fixed exchange rate than with a flexible rate in circumstances of external shocks because of the absence monetary policy to absorb part of the shock. Nonetheless, this does not mean that a more flexible exchange rate policy is always best because, among other things, it will depend on how expectations are managed and the reputation of the monetary authority. Indeed, a history of poor fiscal and monetary management can lead to the choice of very rigid exchange-rate regimes as almost the only way of re-establishing credibility.

of the behavior of the exchange rate prompts four comments. First, (Table V), there was higher variability in the 1980s - that is, in the period when the countries had similar exchange regimes. Second, Argentina accounts for much of the sharp volatility of the 1980s, as well as the greater stability of the 1990s. Nevertheless, a more detailed analysis of the 1980s shows that the significant exchange rate variability was concentrated at the beginning and the end of that decade. At the start of the 1980s Argentina abandoned a fixed exchange rate scheme (the *tablita*) amid the Falklands/Malvinas War, delays in debt repayments, and the policy of "liquidating" credit values through accelerated inflation. At the end of the decade, Argentina experienced two episodes of hyperinflation (1989 and 1990).[12] In other words, the variability of the real exchange rate in both periods was strongly influenced by extra-economic factors and a severe macroeconomic imbalance. Third, it is interesting to note that the variability of the Argentine exchange rate relative to all the countries of the region was very low from 1991 onwards, although it was higher relative to Brazil. As Figure II and Table V show, this greater stability changed with the Argentine devaluation of early 2002. Fourth, and related to the previous consideration, it is evident that Brazil was a significant source of exchange rate variability throughout the period, but given Argentina's exchange rate stability in the 1990s Brazil's role in the region's volatility was greater in the last decade, and particularly in the second half of the decade (see the variability of the Brazilian exchange rate relative to Uruguay and Chile). Finally, the variability of the real exchange rate between Argentina and Brazil in the 1990s was related to the implementation of stabilization programs in Argentina (1991-1992) and Brazil (1994). Variability in the 1999-2000 period stemmed from a severe external shock that changed the region's equilibrium exchange rate, provoking a sharp variation of the nominal and real exchange rate in Brazil and, in Argentina, a slow depreciation of the real exchange rate relative to the dollar through painful deflation.[13] This latter experience reveals the significance of different exchange rate regimes in explaining alterations to the real exchange rate. Argentina's deflation ended with the abandonment of convertibility, which sharply heightened exchange rate variability in the last five years (Table V).

Both theory and empirical evidence therefore demonstrate that similar exchange rate regimes do not guarantee relative exchange stability between countries. There are various reasons, but macroeconomic instability is salient among them. Nonetheless, the relative exchange rate stability associated with Argentina's convertibility system ended with a large-scale devaluation. Hence, while greater stability of nominal exchange rates (fixed rates) can increase the volatility of real rates in a certain period, a lack of consistent fiscal policies or a strong external shock can exacerbate that volatility in the medium term. In this regard Eichengreen and Taylor [2002] show that exchange rate variability is less when the countries adopt a floating rate and when monetary policy is geared towards inflation targeting. The reason is that, in most cases, countries with a fixed rate are experiencing a high level of volatility when they abandon parity.

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[12] As Table V the shows, volatility as measured by the standard deviation was greater in the second half of the 1980s.

[13] It can be added that the prior exchange rate "lag" and macroeconomic and disequilibria also contributed to the substantial nominal and real devaluation in Brazil.

TABLE V
REAL EXCHANGE RATE VOLATILITY IN MERCOSUR, 1980-2000

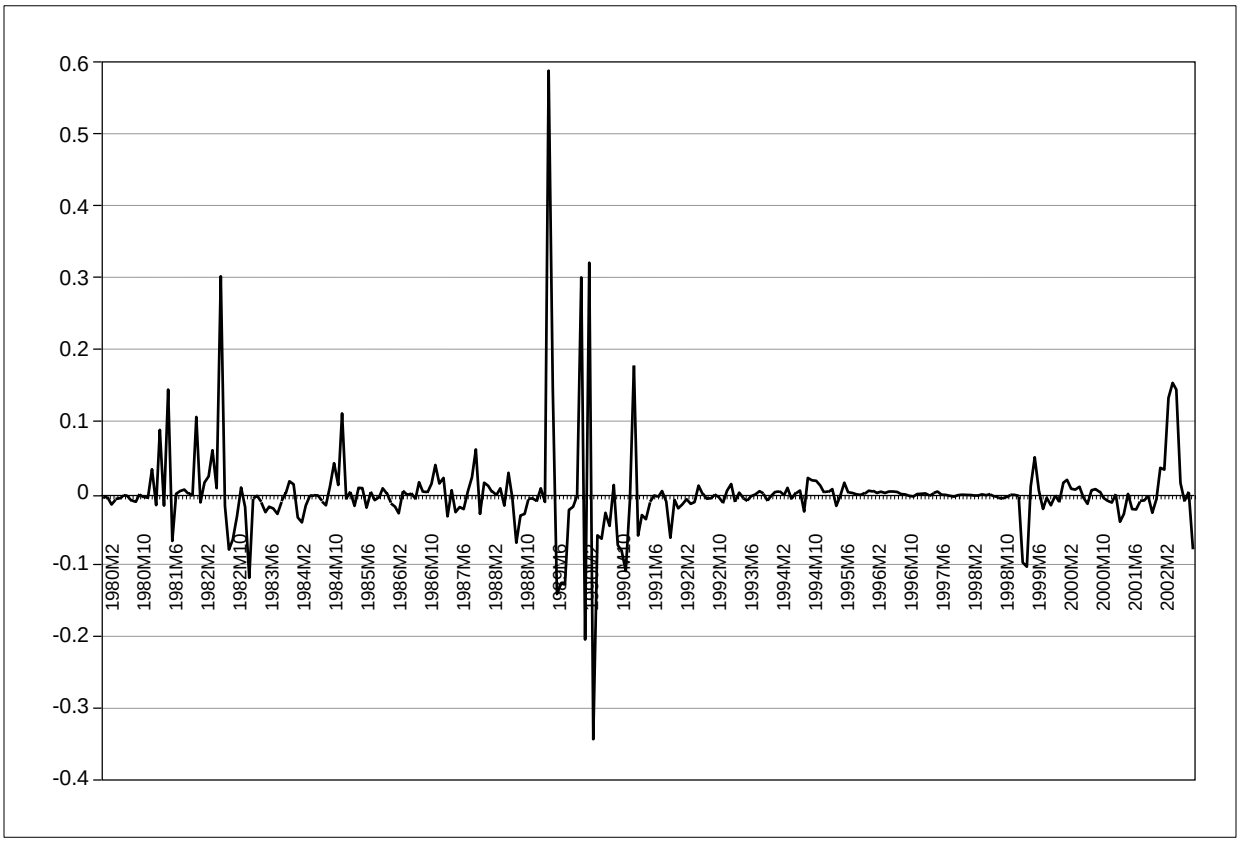
Years	ARG/BRA	ARG/URU	ARG/PAR	ARG/BOL	ARG/CHI	BRA/URU	BRA/PAR	BRA/BOL	BRA/CHI
1980-1984	0.13	0.16	0.14	0.33	0.12	0.10	0.07	0.30	0.04
1985-1990	0.25	0.25	0.27	0.40	0.26	0.05	0.12	0.31	0.08
1991-1995	0.06	0.07	0.06	0.07	0.07	0.03	0.03	0.03	0.04
1996-2000	0.05	0.01	0.04	0.01	0.02	0.05	0.06	0.05	0.05
1998-2002	0.10	0.09	0.09	0.08	0.08	0.06	0.07	0.06	0.05
1980-2002 (*)	0.15	0.16	0.16	0.26	0.15	0.06	0.08	0.21	0.06

Notes: (*) Simple average.

The volatility was calculated as the standard deviation of the logarithmic difference between each period and the preceding period on the basis of monthly data.

Source: IFS/IMF [2001].

FIGURE 2
RATE OF VARIATION OF THE BILATERAL EXCHANGE RATE BETWEEN ARGENTINA AND BRAZIL, 1980-2002



Source: Author's calculations on the basis of IFS/IMF [2001].

In sum, it is extremely difficult to explain the variability of exchange rates between countries. External shocks with asymmetrical effects and different macroeconomic policies explain only part of the variation. Substantial capital mobility in a context of deficient information activates "herd" conduct and spurs crises brought about by self-fulfilling prophecies. Short-term indebtedness in the public sector and a mismatch between assets and liabilities in the financial system (together with solvency problems in the financial system that raise the prospect of rescue packages in the near future) are among the factors recently adduced to explain exchange crises. In addition to these factors, this section has discussed why the prevalence of different exchange rate systems might also affect the variability of the exchange rate between countries. Hence progress on integration requires not only macroeconomic policy coordination but also similar exchange rate regimes. This is not to disregard the fact that the choice of exchange rate regimes by different countries reflects particular preferences that conform more fully to specific idiosyncrasies or circumstances. (Fanelli [2001]). But it does mean acknowledging that such preferences might seriously hamper the integration process if those countries are facing severe international turbulence.

The next section discusses different mechanisms for lowering exchange rate variability between member countries of an agreement. The discussion is relevant if the countries decide to deepen the integration process. If they decide otherwise, the level of trade between them will not be particularly significant, and neither will exchange rate fluctuations (Eichengreen [1997]). Nevertheless, it should be kept in mind that the process is iterative and that the decisions to deepen integration are continuous choices that depend on the political economy of each country. In such circumstances, the disruptions caused by severe exchange rate fluctuations make it very difficult to sustain cooperation. Hence, while the political decision to deepen integration determines the strategies adopted in different policy areas (and specially in exchange rate policy), it is also true that realization of the political decision requires a lessening of trade disputes, which is almost impossible in a context of sharp exchange rate variability. Perhaps this is the most important lesson of the European experience: efforts at macroeconomic cooperation always complemented progress on integration. In other words, interdependence incited coordination but macroeconomic cooperation, especially exchange rate agreements, facilitated greater interdependence.

D. Alternatives for Reducing Exchange Rate Volatility

What options might obviate severe exchange rate fluctuations within a region, or might at least avert the effects of such fluctuations on the member countries? The most effective alternative is a monetary union, which by definition eliminates exchange rate variations between its members. The costs and benefits of monetary union have been analyzed extensively in the literature, and the following examines the matter in MERCOSUR. An alternative to a monetary union is a band within which different national currencies can fluctuate, as was the case of the European "snake". If the band is very narrow, the outcome is similar to monetary union but has the added complication of requiring intervention funds. If the band is very wide, there are fewer problems with intervention funds but the problems of sharp exchange rate variations is less remote. Europe managed to maintain a band system in the 1980s by virtue of tight controls on capital movements at the time; in the 1990s, the wider bands were sustainable because countries declared their commitment to advance towards monetary union (Eichengreen [1993]; Eichengreen and Ghironi [1996]). These days, the scale and volatility of capital movements and the MERCOSUR countries' levels of international

reserves make it unviable to establish a relatively narrow band for the region. This does not preclude the establishment of a band wide enough to avert extreme variations in the exchange rates. The second possibility is macroeconomic coordination, excluding monetary union, which should attenuate exchange rate variations in the medium term. Leaving aside external shocks and the characteristics of the productive structure, there is no reason to expect a high level of exchange rate variability between two countries with similar macroeconomic policies or, at the least, volatility should be more limited.[14] The scant synchronicity between the cycles in Brazil and Argentina owes much to their different macroeconomic policies, and in particular their implementation of stabilization programs at different times. Macroeconomic coordination should not only avert internal asynchronous shocks but should also reduce the impact of external shocks, which are often amplified by domestic imbalances. Hence variations in the exchange rate between member countries should be restricted to external shocks that have different effects on different countries. As mentioned, such shocks can trigger substantial exchange rate variability if the exchange regimes are different.

A third option is to lessen the impact of exchange rate variation through measures to compensate for real devaluations. There are different mechanisms for that purpose, such as the "agreed" application of trade restrictions or voluntary export restraints between countries, but these measures tend to increase political tensions.[15] The most transparent measure might therefore be a special regional exchange rate to be applied in extreme circumstances, or export tariffs and drawbacks that move according to the exchange rate.

Monetary union is the best way to deepen an economic and political integration process. Nevertheless, it is clear that monetary union demands strong economic and basically political commitments - that is, monetary union is partly the result of a set of policies adopted over time. During the transition towards that goal it is necessary to use compensation mechanisms to limit the effects of changes to exchange rates, and to make substantial progress on macroeconomic policy coordination. In short, the three mechanisms should not be seen as alternatives but as complementary over time.

The following sections analyze these three alternatives in general and their relevance for MERCOSUR in particular. We begin with an evaluation of the advantages and difficulties of creating a customs union, move on to an examination of the criteria for macroeconomic coordination, and conclude with an assessment of the compensation mechanisms within the region for lessening the impact of changes to the exchange rate.

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[14] The variability of the exchange rate between the euro and the dollar in recent years reveals that even with similar macroeconomic policies there can be severe fluctuations in the exchange rate.

[15] In view of the impossibility of negotiating with Brazil a general compensation regime for the devaluation of January 1999, in 2000 Argentina asked the Brazilian authorities for voluntary export restraints on Brazilian sales to Argentina in certain sectors. In this context some sectoral agreements were reached in relatively concentrated sectors, but the problems were insurmountable in those activities featuring hundreds or thousands of producers.

III. MONETARY UNION

Contents

A. Introduction

The extensive literature on monetary unions, since the original study by Mundell [1961] and the subsequent work by McKinnon [1963] and Kenen [1969], has indicated several determinants of their creation. The most significant of these are: (a) synchronicity of the economic cycle; (b) trade volumes; (c) labor market flexibility; (d) a system of tax transfers; and (e) the prospect of establishing an independent central bank. In light of the discussion that follows on the synchronicity of the economic cycle, another element should be added, one that concerns the nature of the external shocks to countries. If the shocks are similar they should be reflected in a greater correlation of economic cycles. Hence it is important to consider the characteristics of external shocks separately, following the discussion of the synchronicity of economic cycles.

Before discussing the viability of a monetary union, it is helpful to note the following: (i) the aim of a monetary union in MERCOSUR would be to deepen the integration process and to avoid sharp exchange rate fluctuations between the member countries. This is one of the advantages mentioned by the European Commission [1990] in its proposal for the adoption of a common currency. According to the Commission report, another advantage consists of lower transaction costs; these, together with the elimination of exchange rate uncertainty, should intensify trade and boost capital movements within the region. Examining MERCOSUR, Giambiagi [2001] argues that "monetary union would be the most powerful horizontal policy instrument available to the group's member countries". The other advantages mentioned by the Commission in the European case - a stronger international currency or the convergence of interest rates in the less developed countries with German rates - are not applicable to MERCOSUR;[16] (ii) analysis of the different criteria for assessing the advantages or disadvantages of a monetary union must acknowledge that the theory of optimum currency areas perhaps requires more countries than there now are, or at least different currencies in different regions of a country. There are many examples of regions within a country that have different productive structures and thus face asynchronous shocks. Following this idea, Mundell [1961] proposed making monetary areas small enough to maximize the number of independent monetary authorities. Many countries are too small to justify a currency of their own, and the reasonable option would be to adopt the currency of another country. Nevertheless, as argued by Goodhart [1995], currency has a symbolic value as an element of sovereignty. Hence the criteria discussed below must be weighted by a particular circumstance: adoption of a common currency is basically a political decision; and (iii) it must be kept in mind, as stated by Frankel and Rose (1998), that "... there is a greater prospect of a country meeting the criteria for participation in a monetary union *ex post* than *ex ante*, since a single currency will increase trade between member countries and thereby heighten the correlation of their economic cycles". This issue will be addressed again in the concluding part of this section.

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[16] In the foreseeable future a MERCOSUR currency would have no international relevance. As regards the lowering of interest rates, it is hard to believe that a monetary union in MERCOSUR would have such an effect in the short term. In the medium term, only years of responsible fiscal and monetary policies, within a context of credible institutions, could help lower the interest rates of the member countries.

B. The Synchronicity of Economic Cycles

1. General Considerations

The greater the synchronicity of two countries' economic cycles, the more useful it is to establish a monetary union, since there is less need to adjust relative prices and therefore the loss of monetary independence entails no costs. In an extreme case, if the macroeconomic policies and the productive structures are identical, there is no reason to believe that the real exchange rate between regions must change.

The contrary, however, is not necessarily true. That is, the asynchronicity of economic cycles does not necessarily make it impracticable to create a monetary union, since such asynchronicity might stem from very diverse factors. External shocks with asymmetric effects, dissimilar exchange rate regimes and different macroeconomic policies are among the reasons for asynchronicity.[17] Only the first of these should be central to a decision on monetary union, since the other disparities should disappear when the union is created. In particular, monetary union is impossible without macroeconomic policy coordination. This is not to deny that countries that have had similar macroeconomic policies for long periods will be able to coordinate more easily in the future, since a monetary union will scarcely eliminate the reasons for divergent economic policies in the past. The experience of the European Union, with it successive steps towards similar macroeconomic policies, is a clear example in this regard. What is to be underlined here is that the absence of similar macroeconomic policies is not a structural problem when it comes to assessing the appropriateness or otherwise of monetary union.

Thus, since the asymmetry can stem from different factors, besides analyzing the synchronicity of economic cycles this article discusses in section C the external shocks to the region and their impact in the different countries.

2. MERCOSUR

Figure 3 shows the correlation of economic cycles between the countries of various integration agreements. It is plain that the economic cycles of the countries that form part of the various subregional agreements in Latin America and the Caribbean are less asynchronous than those of the European Union or ASEAN. Moreover, there is less correlation between the cycles than is the case of other Latin American integration agreements, such as the Andean Community and, in particular, the Central American Common Market. Table VI shows the correlation of the cycle among the MERCOSUR countries. It reveals that the simple average of the coefficient of correlation increased in the 1990s from 0.30% in MERCOSUR and the enlarged MERCOSUR to 0.46% and 0.58% respectively. However, the correlation coefficients for the full members are still not statistically different from zero in a level of significance of 10%, except for the correlation between Argentina and Uruguay. Note, in particular, that the correlation of cycles between Argentina and Brazil remains relatively low and is not statistically different from zero.[18]

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[17] Internal responses to external shocks also affect the variations in output.

[18] Using quarterly data between Argentina and Brazil, the correlations reveal a similar pattern. Moreover, the countries of the region display no particular correlation with the US or world economic cycle.

The correlation between Bolivia and Chile, interestingly, has increased and is significant relative to all the full members of MERCOSUR.

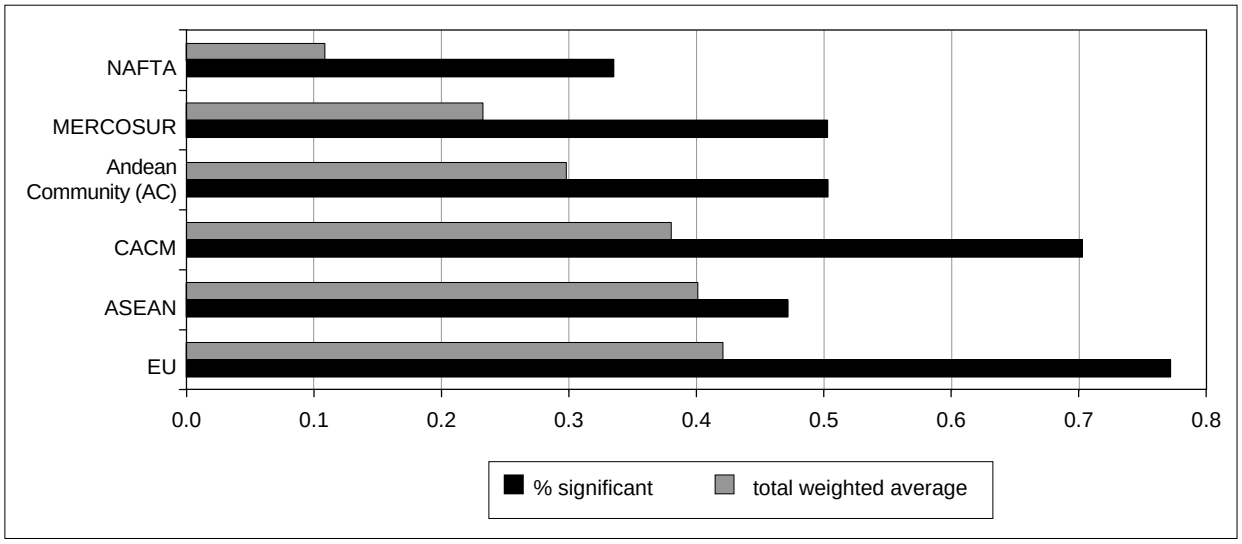
TABLE VI
SYMMETRY OF ECONOMIC CYCLES BETWEEN THE MERCOSUR COUNTRIES AND THE UNITED STATES

Countries	1962-2002								Average	
	Argentina	Brazil	Paraguay	Uruguay	Bolivia	Chile	USA	World		
Argentina	1.00								All	0.24
Brazil	0.15	1.00							Mercosur	0.30
	0.32								Mercosur+	0.30
Paraguay	0.04	0.14	1.00							
	0.78	0.37								
Uruguay	**0.50**	**0.33**	**0.62**	1.00						
	0.00	0.03	0.00							
Bolivia	0.09	0.06	**0.46**	**0.44**	1.00					
	0.57	0.70	0.00	0.00						
Chile	0.24	0.07	**0.59**	**0.59**	0.12	1.00				
	0.13	0.66	0.00	0.00	0.46					
USA	-0.02	0.10	-0.06	0.11	0.20	0.22	1.00			
	0.91	0.51	0.71	0.47	0.21	0.17				
World	0.04	**0.28**	0.04	0.25	-0.05	**0.42**	**0.65**	1.00		
	0.79	0.07	0.80	0.10	0.75	0.00	0.00			

Countries	1990-2002								Average	
	Argentina	Brazil	Paraguay	Uruguay	Bolivia	Chile	USA	World		
Argentina	1.00								All	0.38
Brazil	0.33	1.00							Mercosur	0.46
	0.27								Mercosur+	0.58
Paraguay	0.29	0.45	1.00							
	0.33	0.12								
Uruguay	**0.95**	0.34	0.36	1.00						
	0.00	0.25	0.22							
Bolivia	**0.75**	**0.47**	**0.66**	**0.81**	1.00					
	0.00	0.10	0.01	0.00						
Chile	**0.71**	0.33	**0.74**	**0.75**	**0.77**	1.00				
	0.01	0.28	0.00	0.00	0.00					
USA	0.10	0.34	-0.27	0.24	0.17	-0.19	1.00			
	0.74	0.26	0.38	0.44	0.57	0.53				
World	-0.13	-0.07	-0.10	0.09	0.09	-0.07	**0.53**	1.00		
	0.67	0.82	0.74	0.77	0.76	0.83	0.06			

Note: the statistical p is below the correlation coefficient. The positive and statistically significant coefficients are in bold.
Source: Author's calculations on the basis of IFS/IMF [2001].

FIGURE 3
CORRELATION OF CYCLES, 1960-1999



Note: Percentage of statistically significant observations and total weighted average (GDP) of all correlations.
Source: Author's calculations on the basis of IFS/IMF [2001].

C. External Turbulence

1. General Considerations

As mentioned earlier, the asynchronicity of economic cycles does not necessarily make it unfeasible for a region to move towards monetary union. For that purpose it is necessary to assess the extent to which external shocks have similar effects in different countries.

Several studies (Bayoumi and Eichengreen [1994]; Arora [1999]; and Bayoumi and Mauro [2002]) have sought to distinguish demand shocks from supply shocks. If it is assumed that demand shocks are more contaminated by domestic policies and factors than supply shocks, correlation between the latter indicates greater synchronicity in the cycles of countries with similar macroeconomic policies. Thus a higher level of correlation is sound evidence of the likelihood of success of macroeconomic coordination in an integration agreement.

This methodology is attractive because its results are easy to understand but it has several limitations, such as the assumption that both types of shock are independent and the fact that demand shocks only affect the inflation rate while supply shocks affect both the inflation rate and the level of output. An example of these problems is a stabilization program that changes expectations and might therefore attract foreign investment. Such investment, through its impact on investment and the use of technology, can have a permanent effect on income levels. In this case there is an obvious link between a demand shock and a permanent change in the output level that would not be adequately discerned by the methodology. It should be recalled that the MERCOSUR countries have a long history of stabilization plans of this type.[19]

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[19] The correlation of supply shocks for MERCOSUR estimated using this methodology is not significantly different from zero for all MERCOSUR country pairs (Arora [1999]).

In light of these difficulties it seems more appropriate to analyze the nature of the external shocks, especially trends in the terms of trade and financial flows, which have been the main kinds of turbulence affecting the region.[20]

The terms of trade are not a precise measure of shocks in the goods market. The reasons are: (i) variations in import and export prices can have different effects on the productive structure depending on the openness of the economy; and (ii) certain export products can have an excessive significance in international trade relative to their share of the productive structure. That is, the terms of trade measure the impact of an external shock on the current account, but not necessarily the effect on a country's productive structure.[21] Other measures, however, such as export diversification (Bayoumi and Eichengreen [1997]; Eichengreen [1998]), do not seem sufficient to analyze the synchronicity of external shocks. It is true that if the productive structure and exports are more diversified, it is likely that real shocks will cause less volatility in output levels and the exchange rate. Nevertheless, countries with a similar composition of primary products in their exports may face asynchronous disturbances because the prices of such products move differently in international markets.[22] Moreover, some countries of the region export oil and others import it. For all these reasons, and despite the limitations, an assessment of trends in the terms of trade between different countries is more helpful to an analysis of the synchronicity of real shocks.

Variations in the supply of funds to a particular region as a result of extra-regional factors heighten or lessen the imbalance in a current account and thereby affect the exchange rate.[23/24] Fluctuations in capital flows to emerging countries, rather than modifications in the terms of trade, largely explain variations in the real exchange rate in those countries during the last decade. Latin America has known both faces of such capital flows: abundance in the late-1970s and for most of the 1990s, and sparse flows in the 1980s and since 1998. These flows, in one or the other direction, have altered the real exchange rate of the countries of the region.

Figure 4 shows capital movements for all emerging countries and Latin America. The scale of the variations supports the hypothesis that capital flows to emerging countries are caused, at least

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[20] Other shocks can be added: variations in world output, technological changes that might have different effects on countries depending on their productive structures, and changes in international interest rates. Changes to the international interest rate tend to affect capital flows to emerging countries, and therefore should be at least partly considered in an examination of capital movements. In the case of Central America, remittances from nationals working abroad comprise the main external variable to be assessed.

[21] Variations in the terms of trade affect a country's current account and thus their impact is greater than the direct effect on output.

[22] Correlating the variations in international prices for agricultural commodities and minerals published by the IMF (IFS/IMF [2001]) for the period 1980-2000 gives eleven positive and four negative correlation coefficients, but only three are different from zero at a 90% level of significance.

[23] To the extent that it is the private sector that incurs debt, the current value of future income should be equal to current capital flows. However, the experience of recent years shows that in many cases a coordination problem within the private sector makes the future income of the current account incompatible with the payments related to current income, creating sustainability problems for the external sector and particularly as regards the exchange rate.

[24] The reasons for the variations in capital movements to emerging countries is not only the variation in the return on financial assets in the developed countries. An example is the decline in financial flows to Latin America after 2001. In this regard see Calvo [2002]. It seems better to take account of the variations in those capital flows without considering the reasons behind the changes.

partly, by factors that are remote from those countries (Calvo [2002]; Calvo, Leiderman and Reinhart [1996]), a phenomenon that the region had experienced in the 1970s.[25] Moreover, various empirical studies have shown the importance of the contagion effect between emerging countries - an effect that is more significant the closer the countries are to each other and the higher the volume of trade between them (see, for example, De Gregorio and Valdés [2001]; Eichengreen, Hale and Mody [2000]; Dornbusch, Park and Claessens [2000]; Forbes and Rigobon [2000]; and Froot, O'Connell and Seasholes [2001]). Contagion increases the likelihood of common shocks, even when capital outflows or changes to the exchange rate in a specific country are caused by domestic factors.

FIGURE 4A
PRIVATE CAPITAL FLOWS AS A PERCENTAGE OF GDP, 1971-2002

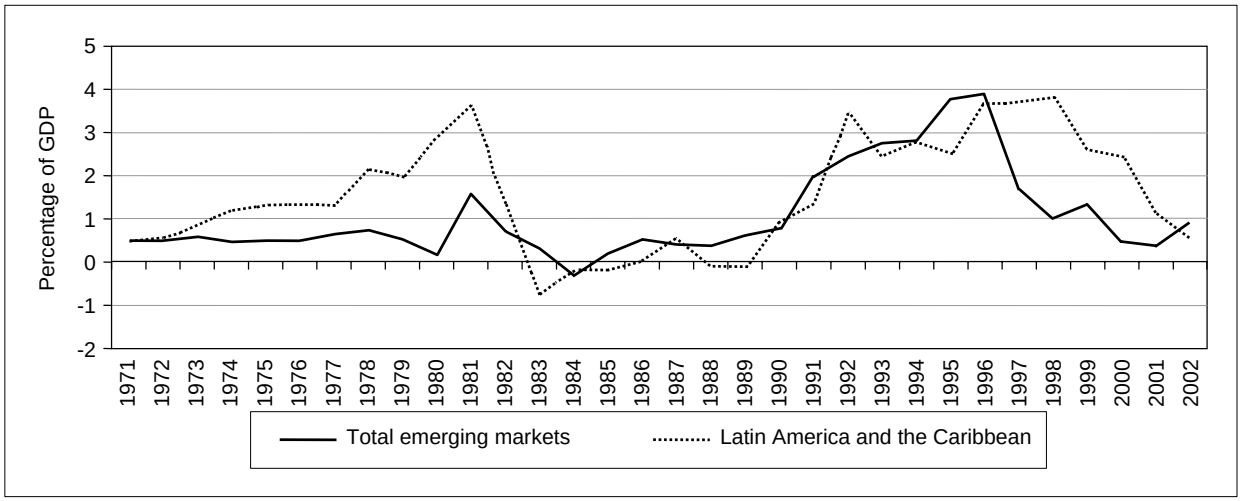
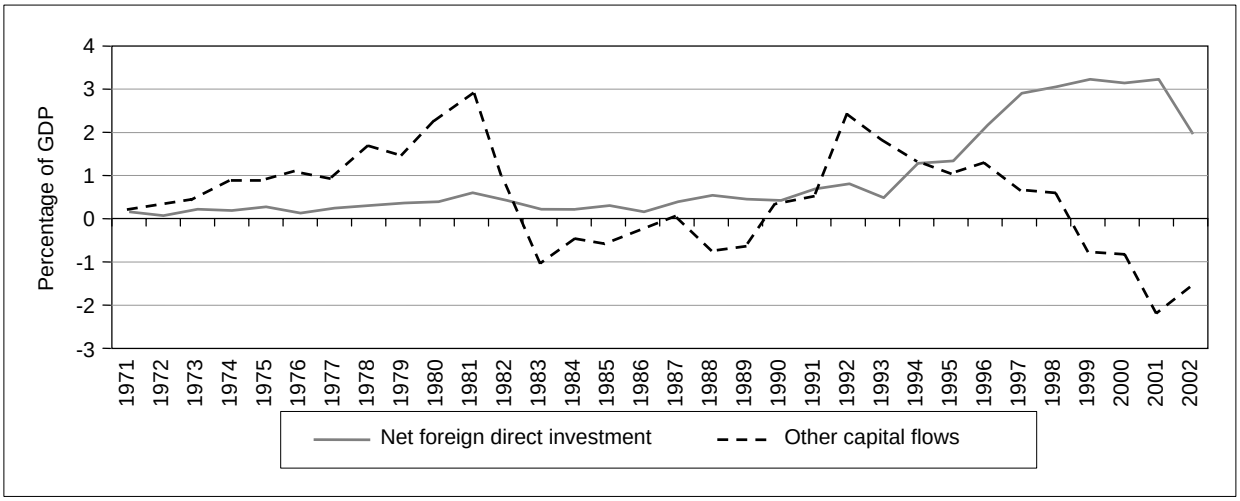


FIGURE 4B
FOREIGN DIRECT INVESTMENT AND OTHER PRIVATE CAPITAL FLOWS AS A PERCENTAGE OF GDP IN LATIN AMERICA, 1971-2002



Source: WEO/IMF [2002] and WDI [2002].

[25] For an analysis of the importance of external factors in bank loans in the 1970s in Latin America, see Devlin [1989].

Even if external financial shocks were common to different countries, they could still affect relative prices between them. This is because the financial structure causes distinct effects through different mechanisms for transmitting the interest rate over the output level.[26] As mentioned earlier, moreover, symmetrical changes in capital movements can affect the real exchange rate between countries because of different exchange regimes, particularly if the differences are between extremes (convertibility or dollarization and floating exchange rate).

It is interesting to examine whether these shocks are common to different countries, and to determine their scale and volatility. Common shocks should not cause variations in relative prices unless the productive and financial structures are different. If the shocks are not common, the impact on relative prices will depend on their volatility and scale.

2. MERCOSUR

- Magnitude and Volatility -

The MERCOSUR countries, like all developing countries, are more vulnerable than developed countries to external financial and trade shocks.

Table VII shows that in the 1970-1999 period the magnitude of private capital flows to the region (relative to output) surpassed those to Europe as a whole, although it has been similar to the level of private flows to relatively less developed European countries.

As regards volatility, Table VIII on the variability of private capital inflows in terms of GDP shows that volatility in MERCOSUR has been less than in other subregional agreements and relatively similar to that in Europe. For 18% of the observations over the last 30 years, annual variations in capital movements exceed 3% of each country's output. This is lower than in other subregional groups and a little higher than in Europe during the same period (Figure 5).[27] However, when the impact of capital movements on exports is taken as the measure of the scale of the volatility, the situation changes substantially. In this case MERCOSUR has the highest volatility, since in 39% of the cases analyzed the annual variations in capital movements exceed 20% of exports (Figure 6). MERCOSUR is the most volatile economy when this measure is used, because capital flow volatility has a greater effect on less open economies. This indicator gives an impression of the adjustment needed in the output level. The adjustment will be greater to the extent that the exchange rate does not affect exports and imports in the short term, since in that case the variation in the current account will stem from changes in the level of output. Alternatively, or complementarily, this is a good indicator of the exchange rate variation required.

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[26] For a discussion of the varying impact of monetary policy on the countries of the European Union, see Corsetti and Pesenti [1999].

[27] Figure 5 also shows the share of observations that have been sudden reductions in capital flows ("sudden stops"), and which have been sudden increases ("sudden starts"). It is evident that about 50% of the abrupt changes in financial markets are "sudden stops" - that is, the contagion seems to be as important in the stage of financial market optimism as in the stage of pessimism.

As regards trade shocks, volatility in the terms of trade has been slightly less in MERCOSUR than in other subregional agreements (Figure 7a). The impact of the volatility in GDP terms is also less (Figure 7b), Figure 8a shows that the number of cases in which the variation of the terms of trade surpasses 20% of exports is substantially lower than in the case of capital movements.[28]

TABLE VII
PRIVATE CAPITAL FLOWS AS A PERCENTAGE OF GDP

MERCOSUR

Country	Average			1970-1999
	1970-1980	1981-1990	1991-1999	
Argentina	0.83	0.29	2.71	1.23
Brazil	1.51	0.74	2.69	1.61
Paraguay	1.35	0.20	0.76	0.77
Uruguay	3.62	0.90	1.70	2.09
Chile	2.61	4.28	4.68	3.83
Bolivia	0.75	-6.27	6.00	-0.04
MERCOSUR+2 (*)	1.78	0.02	3.09	1.58

EUROPEAN UNION

Country	Average			1970-1999
	1970-1980	1981-1990	1991-1999	
Austria	-1.27	-1.59	1.82	-0.42
Belgium	0.19	1.95	11.37	4.27
Denmark	0.73	1.47	0.85	1.02
France	-0.04	0.69	-1.08	-0.11
Germany	1.07	1.04	1.09	1.07
Greece	8.48	2.31	4.06	4.98
Ireland	2.18	2.64	1.79	2.22
Italy	0.10	0.66	-4.61	-1.17
Netherlands	-0.03	-1.17	-2.59	-1.22
Portugal	0.13	1.82	4.69	2.13
Spain	0.47	0.74	2.82	1.29
Sweden	0.44	0.86	0.44	0.58
United Kingdom	0.02	0.78	-0.17	0.22
European Union (*)	0.89	0.87	1.46	1.06

Notes: (*) Simple Average.

Source: Author's calculations on the basis of IFS/IMF [2001].

[28] Figure 8b shows the number of cases in which variations in the terms of trade exceed 3% of output. As is apparent, the impact is more significant for MERCOSUR since the economies of the member countries, especially Argentina and Brazil, are closed to trade.

TABLE VIII
VOLATILITY OF PRIVATE CAPITAL FLOWS
AS A PERCENTAGE OF GDP

	1971-1980	1981-1990	1991-1999	1971-1999
MERCOSUR	*0.69*	*0.80*	*1.14*	*1.20*
	1.87	1.51	2.28	2.09
Andean Community	*0.60*	*1.06*	*1.67*	*1.23*
	1.80	3.63	4.00	4.13
CACM	*0.83*	*1.29*	*3.11*	*2.43*
	2.84	5.21	10.04	7.18
CARICOM (1)	*0.90*	*1.41*	*2.43*	*1.97*
	3.89	4.94	5.82	6.16
NAFTA	*0.20*	*0.87*	*0.90*	*0.75*
	0.87	2.17	1.84	2.05
ASEAN	*0.83*	*1.92*	*5.12*	*3.14*
	1.18	3.00	6.44	5.20
EU	*0.39*	*0.50*	*0.97*	*0.68*
	1.30	1.13	2.66	2.44

Notes: Figures in italics measure the volatility of the average weighted by GDP, and those in normal lettering measure the simple average of each country's volatility.

(1) Because of data problems for CARICOM, only four countries are included: Guyana, Haiti, Jamaica and Trinidad and Tobago, which account for 63% of regional GDP.

Source: Machinea and Monteagudo [2002].

TABLE IX
CORRELATION MATRIX OF PRIVATE CAPITAL INFLOWS
AS A PERCENTAGE OF GDP AMONG THE MERCOSUR COUNTRIES, 1971-1999

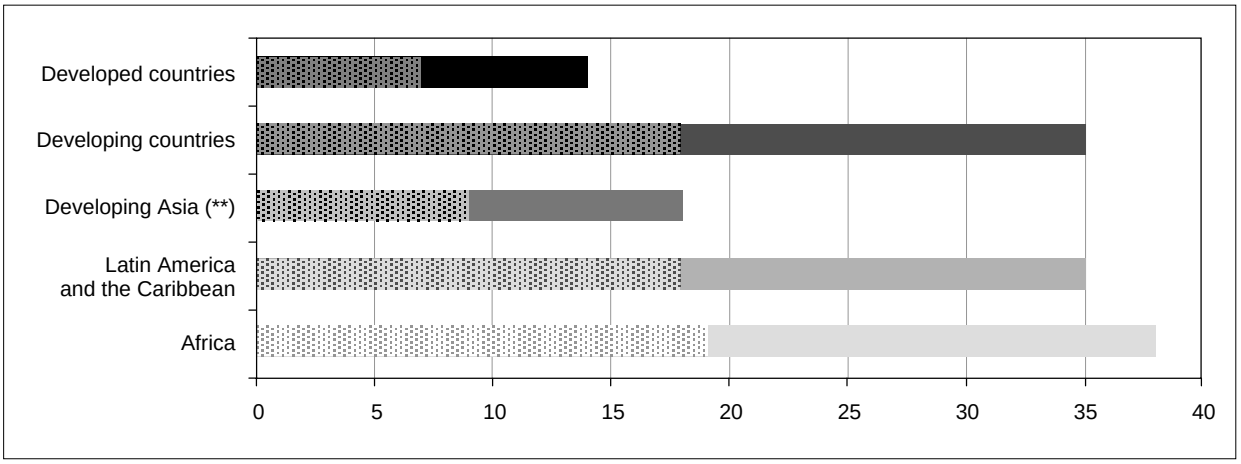
Country	Argentina	Brazil	Paraguay	Uruguay	Chile	Bolivia
Argentina	1.00					
Brazil	0.29	1.00				
	0.13					
Paraguay	0.09	**0.45**	1.00			
	0.64	0.02				
Uruguay	**0.50**	0.26	**0.57**	1.00		
	0.01	0.17	0.00			
Chile	**0.39**	**0.37**	**0.50**	**0.54**	1.00	
	0.04	0.05	0.01	0.00		
Bolivia	0.27	**0.50**	0.25	-0.04	0.07	1.00
	0.15	0.01	0.19	0.84	0.73	

Note: The level of statistical significance is below each correlation coefficient. The positive and statistically significant coefficients are in bold.

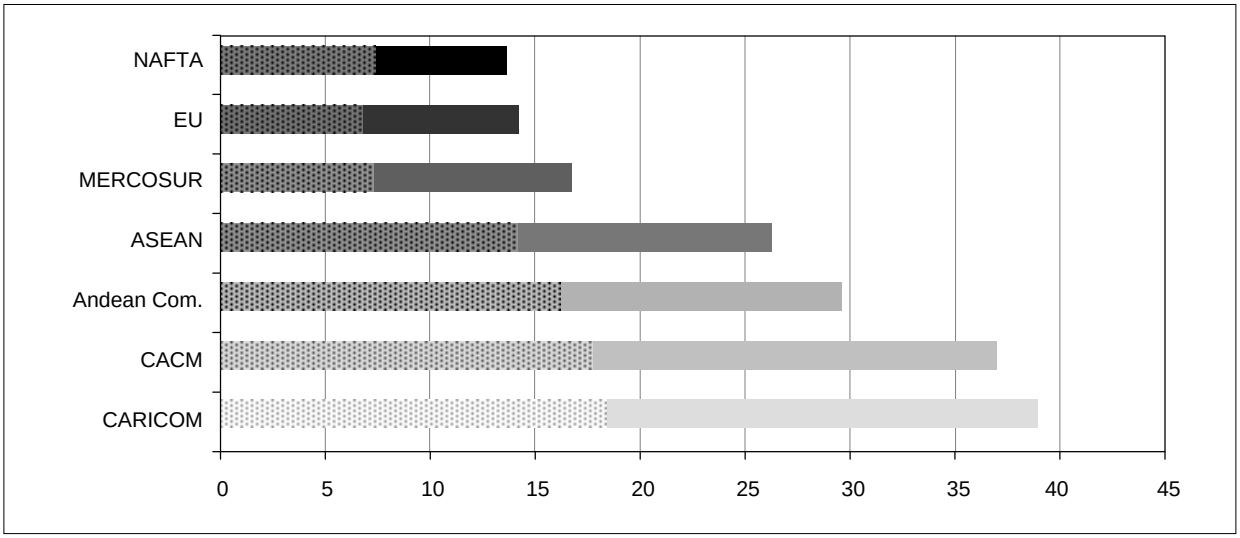
Source: Author's calculations on the basis of IFS/IMF [2001].

FIGURE 5
THE SCALE OF THE VOLATILITY AND SUDDEN STOPS IN PRIVATE CAPITAL FLOWS, 1971-1999
Annual variations > 3% of GDP (*)

(A) REGIONS



(B) REGIONAL INTEGRATION AGREEMENTS AND SUDDEN STOPS



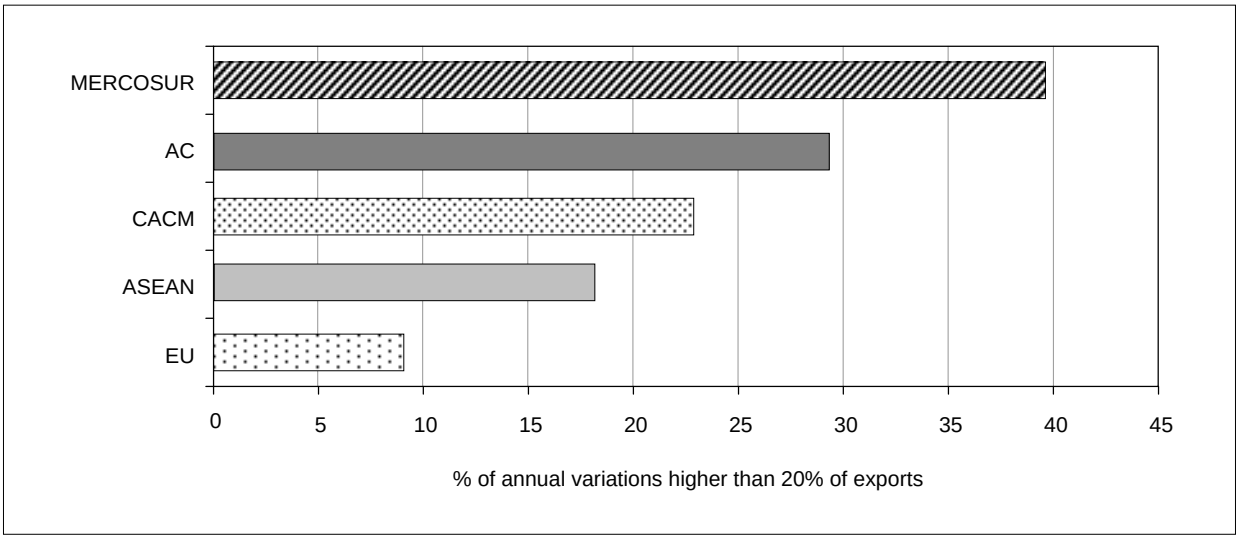
Notes: (*) Percentage of annual observations wherein the variations in net private capital flows exceed 3% of GDP, based on country data.

(**) Developing Asia: excluding Japan and South Korea.

The sudden stops in dotted areas - that is, the percentage of annual observations wherein the variations in net private capital flows above 3% of GDP were negative.

Source: Machinea and Monteagudo [2002].

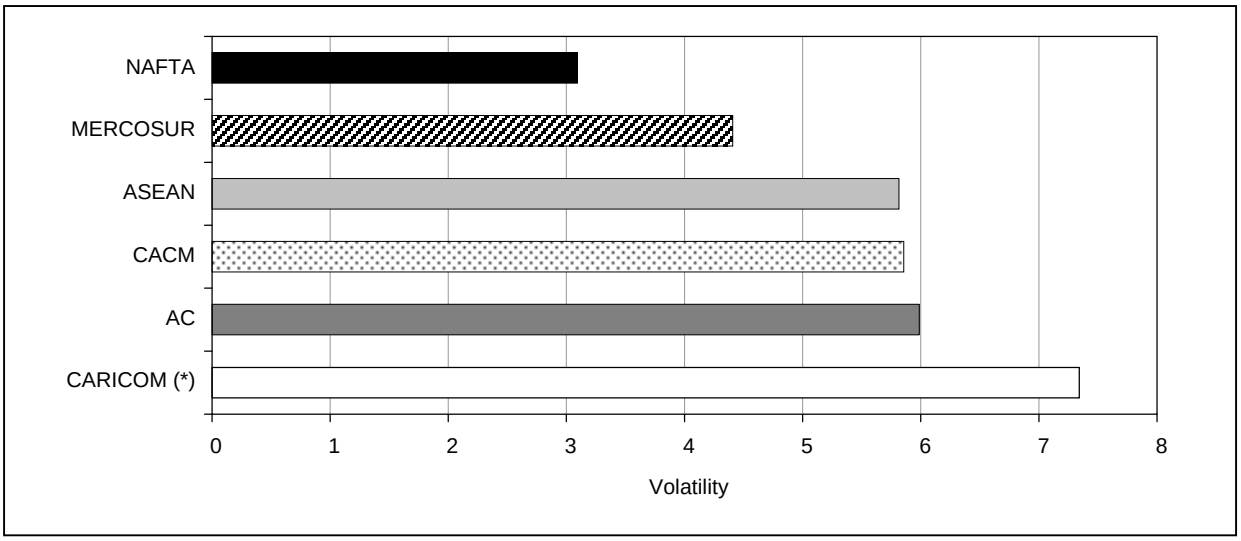
FIGURE 6
VOLATILITY OF CAPITAL FLOWS
AS A PERCENTAGE OF EXPORTS, 1971-1999



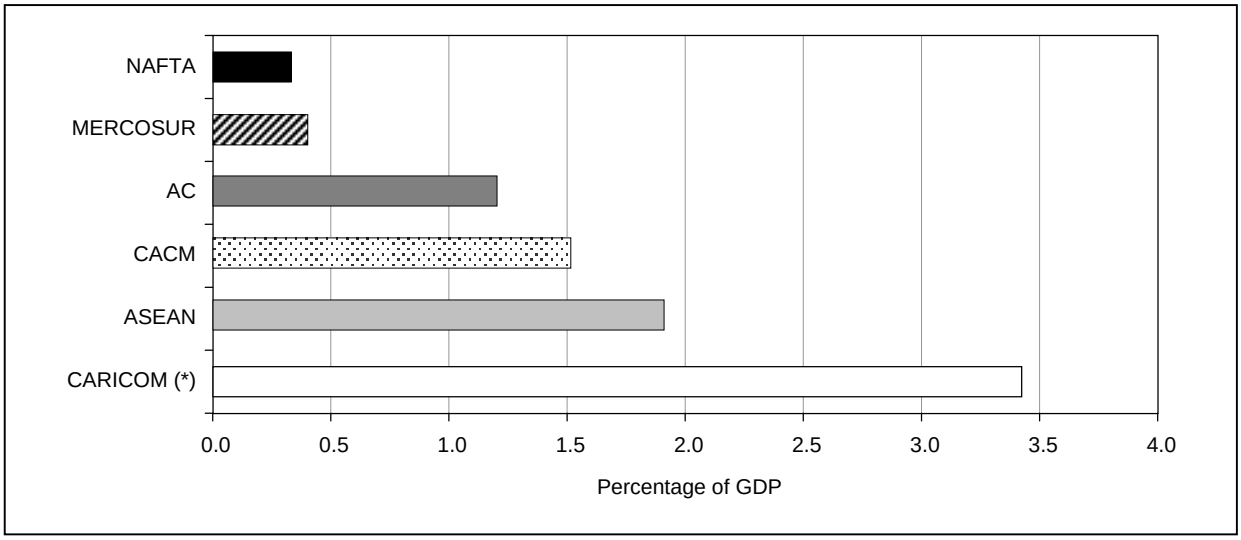
Source: Author's calculations on the basis of IFS/IMF [2001].

FIGURE 7
VOLATILITY IN THE TERMS OF TRADE
AND ITS IMPACT ON OUTPUT, 1971-2000

(A) VOLATILITY IN THE TERMS OF TRADE



(B) IMPACT ON GDP



Notes: Regional volatility is the standard variation of the GDP-weighted average of the rates of variation in the terms of trade by country.

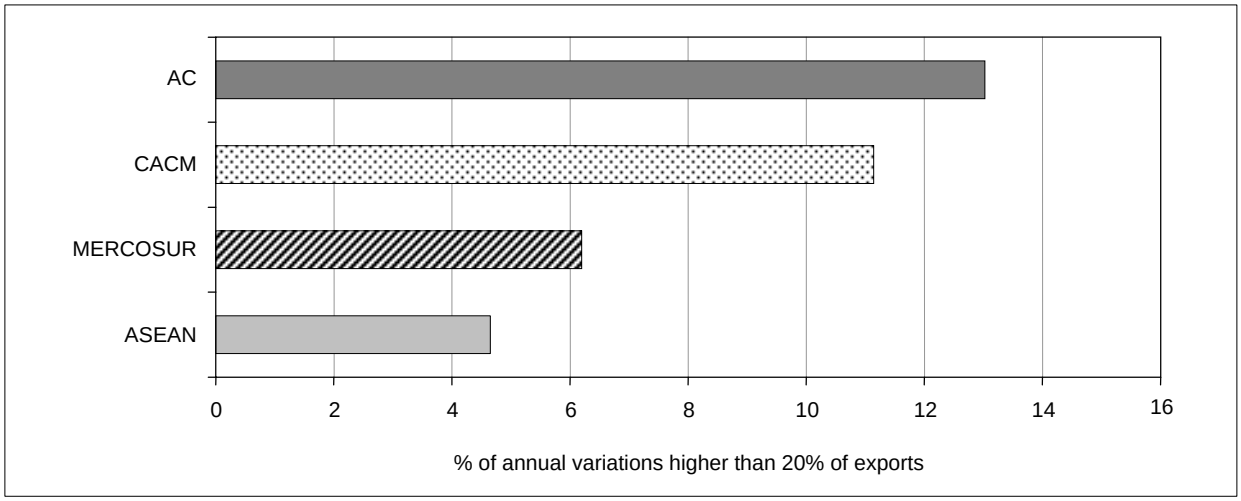
The impact on GDP was calculated as the product between the weighted average of the openness coefficient (1990-1999) and the indicator of panel a).

(*) Because of data problems for CARICOM, only four countries are included: Guyana, Haiti, Jamaica and Trinidad and Tobago, which account for 63% of regional GDP.

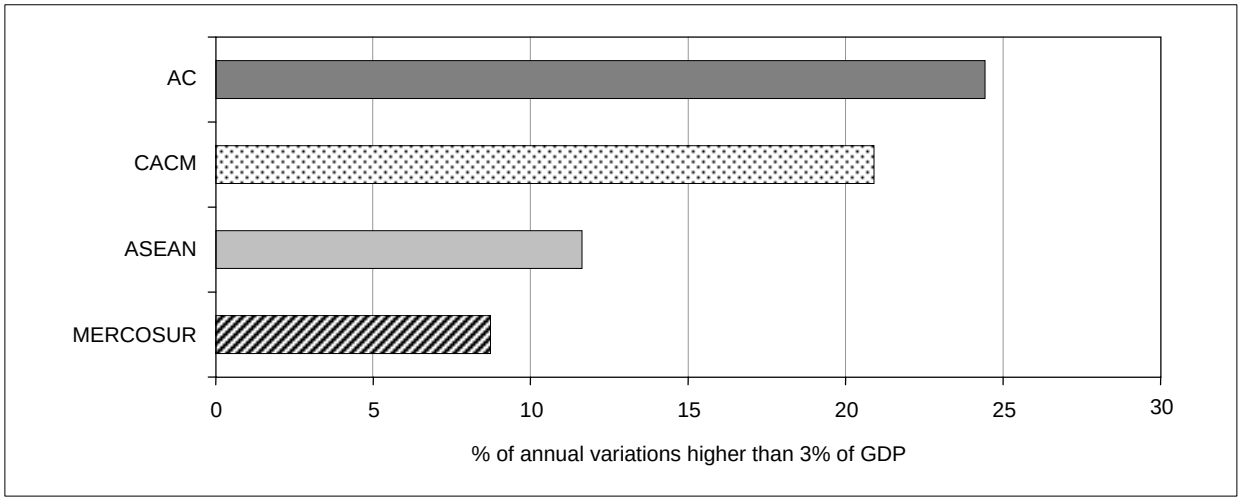
Source: IPES [2002], Chapter 7.

FIGURE 8
THE SCALE OF THE VOLATILITY IN THE TERMS OF TRADE, 1971-2000

(A) AS A PERCENTAGE OF EXPORTS



(B) AS A PERCENTAGE OF GDP



Notes: Indicator (a) was calculated as the rate of variation in the terms of trade.
Indicator (b) is the result of the product between the rate of variation in the terms of trade and the openness coefficient.
Source: Author's calculations on the basis of data from WDI [2001].

- Synchronicity -

Figure 9 shows the correlation between the rates of variation of export prices and the terms of trade in different integration agreements. It is clear that the correlation is lower in MERCOSUR than in almost any other subregional integration agreement. Export prices, too, do not exhibit a high correlation in MERCOSUR.[29] At the other extreme is the European Union, where external shocks linked to the terms of trade are highly synchronized. This is a manifestation of a known fact: European integration has produced intra-industrial trade and not sectoral specialization, which has heightened the similarity of productive structures (Frankel and Rose [1998]).

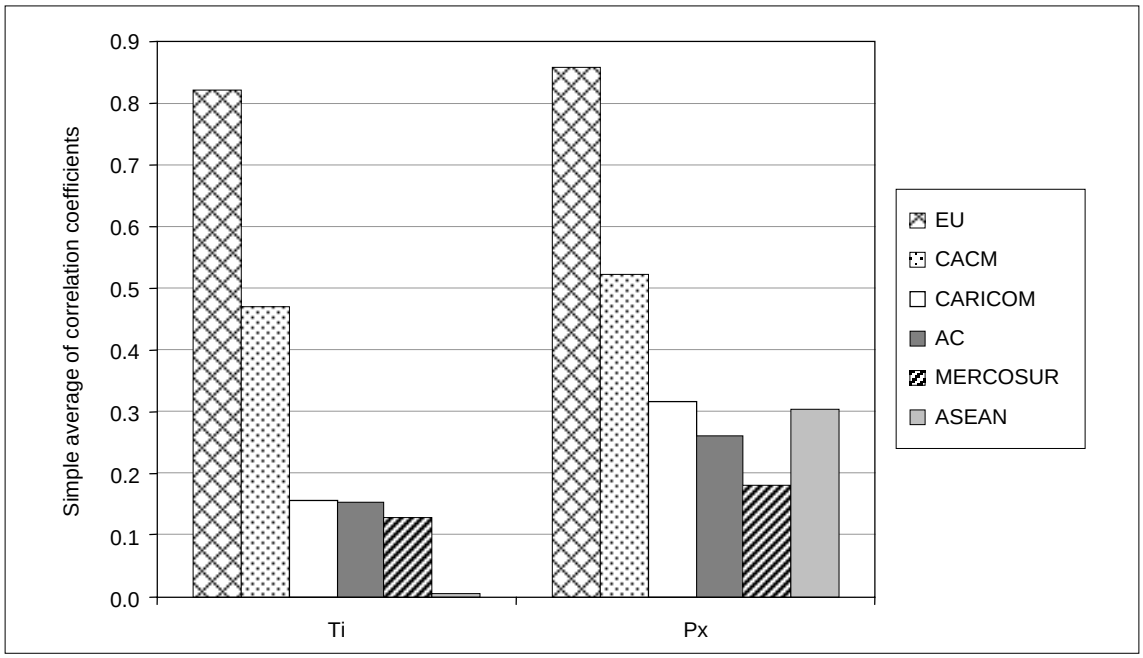
As regards the financial markets, Table IX shows the correlation between private capital inflows. It makes plain that in the period 1971-1999, of 15 correlation coefficients, 14 are positive although only eight of these are positive by 10%. In the case of full members of MERCOSUR, the six correlation coefficients are positive but only three are significantly different from zero, although the data do not reveal a correlation between Argentina and Brazil and the region's average correlation coefficient is only 0.38%. Since capital inflows or outflows are influenced by internal macroeconomic policies, it is unsurprising that the correlation is not high. Several studies that correct for domestic economic policies reveal a high correlation between capital movements, which is even higher in the case of the prices of financial assets.[30] Figure 10a shows a high correlation, at least until March 2001, between the spread of sovereign bonds (EMBI +) in

[29] The comparison was undertaken using import and export prices from the World Bank. When ECLAC's series of export and import prices are used for Latin America (1980-2000), the results are similar as regards the low correlation of the terms of trade in MERCOSUR. However, the ECLAC data reveal a higher correlation of export prices (the average correlation coefficient is 0.67). The difference is not explained by the different periods covered by the two series, since the correlation remains very low when the estimate (with World Bank data) is for the period 1980-2000.

[30] Eichengreen, *et al*. [2000] and Froot, *et al*. [2001] present evidence of a greater correlation between financial asset prices than quantities.

Argentina and Brazil.[31] From that date onwards the Argentine crisis ceased to contaminate the region and Brazil in particular (Figure 10b).[32] Perhaps this is because the crisis was protracted and thereby allowed all investors to make an orderly change in their investment portfolios.

FIGURE 9
CORRELATION OF THE TERMS OF TRADE (Tt) AND EXPORT PRICES (Px), 1960-2000



Notes: The correlation is expressed as the simple average of the correlation coefficients of the rates of variation among the member countries of each regional agreement.

Because of data problems for CARICOM, only four countries are included: Guyana, Haiti, Jamaica and Trinidad and Tobago, which account for 63% of regional GDP.

Source: Author's calculations on the basis of data from WDI [2001].

In sum, the MERCOSUR countries contrast with Europe in that they lack a high correlation in their terms of trade. In the financial arena, there is evidence that when corrections are made for domestic policies, countries suffer similar shocks. Favoring a higher correlation is that financial interdependence between emerging economies is strong, and that increases in line with geographic proximity and higher trade volumes. Since the scale and volatility of capital movements is substantially higher than the scale and volatility of the terms of trade, the correlation between the former is much more important for economic policy coordination.

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[31] The correlation coefficients of the EMBI of Argentina with Brazil, Mexico and the general EMBI to March 2001 were 0.78, 0.86 and 0.80 respectively. When the calculation is extended to February 2003 the correlation coefficients change to 0.64, 0.22 and 0.11 respectively.

[32] When all of 2001 is included, the correlation coefficient falls to 0.24 with Brazil and ceases to differ significantly from zero in the case of Mexico. The contagion seems to have begun again at the start of 2002 in the case of Uruguay. It is clear that after the devaluations in Brazil and Argentina, it was very difficult for Uruguay to sustain the exchange rate. In the case of Brazil the influence of the Argentine situation was plain, but the reasons for the sudden increase in the country risk should be sought in economic and political developments within the country itself.

FIGURE 10A
"COUNTRY RISK" DECEMBER 1993 - MARCH 2002

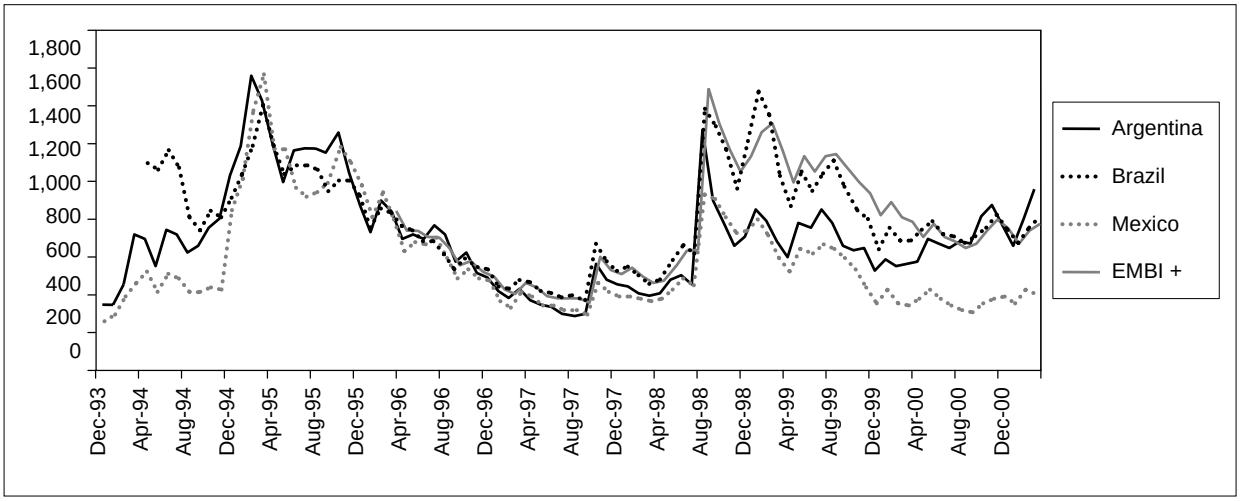
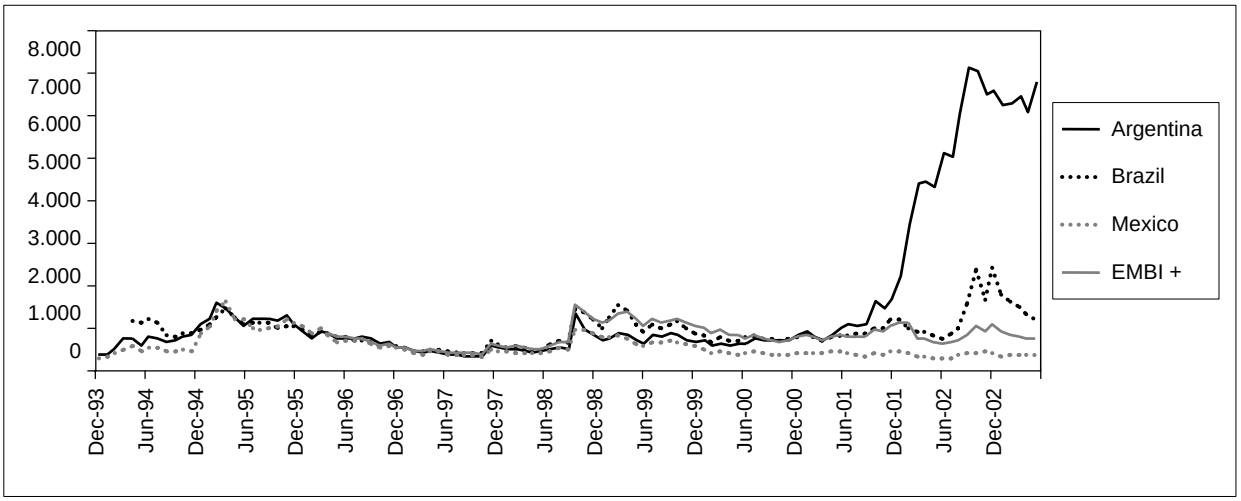


FIGURE 10B
"COUNTRY RISK" DECEMBER 1993 - FEBRUARY 2003



Source: Morgan [2002].

D. Trade Inter-linkages

1. General Considerations

A monetary union reduces uncertainty and transaction costs between member countries, and hence the welfare gains increase in line with the inter-relation between them, particularly when trade links are stronger. At the same time, inasmuch as a monetary union boosts trade and is simultaneously conducive to financial and capital market integration, it is fair to assume that the creation of a monetary union fosters greater convergence between economic cycles. Through trade integration,

internal macroeconomic problems that alter import demand and export supply will affect the main trade partners, contaminating the positive and negative cycles. Moreover, by making countries become more interdependent, trade integration fosters macroeconomic policy coordination.

However, the impact of this greater commercial interdependence on the synchronicity of economic cycles depends crucially on the nature of the trade. In an extreme case, if countries specialize in goods in which they have comparative advantages and intensify inter-industrial trade, greater trade inter-linkages will not be conducive to synchronized economic cycles.[33] Furthermore, in this case closer trade ties might heighten the idiosyncrasies of the economic cycles in each country.[34] On the other hand, the higher the level of intra-industrial trade, the greater the similarity in productive structures (Frankel and Rose [1998]). Since this is a feature of trade between industrialized countries, from the viewpoint of the synchronicity of economic cycles, monetary unions seem to make more sense if they are between developed countries. The question arises about the extent to which trade increases the synchronicity of economic cycles when the commerce is North-South or South-South. A recent study (Calderón, Chong and Stein [2003]) shows that an increase in North-South and South-South trade favors the synchronization of cycles, although to a substantially lesser degree than does increased trade between industrialized countries. However, the fact that there is more intra-industrial trade within trade agreements, either as a result of dynamic factors of specialization in a context of trade creation, or of trade diversion, should tend to heighten the synchronicity of the economic cycle in such accords.

2. MERCOSUR

The volume of intra-MERCOSUR trade increased markedly in the last decade. Nevertheless, as Figure 11a shows, trade within MERCOSUR is still not particularly significant since exports to the region were equivalent to just 2.3% of the member countries' GDP. The share is higher for the smaller members (Figure 12).

MERCOSUR's modest intra-regional trade relative to output stems largely from Argentina's and Brazil's low level of opening, and to a lesser extent from the fact that intra-MERCOSUR trade accounts for a lower share of total trade than in other regions (Figure 11b).

MERCOSUR's intra-industrial trade has grown significantly, especially within the bloc (Figures 13a and 13b). Such trade is substantially greater than in other integration schemes in the region, except for Mexico's trade within NAFTA (Figure 13b).

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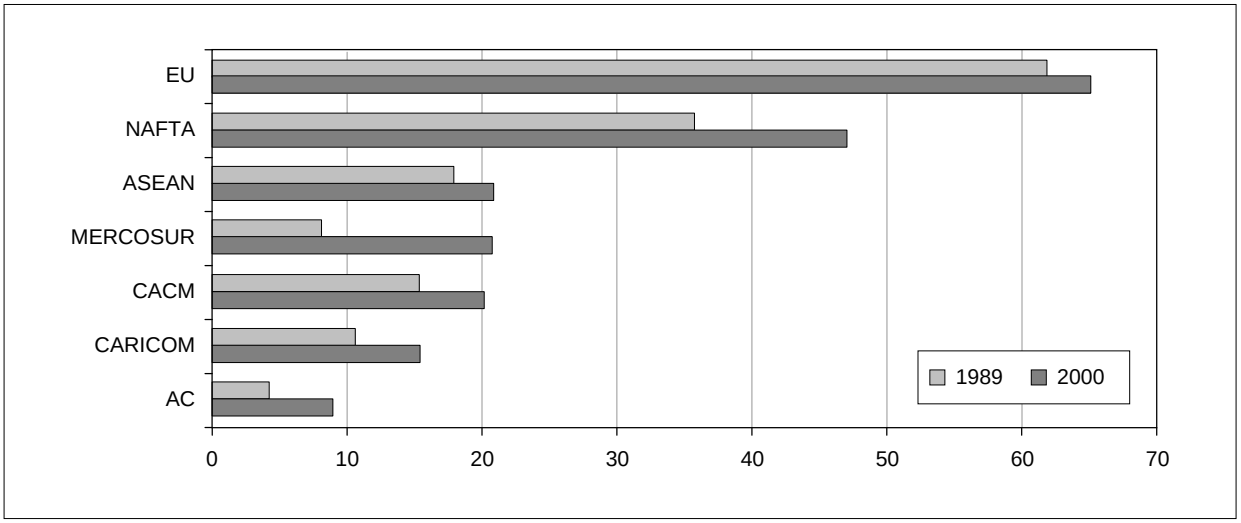
[33] The synchronicity is even lower if the prices of the products traded are determined in the international market.

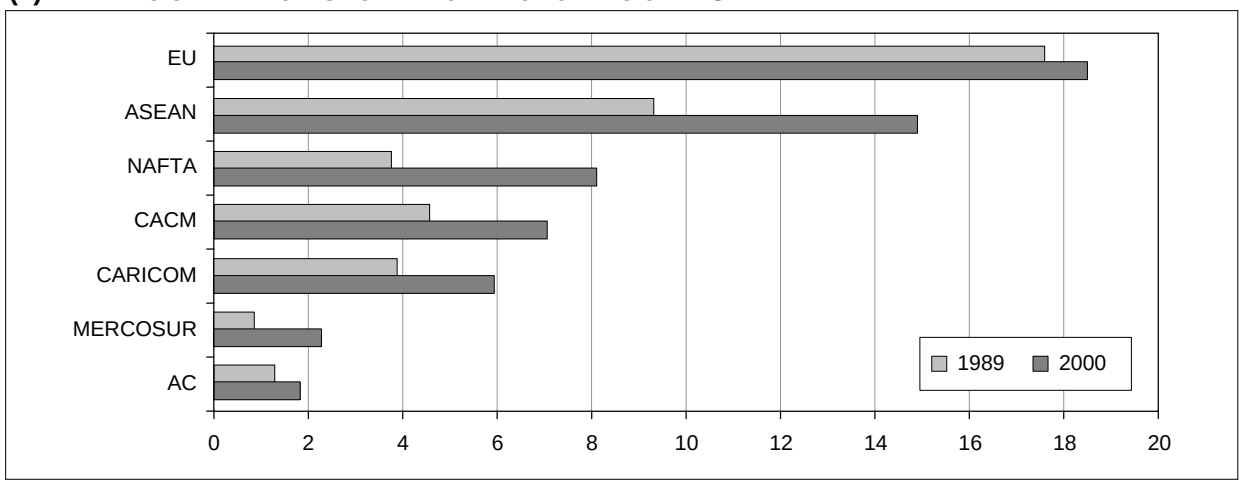
[34] According to Eichengreen [1992] and Krugman [1993] greater integration stimulates specialization, since each economy has a chance to develop its comparative advantages.

FIGURE 11
DEGREE OF COMMERCIAL INTERDEPENDENCE BY REGIONAL BLOC

(A) INTRAREGIONAL EXPORTS AS A PERCENTAGE OF TOTAL EXPORTS



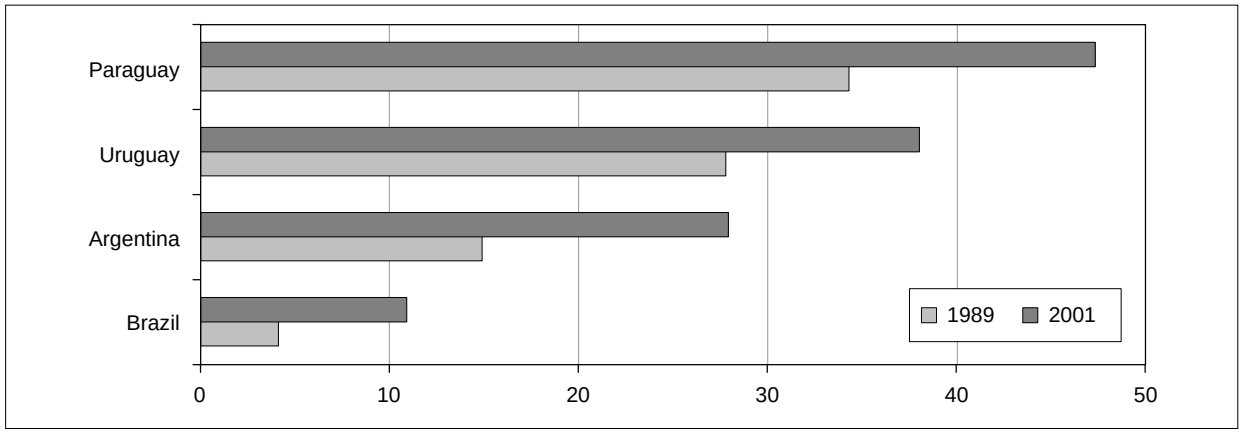
(B) INTRAREGIONAL EXPORTS AS A PERCENTAGE OF REGIONAL GDP



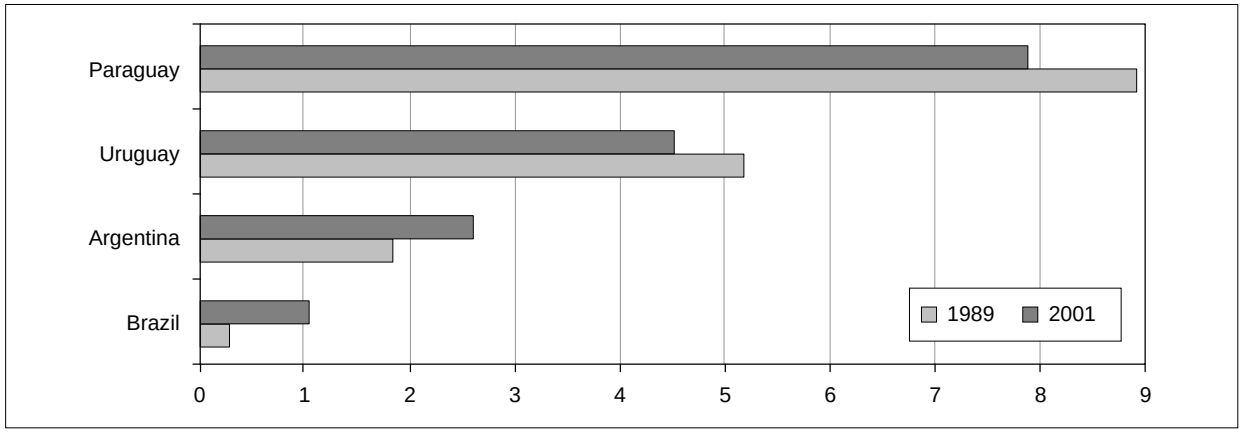
Note: Because of problems with data availability, CARICOM's intraregional trade was calculated using data for 1997.
Source: Machinea, *et al*. [2002].

FIGURE 12
MERCOSUR, DEGREE OF COMMERCIAL INTERDEPENDENCE BY COUNTRY

(A) INTRAREGIONAL TRADE AS A PERCENTAGE OF TOTAL TRADE



(A) INTRAREGIONAL TRADE AS A PERCENTAGE OF GDP



Source: Author's calculations on the basis of DOTS/IMF [2002].

FIGURE 13A
INTRA- AND EXTRA-SUBREGIONAL INTRA-INDUSTRIAL TRADE, 1997

(As a % of trade with each region)

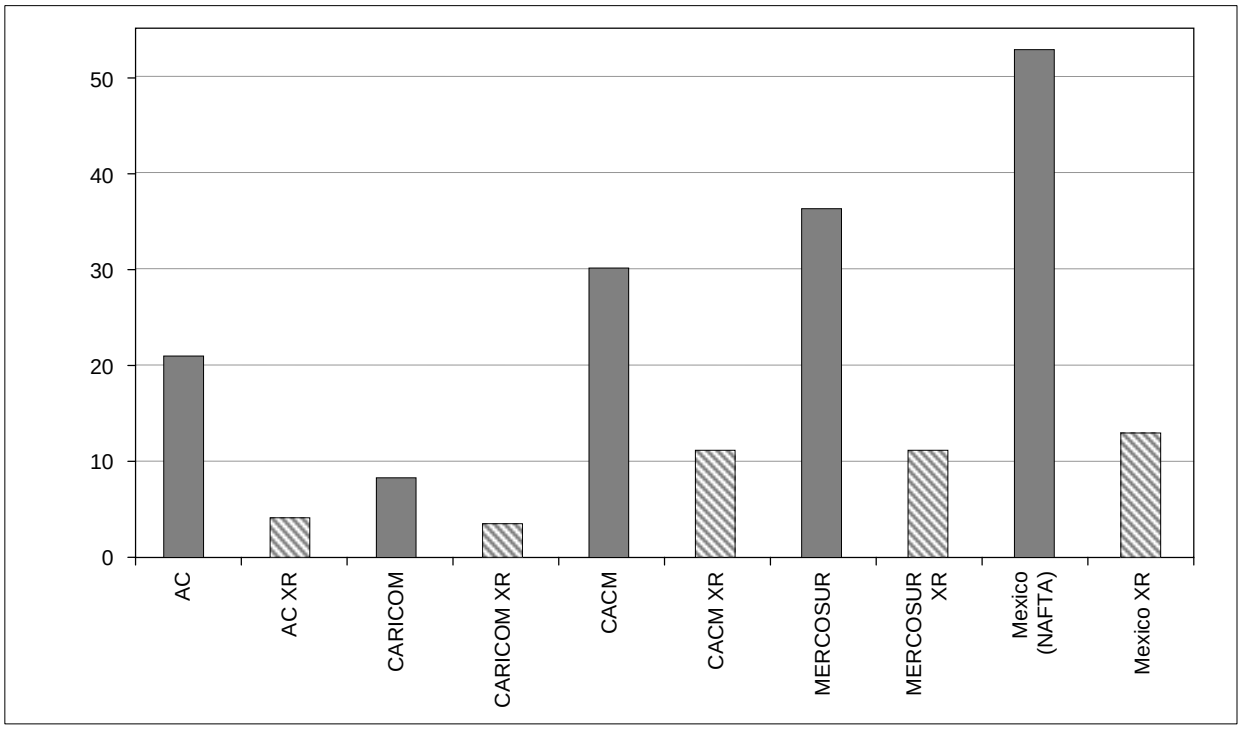
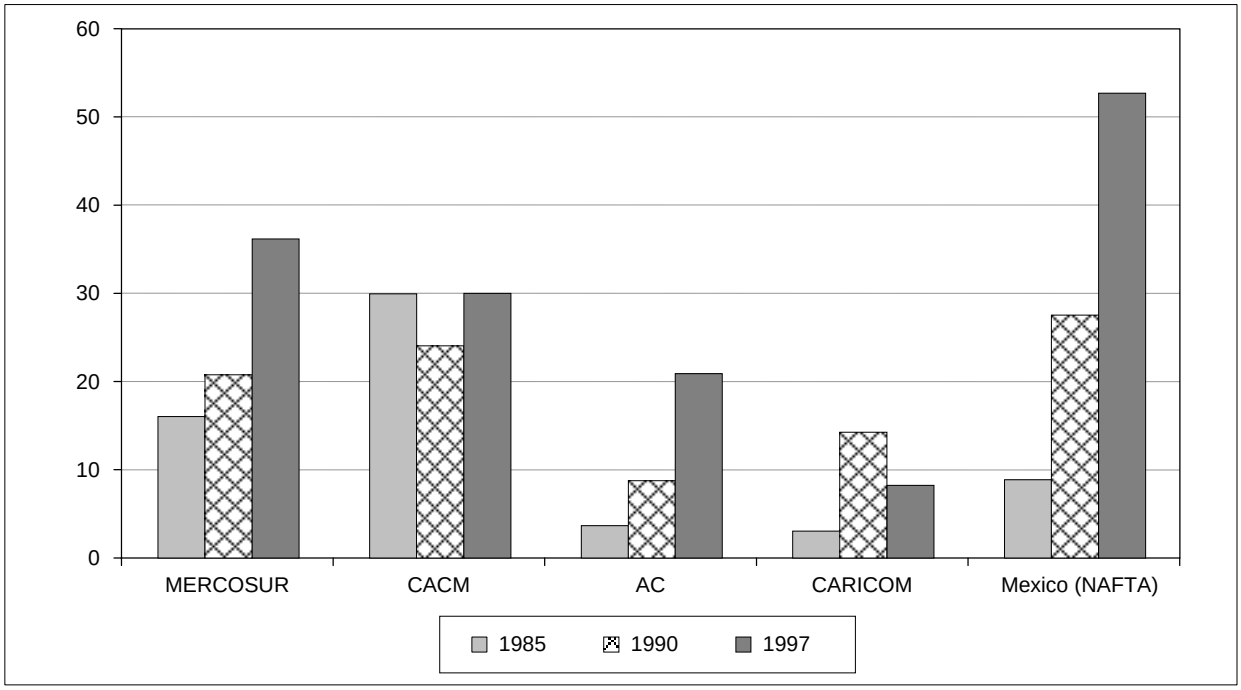


FIGURE 13B
INTRA-REGIONAL INTRA-INDUSTRIAL TRADE

(As a % of trade with each region)



Source: Author's calculations on the basis of data from Feenstra [2000].

E. Labor Market Flexibility

1. General Considerations

Insofar as the shocks are asynchronous, it is evident that ceasing to use the exchange rate as an instrument of economic policy has costs for the member countries. However, these costs will be lower if there are alternatives to the nominal exchange rate for correcting relative equilibrium prices between countries. For this reason the literature has emphasized that the costs will be lower when prices and wages are flexible. In an extreme case, in a world of perfect price and wage flexibility, the necessary variations in the real exchange rate would occur without having to modify the nominal exchange rate. Thus the regions that suffer a negative shock could modify their relative prices fairly easily. As mentioned earlier, prices and wages are far from flexible. Hence the abandonment of monetary and exchange rate policies as instruments of economic policy gives rise to costs in terms of employment.

Alternatively, or additionally, a large degree of factor mobility between countries would be required, since it reduces the need for a modification of exchange rate parity. From this viewpoint, migratory flows facilitate the adjustment of the labor market in the face of asynchronous shocks.

2. MERCOSUR

MERCOSUR's labor market is far from flexible, although there has been some progress in recent years. Because of the scant flexibility of prices and wages, real exchange rate variations are quite strongly correlated with modifications of the nominal exchange rate, except during periods of high inflation. However, it must be kept in mind that because of the inflationary history of the member countries the duration of contracts is shorter than in developed countries. Short-term contracts undoubtedly facilitate a greater flexibility of the nominal variables.[35] Furthermore, the substantial informality of the labor market introduces a higher degree of wage flexibility than that prevailing in the formal sector of the economy.[36]

In any case, it might be asked if prices and wages are more or less flexible in MERCOSUR than in other monetary unions, such as the European Union or the United States.[37] Many studies have shown a considerable degree of rigidity in real wages in the European Union, while in the United States there is a certain rigidity in nominal wages but a higher flexibility in real wages (see, for example, Dreze and Bean [1990]; and Layard, Nickell and Jackman [1991]). There does not appear to be an excessive degree of rigidity in real wages in MERCOSUR, and there is substantially more flexibility in the informal market. Figure 14 shows the evolution of the real wage in Argentina

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[35] Fanelli [2001] develops this argument.

[36] Informality in Argentina during the 1990s reached 50% of the labor market (excluding the public sector). In any case, the fact that wages are relatively flexible on average does not guarantee that they are flexible in the sector where, as a consequence of external negative shocks, they should be.

[37] All countries are monetary unions, but the United States is taken here because of its size, which facilitates observation of regional circumstances.

and Brazil, revealing substantial variations during the period analyzed, especially in the years of high inflation. As regards other labor market conditions, Figure 15 shows that, at the end of 1997, the MERCOSUR countries' labor market was much more rigid than that in the United States, and even more so that than in some European countries. Since then, however, labor reform in Argentina has improved the flexibility of the labor market, and some similar changes have occurred in Brazil. Moreover, the size of the informal market in MERCOSUR should be kept in mind, at least when comparisons are made with the United States and Europe.

Aside from the comparison with other regions, flexibility within MERCOSUR is far from perfect, as shown by the Argentine experience in recent years: price and wage deflation was not enough to compensate for a fixed nominal exchange rate, and the resulting unemployment rate for the period 1995-2001 averaged more than 15%. The fact that there is a certain inflexibility to the lowering of nominal prices and wages does not mean that the labor market is not relatively flexible. The market is not flexible enough for the requirements of a regime such as convertibility, although that does not mean that it is less flexible than the labor markets in other monetary unions. Nonetheless, it might not be enough that the labor market is more flexible than that in Europe or the United States since the region is beset by much stronger external shocks. In other words, flexibility must be defined in terms of the shocks to the economy; from that perspective, the shocks to MERCOSUR are much more intense than those facing Europe, and greater labor market flexibility is therefore required.

In the absence of complete labor market flexibility, labor mobility acts as a substitute: when a shock has a negative impact on a particular region there is a movement of workers towards unaffected regions. In MERCOSUR, very little has been achieved in this area, although in its first article the Treaty of Asunción established the free movement of factors. In December 2002, therefore, the presidents of the member countries signed an agreement regulating the migration and residency of citizens of the enlarged MERCOSUR.

Regardless of the cultural and linguistic affinities that favor labor mobility (compared to Europe, for example),[38] income differences between the member countries hamper significant progress in this area (Carrera, Levy Yeyati and Sturzenegger [2000]). Income differences in per capita US dollars have tended to narrow considerably in the past year (Table X), although the new values do not reflect equilibrium.

It could also be argued that capital mobility is a substitute for labor mobility, since it would help reduce unemployment and increase real wages in less developed areas. Although capital mobility might facilitate the convergence of the relatively less developed economies, it is unlikely to play a stabilizing role from a cyclical viewpoint, because investment decisions are made on the basis of longer term criteria. Moreover, little progress has been made on integrating MERCOSUR's financial and capital markets.

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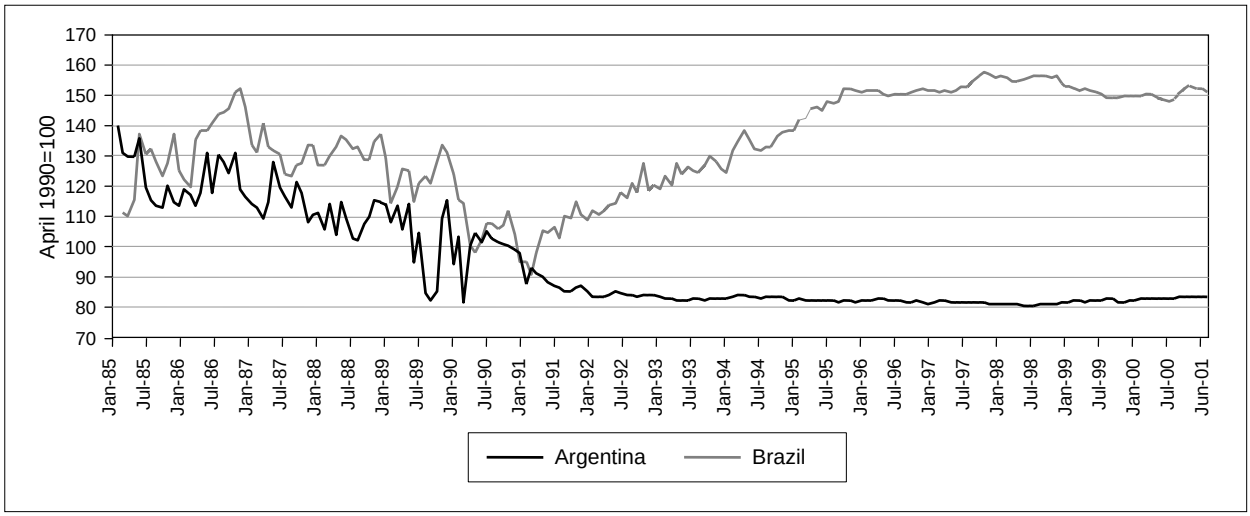
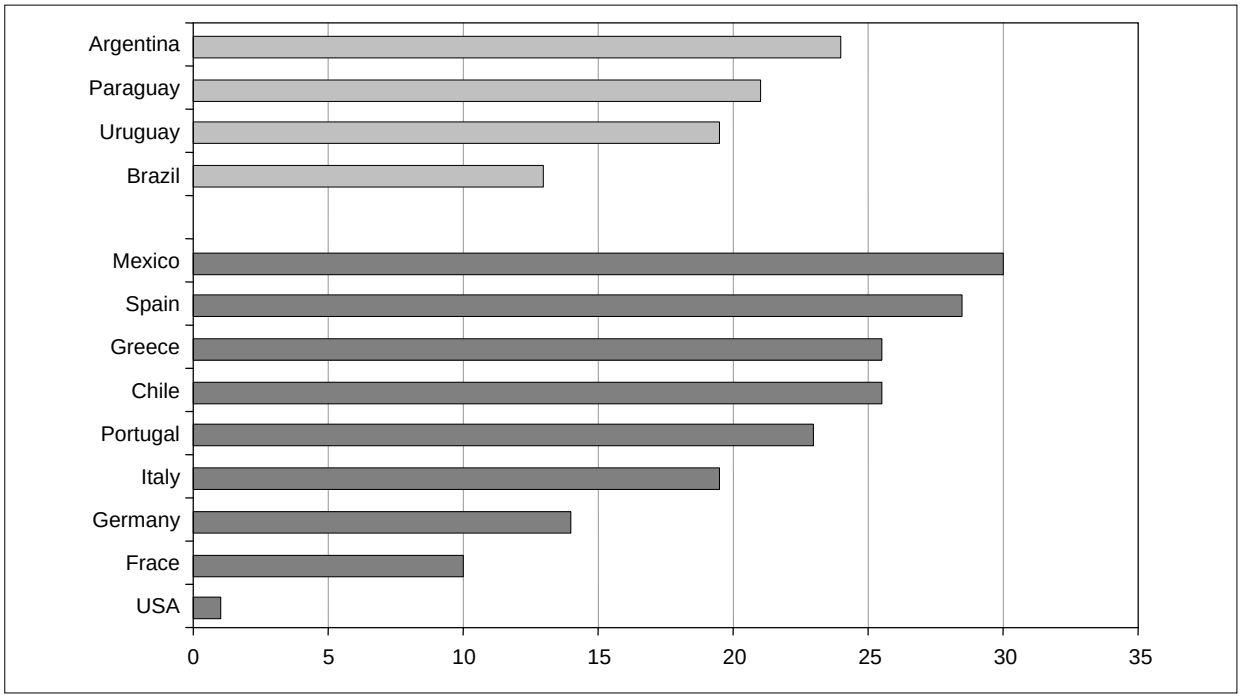
[38] In Europe, labor mobility is not only relatively low between countries; even within each country the response of migration to income differentials is lower than in the United States (Eichengreen [1993b]).

FIGURE 14
REAL WAGES IN ARGENTINA AND BRAZIL, JANUARY 1985 - APRIL 2001



Sources: IBGE and INDEC [2001].

FIGURE 15
LABOR PROTECTION INDEX



Note: The MERCOSUR member countries are in light gray.
Source: Pagés-Serra and Marquez [1998].

TABLE X
MERCOSUR, PER CAPITA GDP
(In current US$)

	2000	2001	2002	1990-1999
Argentina	7,675.0	7,418.5	2,845.6	7,081.0
Brazil	3,604.5	3,016.5	2,619.7	3,669.4
Paraguay	1,402.3	1,242.0	1,235.1	1,598.8
Uruguay	6,041.8	5,598.7	2,940.6	5,320.9
Bolivia	1,091.2	1,026.2	1,012.4	976.8
Chile	4,927.4	4,312.4	4,129.1	4,262.2
MERCOSUR	4,680.9	4,318.9	2,410.3	4,417.5
MERCOSUR+	4,123.7	3,769.1	2,463.8	3,818.2
Brazil	0.47	0.41	0.92	0.5
Paraguay	0.18	0.17	0.43	0.2
Uruguay	0.79	0.75	1.03	0.7
Bolivia	0.14	0.14	0.36	0.1
Chile	0.64	0.58	1.45	0.6

Source: Author's calculations on the basis of *World Economic Outlook* [2003].

F. Fiscal Transfers

1. General Considerations

Flexible fiscal policies might help offset the effect of the loss of monetary policy in national policymaking. Fiscal policies would be particularly important in a situation of limited price and wage flexibility, as a means of avoiding or limiting the growth of unemployment in a specific region. For such a purpose there must be fiscal funds at the level of the monetary union, to be handled flexibly by a supranational authority, or resources in the different regions that could be used in a counter-cyclical manner. Countries are one example of fiscal policies within a monetary union. In the case of the United States, several studies show that the stabilizing effects (leaving aside the redistributive effects) of taxes and transfers paid to the federal government or received from it by the federal states compensate for around 12% to 18% of the decline in states' income (Von Hagen [1992]; Bayoumi and Masson [1995]; and Obstfeld and Peri [1997]). In the European Union, there is no fiscal compensation between countries in the event of asynchronous shocks, but only the prospect that member states can apply expansive or contractionary policies.[39] Nevertheless, the members are constrained by the Stability Pact, which establishes that the deficit may not exceed 3% of output. In this context, counter-cyclical policies are only possible if the country in question were in a strong fiscal position that would allow it to expand in a recession without exceeding the 3% limit.[40]

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[39] There are funds in the European Union for less developed areas, but these mechanisms differ from anti-cyclical fiscal policies. Goodhart [1995] argues for a central power exercising a stabilizing role in the European Union.

[40] The 3% deficit can be exceeded when output falls by 2% in a given year (Eichengreen [1998b]). When output drops between 0.75% and 2% there is also a chance of asking the European Council for greater flexibility in fiscal policy.

The discussion in Europe has centered on how much flexibility may be authorized without entailing fiscal indiscipline in some members, which could affect the whole group. The current agreement is a compromise between those who are concerned that too much fiscal flexibility may generate irresponsible attitudes in some countries, and those who believe that greater fiscal flexibility could compensate for scant labor mobility and labor market flexibility.

2. MERCOSUR

The experience of recent decades shows that the MERCOSUR countries have been unable to maintain responsible flexibility in their fiscal policies. The years of strong output growth and a higher tax take have been accompanied by growth in public spending (Talvi and Vegh [2000]). Meanwhile, the difficulties of securing financing during the "difficult" years have led to more austere policies during recession. The situation has worsened in recent years, since the obstacles to international financing have caused fiscal policies to be mostly pro-cyclical, increasing the instability of the economic cycle in the region. In addition, MERCOSUR's institutional weakness is well known. Hence the twin problem: an absence of institutions to pursue a policy of reorienting public spending according to the needs of the economic cycle; and a lack of resources. In this case, and besides all the problems mentioned earlier, there is a very significant difference between MERCOSUR on the one hand, and the United States and the European Union on the other.

The creation of a monetary union requires greater fiscal discipline than the MERCOSUR countries have historically displayed. Discussions in the European Union have centered on the choice of greater fiscal flexibility (in order to act anti-cyclically) or greater fiscal discipline (to avoid abuses in some countries); in this regard MERCOSUR should opt to secure greater fiscal discipline. Only many years of responsible behavior will allow the region to recover the anti-cyclical role of fiscal policy. As part of this responsible fiscal policy, the countries should aim for structural equilibrium in the public accounts, adjusted by the cycle, at least as long as debt remains above 40% of output.[41] This policy would at least allow the "automatic stabilizers" to work.

G. Independent Central Bank

1. General Considerations

The adoption of a single currency for a particular region raises the question of which currency should be selected. It could be the currency of a member country or a new currency. Alternatively, there is the prospect that the member countries might adopt the currency of a country outside the region. The former two cases require an independent central bank to determine the region's monetary and exchange rate policy.

The adoption of the currency of one of the member countries or the creation of a new currency raises the issue of reputation. When the regional association has one or several countries with a good reputation for managing monetary policy, the choice is not particularly important: insofar as

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[41] It is no simple matter to establish the sustainable debt-output ratio for the countries of the region. However, as a result of fewer funds and higher interest rates, in the coming years this ratio will be significantly lower than in the past.

the country (or countries) with a sound monetary reputation are adequately represented in the new central bank, it can be inferred that monetary policy will be well managed. This is the case of Germany, and particularly of the Bundesbank, in the European Union.

When the countries do not enjoy such a reputation, it might be best to adopt the currency of a country outside the region. In that case the monetary union would, *de facto*, be extended to include the country whose currency is used. Thus all of the foregoing questions about the characteristics of productive structures, price flexibility, labor mobility and the flexibility of regional fiscal policy would apply. In an extreme case, even if the conditions for the creation of a monetary union do not obtain, the member countries might prefer to adopt the currency of a country outside the region on the grounds that the benefits of that country's reputation will more than offset the costs associated with the adoption of its currency. This is the idea underlying the proposal to dollarize. It should in any case be understood that there are no economic and political incentives for the creation of a monetary union that leads to the adoption of another country's currency. By definition, this would entail another monetary union.

2. MERCOSUR

As regards the possible creation of a monetary union in MERCOSUR, the group's biggest problem is the lack of a sound reputation. In addition to their long experience of monetary instability, the member countries have made little progress in establishing independent central banks.[42] Brazil's Central Bank was relatively successful in controlling inflation in the 1999-2002 period, but this does not mean that its reputation is sufficient to sustain a monetary union. Moreover, it is not legally independent, although it has operated as such in recent years.

In this context, there remain only two options. One is to hope that on the long road towards monetary union, it will become clearer how that role is to be filled. The lack of a sound reputation will require very "harsh" policies so as to attain credibility both before and after the creation of a monetary union. Hence the need, to a greater extent than in other cases, for very strict rules that lessen the scope for discretional policies, and for strong political will on the part of governments during the transition period. Governments must take all the steps necessary to make the monetary union possible and credible.

The second alternative is to dollarize or "euroize" - that is, to adopt the currency of a credible country or group outside the region. It only makes sense to consider this alternative if the countries, now and in the foreseeable future, cannot use their own monetary and exchange rate policy. This is the case with strongly dollarized economies or those in which variations in the exchange rate tend to be passed on quickly to prices. In the former case, companies and the financial system can undergo highly traumatic situations if they have to deal with sharp devaluations. Since the decision to dollarize is hard to reverse, these considerations need to be extrapolated over the coming years or decades.

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[42] At present, the Central Bank authorities of Argentina and Uruguay are appointed by the president in agreement with the Senate, and the mandates are longer than those of the executive. In Argentina, however, doubts have been raised about the independence of the Central Bank because its charter was changed by decree and because it had four presidents between April 2001 and December 2002.

All the indicators related to the usefulness of creating a monetary union (synchronous economic cycles or external shocks, trade integration, labor mobility and tax transfers), argue strongly against the adoption of the dollar or the euro as the currency for MERCOSUR. Among other issues, in none of the MERCOSUR countries is there a positive and significant correlation of the economic cycle with that of the United States or Europe, and the region's trade with the United States and Europe represents 20.4% and 23.7% of the member countries' total trade (in 2001). Moreover, the region is exposed to severe external shocks that are very different from those confronting the central countries. Additionally, it is obvious that adopting the currency of the United States or the European Union would imply an adhesion but not an association. In an association, each country's loss of autonomy is offset by their participation in regional decision-making. It is obvious that this would not be the case if MERCOSUR were to adopt one of these two currencies. There is also the loss of seignorage, which could amount to 0.4% of the region's output (Carrera, Levy Yeyati and Sturzenegger [2000]). Aside from all the economic considerations, it is evident that in the 1990s none of the member countries, except Argentina in 1999, considered adopting the currency of a country outside the region.

In sum, the search for a common currency managed by an independent central bank does not appear to have been an economically and politically viable option in the 1990s or at the start of 2003. However, the problems of credibility to establish a common currency are the same for the member countries individually, and thus it might be argued that this issue should not be critical in decisions on creating a monetary union. Membership in a monetary union, furthermore, should act as a disciplining factor in macroeconomic decisions within the regional group. The problem is that earning a sound reputation would have demanded that monetary policies initially be stricter than necessary in "conditions of equilibrium". That circumstance could spur a greater incentive to leave the monetary union, since a departure under these circumstances would not have significant costs. If there is a sound reputation from the outset of the monetary union, however, as in Europe, the costs would increase substantially.

H. Final Considerations

The foregoing sections discussed different criteria for assessing the advisability of a monetary union in MERCOSUR. The analysis demonstrates that it is hard to justify the creation of a monetary union in the 1990s. It is true that one of the problems is that the member countries had different exchange rate regimes, a situation that changed when Argentina abandoned convertibility, but the difficulties of creating a monetary union extend to many other areas.

The correlation of the member countries' economic cycles increased in the last decade but it is still far from significant, especially between Argentina and Brazil. Doubtless this greater correlation is the result of external financial shocks that have affected the MERCOSUR countries and that, generally, are closely correlated. Other indicators, however, reveal the lack of incentives for a monetary union. The intensity of trade relations between the countries remains low, particularly in terms of GDP. Although in the last decade there has been substantial progress on opening up trade in general, and intraregional trade in particular, MERCOSUR is still far from attaining the levels of trade integration found in Europe at the end of the 1980s or in ASEAN today. Meanwhile, the recent recession, the sharp variability of exchange rates, the resulting proliferation of trade

restrictions and the weak political will to create a minimal legal framework have considerably weakened not only the integration process but also trade relations within MERCOSUR.

The importance of financial interdependence, related to shifts in capital flows to the region, requires two additional comments. First, since the correlation between countries is far from perfect, changes of the magnitude seen in recent years tend to increase the variability of the exchange rate within the region, especially when the exchange rate regimes are different. Second, in contrast to trade interdependence, which is objective and difficult to question, financial interrelation is based on some objective elements (level of trade or similarity of economic policies) and on others that are only explained by geographic proximity or participation in a single integration scheme.[43] This is why countries have tried to distinguish themselves, arguing that their situation is different from that of their neighbor in difficulties. Consequently, instead of creating demand for coordination, financial interdependence often causes serious political problems within the bloc.

Returning to the difficulties of creating a monetary union, perhaps the greatest problem has been, and will continue to be, the absence of a central bank of sufficient repute to guarantee the stability of the new currency. In the current circumstances, therefore, a proposal to introduce a single currency will have little credibility and is unlikely to be accepted by the member countries.

The negative assessment of the creation a monetary union should be weighted by the following consideration: monetary unions create positive impetus by strengthening the trade and financial interrelation among member countries, thereby reducing the asynchronicity of economic cycles and the need to use the exchange rate instrument. In other words, what might at first fail to be an optimal monetary union could become one in time (Frankel and Rose [1998]). The way that countries are made up of different regions is an example in this sense, as was the decision to form a European Union. This does not mean that a monetary union can be forcibly created if certain conditions are absent. The effort may cause so many tensions within the group that it could break up. This possibility is greater when "departure" from the monetary union is not perceived by the parties as having a significant cost. Again, the case of the European Union is illustrative in this regard: leaving the monetary union has clear costs in terms of expectations of stability, and leaving the European Union has trade costs that almost no country in Europe could bear without a marked fall in investment and national income. This is not and never was the case in MERCOSUR.

While regions within a country can experience significant tensions during the creation of a monetary union, the political will to preserve national unity is absolutely determinant. In fact, political will was an essential ingredient in the formation of the European Union. In other words, the greater the economic disadvantages of creating a monetary union, the stronger the political will must be if the process is to be completed successfully.

MERCOSUR, moreover, has also displayed weaknesses on the political front. The initially strong commitments made by the different governments translated into concrete measures but, in the wake of the economic crisis, they have given way to political tensions and little progress has been made.

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[43] Fernández-Arias, Panizza and Stein [2002] find that membership of a regional agreement enhances the prospect of an exchange rate crisis if there is an exchange "imbalance" within the agreement. Hernández and Mellado [2002] do not find that the contagion among emerging countries with respect to capital movements is influenced by membership of a particular agreement, apart from the effect of geographic proximity and trade.

It is impossible to reconfigure and deepen MERCOSUR if the member states do not renew the political commitment that spawned it. This does not mean mere political statements of support for MERCOSUR, such as have been heard in recent years, but instead concrete actions that demonstrate real political will for deeper integration. Doubtless some of the issues on the new agenda will be the elimination of non-tariff barriers to intra-regional trade; the adoption of common competition rules and standards; the elimination of all exceptions to the common external tariff; the removal of fiscal incentives for sales within the region; the integration of capital markets and the adoption of similar criteria for the regulation of the financial system; the creation of common regional incentives; gradual progress toward the creation of supranational institutions that have growing influence on some aspects of the integration process, such as financing a permanent dispute settlement institution; and macroeconomic policy coordination. When the participating countries show progress in these areas, or at least in some of them, they will have demonstrated that the national agenda has given way to the regional agenda. When that happens, it will be possible to think about the next step, the creation of a monetary union, since the deepening of integration will make it easier to gauge the true political commitment among the countries, which is crucial to averting "departure" once the union has been set up. It will also intensify trade relations, in which case the difficulties experienced by one member country will increasingly affect the others, increasing the benefits of cooperation that will enhance general welfare.

In sum, the creation of a monetary union has been unfeasible in recent years and remains so to this day. It requires significant prior advances in different areas that facilitate the deepening of the integration process. One of these areas is macroeconomic coordination, an issue addressed in the next section.

IV. MACROECONOMIC COORDINATION

Contents

A. Introduction

The preceding chapter discussed an extreme form of coordination: the adoption of a single currency. This chapter analyzes less demanding forms of coordination, even though it is obvious that such coordination necessarily implies losing some degree of freedom from the viewpoint of economic policy. Hence, although several of the issues discussed below are clearly related to the foregoing analysis, it is helpful from a methodological perspective to address them separately. Moreover, laxer forms of macroeconomic coordination raise other questions, such as what to coordinate, how to do it, the timing of the process, what kind of exchange rate policy to adopt, and other issues that are discussed below. The coordination of macroeconomic policies has been debated since MERCOSUR was created. Indeed, as mentioned, the first article of the Treaty of Asunción stressed the need for "the coordination of macroeconomic and sectoral policies between the Members States in the areas of foreign trade, agricultural, industry, fiscal and monetary matters, foreign exchange and capital".

However, the "demand" for coordination was then limited by the weakness of macroeconomic overspills between the member countries, especially between Argentina and Brazil (Heymann and Navajas [1991]). Subsequently, trade between member countries grew in a sustained manner, notwithstanding what continues to be a relatively small level of commercial interrelation, at least in terms of its direct impact on GDP, as discussed earlier. The effect is substantially greater in terms of the impact on the trade balance or on the current account. Argentine exports to Brazil came to account for 30% of the country's total exports, equivalent to 10% of GDP. Hence a 10% fall in exports to Brazil would have a direct impact equivalent to 0.3% of GDP. [44] However, if it is impossible to finance the related higher current account deficit, it is necessary to reduce imports by a corresponding amount. Since the Argentine economy is quite closed to trade (imports have traditionally been around 10% of GDP), a 3% decline in imports would give rise to a similar fall in output.[45]

Although it might be somewhat exaggerated to suppose that the fall in regional exports cannot be made up in other markets (and the same can be said of the impossibility of accessing additional external financing), another factor negatively affects output: the increase in the current account deficit may produce a change in expectations and, therefore, a decrease in inflows of external capital.[46] At the same time, the empirical evidence is conclusive that the financial variables (prices and quantities) tend to be correlated between emerging markets in general, and especially between those geographically closer and with more bilateral trade.

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[44] It is assumed that the decline in exports mainly affects industrial goods that, at least in the short term, are difficult to sell in the international market. In this regard see Bevilaqua, Catena and Talvi [2001].

[45] Such a drop in GDP assumes that the marginal tendency to import is equal to average. Experience shows that marginal tendency is significantly higher than average, and therefore the necessary fall in GDP would be lower. It is assumed that there are no changes in the exchange rate or that its impact is of little short-term importance.

[46] Indeed, an exchange default within the region seems significantly to increase the possibility of a financial crisis in the country that has depreciated its currency, possibly as a consequence of the impact of this exchange imbalance on the current account deficit (Fernández-Arias, Panizza and Stein [2002]).

Hence it is clear that "structural" interdependence, as Lavagna and Giambiagi [2000] term it, has increased in recent years and that this should have increased the "demand" for coordination. However, this has not translated into concrete progress in this area. Rather, often the attitude has been for a country to differentiate itself from the partner experiencing problems. Thus, instead of increasing the "demand" for coordination, the macroeconomic problems in each country have deteriorated political relations among the member countries. As mentioned earlier, the reason for this may be found in the dependence of the region on external financing, the long history of instability, and the fact that the benefits of integration are not always considered important. Major macroeconomic instability, by stimulating a focus on short-term considerations and increasing the discount rate for the evaluation of future benefits, tends to increase the possibility of opportunistic behavior, since cooperative strategies will be preferred only if the discount on the future profitability of the association is not too high. Thus high discount rates benefit a short-term strategy, in which the need to differentiate oneself in order to secure external financing seems crucial. On the other hand, while trade interdependence cannot be disputed, governments tend to think that financial contagion is always the result of a "misunderstanding". That may be the case, but nonetheless the experience shows that the "misunderstanding of the markets" tends to repeat itself with each new crisis.

Additionally, as Heymann and Navajas point out [2000], the "supply" of coordination is scarce, since the economies are of very different sizes and, as a consequence of the instability, the freedom to manage the instruments is very limited.

The question is what to do in this situation. First, it is evident that without stable economies it is impossible to think about policy coordination. No-one wants to coordinate with someone who is going through a traumatic situation from an economic point of view. It is difficult to sit at a negotiating table if it is not from a position of responsible economic policy. From this perspective the "demand" for coordination can be understood as the partner countries' demand for stability.

Second, it is evident that deepening trade integration should increase the incentives for macroeconomic coordination. Hence integration deepening is absolutely necessary, though not sufficient in itself, for increasing the demand for coordination.

Third, it is essential to design instruments that generate incentives not only to reach agreements, but also to enforce such agreements. In this area, and in addition to greater interdependence, there is a need for new mechanisms, some of which might be from outside the region.

Fourth, considering the importance of the external turbulence, it is advisable to discuss regional financing mechanisms that reduce dependence on the rest of the world. As Agosin [2001] rightly says, it is not a matter of replacing the IMF as the supplier of liquidity in critical situations, nor of thinking that the region can finance itself, but of creating certain mechanisms that help in situations of significant international shocks before the problems extend throughout the region.

Finally, no progress will be possible if the countries do not have true political will to deepen integration.

These matters are discussed in the following pages.

B. Background

The MERCOSUR governments worried about macroeconomic stability from the outset. For a long time, however, no substantial progress was made. Giambiagi and Lavagna [2000] tell a tale of poor timing and lost opportunities in this area. From their account it is evident, once again, that over time the regional agenda was ever less relevant for the member countries.

Attention should be paid here to the progress made in this area during 2000, which marked an important break with the frustrations of the past.

In the first meeting in 2000, the Ministers of Treasury and the Central Bank Presidents reached important agreements on macroeconomic issues. Note, among those: (a) progress towards common goals in the macroeconomic and financial services areas; (b) the preparation of indicators based on a common methodology; (c) the regular publication of fiscal indicators, beginning in September 2000; (d) the joint establishment, in March 2001, of jointly agreed fiscal, public debt and price targets; (e) completing and updating the comparative analyses of the rules prevailing in the financial and capital markets, including the payment systems between countries, with the purpose of furthering the integration of said markets; and (f) establishing a high-level Macroeconomic Monitoring Group (MMG) to assess the consistency of the statistics with the agreed methodology.

On the basis of criteria previously discussed, in a few months of intense work, the parties harmonized statistics on debt, fiscal deficits and prices between Argentina and Brazil, and later progressed with the other countries in the group. In December 2000, in Florianópolis, the Ministers of Treasury and Central Bank Presidents agreed on certain guidelines for important variables: the inflation rate, fiscal deficit and public debt. They established an inflation ceiling of 5% up to 2005, and 4% thereafter.[47] As regards fiscal matters, they established a maximum value for the consolidated deficit of 3%, and a downward trend in the debt/GDP ratio as of 2005, with a maximum value of 40% by 2010 at the latest. The common goals stage was to be implemented as of 2002.

Incentives to meet the goals were also analyzed. No significant progress was accomplished in this field, however. It was decided that a country deviating from the targets must present the corrective measures needed to converge to the established goals in a meeting of the MMG, and that such measures could not be delayed for more than a year after the presentation. The Ministers of Economy and Treasury and the Presidents of the Central Banks could make any comments they deemed appropriate.

The most significant aspect of the agreement was the swift establishment of Maastricht-style basic criteria. Other variables, such as those related to the current account or short-term foreign debt, were left for later discussion. Unfortunately, little progress was made after that meeting.

What conclusions can be drawn from these first attempts at macroeconomic coordination? First, it has been shown that when there is a real will to move forward with integration, when the highest political authorities intervene, and when there are capable technical bodies, swift progress can be made. The second conclusion concerns the goals set for 2002 and after. In this area, the

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[47] It was decided to move forward in estimating the "inflationary core", which would be the relevant variable as of 2006.

impression is that the inflation and fiscal deficit goals are, from a long-term perspective, lofty. However, attempts to meet more ambitious goals could have given the impression that impossible targets were being set. The targets fixed entail an additional, but reasonable, effort by almost all member countries involved. It should be kept in mind, moreover, that this is the region's first experience in setting macroeconomic guidelines, and thus there is a margin for establishing more demanding criteria in the future. A longer-term vision, in view of the region's history of macroeconomic instability, prompts a third consideration. The fact that the Ministers of Treasury and the Central Bank Presidents spent a long time discussing margins of 3% and 6% for inflation and 2% and 3.5% for the fiscal deficit reveals the progress made in terms of macroeconomic responsibility in the region. Finally, little progress was made on establishing positive and negative incentives for meeting the goals. From the perspective of the need to gradually implement coordination mechanisms, the lack of significant decisions in this area was not a source of concern. However, the scant mechanisms available to enforce this agreement in MERCOSUR posed a problem. This issue is addressed below.

A subsequent increase in macroeconomic instability in Argentina, in a context of serious problems of competitiveness, spurred new trade restrictions, more exceptions to the common external tariff and, in general, sharp discussions between the member countries, especially between Argentina and Brazil. The conclusion is obvious: in a situation of substantial instability in one of the members, and especially in a context of severe exchange rate variations, macroeconomic cooperation is impossible.

C. Timing: How and What to Coordinate

Timing. The literature has stressed the gradual nature of the coordination process, as exemplified by Europe (see, for example, ECLAC [1992], Heymann and Navajas [1991 and 2000], and Zahler [2001]. The bases for coordination were established by means of information exchange, periodic meetings, statistical harmonization, the presence of supranational bodies wherein these problems were discussed for years, various attempts to coordinate exchange rate policies, and a strong political commitment. During that period, the macroeconomic stability of the bloc's main partners, especially Germany, made the option of "buying credibility" (through macroeconomic coordination mechanisms) attractive for the relatively less stable countries.

From this viewpoint, the exchange of information can be regarded a first form of cooperation. This is a lax form of cooperation that does not influence the countries' macroeconomic behavior but that fosters an understanding of the partner's characteristics. Frequent meetings among those managing policy are a second means of cooperation. Familiarity among the various actors, and an understanding of the difficulties facing other countries, create an environment of trust that is crucial for subsequent steps. Interaction, moreover, makes it possible to identify opportunities for coordination.

Undoubtedly, these were important factors in the long process of European integration. They fostered progress towards greater interdependence and finally, coordination. Additionally, when the countries started making decisions based on regional circumstances, the risks of non-cooperative decisions were reduced, as illustrated by the "prisoner's dilemma".[48] MERCOSUR and other Latin American

[48] See Ghymers [2001] for a discussion of this issue.

integration agreements must learn from this experience and move faster in this field. Macroeconomic coordination is not only necessary to avoid maladjustments in the medium term, but is crucial to achieving a minimum degree of internal stability and, especially, of exchange rate stability, without which the integration process cannot possibly be sustained.

What to coordinate. Usually, the point of reference for macroeconomic coordination is the European integration process. In Europe, coordination consisted of different attempts to agree on exchange rate policies until the single currency was introduced, and to converge towards certain maximum values in some macroeconomic variables. It has been argued (Eichengreen [1998a]) that an effort to coordinate through the convergence of certain variables is not the best approach, because a fall in the inflation rate or the fiscal deficit does not guarantee that such values will be preserved in the future. Similarly, a commitment to the value of variables such as the fiscal deficit lessens the prospect of pursuing a counter-cyclical policy in certain regions or countries. Hence, rather than converge towards set values for some variables, there is a need for institutional changes that guarantee future stability (by means of Central Bank independence, for example), and for enough price and wage flexibility to avoid having to use monetary policy to offset the impact of adverse turbulence. As Machinea and Monteagudo [2002] point out, although it is paramount to make structural changes that promote long-term stability, there is no guarantee that these changes will not be reversed. This is exemplified by the questions raised about the independence of Argentina's Central Bank in 2001, and the same can be said of other structural reforms. Hence the advisability of a convergence of certain variables in a way that is consistent with stability, while simultaneous efforts are made to implement reforms that help preserve such stability in the future. Reforms without a record of stability would hardly convince the partners of the seriousness of the commitments assumed, and thus would weaken collaboration. Reforms and convergence should be complementary, not substitutes for each other.

The nature of the reforms will depend on the issues facing each country, but as Eichengreen [1998a] points out they will be geared to the independence of monetary policy and greater flexibility in the goods and wages markets. Measures are also needed to keep the fiscal situation under control, such as reform of social security, transfers from the federal government to subnational governments and, to the extent possible, laws that limit the growth of public spending.

Convergence must include those variables that are essential for the countries' macroeconomic stability. Leaving the exchange rate aside for a moment, the three topics that seem specially relevant for macroeconomic coordination are: inflation, fiscal deficit and the level of public debt. The inclusion of the fiscal deficit and the public debt is explained by the need to prevent the fiscal indiscipline of one country in the region from affecting the rest through the higher interest rates associated with the contagion effect on capital inflows.[49] In view of the European experience, which shows that rigidly imposed maximum fiscal deficit levels sometimes prevent the application of anti-cyclical policies, it seems advisable to work on the idea of a structural deficit, one that is

[49] In a monetary union, a greater fiscal deficit increases the interest rates as a result of the greater demand of public funds; in an association agreement between emerging countries the impact on the interest rate happens through an increase in the country risk and its contagion to other countries of the region.

adjusted to the economic cycle. At the same time, in view of the region's experience and its more restricted access to international financing, the maximum deficit limit should be much lower than in Europe.[50] In the special case of the public debt, the idea is to avoid situations that raise doubts about a particular country's payment capacity, thus affecting the stability of the region. Besides, the purpose of establishing a ceiling on the inflation rate, apart from limiting economic uncertainty, is to avoid severe variations in the nominal exchange rate.[51]

Taking into account the region's vulnerability to external shocks, it seems advisable to include another important variable, as suggested by Zahler [2001] and Giambiagi and Lavagna [2000]: the current account deficit or any other measure that reveals the countries' exposure to changing conditions in international markets. A maximum current account deficit of, say, 4% of GDP, or a limit on short-term external debt, would lessen vulnerability in the economy. It can be argued that it is very difficult to control the current account deficit, because it depends on external factors such as the inflow of capital. In that case, however, fiscal policy must be adjusted and, depending on the particularities of each country, it might be necessary to impose some kind of restrictions on the entry of short-term capital.

These variables must be complemented by measures that strengthen the financial system, because a weak financial system may be the mechanism through which external shocks spread more easily. Hence the need for progress on the coordination of prudential regulations and supervisory practices, particularly prudential rules that limit the mismatch of terms. This should help intensify competition and improve the quality of financial services. As a result of the entry of financial institutions in the 1990s, there are signs of non-institutionalized financial integration (Zahler and Budnevich [2000]; Zahler [2001]; IDB [2002], Chapter 5).

Though it is not crucial for macroeconomic coordination, the integration of capital markets and payment systems is very important for deepening the regional agreement. As regards the prospects of financing inside the region, it is clear that MERCOSUR is not Europe. However, the integration of capital markets may favor the financing of the public and private sector in the different countries.

Likewise, it is important to create a stable groups of technical specialists in the region to analyze various aspects of integration, along the lines of the Monetary Committee set up by the Treaty of Rome, a body that was so important in the European integration process. The recent establishment of a technical secretariat is an opportunity that the member countries should not fail to exploit.

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[50] Taking the region's financing problems into consideration, it is advisable to maintain structural equilibrium in the public accounts while the debt is above 40% of GDP. Since this equilibrium cannot be attained in the short term, the countries should have some time to adapt to the new situation. Moreover, it is important to set up stabilization funds when public sector income depends substantially on a product whose price are highly volatile.

[51] Although fiscal policies are especially important for external equilibrium, their scant short-term flexibility makes the management of monetary policies difficult. If a decision is made only to consider the inflation rate target in the event of a strong external shock, thus avoiding exchange rate depreciation, a higher price will be paid in terms of output levels. This issue can be particularly important for the countries of the region because their lack of reputation might necessitate a stricter monetary policy than a given circumstance demands. In any case, so as not to seem to be changing the rules of the game amid a crisis, it is best to set a "band" of inflation rates rather than a single value.

Exchange rate regime. The presence of different exchange rate regimes can contribute to severe variations in the exchange rate in the face of external shocks. Hence, as a first step towards greater exchange rate coordination, the MERCOSUR countries should have similar exchange rate regimes. The question is which is the best exchange regime. More flexible systems allow adjustment to external shocks, related not only to changes in the terms of trade but also to strong fluctuations in capital flows. Hence, given marked shifts in international conditions, the output gains of more flexible exchange rate systems are undeniable.

The disadvantages, however, are not minor (Calvo and Reinhart [2002]). First, it can be more difficult to stabilize with a floating exchange rate, although the experiences of Chile in 1984-1985, Mexico in 1995, Brazil in 1999 and Argentina in 2002 seem to show that the choice of the exchange rate regime is less important to stabilization than was thought in the 1980s and the early-1990s. Second, in countries with high dollar indebtedness, exchange rate variations significantly affect "the balance sheet" of the public sector and of companies. The situation is more complicated the greater the dollar obligations of the banks relative to total liabilities, especially if the liabilities are deposits.[52/53] In this situation, the contractionary impact of devaluation may be higher than the expansionary benefits. As the Argentine experience has demonstrated, contractionary effects will be greater inasmuch as the variation of the exchange rate coincides with a generalized breach of contracts denominated in foreign currencies. Third, a country's capacity to manage a floating rate efficiently depends on its reputation for managing monetary policy. These factors shape the decision on which regime to adopt. At the same time, in view of the scale of the capital movements and of the fact that the absence of a strong commitment to the value of the fixed rate induces speculators to "test" the government's will, the recommendation has been that if countries decide on a fixed rate it is better to choose a "hard" rate (convertibility or dollarization). After the Argentine crisis, dollarization seems to be the only viable proposal. Various studies have criticized this position, however, and have argued in favor of moving towards intermediate exchange systems - that is, systems of "managed" flotation (Williamson [2000]; and Goldstein [2002]). Moreover, Ffrench-Davis and Larrain [2002] analyze the possibility of different exchange regimes depending on the particular economic situation, although they emphasize the costs of changing exchange rate policy.

As Frankel [1999] indicates, the optimum exchange rate regime can vary by country and period. The choice will depend, among other things, on the economy's degree of dollarization, commercial interdependence, the level of openness, synchronicity with the cycle of the country whose currency is to be adopted, and reputation in managing monetary policy. However, in light of the scale of the external shocks besetting the countries of the region, of the region's negative experiences with fixed exchange rate systems, and of the capacity that countries have revealed in recent years to stabilize with flexible rates, the unavoidable conclusion is that it is advisable to establish systems with some exchange rate flexibility.

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[52] When the banks have dollar obligations, an exchange crisis is more likely to become a financial crisis. The matter is more complicated when the obligations are deposits, because in that case any attempt to reschedule the obligations entails a loss of credibility from which it is hard to recover.

[53] High indebtedness in foreign currency stems from the limited capacity to issue debt in the national currencies of the countries of the region (Eichengreen, Hausmann and Panizza [2002]). This situation is unlikely to change in the near future.

Given the problems associated with a high level of dollarization, countries should avoid policies that encourage it. This is the case when there is no demand for greater provision for dollar loans to non-tradable goods-producing activities, or when there is no chance of signing contracts with inflation-indexed clauses (as in Argentina in the 1990s). In that case the only possibility is to use contracts in dollars for medium- and long-term obligations. Thus there is scope to lessen dollarization through banking regulations, which may impose different liquidity requirements depending on the currency in which the deposits are made.

Retaining some flexibility in monetary and financial policy can lead, in the short term, to higher interest rates and a delay in monetization and short-term growth. In other words, taking out "insurance" in terms of economic policy flexibility can have costs in terms of short-term growth, although there will certainly be benefits in the medium and long term. The economic policy problems are plain: to avoid greater medium-term harm, the pace of short-term growth must be reduced. The problem is what to do in economies that, because of a history of high inflation and a lack of adequate regulations, are already highly dollarized and therefore excessively exposed to severe exchange rate variations. To modify the exchange rate in these schemes may be very expensive in terms of future growth. The Argentine case is a good example in this regard.[54]

In short, systems of managed flotation with strong disincentives to currency mismatch are preferable to other regimes, although this can involve short-term costs.

If Argentina and Uruguay manage to stabilize with floating rates, all the MERCOSUR countries will have similar systems. That should help lessen the volatility of the real exchange rate within the region. This outcome is not guaranteed; as mentioned earlier, the experience of the 1980s showed that similar exchange regimes do not ensure exchange stability in the region.

While it is helpful if the countries have some level of exchange rate coordination by means of a floating band for bilateral exchange rates, it is doubtful whether this is viable in view of the marked changes in the international environment. A flotation band wide enough to avoid greater distortions, and that helps countries get used to coordination, is conceivable. Initially, this band could be agreed among the economic authorities to foster consultation on possible courses of action. This requires stability and significant progress on macroeconomic coordination. Furthermore, it seems appropriate to establish a fund for regional stabilization to help the country in difficulties.[55]
Rules or discretionality. The other issue to be discussed is whether South-South agreements like MERCOSUR should have strict or relatively flexible rules. From a conceptual viewpoint it is clear that care has to be taken in establishing strict rules. A strong political commitment is advisable,

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[54] It cannot be denied that the economic and political fits and starts of the months following the abandonment of convertibility made it even harder to find an alternative. Since abandoning convertibility entails breaking all contracts, however, it was and is very difficult to recover credibility. Besides, a devaluation is unlikely without a financial crisis and a need to restructure debt denominated in hard currencies. This is what happened, and what makes it more difficult to restore credibility. Finally, to argue that Argentina's problem essentially stems from the way in which the country "de-dollarized" is to fail to grasp the scale of the problems of a wholly dollarized economy.

[55] Germany played such a role at times in the process that led to the creation of the European Union. In 1992, for instance, Germany decided to support the franc.

but with some degree of flexibility to avoid extreme situations. An example is the case of Italy, Spain and the United Kingdom, which left the "snake" at the beginning of the 1990s but were able to remain in the common market. In particular, it should be kept in mind that excessive rigidity may be worrisome when there are few partners, since non-compliance by one country might seriously affect the integration process. On the other hand, some flexibility is credible when, in addition to a strong political commitment, the partners have solid reputations. For example, in Europe the political commitment of the two biggest countries was crucial for compliance with macroeconomic rules, and provided an incentive for the entry of other partners. It was not only because of relative size but also the safety that, from the viewpoint of stability and rules of the game, the two main partners gave to the others. This is not the case in Latin America in general, and in MERCOSUR in particular. There is neither such strong political commitment[56] nor adequate stability offered to the partners that enter the agreement. Hence, as normally happens in the institutional design of macroeconomic policies, the lack of reputation and political commitment reduces the level of flexibility. This means that it is difficult to imagine a degree of flexibility in MERCOSUR similar to that apparent at some points in the European Union. At the same time, and bearing in mind that the incentives to belong to MERCOSUR are less than in Europe, very strict rules might undermine the agreement. This is a thorny issue, and will be discussed again in the section on "incentives for coordination".

D. Regional Stabilization Funds

The major international financial crises that have affected emerging markets have spurred a debate about the need to reform the international financial architecture (see, for example, ECLAC [1999]; Ocampo [1999]; Eichengreen [1999]; Machinea [2003]). As part of this discussion, it has been argued that the lack of regional agreements led multilateral lending agencies, especially the International Monetary Fund, to assume an important role in the emerging markets crises of the 1990s, with all the faults and delays that such intervention has often caused (Mistry [1999]). That circumstance has given way to proposals to create regional bodies to help achieve regional stability (Ocampo [1999]; Mistry [1999]; Agosin [2001]; Griffith-Jones [2001]). These proposals do not seek to eliminate the International Monetary Fund as a lender of last resort, but to create intermediate bodies to act as "lenders of first resort" (Mistry [1999]). In this field, the European example reveals different mechanisms of regional cooperation in the exchange and financial area over recent decades (Giovannini and Mayer [1992]; Eichengreen and Ghironi [1996]). It should be stressed that, besides Community financial institutions, some countries of the European Union have had convertible currencies and thus have been able to intervene in the exchange markets in their own currency. In many cases this allowed exchange rate stabilization within the region, such as Germany’s commitment to help defend the value of the franc in 1992, the most important and known agreement of this type.

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[56] Political commitment requires strong, personal European-style leadership, but it also requires political commitments from most of the political parties. Without it, it is difficult to maintain the rules of the game in the medium term.

Aside from its advisability, however, the creation of a regional fund in MERCOSUR faces various problems.[57/58] First, it can be argued that the member countries would be incapable of the discipline necessary to manage such a fund. Second, many of the external shocks are common to all countries, and thus the demands for resources would be simultaneous. Third, there is the problem of the amount of resources involved. Considering the different sizes of the countries of the region, it is hard to believe that these resources could be useful for the bigger countries, particularly Brazil.

These issues should be examined in detail. The first consideration concerns what some see as the lack of discipline in the use of these funds by the member countries. Although it seems unreasonable to assume that developing countries are incapable of establishing rules for such a fund (Mistry [1999]), in the case of MERCOSUR two objective factors complicate the application of such a mechanism. The lack of a solid reputation in macroeconomic management and the small number of MERCOSUR countries might produce internal "frictions" between countries. However, this latter consideration could be neutralized if the fund were to be managed by independent authorities under pre-established rules.

The synchronicity of external shocks was discussed in III.C.[59] It was concluded that although the terms of trade do not reveal any defined correlation, the evidence is less conclusive for export prices. Hence in this regard synchronicity depends on the shock to be countered.[60] In the case of financial turbulence, the correlation of capital movements in the countries of the region is positive and significantly different from zero. On the other hand, taking into account the magnitude of those shocks, it is hard to believe that a regional fund would be effective. In 1999 the fall in capital flows to the four full members of MERCOSUR exceeded US$ 15 billion a year and slightly surpassed US$ 10 billion in 1997 (Table XI).[61]

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[57] The creation of a regional MERCOSUR fund was suggested in 1993 during the international negotiations (Heymann [2001]).

[58] The Latin American Reserve Fund (FLAR) has a similar goal in the Andean Community, but it has limited resources.

[59] Agosin [2001] discusses the issue of the synchronicity of external shocks from the viewpoint of the creation of a South American Stabilization Fund.

[60] The problem with compensating variations in the terms of trade is that it involves calculating the price of imports with a high share of manufactures, which causes delays and problems of transparency. Hence it is more reasonable to take a series of import and export products whose prices are easily and swiftly recorded.

[61] This correlation stems largely from contagion problems, and thus might be lessened if swift financial help is provided to the country or countries initially suffering the decline in capital flows (Agosin [2001]).

TABLE XI
VOLATILITY OF CAPITAL FLOWS
(In billions of US$ and as a percentage of GDP (*)

Country	In current US$									
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Argentina	2.0	2.3	9.4	8.5	13.3	-4.8	0.3	8.1	1.5	-2.6
Brazil	9.0	-6.2	11.7	-0.7	-2.9	20.6	4.3	-10.3	3.3	-13.0
Paraguay	-0.1	0.1	-0.1	0.1	0.1	0.0	0.0	0.0	0.0	-0.1
Uruguay	0.0	-0.6	0.9	0.3	0.1	-0.3	-0.3	0.4	-0.1	0.1
Chile	1.5	-1.8	2.0	0.4	2.2	-3.0	3.1	2.0	-4.1	-4.1
Bolivia	-0.6	0.5	-0.1	0.2	-0.2	0.1	0.3	0.3	0.2	-0.3
MERCOSUR	-0.1	-4.4	-0.1	-0.7	-2.9	-5.1	-0.3	-10.3	-0.1	-15.7
MERCOSUR + 2	-0.7	-5.7	-0.2	-0.7	-3.2	-8.1	-0.3	-10.3	-4.2	-20.1

Country	As a percentage of GDP									
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Argentina	1.0	1.2	3.9	3.1	5.4	-1.8	0.1	2.7	0.4	-0.7
Brazil	1.5	-1.0	1.9	-0.2	-0.5	2.9	0.5	-1.5	0.4	-1.8
Paraguay	-1.1	0.6	-0.8	0.8	1.7	0.1	0.0	-0.4	-0.4	-0.8
Uruguay	0.1	-3.9	5.9	1.8	0.2	-1.6	-1.4	2.1	-0.6	0.5
Chile	3.5	-4.3	3.7	0.5	3.5	-5.4	4.2	2.2	-5.6	-5.3
Bolivia	-11.3	8.7	-2.0	2.4	-3.4	2.2	3.5	4.4	1.9	-4.5

Notes: (*) Calculated as the simple difference between net private capital inflows in one year relative to the previous year.

Source: Author's calculations on the basis of WEO [2001] and WDI [2001].

Thus it seems more appropriate for the fund to focus on variations in the terms of trade, or on export prices, rather than on fluctuations in financial flows. The variations in the terms of trade were equivalent to 0.5% of the member countries' GDP (Table XII).[62] In no case would there be a need to finance 100% of any fall, since it is difficult to determine if that variation is temporary or permanent.[63] During the 1990s the maximum impact of the fall in the terms of trade was US$ 6.3 billion in 1999; in no other year of the decade did the decline represent more than US$ 2.4 billion (Table XII). On the other hand, to embark on collaboration with relatively modest objectives would foster a learning process to tackle more ambitious projects in the future.

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[62] To gauge the impact of the variation on the terms of trade as a function of output, the change in the terms of trade was multiplied by the openness coefficient.

[63] Although the IMF has such a loan through the Compensatory Financing Facility, its use is subject to IMF approval. Such approval depends on whether the balance of payments is judged to be satisfactory, or whether the country has an agreement with the Fund. In the latter case, the disbursement would be *pari passu* with the disbursements of the agreement.

TABLE XII
IMPACT OF THE VARIATION IN THE TERMS OF TRADE
(US$ millions and % of GDP, MERCOSUR, by country)

In US$ millions										
	1990	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Argentina	-401	1.030	4	301	18	-1.144	2.058	110	-1.350	-1.263
Brazil	-1.598	5.322	1.255	2.697	5.838	4.665	523	3.543	-1.221	-4.998
Paraguay	12	0	-88	119	326	-97	8	124	142	-398
Uruguay	-194	-31	-38	-34	2	140	-28	45	198	-90
Financing need (1)	-2.193	-31	-125	-34	0	-1.241	-28	0	-2.373	-6.351

As % of GDP										
	1990	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Argentina	-0.28	0.54	0.00	0.13	0.01	-0.44	0.76	0.04	-0.45	-0.45
Brazil	-0.34	1.31	0.32	0.62	1.07	0.66	0.07	0.44	-0.16	-0.67
Paraguay	0.23	0.01	-1.36	1.73	4.15	-1.08	0.09	1.29	1.65	-5.14
Uruguay	-2.09	-0.27	-0.29	-0.24	0.01	0.77	-0.14	0.21	0.89	-0.43
Financing need (1)	-2.71	-0.27	-1.65	-0.24	0.00	-1.52	-0.14	0.00	0.28	-1.54

Note: (1) Financing need defined as the simple sum of the impact of the variation in the terms of trade on GDP (in US$ millions and %).

Source: Author's calculations on the basis of IFS/IMF [2001].

The size differences between the countries, especially Brazil, is difficult to resolve. Keep in mind that Brazil's output accounts for 65% of regional output and its foreign trade represents 60% of the region's total. In such circumstances a regional fund could not help Brazil in unfavorable situations. Thus it would be necessary to expand the number of countries involved in the agreement. A possible alternative is a regional fund that included all the countries of South America (Agosin [2001]). If the fund consisted of 10% of the existing reserves at the end of 2000 in the four full members of MERCOSUR, its resources would reach US$ 4.7 billion, and US$ 5.8 billion if the associates are included. These resources would cover 70% of the impact of the largest fall in the terms of trade experienced in the region (full partners) during the last decade. Furthermore, if the fund included all the countries of South America, it would reach US$ 7.7 billion (Table XIII).

Another option is to give more resources to the Inter-American Development Bank through a capital replenishment, and to secure greater flexibility in its internal standards so that it can finance part of the external shocks through emergency loans. This seems to be the most viable alternative given the level of resources involved, although the loans would still be conditioned by the IMF's attitude. This is not necessarily a problem, although experience shows that it actually has been in terms of swift responses to crises. For example, the IMF's contingent credit lines to confront liquidity problems have never been used, and not for the lack of such turbulence in recent years.[64]

[64] There have been different reasons for not using this line. On the one hand are the line's conditions and cost; on the other, countries with "good reputation" have not wanted to use the line because they do not know which countries will be their "partners" in accessing it. The first two problems were attenuated at the beginning of 2001 but the line is still unused.

Finally, there is the possibility of hemispheric integration that would include the United States. This would lessen the problem of resources in the same way that a Japanese contribution to an Asian fund or a German-French contribution to the European Union would solve or has solved, respectively, the shortage of resources in their respective areas of influence. However, in light of the negative US reaction to the creation of an Asian fund, it seems unlikely that the United States would support such a proposal in Latin America and the Caribbean.

TABLE XIII
TOTAL RESERVES OF THE COUNTRIES OF SOUTH AMERICA (IN MILLIONS OF SDRS AND %) (*)

Countries	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	1991-2000 (1)
Argentina	4,342	7,418	10,194	9,967	9,765	12,743	16,555	17,592	19,139	19,301	12,702
Bolivia	106	163	194	340	475	697	838	635	674	631	475
Brazil	5,687	16,457	22,383	25,523	33,600	40,689	37,776	30,402	25,463	25,002	26,298
Chile	4,988	6,733	7,084	9,030	9,577	10,381	12,891	11,167	10,539	11,308	9,370
Colombia	4,598	5,651	5,784	5,484	5,626	6,855	7,278	6,157	5,846	6,855	6,013
Ecuador	662	647	1,019	1,278	1,109	1,307	1,566	1,165	1,211	756	1,072
Guyana	87	137	180	169	181	229	234	196	195	234	184
Paraguay	674	410	461	707	736	731	632	615	714	585	626
Uruguay	314	441	612	723	834	931	1,215	1,535	1,579	1,940	1,012
Venezuela	7,858	7,356	7,111	5,927	4,628	8,599	11,058	8,807	9,287	10,404	8,103
MERCOSUR	11,016	24,727	33,649	36,920	44,935	55,093	56,178	50,144	46,895	46,828	40,639
MERCOSUR+2	16,110	31,623	40,927	46,291	54,988	66,171	69,907	61,945	58,108	58,767	50,484
South America	29,314	45,413	55,021	59,149	66,532	83,161	90,042	78,270	74,648	77,016	65,856
Western Hemisphere	46,677	65,053	79,892	72,340	87,892	109,232	126,352	114,863	112,519	120,473	93,529
MERCOSUR (as % of all SA)	38	54	61	62	68	66	62	64	63	61	62
MERCOSUR+2 (as % of all SA)	55	70	74	78	83	80	78	79	78	76	75
MERCOSUR+2 (as % of WH)	35	49	51	64	63	61	55	54	52	49	53

Notes: (*) SDRs: Special Drawing Rights.
(1) Simple Average.
Source: Author's calculations on the basis of IFS/IMF [2001].

E. The Incentives to Coordinate

The question repeatedly raised in this study is the capacity of "enforcement"- that is, the capacity to make sure that the partners comply with the agreements. This question is related to incentives and penalties. The difference with the European case is significant. There are three types of incentives in Europe for compliance with the goals established in Maastricht and later in the Stability Pact: first, and surely the most important incentive because of the externalities that it generates, is to be seen as a responsible country; second, the elimination of exchange rate volatility with the main trading partners; and third, a system of penalties for countries that do not comply with the fiscal targets. In MERCOSUR, qualification as a "responsible" country in the management of macroeconomic policy is not determined (at least thus far and for many years) by compliance

with commitments within the area, but by agreements with multilateral lending agencies, especially the International Monetary Fund.

With regard to sanctions, account must be taken of the relatively few MERCOSUR countries and the size differences between them. In that context it is difficult to imagine sanctions that would result in the exclusion of a country from the agreement, as was the case in the European Union if certain conditions were not met. The reason is obvious: it is impossible to imagine a MERCOSUR without Brazil or Argentina, even for a short period.

Moreover, it is advisable to set up a group of regional and non-regional experts to assess compliance with the agreements. This group should make public its assessment and recommendations. Such peer pressure should increase the incentives to comply with the accords.

Enhancing the transparency of the agreements and holding the different governments responsible for lack of compliance was undoubtedly an important element in the European integration process. However, transparency is less important for the region than for Europe, since many MERCOSUR countries already have transparent agreements with the IMF. Thus the region's lack of "attractiveness, the few countries in it, and the different sizes of partners prompts the conclusion that the regime of penalties cannot be excessively "harsh". This clearly conspires against the previous conclusion about the need to reduce the flexibility of macroeconomic rules.[65]

It is obvious that the system of penalties and incentives must be different from Europe's. An alternative, which does not solve the whole problem, is to make compliance a condition of access to the regional funds mentioned in the section above, or to link non-compliance to an obligation to make additional contributions to those funds. If countries have to make additional contributions because of non-compliance, or are unable to withdraw resources in the case of an emergency, the world will start to see that the rules of economic convergence established in the region are significant and must be taken into account.

Still to be discussed are "exogenous" elements of coordination and their role in MERCOSUR. At the outset, Europe's integration agreement had an "exogenous" coordination element in the system of fixed rates inherited from Bretton Woods. When that agreement ended 20 years later in the 1970s, the countries of the Community decided to establish their own rules to reduce exchange rate variability. Some 20 years of exchange rate stability had helped establish the bases of that integration process. Are there exogenous elements that facilitate macroeconomic coordination and deeper integration in MERCOSUR? There are indeed. First, in a world that becomes more interdependent every day, countries lose relative autonomy. In that global world, macroeconomic misconduct has costs that go beyond the borders of the region. Second, there are international bodies that can help establish common guidelines or criteria. The Bank of International Settlements establishes a set of norms on national financing systems. Although these standards might require modifications to adapt them to the MERCOSUR countries, such standards (in their original version or modified) should be the foundation of a commitment within MERCOSUR and other subregional agreements. Furthermore, these regulations are crucial for a solid and credible financial system. At

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[65] Difficulties in implementing these penalties in the recent case of the European Union raise doubts about the possibility of imposing excessively severe sanctions.

the same time, all the countries of the region have close contacts with the IMF and other lending agencies.[66] It would be helpful if the IMF were to take account of these regional accords in designing its country programs. Encouraging and then supporting the Brazilian devaluation in 1999 without regard to its regional effects is contrary to what should be done in future.

Since the perception of the member countries and the international financial community is that non-compliance with these agencies has a greater cost than non-compliance within the region, it seems reasonable for the agreements to start from criteria established with these agencies. The international community can thus help "coordinate" the group's macroeconomy. Furthermore, keeping in mind the number of areas in which substantive agreements are needed, it is possible to imagine that the development banks, especially the Inter-American Development Bank, could devise an agenda in discussion with the countries to deepen the subregional agreements. The Bank would coordinate that agenda and would create, through rapidly disbursed loans, incentives for the countries to make progress in this area.

The agenda should include: the adoption of common standards; similar phytosanitary rules with mutual recognition; a law on common competition for the region; the coordination of regional incentives; a minimum institutional framework for resolving disputes; the adoption and implementation of a common external tariff; the elimination of subsidies for sales in the enlarged market; and the creation of regional independent technical bodies for arbitration in the case of conflicting national interests.[67] Similarly, there should be support for the introduction of structural reforms to help achieve stability in the medium and long term, thus promoting macroeconomic coordination. Some examples of these reforms are: central bank independence; laws setting a maximum limit on increases in public spending; transparent distribution of spending and income between the national and sub-national governments, in order to increase incentives for responsible behavior; social security reform; and greater labor market flexibility.

Coordination that is "exogenous" to the region can trigger contradictory reactions, but it is a way of creating the incentives required for the integration process. Furthermore, it must be kept in mind that the countries are committing themselves voluntarily to macroeconomic targets and to certain reforms with international lending agencies. It is a question of taking advantage of such circumstances in order to deepen integration. Additionally, the region would secure greater bargaining leverage through joint action and proposals in dealing with these organizations.

F. Final Considerations

Macroeconomic coordination is essential for enhanced forms of integration, as in the case of a monetary union. It is also appropriate when there is a high degree of interdependence, even if there is no intention of moving towards more advanced forms of integration. Different forms of

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[66] During the last decade Argentina had almost permanent agreements with the Fund; Brazil for eighteen months after January 1992 and then from December 1998 to date; Uruguay from January 1991 to June 1993 and from March 1996 almost uninterruptedly to date; Paraguay is the only country that has had no agreement with the IMF in recent years.

[67] The creation of a Technical Secretariat in 2002 is a step in the right direction. Its lack of financing should be rectified if the countries are to strengthen their commitment to the integration process.

macroeconomic coordination in MERCOSUR would have helped deepen the integration process during the 1990s. The fact that no progress was achieved in that direction is not the result of technical difficulties, since significant progress was made in that field in 2000. The problem has been the will to reach agreements and then comply with them. Obviously the problem stems not only from the lack of political will, but also from factors such as: (1) the partner's lack of a solid reputation, which not only fails to generate short-term gains associated with coordination but also may affect access to private financing from outside the region in the event of turbulence, an issue that is especially important given the scale of the imbalances in the member countries' current accounts; (2) the magnitude of the external shocks without regional compensation mechanisms; (3) the decision not to cede autonomy in economic policy-making, in a context of asynchronicity in national economic cycles; (4) related to the previous point, the minimal impact of commercial interdependence at the macroeconomic level; and (5) permanent mistrust that the partner will really view the regional agreement as an essential element in domestic economic policy-making and its international insertion strategy, which lessens the prospect of cooperative teamwork.

In this context it is evident that there have not been many incentives for macroeconomic coordination. Considering the problems of regional instability and the high discount rate associated with the benefits of associative schemes in the medium term, it was and still is necessary to create other mechanism to increase incentives for coordination as a means of deepening integration. That is, elements that strengthen the essential "political will" have to added. Frequent consultation among the authorities of the various countries and certain (initially flexible) agreements on exchange rate volatility within the region could help create the necessary climate of trust. The creation of a group of renowned individuals to assess public commitments and make recommendations could also be important. The development of regional funds, access to which could be restricted in relation to compliance with agreements, seems to be a mechanism worth exploring. Initially, however, these regional funds are hardly significant. In order for them to have more resources and greater coverage, and to diversify the risk to a greater extent, they should include more countries than the MERCOSUR members. But in that case they cannot be used as negative or positive incentives for the group.

Another alternative, complementary to the previous one, is to use the member countries' agreements with international credit organizations as a coordinating mechanism. The IMF in the macroeconomic arena, and the Bank of International Payments in the realm of the financial system, can play this coordinating role. Nonetheless, the goal of increasing the incentives for subregional integration should have somewhat different characteristics. For such a purpose, it is necessary to create incentives for the implementation of programs designed to deepen these agreements, and to carry out structural reforms that help improve stability in the region. In view of its commitment to the region, the IDB could do this. This would not run counter to the need to pursue free trade agreements within the hemisphere or with the European Union. Subregional agreements should go further than free trade accords and, insofar as they meet this goal, they will foster regional integration.

The European experience shows that integration is an iterative process. Growing trade integration raised the demand for macroeconomic coordination, but at the same time the growth of trade was facilitated by agreements that constrained exchange rate variability. Furthermore, the agreements

reached in different areas, with growing trust between the main actors, lessened the likelihood of non-cooperative solutions. That is, macroeconomic coordination, mainly geared to obviating volatility between the partners, was an essential part of the progress made, and coordination was achieved gradually. Thus deepening integration requires thinking about macroeconomic interdependence and macroeconomic coordination as two complementary issues, not as successive undertakings. For that purpose the structural reforms that aid stability in each country and in the region are not substitutes for dialogue, for partial agreements between countries and for macroeconomic convergence that makes plain the region's commitment to stability. To that end it is essential for the partners to show their irrevocable decision to deepen integration.

Finally, the scale and volatility of external shocks, especially in the capital markets, call for international mechanisms to help offset such turbulence, at least partially. Economic policy coordination is unlikely without automatically disbursed funds from international organizations in the event of severe external turbulence, and without a policy of counter-cyclical lending on the part of the development banks. Equally improbable in such circumstances is macroeconomic economic stability in the region, which is crucial for any integration process. Regional funds can help, but they cannot replace international lending agencies.

V. COMPENSATION MEASURES TO LESSEN THE EFFECT OF EXCHANGE RATE VOLATILITY

From the analysis in the previous sections it can be deduced that the only way to eliminate exchange rate variability is through monetary union, that MERCOSUR was very far from such a solution in the 1990s, and that it certainly remains remote from it today. Macroeconomic coordination may help reduce fluctuations and avoid great volatility, but this is not guaranteed and the region has not made progress in this field during the last decade. Considering the impact that exchange rate modifications have on an economy, as well as on the political economy of the integration process, it is helpful to analyze the introduction of compensation measures, whether tariff or exchange rate measures, for limited periods. Although this issue has been discussed (Ferrer and Lavagna [1991] and Díaz Bonilla [1999]) the proposal herein differs significantly from previous approaches.

There were "compensation" mechanisms in extreme situations, such as Argentina's introduction of a statistical tax in 1992 and Brazil's import restrictions in 1997. The partners' scant complaint at these unilateral measures was a form of "incipient coordination" (Hermann and Navajas [1998]), but such general measures were not the only ones. Every substantial exchange rate misalignment gave rise to particular protectionist pressure and protectionist measures, which were especially significant in 1999-2001 - that is, after the January 1999 devaluation of the real. These measures triggered political tensions in MERCOSUR. Thus the issue is to avoid abrupt changes in the exchange parities that significantly alter the "rules of the game" in the short term, and cause dubious trade restrictions or compensation measures. The goal, in other words, is to find a transparent compensation mechanism.

An alternative is to compensate for the exchange variability between member countries by means of a particular exchange rate, import tariffs, or export drawbacks. This approach is inadvisable for the various reasons discussed below, and which are used to shape the proposal herein.

What cannot be done to avoid the effects of one partner's devaluation is to offset the exchange rate adjustment in such a way as to leave the partner in a worse situation than the rest of the world. Hence the limit to any compensation measure has to be the common external tariff.

Furthermore, it makes no sense if a member country's currency appreciates relative to the rest of the world, including the countries of the region, and only the countries of the group have to compensate for that appreciation.

To illustrate this matter, consider two countries, A and B, where the exchange rate is initially expressed as:

$$P_B * ER_A / ER_B * (1 + t_{AB}) = P_{RW} * ER_A / ER_{RW} * (1 + t_{ARW}) = P_A \qquad (1)$$

where

P_i = price in country i

ER_i = exchange rate in country i

P_{RW} = price index of the "rest of the world"

ER_{RW} = exchange rate of country i with the "rest of the world" [68]

t_{ij} = import tariff of country i with respect to country j

Expressing (1) in real terms:

$$RER_A / RER_B * (1 + t_{AB}) = RER_A / RER_{RW} * (1 + t_{ARW}) \quad (2)$$

Equality implies that, since the tariff faced by both countries exporting to A is equal before a trade agreement, the prices corrected by the exchange rate are equal in the two countries (country B and the rest of the world).

If country A concludes a free trade area with B, the import tariff (t_{AB}) disappears. This is the preference that country B now has relative to the rest of the world (RW) to export to country A. This preference is altered, insofar as the ER of country B is modified *vis-à-vis* the rest of the world.

Thus any compensation measure must consider the variations of the exchange rate *vis-à-vis* the rest of the world. The underlying idea is to maintain the original preference, considering both the tariff difference and the exchange rate with the rest of the world. With the initial elimination of intra-regional tariffs, the countries of the region have a preference, given the initial exchange rate within the region *vis-à-vis* the rest of the world. If a country from the region (say, B) depreciates its currency with the rest of the world (including the region), this improves its initial advantage with the rest of the world relative to the other member countries.[69] In that context, compensation would obviate an improvement additional to that initially arising from membership of the region. Likewise, if a country's currency appreciates on a similar scale relative to countries of the region and the rest of the world, the original preference is maintained and there would be no need for compensation.[70]

Hence, if RER_A / RER_B appreciates relative to the initial exchange rate (which can be defined as normal between the two countries), the greater is RER_A/RER_{RW} relative to its normal value, compensation measures of country A should be applied. Alternatively, when RER_B/RER_A appreciates more than $RER_B/RER_{RW,}$ in both cases relative to their normal value, compensation measures by country B should be applied. In other words, insofar as:

$$[(RER_A / RER_B) - (RER_A / RER_B)^n] > X \quad (3)$$

where X indicates the extension of the band where there will be no compensation; compensation measures should be applied only if, additionally:

$$[(RER_A / RER_B)-(RER_A / RER_B)^n] - [(RER_A / RER_{RW})-(RER_A / RER_{RW})^n] < 0 \quad (4)$$

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[68] The "rest of the world" indices were calculated with weighted averages of the main trade partners of Argentina and Brazil in the 1990s.

[69] In (2) there will be a fall in RER_A / RER_B and no change in RER_A/RER_{RW}. The rate is defined in real terms and refers to the amount of local currency needed to buy a unit of foreign currency.

[70] In (2) there will be an increase on the same scale in RER_A / RER_B and in $RER_A / RER_{RW.}$

If the "normal" exchange rate is constant - for example, because it has been defined as equal to the exchange rate in force at the beginning of the trade agreement - the relevant element in expressions (3) and (4) is the current exchange rate with respect to the partner and the rest of the world. However, the definition of "normal" exchange parities requires some discussion. One alternative is to consider that the idea of normality changes over time, and hence at any specific time the "normal" exchange rate is an average of the rate prevailing in recent years. Consequently, "normality" changes with a moving average of the exchange rates - both the bilateral exchange rate within the group and those with the rest of the world. This alternative seems to make more sense, both because the idea of exchange "normality" changes over time (depending on shifts in conditions in the different countries), and because compensation between countries within a trade group should not be permanent, since the exchange rate differs from that prevailing when the group was established.

Since the purpose of the compensation measure is to avoid or diminish the effect of strong exchange rate variations, it would only be applied in the case of a substantial divergence from "normal" values. This means that the compensation would only apply when the variability of the exchange rate exceeds a specific limit of historical values, say 10%.[71] Compensation would start working only after several months of divergence (three months, for example). In these cases, and as a result of the difference between the deviation and the adopted band (for instance, 10%), a temporary tariff should be established, or an initial compensation measure, which may never exceed the common external tariff of the corresponding product. As an example, assume that the exchange rate of country B devalues by 25% with respect to A, in the same proportion with respect to its normal value, and the exchange rate of A with respect to the rest of the world is equal to its normal value. Assume too that the common external tariff is 10%. In this case, considering the band of 10%, there should be a compensation of 15%; but since the compensation measure may not exceed the value of the common external tariff, it would be 10%.

As mentioned previously, compensation cannot be permanent. To the extent that progress is made on macroeconomic coordination, these mechanisms will no longer be used, even if exchange disparity relative to versus "normality" continues for a long time. In principle, compensation should apply for a maximum period (for instance, a year), thereafter declining gradually towards elimination, irrespective of whether the difference that triggered the measure persists. The main purpose of the mechanism is to obviate the impact of large-scale volatility in relative prices over short periods. This averts an abrupt change in the idea of normality that, as mentioned, affects the political economy of the integration process in addition to its economic impact.

The other issue to be analyzed is how to define the exchange rate with the rest of the world. Each country exports and imports from different regions, and therefore the definition of a real exchange rate for each country should take account of various considerations depending on the destination and origin of trade. The problem created by the presence of "different baskets" in the definition and calculation of the real exchange rate is that the variation of the rate relative to the rest of the world might be different for each country, making the comparison more complicated. Hence this study defines an exchange rate for the group with the rest of the world, which then allows use of

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[71] This means that in expression (3) X is equal to a 0.1.

a common currency basket - that is, with equal weightings. That basket can be construed by granting the exchange rate of the different countries a weight equal to the simple average of the proportion of those countries' trade with each member of the group. Annex I presents the details of the methodology used to define the currency basket for Argentina and Brazil.

To illustrate the compensation system proposed in Annex II, attention is paid to what would have happened in MERCOSUR (and specifically between Argentina and Brazil) if such a mechanism had been applied during the history of MERCOSUR. The analysis shows that the system would only have triggered compensation mechanisms between Argentina and Brazil on two occasions up to June 2002. The first would have been after April 1999 as a result of the January 1999 devaluation in Brazil. The measure would have prevailed for the maximum amount of the common external tariff until March 2000 and thereafter would have begun to decline until it disappeared after a maximum of eight quarters. The second compensation would have applied from June 2002 as a result of the devaluation of the Argentine exchange rate.

A comment should be made about the smaller MERCOSUR countries, Uruguay and Paraguay. These countries should be able to use the compensation mechanism to protect themselves in relative terms from a devaluation in the bigger countries. However, it seems inadvisable to allow the mechanism to operate in the opposite direction - that is, for the bigger countries to use it to offset devaluations in the smaller countries. The reason is that the mechanism is not easily managed and should only be used in situations when there is a significant disequilibrium. It is highly unlikely that a devaluation in Paraguay or Uruguay would significantly affect the markets of Argentina or Brazil. In any case, if compensation is established the band to be used should be substantially higher.

What are the problems associated with this proposal? Essentially, there are two. First, real exchange rate variations can stem from changes in the equilibrium rate or strong deviations from equilibrium. If the variations spring from temporary deviations from equilibrium, the compensation mechanism would help attenuate such changes and would avert or lessen the political tensions arising from severe shifts in the real exchange rate. Alternatively, if the changes spring from variations in the equilibrium rate (above the 10% band), the introduction of a compensation mechanism would lessen the necessary economic adjustment. Some other comments, however, must be made: (a) the economy would not be adjusting to the new conditions of equilibrium but only to the real exchange rate with the partners in the agreement; (b) the compensation would only apply when the variations are above the real 10% and for the value surpassing that percentage; (c) the compensation has a ceiling equivalent to the common external tariff; and (d) compensation is temporary and gradually declines until it disappears. Thus there is only partial validity to the objection that this approach averts a necessary adjustment of the real exchange rate. It is true that introducing the compensation mechanism can involve certain economic costs, but even in that case it should be kept in mind that those costs should be compared to the benefit of a more gradual adjustment that avoids impacts on the political economy of the integration process.

In sum, it is only partly true that variations in the real equilibrium exchange rate are being avoided. Moreover, the changes in the region's bilateral exchange rate seem to show that a significant proportion of these variations cannot be ascribed to changes in the equilibrium parity.

The second objection to a mechanism of this kind is the prospect of triangulation operations. Triangulation, however, is only possible through the countries of the agreement, and therefore can only be effected if those countries fail to apply compensation measures. In the case under consideration here, preliminary estimates show that Paraguay and Uruguay effected a compensation mechanism similar to that of Argentina in April 1999 and also in June 2002 when Argentina devalued.[72] In these cases, therefore, there was no chance of "triangulation". In the event that one of the partners failed to apply compensation measures, it should be kept in mind that the measure is temporary, which surely lessens the "triangulation" because of the costs involved in the process. Finally, a comment on alternatives to such compensation measures: the establishment of safeguard clauses that allow duties to be imposed for a period when local production is being harmed. This alternative has the disadvantage of being less transparent; it can also take too long to implement. It has the advantage, however, of obviating general compensation mechanisms when there might be sectors unaffected by the devaluation. Thus safeguard measures can be an alternative to the proposal made here, but they must be implemented transparently and fast.

In sum, this section has discussed a compensation mechanism for exchange rate variations between the member countries of a free trade area, one that would apply only if the exchange rate were substantially different from the "normal" rate and if that circumstance implied a real change in regional advantages relative to the rest of the world. The compensation mechanism would take account of countries' size, and would only be applied temporarily. Its advantage is transparency, in contrast to protectionist measures that entail clear distortions and that favor sectors with greater access to political and economic decision-making. Nothing, obviously, ensures that such a mechanism would eliminate sectoral pressure. In such a case the mechanism would lose its *raison d'être*. It must be clear, therefore, that this compensation replaces all other protection mechanisms within the region. Finally, the main purpose of establishing such compensation mechanisms is to reduce political pressures within the group so as to allow the members to move towards more advanced forms of integration. Absent a decision to deepen integration, the mechanisms would largely lose their *raison d'être*.

[72] The later devaluation of the exchange rate in Uruguay would have eliminated the need for compensation.

VI. CONCLUSIONS

Contents

This study has discussed the negative impact of exchange rate instability on the MERCOSUR integration process. Such instability not only negatively affects trade volumes, but also triggers political resistance that weakens the governments' capacity to collaborate within the group. Hence it is almost impossible to think of deepening any integration agreement without reducing the degree of exchange rate variability between member countries. The degree of macroeconomic coordination associated with this goal generates positive net benefits if there is political will to move forward to enhanced forms of integration. If this is not the case, there is little sense in incurring the costs associated with such coordination, such as those stemming from limiting countries' autonomy in economic policy-making. In general, the political will to deepen MERCOSUR has been evident in the declarations of the different members' governments during the last decade. Such political will, however, has not been always been translated into concrete actions.

The study has asked what could have been done to lessen exchange rate variability, or at least its effects on the member countries, and the extent to which the lessons of the past might serve to help design better policies in the future.

A monetary union would have "solved" the problem of exchange rate variability, but the analysis herein shows that the conditions needed for its creation in the region did not exist and do not exist today. The three main reasons for this, in order of their relative importance, are as follows: absence of political will to deepen integration, lack of a central bank of sufficient repute and, finally, a relatively low level of commercial interdependence, especially for the biggest country. It should nonetheless be acknowledged that similar financial shocks and greater trade integration in the 1990s increased the correlation of the member countries' cycles, although such correlation remains modest. Monetary union, by increasing trade, creates the reasons for its own existence, and in all cases monetary unions have stemmed from a political decision. Nevertheless, to attempt to create a single currency without certain basic preconditions may be highly dangerous, especially if the "exit" costs are not high. In these circumstances it is likely that some of the countries might decide to leave the monetary union if they think that the short-term costs are high.

The basic preconditions for a decision to introduce a single currency are related to the adoption of measures that demonstrate the countries' commitment to the integration process, and imply certain forms of cession of sovereignty. Apart from commercial and institutional measures there is a need for macroeconomic coordination mechanisms that are laxer than monetary union, but that help lessen exchange variability and create the trust associated with cooperative teamwork. As the European experience shows, macroeconomic coordination is a complement to greater commercial and financial integration.

The absence of political will to deepen integration in the 1990s was reflected, among other things, by the absence of coordination mechanisms. In this context, exchange rate variability in the region prompted trade and political disputes that worked against the integration process. Today it is more evident than ever that without stability there may never be coordination, and that the achievement and maintenance of such stability requires certain minimum targets in terms of inflation, public debt, the fiscal deficit, short-term indebtedness, and the solvency of the financial system. To meet such goals, each country will surely require certain structural reforms, some of

which will depend on institutional circumstances in each. Over time, greater stability will enable the region to constrain exchange rate variability.

Guaranteeing stability and lessening exchange rate volatility require certain funds that allow compensation for the external shocks, especially financial disturbances, to which the region is exposed. Automatic disbursement funds from international agencies in the event of severe turbulence, the creation of regional funds, and even the possible introduction of certain national stabilization funds, are crucial to guaranteeing stability in the region. Besides, since international organizations offer external incentives to reach and comply with agreements in various areas of the integration process, the foundations will be laid for more intense macroeconomic cooperation between the countries.

In view of the difficulties of lessening exchange rate volatility, perhaps the region's main problem was the absence of mechanisms that allow countries to offset that volatility, at least partially. This is a lesson to be learned by other agreements: without mechanisms to compensate for large intra-regional variations in the exchange rate, it is difficult to deepen integration. Hence, while developing certain coordination policies that allow exchange rate fluctuations to be lessened, it is advisable that the countries establish a transparent compensation criterion (such as that discussed in the last section of this study).

Contents

ANNEX I

METHODOLOGY FOR DEVISING A "REGIONAL" EXCHANGE RATE

This annex shows how various indicators used in this study were devised.

Indicators

Currency Basket

The following procedure was used to construe Argentina's and Brazil's real exchange rate with the "rest of the world":

(a) the two countries' main trade partners were chosen, excluding themselves and the other MERCOSUR members, as a function of the share of imports and exports from and to those markets in their total trade. On average the countries chosen represent almost 79% of Argentina's and Brazil's combined total trade.

(b) The share of the chosen country in Argentina's and Brazil's trade during the last decade is established. The final weighting is arrived at through the simple average of the values calculated for each country.

(c) Country A's real exchange rate with the "rest of the world" was construed as follows:

$$Er_{A/RN} = \frac{Er_{A/us}}{P_A} / \left\{ \left(\frac{\alpha}{\varpi}\right)\left(\frac{Er_{w/us}}{P_a}\right) + \left(\frac{\beta}{\varpi}\right)\left(\frac{Er_{f/us}}{P_f}\right) + ... \left(\frac{\chi}{\varpi}\right)\left(\frac{Er_{n/us}}{P_n}\right) + \left(\frac{\delta}{\varpi}\right)\left(\frac{1}{P_{us}}\right) \right\}$$

where

α, β, δ y χ = average weighting of country i for the total combined trade of Argentina and Brazil

ϖ = $1 - \left(\sum \alpha + \beta + ... \chi + \delta\right)$

P_i = consumer price index of country i

Er_i = nominal exchange rate to the dollar of country i

In the case of the United States the expression $\left(\frac{1}{P_{us}}\right)$ was used, since the dollar is used as *numeraire* in the other expressions, and thus the exchange rate is equal to 1.

The prices and weightings used are described below.

Weighting Matrix	
Country	**Weighting**
United States	34.3
Germany	10.9
Chile	3.3
Italy	6.7
Spain	3.0
Netherlands	5.9
Japan	8.9
France	4.4
Mexico	2.8
United Kingdom	4.0
South Korea	2.6
Belgium	2.0
Saudi Arabia	2.8
Canada	2.7
Venezuela	2.3
Switzerland	1.9
Sweden	1.5

ANNEX II

Contents

OPERATION OF THE COMPENSATION SYSTEM IN THE PERIOD 1991-2002

As mentioned in the text, one of the problems in establishing a compensation mechanism is the need to establish a "normal" exchange rate between Argentina and Brazil, on which basis to analyze the deviations. In the particular case of the exchange rate between Argentina and Brazil, if the average exchange rate of the previous 10 years is chosen as the "normal" rate, the problem is that these cannot be deemed normal in the years preceding the establishment of MERCOSUR (1989-1990). In that period, as a result of hyperinflation, Argentina's real exchange rate was especially high, such that in taking an average of 10 years as the idea of normality, the "normal" exchange rate between Argentina and Brazil in the 1990s always would have been higher than it was - that is, Argentina's real exchange rate always would have appreciated relative to that notion of "normality". This circumstance prevails even if the period 1989-1990 is eliminated. Hence an effort is made here to use a moving average of only five years, which thus captures to a lesser extent the "abnormality" of the 1980s.[73] Figure 16 shows the bilateral exchange rate calculated in this way and the observed exchange rate. As is evident, Argentina's exchange rate appreciated relative to normality from the onset of convertibility to 1995 and then again from the end of 1998, and especially following the Brazilian devaluation. Between the two periods Brazil appreciated above "normality" - that is, above the moving average of the previous five years.

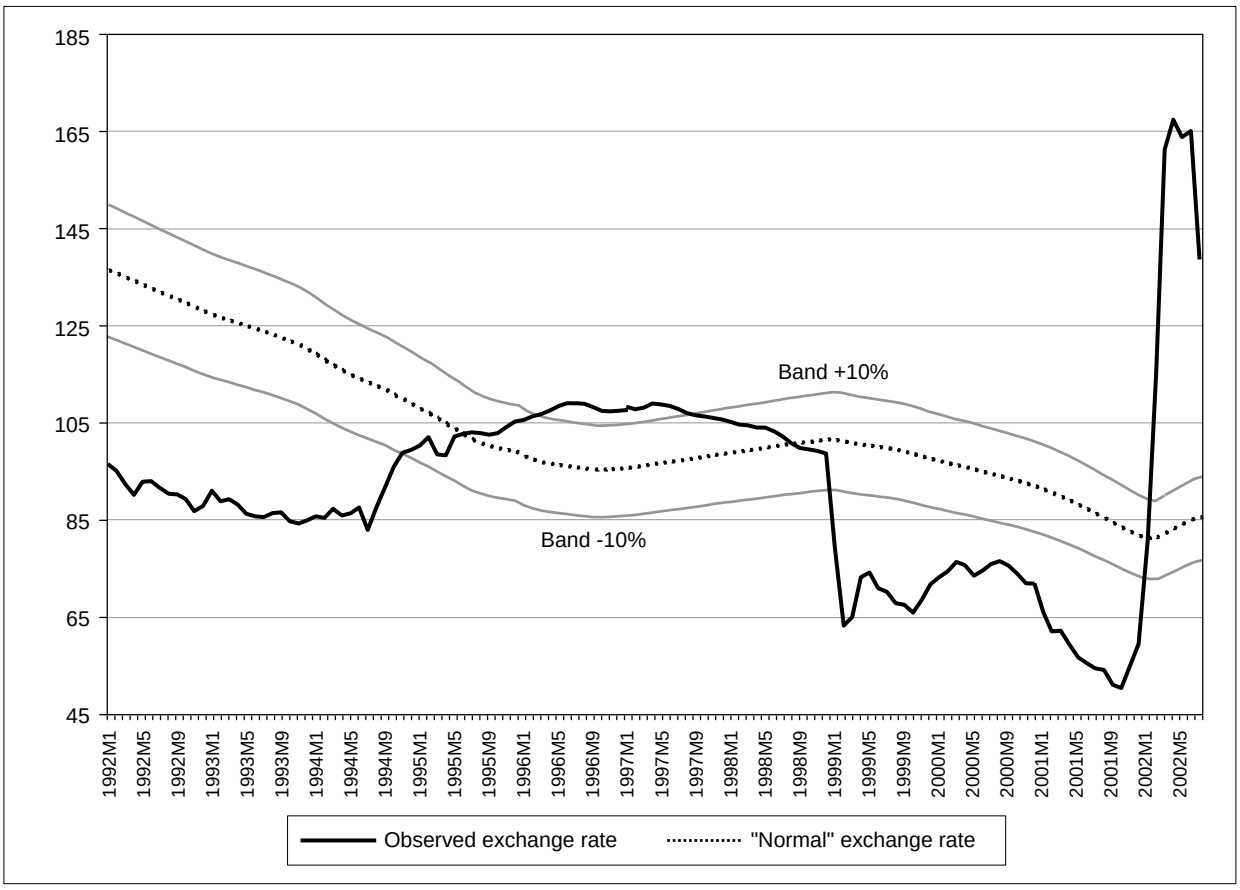
When a band of 10% above and below the normal exchange rate is established, the periods in which there is more than a 10% fluctuation for more than three months are those in which the peso appreciated relative to the real, with the sole exception of the period July 1996-June 1997, when the appreciation of the real relative to its "normal" value exceeded 10% (Figure 16). Does this mean that compensation mechanisms should have been used during those periods? Not necessarily. Take, for example, the first period (January 1991 to June 1995), when the appreciation of the peso surpassed the "normal" exchange rate by over 10%. Table XIV, column 5 shows the difference between the observed exchange rate and the normal exchange rate (expression 2) and column 6 shows the difference between the observed values and the "normal" values relative to the world. Finally, column 7 shows the difference between both - that is, the appreciation of the peso relative to the real, less the appreciation relative to the rest of the world. (expression 3). A positive value indicates a lower appreciation of the peso with respect to the real than to the rest of the world. In this case there should be no compensation. Clearly, this is what happened in the period 1991-1995. Throughout that period the appreciation of the peso with respect to the rest of the world was higher than its appreciation relative to the real (Figure 17a and Table XIV), and thus it cannot be said that Brazil's world competitiveness increased relative to Argentina's. Similarly, the appreciation of the real relative to the peso in the period April 1996-June 1997 was lower than its appreciation with respect to the rest of the world; no compensation measures would have applied in this case either (Figures 17b and 18b). The only period in which the compensation mechanism would have applied is from January 1999 to the end of 2001, a period in which the fluctuation relative to the "normal" exchange rate was higher than 10% and the peso did not appreciate with respect to the

[73] In all cases the period 1989-1990 has been eliminated.

rest of the world (Figures 17a and 19a and Table XIV).[74] In other words, it is clear that during that period the real devalued relative to the peso and the rest of the world, and thus the preference margin within the group increased. The compensation measure would have begun to operate as of April 1999 and would have been fully in force until March 2000, whereafter it would have fallen by 12.5% per quarter until it ended after eight quarters.

By June 2002, at least, the Argentine devaluation would have triggered compensation equivalent to the total amount of the common external tariff.

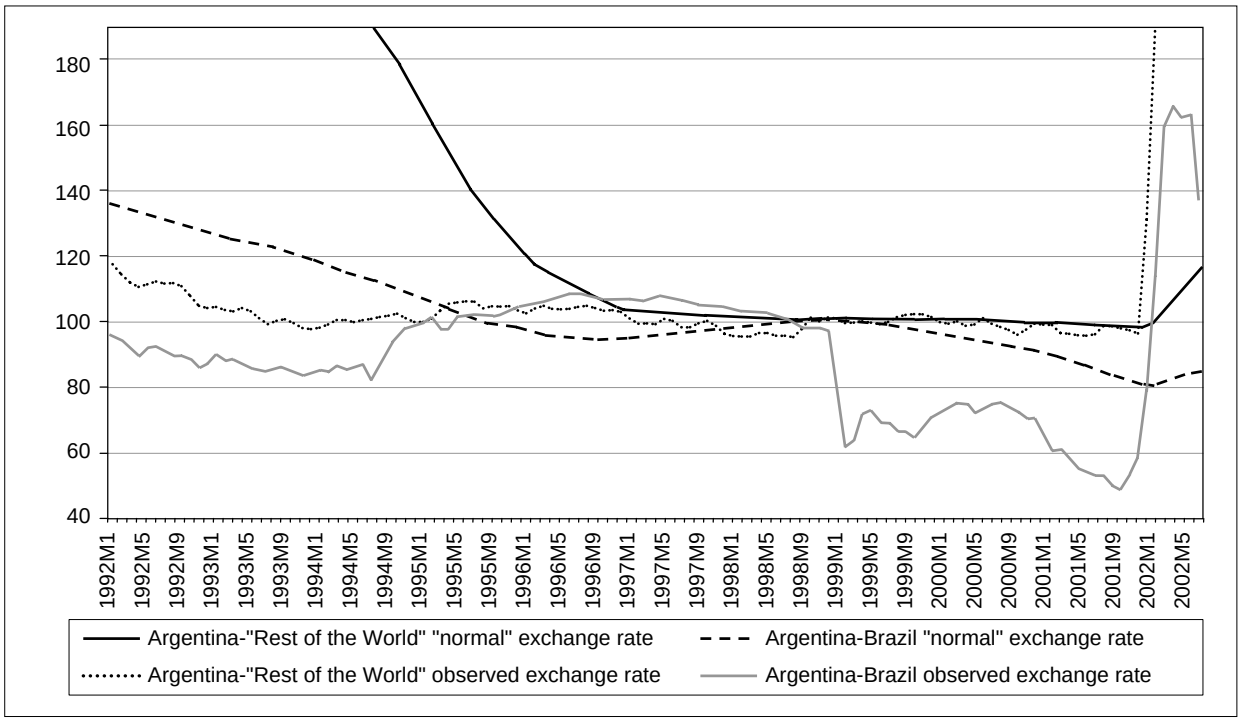
FIGURE 16
OBSERVED AND "NORMAL" REAL EXCHANGE RATE, ARGENTINA-BRAZIL
(MOVING AVERAGE 60 MONTHS)



Source: Author's calculations on the basis of IFS/IMF [2002].

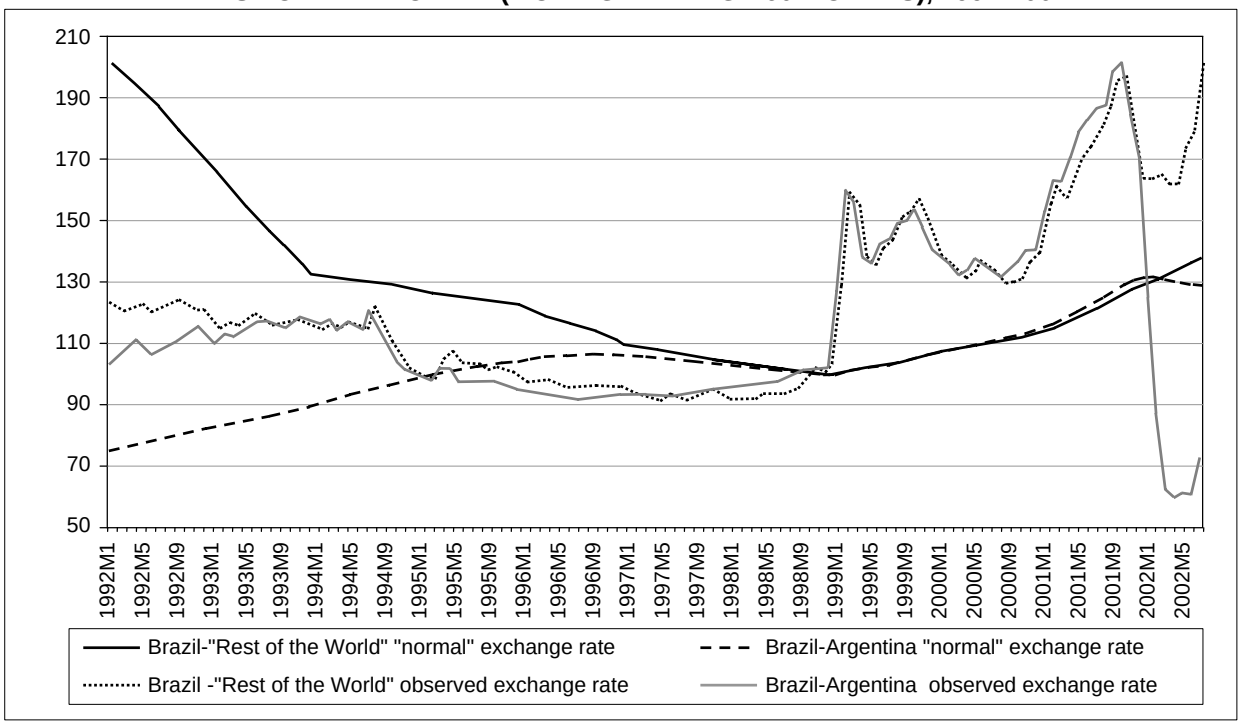
[74] It should be stressed that this is not a judgment about the peso's competitiveness relative to the rest of the world. In line with the definition of normality used herein, it may be said that the peso did not - relative to the last five years - appreciate with respect to the rest of the world. The devaluation of the real had changed the idea of normality, because it had increased the preference margin within MERCOSUR in favor of Brazil.

FIGURE 17A
OBSERVED AND "NORMAL" REAL EXCHANGE RATE, ARGENTINA-BRAZIL AND ARGENTINA-"REST OF THE WORLD" (MOVING AVERAGE 60 MONTHS), 1992-2002



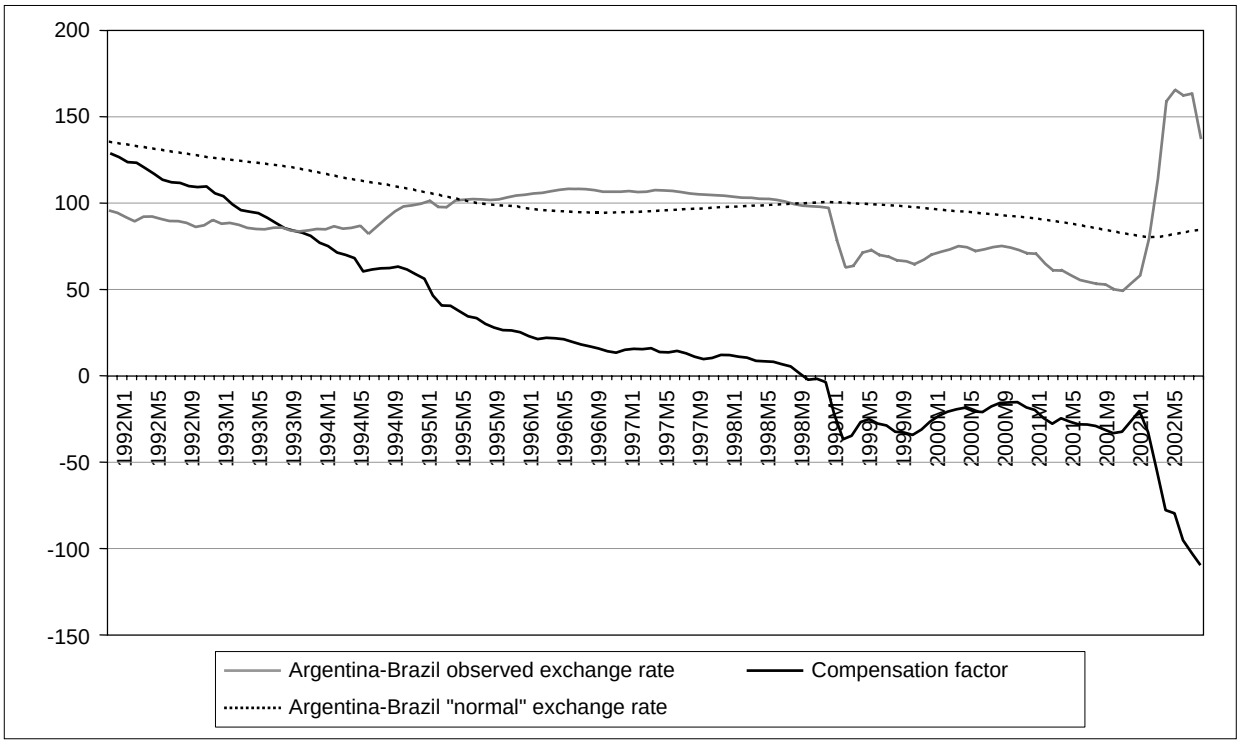
Source: Author's calculations on the basis of IFS/IMF [2002].

FIGURE 17B
OBSERVED AND "NORMAL" REAL EXCHANGE RATE, BRAZIL-ARGENTINA AND BRAZIL-"REST OF THE WORLD" (MOVING AVERAGE 60 MONTHS), 1992-2002



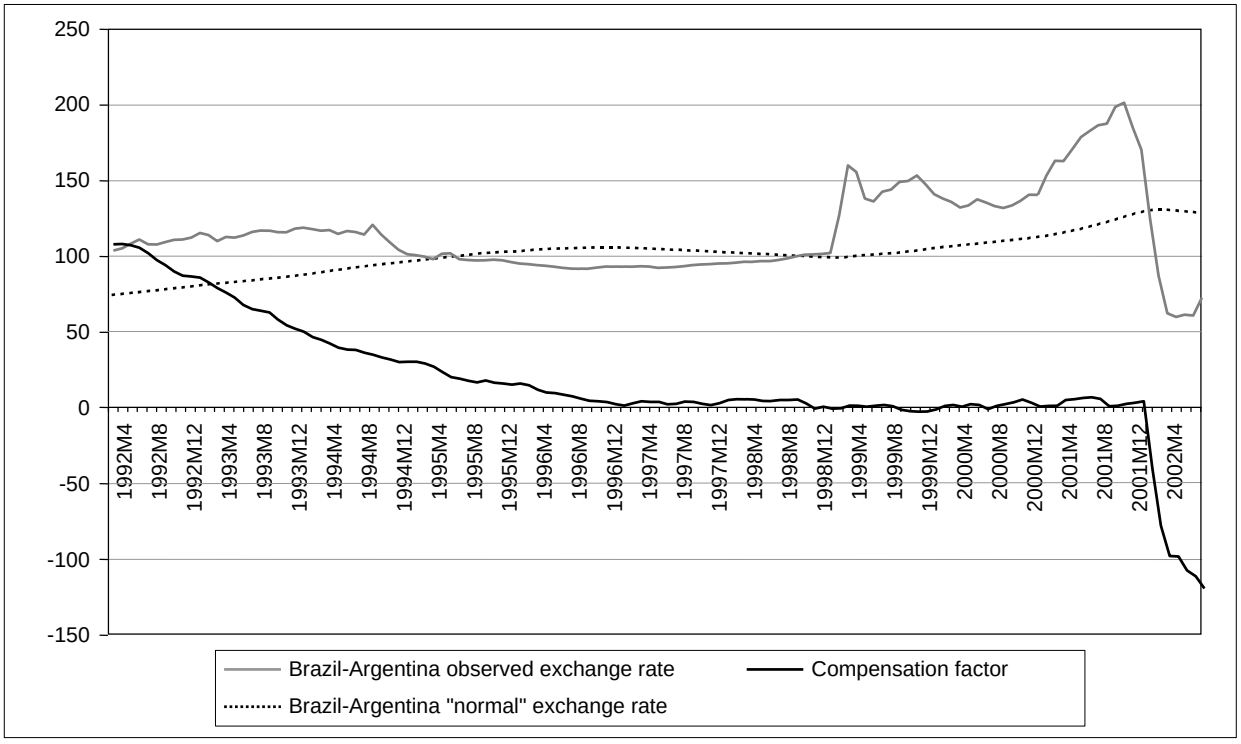
Source: Author's calculations on the basis of IFS/IMF [2002].

FIGURE 18A
REAL EXCHANGE RATE, ARGENTINA-BRAZIL, AND COMPENSATION FACTOR



Source: Author's calculations on the basis of IFS/IMF [2002].

FIGURE 18B
REAL EXCHANGE RATE, BRAZIL-ARGENTINA, AND COMPENSATION FACTOR



Source: Author's calculations on the basis of IFS/IMF [2002].

TABLE XIV
REAL EXCHANGE RATE AND COMPENSATION FACTOR

Years - months	Observed AR/BR exchange rate	"Normal" AR/BR exchange rate	Moving avrg. AR/BR	Observed AR/"RoW" exchange rate	"Normal" AR/"RoW" exchange rate	Moving average AR/"RoW"	Comp. factor	Observed BR/AR exchange rate	"Normal" BR/AR exchange rate	Moving avrg. BR/AR	Observed BR/"RoW" exchange rate	"Normal" BR/"RoW" exchange rate	Moving average BR/"RoW"	Comp. factor
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1992M1	96.22	136.15	-39.93	117.69	286.14	-168.46	128.53	103.93	74.62	29.31	122.31	201.16	-78.85	108.16
1992M2	94.82	135.40	-40.58	114.55	283.70	-169.15	128.57	105.46	75.18	30.27	120.80	198.76	-77.95	108.23
1992M3	92.07	134.59	-42.52	112.05	281.06	-169.01	126.49	108.62	75.81	32.81	121.71	196.36	-74.66	107.46
1992M4	89.86	133.82	-43.96	110.70	278.24	-167.54	123.58	111.28	76.44	34.85	123.19	194.19	-71.00	105.85
1992M5	92.57	133.05	-40.48	111.46	275.15	-163.69	123.21	108.03	77.04	30.99	120.41	191.56	-71.15	102.14
1992M6	92.71	132.23	-39.52	112.31	271.86	-159.55	120.03	107.86	77.66	30.20	121.14	188.57	-67.43	97.63
1992M7	91.33	131.49	-40.16	111.75	268.76	-157.01	116.86	109.49	78.26	31.23	122.35	185.37	-63.01	94.25
1992M8	90.08	130.71	-40.63	111.85	265.76	-153.91	113.28	111.01	78.89	32.12	124.17	182.11	-57.94	90.06
1992M9	89.95	129.97	-40.02	110.90	262.73	-151.83	111.81	111.17	79.50	31.67	123.29	178.93	-55.64	87.30
1992M10	88.99	129.24	-40.25	107.89	259.57	-151.67	111.43	112.37	80.12	32.25	121.24	175.78	-54.53	86.79
1992M11	86.53	128.42	-41.89	104.90	256.35	-151.45	109.56	115.56	80.82	34.75	121.22	172.62	-51.40	86.15
1992M12	87.64	127.61	-39.98	104.23	253.21	-148.98	109.00	114.11	81.50	32.61	118.93	169.29	-50.36	82.97
1993M1	90.69	126.92	-36.22	104.49	250.08	-145.59	109.37	110.26	82.08	28.18	115.21	166.12	-50.91	79.10
1993M2	88.56	126.27	-37.71	103.63	246.81	-143.18	105.47	112.92	82.65	30.27	117.02	162.95	-45.93	76.20
1993M3	88.95	125.75	-36.80	103.18	243.78	-140.60	103.80	112.42	83.14	29.28	116.00	159.64	-43.64	72.93
1993M4	87.87	125.19	-37.32	104.18	240.63	-136.46	99.14	113.81	83.66	30.14	118.56	156.47	-37.91	68.05
1993M5	86.00	124.60	-38.60	103.29	237.61	-134.32	95.72	116.27	84.22	32.05	120.10	153.26	-33.16	65.21
1993M6	85.43	124.00	-38.57	101.11	234.52	-133.41	94.83	117.05	84.80	32.25	118.35	150.35	-32.00	64.25
1993M7	85.33	123.43	-38.10	99.28	231.40	-132.12	94.01	117.20	85.36	31.84	116.35	147.52	-31.17	63.01
1993M8	86.13	122.79	-36.67	100.31	228.21	-127.90	91.24	116.11	85.96	30.15	116.47	144.61	-28.14	58.29
1993M9	86.25	122.14	-35.89	100.78	225.03	-124.25	88.36	115.94	86.56	29.38	116.84	141.94	-25.10	54.48
1993M10	84.45	121.45	-36.99	99.61	221.87	-122.26	85.27	118.41	87.21	31.20	117.95	139.04	-21.09	52.29
1993M11	83.99	120.67	-36.68	98.09	218.70	-120.61	83.93	119.06	87.92	31.14	116.78	135.97	-19.19	50.32
1993M12	84.67	119.69	-35.01	97.84	215.47	-117.63	82.61	118.10	88.73	29.37	115.55	132.94	-17.39	46.77
1994M1	85.45	118.63	-33.19	98.17	212.12	-113.95	80.76	117.03	89.56	27.48	114.89	132.45	-17.56	45.03
1994M2	85.14	117.43	-32.29	99.20	208.34	-109.14	76.85	117.46	90.46	27.00	116.52	132.03	-15.52	42.52
1994M3	87.03	116.43	-29.41	100.55	204.93	-104.39	74.98	114.91	91.24	23.67	115.53	131.61	-16.08	39.75
1994M4	85.67	115.38	-29.71	100.56	201.61	-101.05	71.34	116.73	92.06	24.67	117.38	131.25	-13.87	38.54
1994M5	86.05	114.47	-28.42	99.93	198.22	-98.29	69.88	116.21	92.82	23.39	116.13	130.89	-14.75	38.15
1994M6	87.26	113.66	-26.41	100.46	194.73	-94.27	67.87	114.60	93.49	21.11	115.13	130.51	-15.38	36.49
1994M7	82.67	112.89	-30.22	100.85	191.29	-90.45	60.23	120.96	94.22	26.74	121.99	130.31	-8.32	35.06
1994M8	87.30	112.17	-24.87	101.54	187.74	-86.20	61.33	114.55	94.85	19.69	116.31	129.99	-13.69	33.38
1994M9	91.49	111.39	-19.89	101.92	183.95	-82.03	62.14	109.30	95.47	13.83	111.40	129.58	-18.18	32.01
1994M10	95.69	110.32	-14.63	102.56	179.41	-76.86	62.23	104.50	96.17	8.33	107.17	129.09	-21.92	30.25
1994M11	98.55	109.46	-10.91	101.24	175.23	-73.99	63.08	101.47	96.75	4.72	102.73	128.53	-25.80	30.53
1994M12	99.15	108.51	-9.36	100.02	170.67	-70.65	61.29	100.85	97.36	3.49	100.88	127.96	-27.08	30.57
1995M1	100.00	107.50	-7.50	100.00	166.20	-66.20	58.70	100.00	97.99	2.01	100.00	127.39	-27.39	29.39
1995M2	101.74	106.49	-4.75	100.96	161.63	-60.67	55.93	98.29	98.60	-0.32	99.23	126.82	-27.59	27.28
1995M3	98.18	105.43	-7.25	103.43	157.02	-53.59	46.34	101.85	99.27	2.58	105.34	126.40	-21.06	23.64
1995M4	98.02	104.31	-6.29	105.56	152.37	-46.81	40.51	102.02	99.96	2.06	107.70	126.04	-18.35	20.41
1995M5	101.85	103.35	-1.50	105.93	147.87	-41.94	40.43	98.19	100.55	-2.37	104.01	125.63	-21.62	19.25
1995M6	102.42	102.21	0.22	106.29	143.28	-36.99	37.21	97.64	101.21	-3.57	103.78	125.22	-21.44	17.87
1995M7	102.73	101.09	1.63	106.22	138.89	-32.67	34.31	97.34	101.85	-4.50	103.40	124.83	-21.42	16.92
1995M8	102.56	100.39	2.18	104.16	135.28	-31.12	33.30	97.50	102.32	-4.82	101.56	124.41	-22.85	18.03

TABLE XIV (cont.)

Years - months	Observed AR/BR exchange rate	"Normal" AR/BR exchange rate	Moving avrg. AR/BR	Observed AR/"RoW" exchange rate	"Normal" AR/"RoW" exchange rate	Moving average AR/"RoW"	Comp. factor	Observed BR/AR exchange rate	"Normal" BR/AR exchange rate	Moving avrg. BR/AR	Observed BR/"RoW" exchange rate	"Normal" BR/"RoW" exchange rate	Moving average BR/"RoW"	Comp. factor
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1995M9	102.21	99.83	2.39	104.77	132.21	-27.44	29.83	97.83	102.72	-4.89	102.50	124.03	-21.53	16.64
1995M10	102.55	99.41	3.14	104.64	129.22	-24.58	27.72	97.51	103.04	-5.53	102.04	123.65	-21.61	16.07
1995M11	103.86	99.04	4.82	104.82	126.20	-21.38	26.20	96.28	103.32	-7.04	100.92	123.26	-22.34	15.30
1995M12	104.94	98.73	6.21	103.49	123.29	-19.80	26.01	95.29	103.57	-8.28	98.62	122.85	-24.23	15.96
1996M1	105.27	97.70	7.57	102.66	120.14	-17.47	25.04	95.00	104.15	-9.16	97.53	121.57	-24.04	14.88
1996M2	106.05	97.02	9.03	104.04	117.80	-13.76	22.78	94.30	104.59	-10.29	98.11	120.42	-22.31	12.02
1996M3	106.44	96.50	9.94	104.95	116.18	-11.23	21.17	93.95	104.94	-10.99	98.60	119.62	-21.02	10.03
1996M4	107.28	96.17	11.11	103.97	114.69	-10.72	21.83	93.21	105.18	-11.97	96.91	118.70	-21.78	9.82
1996M5	108.13	95.91	12.22	103.87	113.24	-9.37	21.59	92.48	105.38	-12.90	96.06	117.73	-21.67	8.77
1996M6	108.76	95.67	13.09	103.99	111.93	-7.94	21.03	91.95	105.56	-13.61	95.61	116.85	-21.24	7.63
1996M7	108.76	95.45	13.32	104.53	110.67	-6.15	19.46	91.94	105.73	-13.78	96.10	116.00	-19.89	6.11
1996M8	108.63	95.20	13.43	104.92	109.43	-4.51	17.94	92.06	105.91	-13.85	96.59	115.19	-18.60	4.74
1996M9	107.96	94.98	12.98	104.23	108.17	-3.93	16.91	92.62	106.08	-13.45	96.54	114.31	-17.77	4.32
1996M10	107.15	95.01	12.13	103.39	106.90	-3.51	15.64	93.33	106.05	-12.72	96.49	113.08	-16.59	3.87
1996M11	107.09	95.07	12.02	103.57	105.59	-2.02	14.03	93.38	106.00	-12.62	96.71	111.76	-15.05	2.43
1996M12	107.19	95.21	11.98	103.01	104.17	-1.16	13.14	93.30	105.87	-12.57	96.10	110.21	-14.10	1.53
1997M1	107.37	95.39	11.97	101.02	103.90	-2.87	14.85	93.14	105.69	-12.55	94.09	109.74	-15.64	3.09
1997M2	106.84	95.59	11.24	99.43	103.64	-4.22	15.46	93.60	105.49	-11.89	93.07	109.28	-16.21	4.32
1997M3	107.16	95.84	11.31	99.50	103.44	-3.93	15.25	93.32	105.24	-11.92	92.86	108.79	-15.94	4.02
1997M4	108.03	96.15	11.88	99.29	103.25	-3.96	15.84	92.57	104.93	-12.36	91.91	108.27	-16.37	4.01
1997M5	107.81	96.40	11.41	100.89	103.07	-2.18	13.59	92.76	104.67	-11.92	93.58	107.83	-14.24	2.32
1997M6	107.51	96.65	10.86	100.31	102.87	-2.56	13.42	93.01	104.42	-11.41	93.30	107.36	-14.06	2.65
1997M7	106.90	96.91	10.00	98.38	102.65	-4.26	14.26	93.54	104.16	-10.62	92.03	106.86	-14.83	4.21
1997M8	106.00	97.17	8.83	98.38	102.42	-4.05	12.87	94.34	103.88	-9.54	92.81	106.33	-13.53	3.98
1997M9	105.56	97.43	8.13	99.52	102.23	-2.71	10.84	94.73	103.61	-8.87	94.28	105.85	-11.57	2.70
1997M10	105.34	97.70	7.64	100.30	102.11	-1.81	9.45	94.93	103.32	-8.39	95.21	105.42	-10.20	1.82
1997M11	105.04	98.01	7.03	98.84	102.00	-3.16	10.19	95.20	102.98	-7.77	94.10	104.96	-10.86	3.09
1997M12	104.71	98.30	6.42	96.36	101.87	-5.52	11.94	95.50	102.67	-7.17	92.02	104.52	-12.50	5.33
1998M1	104.20	98.52	5.68	95.67	101.73	-6.06	11.74	95.97	102.43	-6.46	91.81	104.13	-12.31	5.85
1998M2	103.67	98.77	4.89	95.56	101.59	-6.03	10.93	96.46	102.15	-5.69	92.18	103.71	-11.53	5.84
1998M3	103.56	99.02	4.54	95.61	101.47	-5.85	10.39	96.56	101.89	-5.33	92.33	103.32	-10.99	5.66
1998M4	103.11	99.27	3.84	96.64	101.34	-4.70	8.53	96.99	101.61	-4.62	93.73	102.90	-9.17	4.55
1998M5	103.04	99.56	3.49	96.58	101.23	-4.64	8.13	97.05	101.29	-4.24	93.73	102.46	-8.73	4.49
1998M6	102.33	99.84	2.49	95.74	101.14	-5.40	7.89	97.72	100.97	-3.24	93.56	102.05	-8.49	5.24
1998M7	101.28	100.10	1.18	95.74	101.08	-5.34	6.52	98.73	100.66	-1.93	94.53	101.69	-7.16	5.23
1998M8	99.86	100.33	-0.48	95.34	101.00	-5.66	5.18	100.14	100.39	-0.25	95.48	101.34	-5.86	5.61
1998M9	98.87	100.54	-1.67	97.89	100.95	-3.06	1.39	101.14	100.15	0.99	99.00	101.04	-2.04	3.03
1998M10	98.61	100.78	-2.17	101.31	100.98	0.33	-2.50	101.41	99.86	1.54	102.73	100.79	1.95	-0.40
1998M11	98.29	101.02	-2.73	100.14	101.01	-0.87	-1.85	101.74	99.57	2.16	101.88	100.54	1.34	0.82
1998M12	97.69	101.23	-3.54	101.39	101.07	0.32	-3.86	102.36	99.31	3.05	103.79	100.34	3.44	-0.40
1999M1	78.59	101.12	-22.53	101.05	101.12	-0.06	-22.46	127.24	99.48	27.76	128.58	100.57	28.01	-0.25
1999M2	62.43	100.74	-38.31	99.64	101.13	-1.49	-36.82	160.18	100.19	59.99	159.61	101.29	58.32	1.67
1999M3	64.16	100.36	-36.20	99.74	101.11	-1.37	-34.83	155.87	100.88	54.99	155.46	101.95	53.51	1.48
1999M4	72.32	100.14	-27.82	100.20	101.11	-0.91	-26.91	138.28	101.24	37.05	138.56	102.31	36.25	0.79
1999M5	73.34	99.93	-26.59	99.78	101.10	-1.32	-25.26	136.36	101.57	34.78	136.06	102.64	33.42	1.37

TABLE XIV (CONT.)

Years - months	Observed AR/BR exchange rate	"Normal" AR/BR exchange rate	Moving avrg. AR/BR	Observed AR/"RoW" exchange rate	"Normal" AR/"RoW" exchange rate	Moving average AR/"RoW"	Comp. factor	Observed BR/AR exchange rate	"Normal" BR/AR exchange rate	Moving avrg. BR/AR	Observed BR/"RoW" exchange rate	"Normal" BR/"RoW" exchange rate	Moving average BR/"RoW"	Comp. factor
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1999M6	70.06	99.64	-29.58	99.30	101.08	-1.78	-27.80	142.74	102.04	40.70	141.74	103.08	38.66	2.03
1999M7	69.35	99.42	-30.07	100.01	101.07	-1.06	-29.01	144.20	102.43	41.77	144.22	103.45	40.76	1.01
1999M8	67.00	99.08	-32.07	101.44	101.07	0.37	-32.45	149.24	103.01	46.24	151.40	104.04	47.36	-1.12
1999M9	66.71	97.03	-30.32	102.13	99.35	2.78	-33.10	149.90	101.97	47.93	153.09	102.95	50.14	-2.21
1999M10	65.09	96.53	-31.44	102.40	99.35	3.05	-34.49	153.64	102.77	50.87	157.32	103.77	53.55	-2.68
1999M11	67.64	96.02	-28.38	102.32	99.37	2.95	-31.34	147.84	103.53	44.31	151.27	104.57	46.70	-2.39
1999M12	70.90	95.56	-24.66	101.48	99.39	2.09	-26.75	141.04	104.19	36.85	143.13	105.26	37.87	-1.02
2000M1	72.29	95.11	-22.81	99.94	99.39	0.55	-23.37	138.32	104.82	33.50	138.24	105.89	32.36	1.15
2000M2	73.53	94.64	-21.11	99.43	99.36	0.07	-21.18	136.00	105.44	30.56	135.23	106.48	28.75	1.81
2000M3	75.49	94.27	-18.78	100.18	99.31	0.87	-19.65	132.46	105.94	26.52	132.71	106.93	25.78	0.74
2000M4	74.77	93.89	-19.12	98.86	99.20	-0.34	-18.78	133.74	106.46	27.28	132.21	107.33	24.88	2.39
2000M5	72.61	93.41	-20.80	99.22	99.09	0.13	-20.93	137.71	107.11	30.61	136.64	107.86	28.78	1.83
2000M6	73.70	92.94	-19.24	101.10	99.01	2.10	-21.34	135.69	107.73	27.96	137.18	108.41	28.77	-0.81
2000M7	75.02	92.49	-17.47	99.49	98.89	0.60	-18.07	133.30	108.32	24.98	132.63	108.89	23.74	1.24
2000M8	75.69	92.05	-16.36	98.47	98.80	-0.33	-16.03	132.13	108.89	23.24	130.11	109.36	20.75	2.49
2000M9	74.72	91.59	-16.88	97.57	98.68	-1.11	-15.76	133.84	109.48	24.36	130.59	109.82	20.77	3.59
2000M10	73.09	91.11	-18.02	96.07	98.54	-2.48	-15.54	136.82	110.12	26.69	131.43	110.30	21.13	5.56
2000M11	71.09	90.57	-19.48	97.61	98.42	-0.82	-18.66	140.66	110.85	29.81	137.30	110.90	26.40	3.41
2000M12	71.09	90.02	-18.93	99.43	98.36	1.07	-20.00	140.67	111.60	29.08	139.87	111.57	28.29	0.79
2001M1	65.20	89.36	-24.17	99.12	98.30	0.82	-24.99	153.38	112.55	40.83	152.04	112.47	39.57	1.26
2001M2	61.24	88.63	-27.38	99.05	98.22	0.83	-28.22	163.28	113.68	49.60	161.74	113.51	48.23	1.37
2001M3	61.37	87.89	-26.52	96.58	98.08	-1.50	-25.01	162.94	114.81	48.13	157.37	114.47	42.89	5.23
2001M4	58.59	87.09	-28.50	96.36	97.96	-1.60	-26.91	170.68	116.08	54.60	164.47	115.58	48.89	5.71
2001M5	55.89	86.23	-30.34	95.90	97.83	-1.92	-28.42	178.91	117.50	61.41	171.58	116.82	54.76	6.65
2001M6	54.70	85.35	-30.64	95.73	97.69	-1.96	-28.69	182.80	118.99	63.81	175.00	118.12	56.88	6.93
2001M7	53.59	84.44	-30.85	96.24	97.55	-1.31	-29.54	186.61	120.54	66.06	179.59	119.49	60.11	5.96
2001M8	53.28	83.54	-30.25	98.85	97.45	1.39	-31.65	187.67	122.11	65.56	185.51	120.95	64.57	1.00
2001M9	50.28	82.59	-32.31	98.65	97.36	1.29	-33.60	198.90	123.85	75.05	196.22	122.58	73.64	1.41
2001M10	49.61	81.65	-32.03	98.05	97.28	0.77	-32.80	201.56	125.63	75.93	197.62	124.24	73.38	2.55
2001M11	54.08	80.78	-26.70	97.40	97.17	0.23	-26.93	184.92	127.13	57.79	180.11	125.61	54.51	3.28
2001M12	58.61	79.98	-21.37	96.43	97.07	-0.64	-20.73	170.62	128.39	42.23	164.53	126.73	37.80	4.43
2002M1	79.95	79.53	0.42	131.28	97.56	33.72	-33.29	125.07	128.92	-3.85	164.19	127.88	36.32	-40.16
2002M2	114.38	79.66	34.72	189.28	99.04	90.25	-55.53	87.43	128.82	-41.39	165.49	129.06	36.42	-77.81
2002M3	160.13	80.52	79.60	259.63	101.66	157.97	-78.36	62.45	128.31	-65.86	162.14	130.20	31.94	-97.80
2002M4	166.27	81.48	84.79	269.41	104.45	164.96	-80.17	60.14	127.78	-67.64	162.03	131.35	30.68	-98.32
2002M5	162.72	82.38	80.34	283.58	107.44	176.14	-95.79	61.45	127.27	-65.81	174.27	132.67	41.60	-107.41
2002M6	163.94	83.30	80.64	294.73	110.63	184.10	-103.46	61.00	126.74	-65.74	179.78	134.09	45.69	-111.43
2002M7	137.57	83.81	53.76	277.55	113.57	163.99	-110.23	72.69	126.40	-53.71	201.76	135.89	65.87	-119.58

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