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IS *EMU* A BLUEPRINT FOR MERCOSUR?*

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ABSTRACT

In this paper, we explore the advantages and disadvantages of a monetary union between Mercosur countries in light of the recent European experience. We address the issue both from the perspective of the traditional optimal currency area (OCA) theory as well as from the approach that emphasizes the credibility gains that a monetary union can provide for inflation prone economies. We find that, at the current stage, the standard OCA preconditions for a currency area are not present in Mercosur. On the other hand, from a credibility standpoint, the European model highlights the lack of an anchor country in the region, therefore suggesting the convenience of a monetary union that includes the U.S. We also examine the case of full dollarization, which we believe is the alternative to a Pan-American currency union that most closely resembles the European model.

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INTRODUCTION

This paper tries to determine whether it makes sense for Mercosur countries to think about a monetary union similar to that implemented in Europe. To address this question, we apply two approaches to the issue. First we analyze the issues identified by the traditional optimal currency area (OCA) theory as important for assessing whether monetary integration is convenient or not. In light of this theory we compare Mercosur with today's Europe as well as with Europe when the possibility of a monetary union started to be considered. From the analysis, we conclude that Mercosur is far from achieving the necessary pre-requisites for a monetary union, understanding as such the establishment of a common currency for member countries. However, this should not be surprising. As monetary union is always initially a long-run objective, a more appropriate question is whether it makes sense to have a monetary union for Mercosur countries, after convergence in key macroeconomic variables is achieved. If so, do we need to think of a treaty such as Maastricht that fixes criteria for fiscal compatibility to be reached within say, 10 or 15 years? Or is it better to create supranational institutions that can foster the transition towards coordinated policies? To motivate our negative answer to these questions it does not suffice to show that the European Union (EU) is now in better conditions to introduce a common currency than Mercosur: we should answer why Mercosur can not reach an equivalently favorable set of preconditions in the medium or long term. In this regard we will argue that some of the benefits that motivated the European process are missing the case of Mercosur.

The second approach relies on the credibility gains that a monetary union can provide for inflation prone economies. We will emphasize an alternative lesson that could be extracted from the European experience, namely that monetary integration should take place when at least one member country can provide gains in terms of credibility to the member countries. According to this criterion, and in light of the recent experience of some Mercosur countries, we believe that the U.S. is the natural candidate to play this role in the region.

The paper is organized as follows. Section I discusses briefly the process of integration among Mercosur countries. Section II makes an inventory of costs and benefits of a common independent regional currency. In this section we discuss similarities and differences with Europe. Finally, section III concludes with an assessment of the project of a common currency and a summary of the lesson from the European experience.

1. THE ROAD TO MERCOSUR

The process of economic integration between Argentina and Brazil can be divided into two stages. The first stage fostered bilateral integration at a sector level while the second attempted global integration. The first stage started with

the "Argentine-Brazilian Cooperation and Integration Act" signed by Argentina and Brazil in July 1986, which removed trade barriers for certain sectors[1].

The second stage started in November 1988 with the signing of the "Integration Cooperation and Development Treaty". This treaty not only pursued the establishment of a free trade area between the countries but also mentioned the importance of gradually coordinating monetary, fiscal and exchange rate policies. In July 1990, the date for the creation of a free trade area between Argentina and Brazil was pushed up to late 1994. However, in 1991, the Asunción Treaty started the process for the creation of a free trade zone between Argentina, Brazil, Paraguay and Uruguay also to be known as Mercosur. The Treaty also established the objective of a Common Market, which would be effective on January 1st 1995. The "Treaty of Asuncion" agreed on an initial 40 percent cut in tariffs between the member countries that became effective June 1991. This would be complemented with reductions each half-year in order to reach a non-tariff situation by 1995, the moment agreed for the beginning of the Common Market, (i.e. when a common external tariff would also be established). Mercosur had among its objectives the free movement of goods, services and productive factors between member countries, the setting of a common external tariff, the adoption of a common trade policy regarding the rest of the countries and the coordination of macroeconomic and sector policies.

In December 1994, the Ouro Preto Summit modified the pre-agreed schedule, with member countries agreeing to implement a customs union previous to the implementation of a common market. The customs union began to operate on January 1st 1995 with the elimination of tariff and non-tariff barriers among the members, together with the setting of a common external tariff. However, a transitory schedule was established by which certain products traded within Mercosur would continue to be subject to tariffs. As mentioned in Paglieri and Sanguinetti (1998) Argentina included 223 categories in this list, out of which 57 percent corresponded to the steel industry, 19 percent to the textile sector, 11 percent to paper and 6 percent to shoes. Brazil included 29 items, with products derived from wood, wines, and petroleum among others. Paraguay had 272 categories, the majority belonging to textiles, agricultural products, wood and steel. Finally, Uruguay was the country that introduced the most exceptions to the list, reaching a total of 1018 products, 22 percent of which corresponded to the textile sector, 16 percent to chemical and pharmaceutical products and 8 percent to electrical machinery and metallurgic products.

In 1995, the countries agreed on a schedule for the phasing out of these tariffs, whereby by year 2001, there would be full free trade among the partners. This schedule established that the countries would have to reduce the tariffs up to

[1] Notice that the integration between Argentina and Brasil begins as in Europe, i.e. free trade was not automatic but began slowly by allowing some specific goods to be traded freely. In the case of the EEC, trade integration began in 1951 with the creation of a free trade zone for coal and steel products.

25 percent by 1996, up to 50 percent by 1997, up to 75 percent by 1998. A 100 percent reduction would be reached by 1999, except Paraguay and Uruguay that were given an extra year.

In addition each country was granted about 300 products to be included in a list exempted from the common external tariff. These also had a pre-established schedule by which they had to be eliminated by 2001 except for Paraguay, who has to converge to the common external tariff by 2006. So, in 2006 all exceptions had to disappear and the customs union would be in full operation.

The sugar and automobile sectors were left outside all of these agreements, mainly due to the significant differences in national policies. Special working teams have been created in order to foster convergence of policies and liberalize these industries in the near future.

In the Ouro Preto summit, the "Ouro Preto Protocol" was signed, setting the institutional structure of Mercosur[2].

After the constitution of Mercosur, in 1996 Chile and Bolivia were incorporated as associated members, i.e., they negotiate bilaterally with Mercosur. The negotiations between Mercosur and these countries aim at their full participation in a free trade zone with Mercosur by 2006. However, the incorporation of Chile as a full member in 1999 is still being discussed. Table 1 summarizes the history of Mercosur.

[2] The different administrative entities created were:

1. *The Common Market Council* is the entity in charge of the integration process and has to make decisions regarding the application of the Asuncion Treaty; it is integrated by the Foreign Affairs and Finance Ministers of each country;
2. *The Common Market Group*: suggests projects to the Common Market Council;
3. *The Mercosur Trade Commission*: assists the Common Market Group and monitors the compliance with previously agreed trade policy;
4. *The Joint Parliamentary Commission*: sends recommendations to the Common Market Council;
5. *The Socio-Economic Consulting Forum*: represents social and economic sectors and has a consultative function; and
6. *The Mercosur Administrative Secretariat*: its functions are to assist all the other institutions of Mercosur as well as being in charge of the publication and dissemination of the norms adopted by Mercosur.

For documentation on the composition of these group see http://www.mercosur.org.

TABLE 1. THE HISTORY OF MERCOSUR

1986	Signing of the *Argentine- Brazilian Cooperation and Integration Act*
1988	Signing of the *Cooperation and Development Treaty* between Argentina and Brazil.
1990	Argentina and Brazil agree to put forwards the date for the establishment of a free trade area for the end of 1994. Paraguay and Uruguay want to join the treaty.
1991	Signing of the Asunción Treaty between Argentina, Brazil, Paraguay and Uruguay creating the Common Market of the South (Mercosur). 40% reduction in tariffs among member countries and schedule for reaching a 100% reduction in tariffs by 1/1/95.
1994	The Ouro Preto Protocol establishes the institutions in Mercosur.
1995	The Customs Union starts within Mercosur, although tariffs are still applied to some goods and trade of sugar and automobiles are subject to special regimes.
1996	Association of Bolivia and Chile with Mercosur.
2000	Complete free trade zone between Argentina y Brazil.
2001	A complete free trade zone between all members of Mercosur (expect Bolivia and Chile) and a common external tariff between Argentina, Brazil and Uruguay.
2006	Argentina, Brazil, Paraguay and Uruguay will have a common external tariff for all their goods, thus completing the customs union. There will be a free trade zone between Bolivia, Chile and Mercosur.

2. MONETARY COORDINATION IN MERCOSUR

Suggested initially by the Argentine authorities at the Mercosur presidential meeting of April 1997, the need and the possibility of having a common currency for Mercosur countries has been discussed in policy circles for some time[3]. To discuss benefits and costs of participating in a common currency we consider two distinct views. First we discuss the traditional optimal currency areas (OCA) theory, which compares the benefits in terms of smaller volatility of exchange rates and lower transactions costs with the costs of giving up the exchange rate as an instrument for macroeconomic adjustment.

3 More recently, after the devaluation of the Real, President Menem has also suggested the adoption of the US dollar as legal tender.

We use EMU as a benchmark in order to analyze whether the prerequisites are satisfied. However, it is not enough to evaluate where Mercosur stands today, given that we know that the current situation will be less favorable to monetary integration than the European status quo. What this section discusses is whether the potential costs and benefits of integration are similar to those present at the outset of the European experience, how far Mercosur countries are from attaining the necessary conditions for a successful implementation of a common currency, and how feasible the achievement of these conditions looks in the present context.

The OCA theory indicates that the benefits of a monetary union are related to the degree of economic integration of the countries, with the larger the trade between the economies the higher the benefits of a common currency. Therefore, we devote the first subsections to study the degree of interdependence within Mercosur, always with the European experience as a reference. We then examine the degree of factor mobility within the region, beginning with the labor market and continuing with capital markets and the financial sector. Next, we address the issue of the symmetry of shocks between countries, and speculate about the possibility of convergence in the fiscal area, discussing the possible role of fiscal policy as a way of smoothing regional shocks.

Second, we discuss how a monetary union may enhance a country's credibility, by pegging to a country that has a well-established reputation for monetary stability. In this view the country benefits from a reduction in interest rates and capital flow volatility. We use the theory as applied to the establishment of a common currency for Mercosur countries with an independent monetary policy. We then discuss the potential credibility gains from monetary union, evaluating there other forms of monetary integration including dollarization. Here is where we found the largest differences with Europe and where the most important lessons for Mercosur can be learnt.

2.1. An application of OCA to Mercosur

2.1.1 Interdependence within Mercosur

The first important characteristic regarding trade flows within Mercosur countries is that the degree of interdependence is much lower than it was for EMU members even at the time of the "Werner Report" (when monetary union was suggested for the first time). If we consider each country's exports relative to its commercial partners (measured as percentage of GDP) we can observe in Table 2 that for Mercosur this percentage (4.1% in 1997) is significantly lower than the 9% of the EEC in 1970, and the 14% corresponding to the year in which the Maastricht Treaty was signed[4]. In the case of Brazil, sales to its partner's only amount to 1.4% of GDP, while for the smallest countries, Paraguay and Uruguay, exports to Mercosur are more important, surpassing in both cases 6% of GDP.

4 These numbers include trade with Bolivia and Chile.

TABLE 2
EXPORTS TO THE MEMBER COUNTRIES AS A PERCENTAGE OF GDP

	1991	1992	1993	1994	1995	1996	1997
Argentina	1.4%	1.3%	1.7%	2.2%	3.3%	3.4%	3.3%
Brazil	0.8%	1.3%	1.6%	1.3%	1.1%	1.1%	1.4%
Paraguay	4.6%	4.2%	4.6%	5.9%	5.6%	6.7%	7.2%
Uruguay	5.7%	5.3%	5.3%	5.8%	5.7%	6.3%	6.3%
Bolivia	4.9%	2.9%	2.6%	3.1%	2.6%	2.9%	3.0%
Chile	2.5%	2.7%	2.7%	3.0%	2.9%	2.7%	2.7%
Average	3.3%	3.0%	3.1%	3.5%	3.6%	3.8%	4.1%
Weighted Average (x GDP)	1.3%	1.7%	1.9%	1.9%	2.0%	2.1%	2.4%

Source: *Direction of Trade Statistics*, IMF.

These low numbers are to a great extent due to the closed nature of Mercosur economies. For instance, if we look at exports as a percentage of GDP, we can see that Mercosur countries are much less open than their European counterparts. Table 3 shows the participation of exports in GDP for Mercosur countries and compares them to that of selected European countries. While for Mercosur exports represent 13% of GDP, the European equivalent reaches 37%.

TABLE 3
EXPORTS AS A PERCENTAGE OF GDP

	1991	1992	1993	1994	1995	1996	1997
Argentina	6.3%	5.3%	5.1%	5.6%	7.5%	8.0%	7.6%
Brazil	7.8%	9.2%	8.8%	8.0%	6.6%	6.2%	6.6%
Paraguay	11.8%	10.2%	10.5%	10.4%	10.2%	10.9%	13.8%
Uruguay	16.0%	14.4%	11.9%	11.8%	11.7%	12.5%	13.7%
Bolivia	15.9%	12.6%	12.7%	17.3%	16.4%	15.8%	14.4%
Chile	25.8%	23.9%	20.7%	22.8%	24.6%	20.8%	22.0%
Average	13.9%	12.6%	11.6%	12.6%	12.8%	12.4%	13.0%
Belgium	59%	55%	56%	59%	62%	62%	68%
France	18%	18%	17%	18%	19%	19%	21%
Germany	23%	21%	20%	21%	22%	22%	24%
Holland	46%	44%	44%	46%	49%	50%	53%
Italy	15%	15%	17%	19%	22%	21%	21%
Average	32%	30%	31%	32%	35%	35%	37%

Source: *Direction of Trade Statistics*, IMF.

Yet in spite of these small numbers relative to GDP, during the period 1991-1997 trade between the two largest partners, Argentina and Brazil, increased dramatically (nearly 400%). This growth in regional trade, however small, was

sufficient to increase the participation of partners in total *exports*, as indicated in Table 4. By 1997 the participation of partners in each country's exports exceeded 60% for Paraguay, reached 35% for Argentina and amounted to 18% for Brazil[5].

TABLE 4
MEMBER COUNTRY'S SHARE IN TOTAL EXPORTS

(Only full members)

	1991	1992	1993	1994	1995	1996	1997
Argentina	16.5%	19.0%	28.1%	29.1%	32.0%	33.0%	35.5%
Brazil	7.3%	11.1%	13.9%	13.6%	13.2%	15.4%	17.7%
Paraguay	32.7%	34.7%	37.4%	52.0%	57.5%	63.3%	62.1%
Uruguay	35.1%	33.6%	41.6%	46.9%	46.9%	48.1%	49.6%

Source: *Direction of Trade Statistics*, IMF.

(All countries)

	1991	1992	1993	1994	1995	1996	1997
Argentina	21.6%	25.1%	34.0%	36.3%	40.0%	41.6%	44.1%
Brazil	10.3%	14.4%	17.9%	16.9%	16.9%	18.7%	21.3%
Paraguay	39.0%	41.7%	43.2%	56.4%	61.3%	66.0%	66.0%
Uruguay	36.6%	36.9%	44.8%	49.2%	48.9%	50.0%	51.8%
Bolivia	40.0%	22.9%	20.8%	18.2%	16.2%	18.3%	20.8%
Chile	9.8%	11.2%	13.1%	13.0%	11.9%	12.7%	12.3%

Source: *Direction of Trade Statistics*, IMF.

During the period when Mercosur was being implemented countries were also experiencing strong trade liberalization episodes and as a result of availability of foreign funds also increased substantially their current account deficits. As a result growth in trade within Mercosur was due to two effects: Trade liberalization (regional and global) and lower cost of borrowing in the international financial market.

Even without any preferential regime, and only due to transportation costs, when total trade increases one should expect an increase in the participation of imports from neighboring countries[6]. If the process of unilateral opening is accompanied by an even stronger opening at a regional level (which corresponds to the situation that we are analyzing), the commercial partners should increase even more their participation in total imports. However, if trade between Argentina and Brazil is analyzed closely, we can observe that this expected increase in the

5 In Table 5 the numbers include Chile and Bolivia.

6 See Frankel, Stein and Wei (1997) and Garriga and Sanguinetti (1995, 1996).

participation of the partners has not taken place. The data is presented in Table 5. There we show that the participation of Mercosur partners in total imports grew significantly only for Paraguay, it exhibited only a moderate 4% growth for Brazil and Argentina and remained stable for Uruguay.

TABLE 5
SHARE OF PARTNER COUNTRIES IMPORTS IN TOTAL IMPORTS
(Only full members)

	1991	1992	1993	1994	1995	1996	1997
Argentina	21.0%	25.3%	25.1%	23.1%	22.7%	24.4%	24.8%
Brazil	10.4%	10.9%	12.5%	13.9%	13.8%	15.4%	15.7%
Paraguay	30.0%	37.2%	37.5%	41.4%	40.4%	54.3%	50.2%
Uruguay	42.3%	41.4%	48.1%	49.2%	46.1%	44.0%	43.5%

Source: *Direction of Trade Statistics*, IMF.

(All countries)

	1991	1992	1993	1994	1995	1996	1997
Argentina	26.8%	30.5%	29.9%	27.5%	25.6%	27.3%	27.5%
Brazil	12.8%	13.4%	14.3%	15.7%	16.1%	17.2%	17.3%
Paraguay	32.8%	40.0%	40.4%	45.1%	43.1%	56.6%	51.9%
Uruguay	44.0%	43.1%	49.9%	50.8%	47.9%	45.7%	45.3%
Bolivia	32.6%	30.7%	31.5%	32.4%	28.7%	26.9%	32.0%
Chile	17.6%	17.8%	16.2%	17.9%	17.5%	16.3%	17.2%

Source: *Direction of Trade Statistics*, IMF.

The fact that countries have simultaneously increased the participation of Mercosur members in exports, with relatively no change in their participation in total imports is used by Heymann and Navajas (1998) to conclude that the higher trade intensity between Argentina and Brazil in exports was not due to increased intensity in the purchases by the other countries but to both countries' significant increase in total trade. In particular, in order to explain this apparent contradiction it suffices to show that imports of member countries increase at a higher rate than exports[7]. As already seen, data regarding export and import growth for the Mercosur countries presented in Table 6 support this argument. This allows us to conclude that the increase in the regional share in exports was not due to the reorientation of sales to member countries but to the fact that the member countries increased their

7 Consider two countries A and B. If the share of country A in B´s total imports remains constant, and B´s imports grow at a rate faster than that of country A exports, this implies that the exports of A to B will grow at a rate faster than that of total exports, and that the share of country B in country´s A exports has to increase. In fact, one should expect that for most trade partners of Mercosur countries, they have increased their share in these countries exports.

imports significantly. As Garriga and Sanguinetti (1995) mention, even though Mercosur has been an important variable in order to explain regional trade increases, unilateral opening and geographic proximity of member countries have been the main determinants of regional trade.

TABLE 6
GLOBAL EXPORT AND IMPORT GROWTH (1991-1997)

	Export growth (1991-1997)	Import growth (1991-1997)
Argentina	106%	279%
Brazil	68%	192%
Paraguay	42%	123%
Uruguay	70%	127%
Bolivia	33%	62%
Chile	89%	121%

Source: *International Financial Statistics,* IMF.

In brief, the evidence suggests that Mercosur has not bring about trade reorientation but has instead simply accompanied the opening process that the economies of the region experienced during this period. In order to explain the modest effect of Mercosur on trade, Leamer (1998) compares the countries factor endowments, concluding that these are too similar (especially those of Argentina and Brazil) to obtain much benefits from trade. Thus, the expected long-run effect of Mercosur on regional trade appears to be limited[8].

This conclusion is important when evaluating whether Mercosur has stimulated real integration, and whether a deepening of this integration process is to be expected. We believe that the analysis of the evolution of import participation suggests otherwise. On the other hand, the increase in export shares to Mercosur countries, which is often mentioned as an indicator of the success of Mercosur in promoting regional trade, could be difficult to maintain if import growth turned negative in the future.

On a positive note, it should be stressed that Mercosur was never conceived as a trading bloc that would close itself to the rest of the world. On the contrary, Mercosur was designed as a strategy of gradual unilateral opening to third countries (which had started previous to Mercosur but that consolidated with the average common external tariff of 12.5%) as well as a policy of preferential access to neighbors[9]. This is a significant difference with the European integration process,

8 He finds this result to be strikingly different than the role played by Mexico within NAFTA.

9 For Argentina the common external tariff implied a marginal increase in trade protection, but is substantially lower than that negotiated with the WTO. See Garriga y Sanguinetti (1996). Non tariff barriers were also slashed during the several negotiation rounds leading to the implementation of Mercosur.

given that the EEC seems to have worked the opposite way, i.e., making intra-regional trade cheaper while increasing extra-regional barriers.

Summarizing, we conclude that the evidence indicates that Mercosur had a limited effect on regional trade, probably due to the limited gains to be derived from trade between countries with very similar factor endowments.

2.1.2. Labor markets

The theory of the OCA mentions factor mobility and integration as important prerequisites for the creation of a monetary union. Integrated labor markets are important because if productivity or terms of trade shocks affect one country generating a fall in output and a decrease in real wages, workers in this country would migrate to other countries of the union. This, in turn, would lower the wages abroad and increase them in the country affected by the shock. This process continues until wages are equalized. In this way, factor mobility leads to efficiency gains given that each worker is employed where it is more productive, distributing the impact of the shock among all the members of the union.

The labor market therefore plays a crucial role in allowing for a successful monetary union, as wage flexibility and labor force mobility eases the adjustment to regional shocks. It is a well known fact that labor mobility is much lower in Europe than in US, which combined with fairly rigid labor markets leads to substantially different unemployment rates across countries[10]. Highly divergent unemployment rates, in turn, put strain on the integration process. Mercosur is far behind even in comparison with Europe regarding cross-country labor flow liberalization. In the case of Mercosur, Article 1 of the Asunción Treaty established the free movement of productive factors as a common objective, including liberalization of labor flows. This objective, however, has not been achieved. So far, progress on this front limits to the creation of the Labor Sub-Group (Nº10) in charge of labor, employment and social security issues. Among the issues to be discussed are labor market conditions in each country and the co-ordination of Social Security systems. The significant differences in labor laws of the different countries makes it difficult to forecast deeper integration in the short run.

What are the odds in favor of reaching a deeper integration of labor markets? Barriers to labor market integration depend on cultural, language or legal barriers. Within Mercosur, cultural and language barriers are not significant given the common political-cultural origin of the region and the similarities between Spanish and Portuguese languages. However, legal restrictions may be harder to overcome in the short and medium-run. Countries could be willing to push ahead with further integration of labor markets if they believe this will not induce strong migration flows, in particular from poorer to wealthier countries. Table 7 shows the differences in income levels measured as the ratio in income per capita of the wealthiest and the poorest country in the region. The table shows that these differences are much

10 See Bottle (1995) and Eichengreen (1992) who states that mobility within the U.S. is two to three times as high as mobility within European States.

larger in Mercosur than in the European Union. While in Europe the ratio between the levels of income between Germany and Portugal is two and a half, income levels in Argentina are almost nine times higher than in Bolivia and four and a half times those in Paraguay. These differences clearly represent an obstacle for labor market integration, given that it is not likely that the wealthier countries would agree to an unrestricted opening of their markets to workers from other regions. The labor flow implications are different when relatively similar labor markets are integrated. Migration will remain limited and will mostly take place in response to regional shocks. When large income differences are present migration will be one way until relative incomes equalize. For some economies (in particular Argentina within Mercosur) this could be politically unacceptable.

TABLE 7
INCOME INEQUALITY
(US$ per capita)

	1991	1992	1993	1994	1995	1996	1997
Argentina (a)	5754	6852	7613	8215	8041	8444	8952
Bolivia (b)	794	818	812	826	906	948	1006
Paraguay (c)	1443	1449	1505	1666	1860	1924	N/D
Inequality (a/b)	7.25	8.38	9.37	9.94	8.87	8.91	8.90
Inequality (a/c)	3.99	4.73	5.06	4.93	4.32	4.38	N/D
Germany (d)	23535	23651	22510	26333	29550	27800	N/D
Portugal (e)	8330	8579	7701	9206	10519	10771	N/D
Inequality (d/e)	2.83	2.76	2.92	2.86	2.81	2.58	N/D

Source: *International Financial Statistics*, IMF.

(US$ per capita PPP)

	1994	1995	1996	1997
Argentina (a)	8720	8310	9530	9950
Bolivia (b)	2400	2540	2860	N/A
Paraguay (c)	3550	3650	3480	3870
Inequality (a/b)	3.63	3.27	3.33	N/A
Inequality (a/c)	2.46	2.28	2.74	2.57
Germany (d)	19480	20070	21110	21300
Portugal (e)	11970	12670	13450	13380
Inequality (d/e)	1.63	1.58	1.57	1.59

Source: *International Financial Statistics*, IMF.

If labor markets remain segmented, wage flexibility is the only mechanism by which we can have convergence in unemployment rates across countries. In this regard, Europe is far behind the US. First, real wage-unemployment elasticity is significantly lower in European countries than in the US. Second, increases in

the price level induce a larger response of nominal wages in Europe, indicating a higher level of indexation and therefore a smaller real wage adjustment to changes in the exchange rate (see Eichengreen (1992)).

In the case of Argentina and Brazil, wage indexation has been pervasive and the natural response to decades of extreme inflation. The degree of correlation between nominal wages and the price level has been extremely high in both countries. This fact seems consistent with the general perception that labor markets are very rigid in Latin American countries[11].

Figure 1 shows the evolution of real wages and unemployment for Argentina since the early 80´s. The evidence suggests that labor market rigidities were not binding during the high inflation period (through 1991), as the data exhibit very high real wage volatility together with relatively low unemployment rates. High inflation allowed real wages to be effectively very flexible as a fall in real wages only required that nominal wages increased at a lower rate than prices. This hypothesis requires some sort of rigidity in "nominal" wages, which, paradoxically, could have been provided by the rigidity of labor laws. Accordingly, stabilization led to a significant reduction in real wage flexibility[12], making the need for labor market flexibilization ever more pressing. Not surprisingly, unemployment has increased dramatically during the period of macroeconomic stabilization.

FIGURE 1
LABOR MARKET IN ARGENTINA

11 See, for example, Eichengreen (1998). The correlation between nominal wages and prices in the 90s was 1.12 for Argentina and 1.01 for Brazil.

12 For example, in Argentina, labor laws do not allow for nominal wage reductions.

Yet, how rigid are Latin American labor markets, relative to those in Europe? Galiani and Nickell (1998) provide an exhaustive survey of labor market institutions in Europe and Argentina. They conclude that there is substantial rigidity but that it is by no means clear that labor markets in Argentina are more rigid than its European counterparts. Table 8 summarizes their comparison which covers issues such as labor taxation, union coverage, employment protection and minimum wages[13]. In short, if factor mobility cannot be increased and labor markets are rigid, one should expect substantially divergent unemployment rates were a common currency to be established.

TABLE 8
LABOR MARKETS INSTITUTIONS

	Payroll tax rate (%) (1)	Union Density (2)	Ratio of minimum to average wage	Benefit replacement ratio (%) (3)	Benefits duration (years) (3)	Active labor market policies (4)
Austria	22.6	46.2	0.62	50	2.0	8.3
Belgium	21.5	51.2	0.60	60	4.0	14.6
Finland	25.5	72.0	0.52	63	2.0	16.4
France	38.8	9.8	0.50	57	3.0	8.8
Germany	23.0	32.9	0.55	63	4.0	25.7
Holland	27.5	25.5	0.55	70	2.0	6.9
Ireland	7.1	49.7	0.55	37	4.0	9.1
Italy	40.2	38.8	0.71	20	0.5	10.3
Portugal	14.5	31.8	0.45	65	0.8	18.8
Spain	33.2	11.0	0.32	70	3.5	4.7
EMU	23.1	33.5	0.50	51	2.4	11.2
Denmark	0.6	71.4	0.54	90	2.5	10.3
Sweden	37.8	82.5	0.52	80	1.2	59.3
Switzerland	14.5	26.6	N/A	70	1.0	8.2
UK	13.8	39.1	0.40	38	4.0	6.4
Argentina	33.0	45.0	0.31	50	1.0	0.6
Japan	16.5	25.4	N/A	60	0.5	4.3
USA	20.9	15.6	0.39	50	0.5	3.0

(1) Ratio of labor costs to wages. (2) Trade union members as a percentage of all wage/salary earners. (3) See Layard *et al.* (1991), annex 1.3, for precise details of this definitions. 4 years = indefinite. Argentina: the 50 percent applies only to the first four months, the maximum entitlement being for one year. (4) Active labor market spending as % of GDP / current unemployment.

Source: Galiani and Nickell (1998).

13 Camargo (1997) argues that there is substantial flexibility in Brazilian labor markets.

2.1.3. Capital markets

2.1.3.1. Access to international financial markets

During the sixties and seventies capital flow volatility slowed the integration process in Europe, as countries avoided exposure to these flows by closing the capital accounts. However, once it was clear that the economies would operate in a globalized environment, the opening of the capital market accelerated the process towards monetary union, given that speculative inflows were expected to disappear with a common currency. Therefore, capital flow liberalization may have worked as a trigger for undertaking monetary union. For Mercosur, capital flow volatility is even more significant than in Europe. During the nineties, the average standard deviation of the current account for Mercosur countries is 2% of GDP while for the European set it was only 0.34%.

Does a similar argument apply to Mercosur countries? Throughout the 90s, although with different institutional frameworks, the countries of the region have unilaterally opened to the international capital markets, and like in Europe in 1992, international financial markets have been subject to substantial volatility. This volatility is reflected in the spreads of sovereign debt instruments. Figure 2 shows the spreads over US treasuries of the Par bonds for Argentina and Brazil. What the graph reveals is the strong correlation in the performance of these instruments, suggesting that shocks tend to result from factors that are external (or common) to both countries. Only at the end of 1998, with the Brazilian devaluation, do the spreads of Brazil and Argentina diverge. In a similar vein, Burstein (1998) shows the existence of strong correlation in stock market returns between Argentina, Brazil and Mexico. In this context it is clear that regional liberalization of capital flows would have been largely irrelevant, as intra-regional flows are not quantitatively relevant as compared to flows with countries outside the region. Table 9 shows the amount of banking sector capital flows that Mercosur countries receive from some key financial centers outside the region. The data clearly show that intraregional capital flows are at most only marginal.

TABLE 9
BANK SECTOR CAPITAL FLOWS

	I. From EU				II. From US, Canada and Japan				From I+II			
	1994	1995	1996	1997	1994	1995	1996	1996	1994	1995	1996	1997
Argentina	55%	52%	52%	64%	36%	36%	37%	26%	91%	89%	89%	90%
Brazil	47%	46%	45%	48%	36%	36%	37%	31%	83%	82%	82%	79%
Paraguay	54%	46%	38%	56%	5%	14%	15%	6%	59%	60%	53%	62%
Uruguay	54%	60%	58%	64%	35%	31%	32%	24%	89%	91%	90%	88%
Bolivia	52%	30%	27%	32%	26%	32%	39%	37%	77%	62%	66%	68%
Chile	45%	43%	51%	54%	43%	44%	37%	33%	88%	87%	88%	87%
Average	49%	48%	48%	54%	33%	33%	33%	28%	82%	81%	81%	82%

Source: *Bank for International Settlements; http://www.bis.org*

FIGURE 2
SPREADS

If capital flows are strongly correlated for Mercosur economies and if we think monetary union as an independent common currency for the Mercosur countries, there seems to be no reason for anticipating a considerable decrease in capital flows volatility as a result of monetary integration. A common currency within Mercosur could eliminate speculative attacks regarding expectations of changes in parities between member countries. But, as already mentioned, intra-regional flows are quite limited and thus only changes in parities with external currencies can generate important speculative flows[14]. Thus, one of the main benefits of monetary union in the European context does not exist for Mercosur.

2.1.3.2. The Banking Sector

The institutions which execute capital movements are banks, pension funds, investment funds, etc. For Mercosur countries, the limited development of capital

14 In section II.6 we discuss the alternative of a monetary union with the US. If such monetary union were implemented, we argue that a sizable fraction of the capital flow volatility could be eliminated. We discuss this point below.

markets has implied that the largest part of financial intermediation is done through the banking sector. Therefore, any analysis of financial integration should concentrate in this sector. Table 10 shows that both in Argentina and Brazil banks have a considerably large participation in financial intermediation[15]. Yet the participation of deposits as percentage of GDP also presented in Table 10 show that this result reflects the fact that the financial sector remains relatively small in these countries, rather than an indication of overbanking.

TABLE 10
FINANCIAL SECTOR

	Deposits/GDP	Banks share in financial intermediation
Argentina	20%	98%
Brazil	29%	97%
Chile	40%	62%
Finland	49%	59%
France	68%	73%
Germany	59%	77%
Italy	46%	81%
Holland	80%	52%
Spain	65%	78%
UK	103%	56%
USA	42%	23%
Japan	103%	79%

Source: BIS (1996), *International Financial Statistics*, IMF and Prati and Schinasi (1997).

In the European case, financial markets at the time of the launch of the Euro remain relatively segmented[16]. However, the integration process has led to substantial convergence in banking spreads and to an active consolidation of the banking industry. McCauley and White (1997) show that the number of institutions has fallen in Germany by 35%, in France by 43%, etc. since 1980 and that the trend has been persistent through time. Therefore the Euro is perceived as a way of fostering competition in the industry. This increased competition has taken place through an active process of mergers and acquisitions that led to the internationalization of the financial sector across European countries.

In Mercosur, the process has proceeded at a different pace. Banking internationalization came sooner rather than later as a consequence of the opening of capital markets driven by strong capital inflows that required reliable financial

15 The US is an outlier as a result of the regulatory restrictions which limit the activity of commercial banks.

16 See McCauley and White (1997) and Prati and Schinasi (1997).

institutions to channel these funds to recipient countries. In some cases such as Argentina, the convertibility plan, by limiting the role of the Central Bank to operate as a lender of last resort, accelerated the banking internationalization process since local banks could not offer the same financial backing as international institutions. By 1995, the share of deposits in international banks was above 20% both for Argentina and Chile and by 1997 it had reached 37% in Argentina[17].

In both cases, increased internal and external competition led to narrower spreads and depressed bank profits. Rather than improving cost efficiency, as seemed to have been the case in the US, the banking industry in Europe and Latin America responded by reducing the number of players, through a rapid process of consolidation and internationalization of the banking industry[18].

However, unlike in the case of European banks, the ongoing internationalization of Latin American financial intermediaries has been characterized by the integration of national banking sectors not across the region but rather with institutions from extra-regional financial centers that benefit from lower operating costs, higher reputation and stronger regulatory framework[19]. An additional reason for this lies in the fact that local banks currently have neither the weight nor the implicit official backing (through a solid central bank that may act as lender of last resort) to become a major competitor in the present globalized arena. Thus, while monetary integration in Europe has been welcomed as a catalyst for the creation of regional institutions that can directly compete with the big players from the US and Japan, no such result should be expected from a deeper financial integration between the two big Mercosur members, or for that matter, between any number of Latin American countries.

Instead, monetary integration in the Mercosur would open a major source of financial vulnerability if not implemented after a common set of rules governing financial activity within the union is put in place. The reasons behind the need to harmonize financial regulation in a context of unrestricted capital flows are no different than those of any other industry. If the regulation or level of taxation is higher in one of the member countries, banks will base their operations in the other country (similarly to offshore banking) in order to avoid these higher costs. Eventually, this could lead to inefficient regulatory competition. More serious still are the moral hazard problems that can arise if the regulation is not homogenized across countries. For example if deposit insurance policy differs across countries, a moral hazard problem arises as the most fragile financial sectors (or those with the weakest prudential regulation) benefit from a common lender of last resort at the expense of more solid ones. If prudential regulation is kept decentralized, its

17 See IMF (1998).

18 See Brock and Rojas Suarez (1998). The link between increased competition, narrower intermediation margins and concentration is addressed in Levy Yeyati and Cordella (1998) and Schargrodsky and Sturzenegger (1998).

19 Indeed, although there is some minor cross country penetration between Argentina and Brazil, all acquisitions of local banks in those countries have been undertaken by institutions in OECD countries or major financial centers.

quality may deteriorate, and this may be used as a way of appropriating resources from other countries. To the extent that a monetary union may foster the development of cross-border activities within the union, the same can be said of prudential supervision, since, as pointed out by Kane (1998), supervisors tend to be more lenient with the quality of investment practices of foreign subsidiaries of domestic institutions than they are with domestic banking operations[20].

Table 11 shows that financial policies in the countries of the region are presently highly dissimilar. The Table shows prudential regulation indicators (measured by minimum capital requirements, actual capital-debt ratios, and reserves coverage for non-performing loans). We can observe that there are significant differences in prudential behavior. In particular, the requirements for non-performing loans differ strikingly within the region. All this indicates that there is need of substantial homogenization of regulatory practices before achieving the conditions for the establishment of a common Central Bank.

TABLE 11
COSTS AND REGULATION OF THE FINANCIAL SECTOR

	Prudential Regulation				
	Capital requirements	Actual risk-based capital ratio	Non performing loans reserves*	Non Performing loans*	Coverage
Argentina	12	18.5	10.2	10.5	0.97
Brazil	8	12.9	1.6	5.9	0.27
Chile	8	10.7	3.5	1.0	3.50
USA	8	12.8	2.7	1.6	1.69
Japan	8	9.1	1.0	3.3	0.30

* As a percentage of total loans
Source: BIS (1996).

In short, the limited long-run gains to be obtained from the consolidation of regional banks as a result of monetary integration appear to be more than offset by the perils associated to disruptive competition which may arise from highly heterogeneous regulators and regulatory frameworks.

2.1.4. Symmetry of shocks

Mundell stated that one of the determinants of the costs of establishing a common monetary area was the symmetry of the shocks affecting the associated

20 EMU is not immune to this type of agency problem, since financial supervision has been left to national supervisory bodies of the institution´s country of origin.

economies. If the shocks are symmetric, then it was not necessary to change relative prices between the economies, therefore reducing the costs of giving up the exchange rate as an adjustment mechanism.

Licandro Ferrando (1998) analyzes the similarities of the shocks within Mercosur and compared them with those of EMU and NAFTA. He finds that shocks in Mercosur are less symmetric that those affecting the other two trading blocs. If in addition, we consider the results presented in Bayoumi and Eichengreen (1994) and Kenen (1995), (see Table 12), which show that the size of the shocks in Mercosur are larger than those affecting the EMU, we can conclude that Mercosur could face significant adjustment strains if a monetary union is to be established.

TABLE 12
STANDARD DEVIATION OF SUPPLY SHOCKS

	Bayoumi and Eichengreen (1994)	Kenen (1995)
Argentina	0.0492	0.0638
Brazil	0.0202	0.0211
Uruguay	0.0615	0.0642
Average	0.0436	0.0497
Germany	0.0016	0.0013
Austria	0.0047	0.0043
Denmark	0.0048	0.0040
Spain	0.0006	0.0003
France	0.0012	0.0011
Finland	0.0116	0.0109
Netherlands	0.0058	0.0051
Italy	0.0013	0.0013
Sweden	0.0359	0.0265
UK	0.0042	0.0037
Average	0.0072	0.0059

Source: Quoted in Licandro Ferrando (1998).

However dissimilar the shocks within Mercosur are, if we subdivide the sampling period the evidence indicates that the shocks have become more symmetric as the integration process has moved forward. For instance, when analyzing the subperiods 1975-1989 and 1990-1997, Licandro Ferrando (1998) finds that economic integration within Mercosur has generated an increase in the correlation coefficient between Argentinean and Brazilian output shocks. However, if we consider that further increases in regional trade may be limited, a significant further increase in the correlation of real shocks should not be expected.

This lack of correlation of supply shocks is consistent with the finding by Loayza *et al*. (1999) who show, using data for the period 1970-1994, that there is

little long run output correlation between Argentina and Uruguay with Brazil. Yet they show that there is substantial output comovement in the short run. Short run output fluctuations also have a bearing on monetary integration. If monetary union leads to deeper financial integration, countercyclicality in short run output fluctuations may increase the potential for cross-country insurance. If capital markets are not perfect, and monetary union reduces their degree of segmentation by removing barriers to capital flows between countries in the region, it is preferable to be integrated with a partner which output displays limited correlation with your own.

However the short run correlation pattern is probably not very robust to changes in the sample period. For example, taking the cyclical components of Argentinean and Brazilian output (computed as deviation from a HP filter of quarterly output data), Carrera *et al.* (1998) show that the correlation of the business cycles for the period 1950-1974 was virtually zero (they compute a correlation of 0.01) while during the period 1975-1996 this correlation increased to 0.31. However, even within this more recent period there is substantial volatility. The correlation of cyclical components of GDP was 0.42 for the initial phase of the Convertibility Plan (second quarter of 1991 through the second of 1994), but only 0.05 since the launch of the Real Plan (third quarter of 1993 through the end of 1997).

In short, the evidence suggests limited correlation of (long run) supply shocks within Mercosur, raising the costs of monetary union from a "Mundellian" perspective. In addition the higher short-term output comovement limits the potential benefits from cross-country insurance. However, even if short run fluctuations in output were not highly correlated, unlike the European case, not much mileage can be extracted on this front since, as the previous discussion on intra-Mercosur capital flows suggests, the size of these flows is likely to be minor.

2.1.5. Fiscal Policy

2.1.5.1. Fiscal convergence

A group of fully integrated economies not only have to coordinate their trade and monetary policies but also require the coordination of fiscal policies. A common monetary policy requires similar fiscal policies (the same inflation tax and eventually, similar taxation structures) in order to avoid factor movements. On the other hand, once the countries participate in a monetary union, they have an incentive to have higher than optimal deficits, as the governments may assume that the monetary authority or the other partners will finance the deficit. This issue is very relevant for Mercosur, given that the individual countries have not been able to solve this problem even at the national level. In Argentina the problem of fiscal federalism is so important and difficult that a definitive system has not yet been agreed upon even though the 1994 Constitution had set 1997 as the deadline for having a new system in place. In the Brazilian case, the problems are even

worse as some states have defaulted on their commitments with the central government[21].

This issue is crucial for the proper operation of a monetary union is illustrated by the fact that the main conditions imbedded in the Maastricht Treaty were of fiscal nature. Maastricht established an upper bound for budget deficits of 3% of GDP, and was successful in inducing countries to accomplish this.

If we compare this with the evolution of fiscal policies in the Mercosur during the nineties, we see that by 1997 all members would have complied with the fiscal requirements of the Maastricht treaty (Figure 3). Not only was this the result of increased fiscal discipline, after decades of high inflation, but also a constraint imposed by capital markets, unwilling to finance fiscal imbalances[22]. However, the estimated fiscal deficit for Brazil in 1998 and 1999 indicates that fiscal solvency is far from being guaranteed in the region.

FIGURE 3
FISCAL SURPLUS/GDP

21 Particularly dramatic was the default announced by the Governor of Minas Gerais, Itamar Franco, which triggered the devaluation of the Real in early 1999. For an analysis of fiscal federalism within Mercosur countries see Jones, Sanguinetti and Tommasi (1997), Remmer and Wibbels (1998) and references therein.

22 This capital market constraint was reflected in very high interest rates, substantially above those determined in the fourth condition of the Maastricht treaty.

This disparity in fiscal results poses a stronger burden on any agreement a la Maastricht, while making it even more essential as a prerequisite before moving ahead towards any kind of monetary coordination.

2.1.5.2. Inter-jurisdictional transfers

While a monetary union imposes certain restrictions in terms of deficit financing, it also has to provide mechanisms in order to transfer resources between jurisdictions, to smoothen the negative effects of transitory regional shocks.

The existence of these transfers have been considered essential to the success of the U.S. monetary union (see Bottle, 1995). Sachs and Sala-i-Martin (1990) show that in the U.S. a one-dollar decrease in the income in one of the regions implies a reduction of between 33 and 37 cents in the payment of federal taxes and an increase of between 1 and 8 cents in the transfers received by the region. Therefore, inter-state transfers channeled through the federal budget, allow on average to reduce by more than a third the loss in income of the states affected by negative temporary shocks. Similarly, Asdrulabi et. al. (1996) show, using data for the US for the period 1963-1990, that federal spending smoothed about 13% of the cross-sectional variance in gross state products[23].

Mercosur does not have a fiscal policy coordination mechanism in place nor supra-national entities that may allow for transferring resources between the member countries. Although the Ouro Preto treaty created a number of supra-national institutions, none has among its tasks the coordination of fiscal policies or the creation of a common budget (as in the case of the Common Agricultural Policy for Europe). In Mercosur, the differences in output per capita described in Table 7 could induce pressures for income redistribution between rich and poor economies. These disparities, together with the low factor mobility, could put excessive pressure on fiscal policy to compensate the more backward regions. In addition, to the extent that Mercosur GDPs display significant short-run comovement, as mentioned in Loayza (1999), the gains from regional cross insurance through fiscal transfers seems rather limited. All these factors make the agreement on a common budget even less plausible.

2.2. Credibility

As mentioned before, one of the main benefits of the European monetary integration process was the credibility that countries gained by fixing their currencies to the German DM. This required convergence to the inflation and deficit levels of Germany, the country that was implicitly acting as guarantor of fiscal and monetary discipline. The Euro can be considered as the natural continuation of this process[24].

23 An additional 62% was smoothed by capital and credit markets.

24 An interesting question is the evaluation of the gains of monetary integration for the country which provides the guarantee. In the case of Europe, Germany gained exchange rate stability with european partners, less volatility in capital flows within the region

To evaluate the possible impact of a monetary union on credibility it is essential to give a precise meaning to the institutional arrangement in mind. One alternative, and the one we have been assuming so far, is a common currency with an independent monetary policy (and therefore a floating rate) for the members of the union. However, for Mercosur this setup has a major shortcoming: none of the member countries has a long tradition of monetary stability or has enough reserves to provide a credibly backing of the other countries (a role played by Germany in Europe). Brazil, the only country with the necessary size, is possibly the most unstable and the less willing to compromise its monetary sovereignty, while the self-imposed discipline exhibited by the Argentine central bank in recent years is unlikely to be exported to other central banks in the region given its relatively minor size. Thus, a monetary union between countries like Argentina and Brazil should generate limited benefits in terms of credibility (similarly, to some extent, to the potential gains of a monetary union between Spain, Italy and Portugal). The only progress on the credibility front would arise from a sort of "peer-control" that may facilitate reforms that, unfeasible for each individual country, may be pushed forward jointly, making member countries less willing to deviate from previously agreed commitments for fear of a retaliation[25].

It is also difficult to believe that Mercosur countries could agree on a common monetary policy as they have followed highly dissimilar monetary policies in the recent past. For example, while Argentina has a fully convertible currency, Brazil has a dirty floating exchange rate, Chile has a floating band tied to the dollar, the marc and the yen and Bolivia has a crawling-peg to the dollar. These different policies reveal different preferences concerning monetary policy objectives that would have to be reconciled before starting to think of a common currency.

While the EMU experience can be characterized as the establishment of an independent common currency, we believe it can also be thought as a strong country with several satellite countries adopting its currency[26]. This, translated to the case of Mercosur, strongly suggests that a monetary union should include a country like the U.S. that could effectively act as a guarantor of stability in the region.

(and therefore fewer interventions imposed on its central bank). These factors, to some extent rely on the "Mundellian benefits" from currency union. Thus while the credibility story may work well for those who need to improve in terms of credibility, we need to rely on real gains to justify participation of the credibility anchor. Additionally, Germany may have found convenient to support the building of institutions which could provide explicit bail out mechanisms within an increasingly integrated region, as otherwise the cost of this intervention could have implicitly been imposed on the Bundesbank. Finally, Frieden (1998) suggests the hypothesis of "linkage politics" whereby Germany supported the EMU process as part of a broader deal in which the rest of Europe suported its foreign policy initiatives in Eastern Europe.

25 Mercosur has been effective in inducing this peer-pressure regarding trade policies.

26 In the european example the german DM was not adopted merely for nationalistic reasons, but the monetary policy of the euro was built with the idea of emulating the behavior of the Bundesbank.

In addition, Ize and Levy Yeyati (1998) show that countries where there is little volatility in the real exchange rate *vis à vis* the US dollar tend to develop a large and persistent degree of dollarization, with Argentina, Bolivia and Uruguay as prominent examples. Therefore, for these countries, pegging to the US dollar has a relatively lower cost in terms of exchange rate rigidity[27].

At the moment, the possibility of setting up a monetary bloc between the U.S. and the Latin American countries looks quite unrealistic. Because the relative size of the two areas are not comparable, it is unlikely that the US would want to condition in any way its monetary policy just to reduce its exchange rate uncertainty with its Latin America partners. This was certainly not the case of Germany, which traded extensively with the rest of Europe and which was (and still is) smaller than the other members of the union combined. Neither of these conditions is satisfied for the US, even while considering the prospect of a global America-wide dollar zone. While Germany's participation in EMU's GDP is about a third, US participation in a joint area with Mercosur would have amounted to 86.7% in 1997. Therefore, while it was important for Germany to reduce the exchange rate volatility with partner countries, the cost-benefit for the US is not so favorable.

A natural alternative would be the unilateral adoption of the U.S. dollar as legal tender[28]. This alternative has two main disadvantages: it implies a cost in terms of seigniorage, and it impinges on the ability of local central banks to operate as lenders of last resort, increasing the risk of the domestic financial sectors and potentially amplifying the economic impact of capital flows volatility. The advantages should show up in a reduction of country spreads, supposedly due to lower capital flow volatility resulting from the disappearance of currency risk[29].

An obvious case to assess the relevance of the effect of dollarization on volatility is to look at Panamanian sovereign debt instruments. Figure 4 shows the country spreads for the Argentine FRB together with those of the Panamanian PDI[30]. While Panama seems to have been slightly more insulated from the latest crises, it is clear that these bonds remain subject to the same volatility as that of countries with local currencies. Frankel (1999) estimates that the responses of

27 Several other Latin American countries (e.g. Peru, Ecuador) are in the same situation. However, both Brazil and Chile are clear exceptions.

28 This idea is being proposed by the Argentine government. See Dornbusch *et al.* (1990) for an early suggestion of this alternative.

29 Notice that welfare gains arise only if the spread on dollar denominated instruments decreases. Obviously local currency spreads will dissapear with the instrument, but this, if anything, entails a welfare cost, because it reduces de number of alternative assets available. See Neumeyer (1998). In this domain, a half-of-the-road alternative like a CBA presents a clear advantage, as it preserves a broader menu of assets available for hedging purposes.

30 Both are floating rate bonds with similar characteristics. However the maturity of the FRB at 31/3/2005 is substantially shorter than that of the Panamanian PDI at 17/07/2016. The ratings of the Panamanian bonds are better and this accounts for their lower spreads. Yet our argument relates to the volatility and not the level of the spreads.

domestic interest rates to changes in the US rate is more than twice as large in Argentina than in Panama, thus giving some support to the notion that dollarization reduces exposure to capital flows volatility. Table 13 replicates his exercise for Argentine and Panamanian Par bonds[31] showing that for the period 1995-99, an increase of the T-bond yields produces a larger response in the Argentine interest rate.

TABLE 13
RESPONSES OF DOMESTIC INTEREST RATES TO A CHANGE IN T-BOND YIELDS

	Coefficient	Std. Error	t-Statistic	Prob.
Argentina (Par yield)				
TBOND	1.347280	0.068738	19.60024	0.0000
Constant	1.331921	0.441079	3.019688	0.0026
Panama (Par yield)				
TBOND	0.730378	0.068460	10.66870	0.0000
Constant	4.130982	0.425286	9.713429	0.0000

Yet there is no reason, a priori, to believe that country spreads could fall as a result of the elimination of the local currency. On the one hand it could be argued that the elimination of speculative flows against the currency may allow for a reduction in country risk as better output performance and lower interest rates improves the government's budget constraint. This benefit may be important in a context of high international financial market instability and contagion. However, one could also argue that if exchange rate flexibility offers the government the option to reduce the burden of maturing debt by eroding its foreign currency value through a devaluation of the local currency, the loss of such option, if anything, should increase rather than reduce sovereign risk. Thus, dollarization per se is not likely to secure a significant gain in terms of lower borrowing costs, beyond and above those already offered by the option to issue foreign currency-denominated debt[32].

31 Similar results were obtained taking the FRB´s. We chose to show the PAR bond numbers because the floating rate bonds automatically incorporate the increase in the international interest rate.

32 A second, related, argument points to a more practical aspect associated with the simultaneous dollarization of countries with substantial amounts of domestic currency debt. The sudden conversion of a sizeable stock of domestic currency debt would put to test the limits of the demand for emerging market dollar debt, possibly causing the associated yields spreads to raise.

FIGURE 4
SPREADS

A critical issue for evaluating the benefits of dollarization is a correct estimation of the foregone seigniorage revenue. Seigniorage arises both from the need to purchase the initial stock of foreign currency to be used as currency as well as from the costs of purchasing later increases in the stock of currency. These later increases are the result of US inflation and domestic GDP growth. More formally, seigniorage can be expressed as:

$$(1) \qquad s = \frac{\Delta M}{P \cdot y}$$

where *s* represents seignorage as a percentage of GDP. M is the nominal stock of money, P the price level (which we assume grows with the US inflation rate) and y is real output. Assuming that output grows at constant rate g and that US inflation is constant at rate p it can be shown that s equals:

$$(2) \qquad s = \frac{m_t}{y_t} - \frac{m_{t-1}}{y_{t-1}} \cdot \frac{1}{(1+\pi)(1+g)}$$

Total seigniorage costs add to that in equation (2) the costs of acquiring the initial stock of currency. For Mercosur countries Table 14 shows that currency

holding are about 5% of GDP[33]. Thus, in addition to an initial cost of this amount, there is a flow cost that can be computed from (2). If we assume that the currency-GDP ration remains constant at 3.4%, Table 15 shows the resulting yearly seigniorage costs.

TABLE 14
CURRENCY AS PERCENTAGE OF GDP

	91	92	93	94	95	96	97
Argentina	2.9%	3.4%	3.9%	4.0%	4.0%	3.9%	4.1%
Brazil	2.2%	2.3%	2.4%	2.5%	1.9%	2.0%	N/A
Paraguay	4.6%	5.5%	5.3%	5.4%	5.4%	4.9%	N/A
Uruguay	4.2%	4.0%	4.2%	4.0%	3.8%	3.5%	3.4%
Mercosur	3.5%	3.8%	4.0%	4.0%	3.8%	3.6%	N/A
Bolivia	3.9%	4.0%	4.2%	5.1%	5.3%	4.9%	5.0%
Chile	3.0%	3.2%	3.2%	3.1%	3.0%	1.5%	3.0%
Mercosur +2	3.5%	3.7%	3.9%	4.0%	3.9%	3.4%	N/A
Austria	5.8%	5.9%	6.0%	6.0%	6.1%	6.1%	5.8%
Belgium	6.1%	5.7%	5.7%	5.1%	5.3%	2.9%	3.1%
Finland	1.8%	2.0%	2.2%	2.1%	2.3%	2.4%	2.3%
France	3.8%	3.7%	3.6%	3.5%	3.4%	3.3%	3.2%
Germany	6.0%	6.5%	6.7%	6.8%	6.9%	7.0%	6.8%
Holland	6.8%	6.5%	6.5%	6.3%	6.0%	5.8%	5.5%
Ireland	4.9%	4.7%	4.8%	4.8%	4.8%	4.7%	
Italy	5.3%	5.7%	5.8%	5.9%	5.5%	5.3%	5.5%
Portugal	6.2%	5.7%	5.6%	5.5%	5.4%	5.3%	4.3%
Spain	10.2%	10.2%	10.7%	11.1%	10.8%	10.8%	10.8%
EMU	5.7%	5.7%	5.8%	5.7%	5.6%	5.4%	5.3%
Mexico	3.4%	3.4%	3.5%	3.7%	3.3%	3.0%	3.0%
USA	4.7%	4.8%	5.0%	5.2%	5.3%	5.3%	5.4%

Source: *International Financial Statistics, IMF.*

TABLE 15
YEARLY SEIGNIORAGE AS PERCENTAGE OF GDP

Growth/Inflation	0%	3%	5%
0%	0.00%	0.10%	0.17%
1%	0.04%	0.14%	0.21%
3%	0.10%	0.21%	0.27%
5%	0.17%	0.27%	0.33%

33 This is the costs of acquiring the initial stock of currency mentioned in Fischer (1982).

However, Table 14 also shows that currency holdings in Mercosur are substantially below the levels of both the US and Europe. In the US, for example the currency-GDP ratio equals about 5.4%. Therefore, it is likely that the economies will also have to purchase increases in the demand for money as they approach the US currency holdings after dollarization. Figure 5 shows these costs over time assuming a gradual convergence to the US levels.

FIGURE 5
YEARLY SEIGNIORAGE AS PERCENTAGE OF GDP

It can be shown that with these higher currency-GDP ratios the costs are larger, both in the steady state and during the transition. In the worst case scenario of high output growth and high inflation rate in the US the costs can reach a substantial 1.5% of GDP.

A possibility in order to reduce these costs would be to negotiate with the US Federal Reserve (FED) a partial "grant" of these seigniorage revenues. In fact, for countries that today do not have the currency in circulation it is unfeasible to require them to obtain it in the short run through current account surpluses so transfers from the FED are unavoidable. For the US the agreement should be convenient as long as it allows it to share in some of the new seigniorage revenues created. However, the Federal reserve faces a time inconsistency problem. If it provides some of this currency freely, local governments could be tempted eventually to recreate their domestic currencies, imposing then a seigniorage cost on the US. One way to overcome this problem would be for the country to give the Federal Reserve debt instruments of equivalent value to that of the currency transfers, these bonds becoming effective if the country defaults on its commitment to use the dollar as legal tender. However, a new instrument specifically issued for this purpose would have limited commitment value. A country willing to default on

its use of the dollar as legal tender will also be tempted to repudiate its debt obligation with the FED, insofar as this has limited impact on other debt instruments yields. On the other hand, if the FED requires a bond identical to other assets trading in the market, the possibility of the reversal of dollarization would certainly feed on other sovereign instruments, defeating the attempt to reduce country risk.

As mentioned above, another crucial concern regarding dollarization is the limits that it imposes on the lender of last resort (LLR) function of the central bank. Idiosyncratic (individual) liquidity shocks can be handled by redistributing liquidity within the system through the interbank market, or by lending facilities at the central bank, with a small net injection of liquidity into the system. Therefore, in the case of dollar intermediation, the central capacity to print local currency at discretion may be replaced by the holding of a moderate amount of dollar liquid reserves, and the cost of losing the LLR capacity would be relatively minor.

On the other hand, aggregate shocks that lead to a systemic liquidity shortage may exceed the availability of dollar liquidity in the system. In those cases, provisions have to be made to ensure that banks are protected against liquidity shocks. This typically takes the form of holdings of liquid foreign currency assets, as is the case of Argentina's liquid asset requirement. This strategy, however, does not come without costs: liquid dollar assets typically offer yields below those in the domestic markets, and imply a cost, proportional to the size of these holdings, that is usually reflected in wider domestic intermediation margins.

Some analysts argue that we should not think of a LLR as inextricably linked to its ability to print base money, since in practice there are alternative ways of providing bank liquidity, including purchase of international insurance, either by the central bank or by private banks, or the use of fiscal resources should be sufficient to avoid liquidity crisis in the financial sector[34].

An example of the former is the contingent credit facility arranged by the Central Bank of Argentina with a consortium of international banks. However, this sort of "private" LLR may suffer from two shortcomings. First, the strategy cannot be extended to many countries with highly correlated shocks, as the private insurer may find it increasingly difficult to diversify risk. Second, as the position of insuring banks to a particular country depends on the probability that the insurance policy is activated, pessimistic expectations may move the insurer to hedge their exposure by taking reverse positions, for example by going short on the local currency, thereby accelerating a potential collapse.

Alternatively, international insurance may take the form of contingent credit lines extended to private international banks by their parents[35]. This implicit

34 The latter alternative is no different from the holding of liquid international reserves, with the same associated costs.

35 The loss or absence of the LLR provides a competitive edge to subsidiaries of foreign banks seen as benefiting from an implicit liquidity insurance from their parents, which helps explain why countries with widespread dollarization and a weak LLR tend to show a rapid internationalization of their banking sectors, sometimes favored by the central bank as a way of transferring the LLR function to foreign financial centers.

insurance, however, is typically not supported by any written document, and its existence and extent are difficult to test until a systemic crisis explodes. At any rate, the presence of international banks certainly does not eliminate the problem posed by the loss of the LLR, and excessive reliance on this implicit insurance can be dangerous. Moreover, it has to be born in mind that the balance between the financial costs of bailing out the subsidiary and the reputation costs of letting it fail deteriorates as the liquidity shock gets larger and more widespread[36].

An intermediate alternative is extending Argentina's convertibility to the rest of the region. Convertibility eliminates the seigniorage cost of full dollarization, as the reserves at the central bank earn interest. On the other hand, however, convertibility entails a lower commitment to exchange rate stability than full dollarization, as witnessed by the extreme sensitivity of devaluation expectations to exogenous shocks. Thus, while convertibility have been extremely successful in securing price stability and confidence in monetary policies during tranquil times, it has failed to reduce fluctuations in exchange rate expectations that have a decisive impact on financing costs and real activity[37].

If instability in the region continues on the rise, the alternative of dollarization will become increasingly attractive. The experience of Argentina shows to what extent the credibility component is essential when deciding about a monetary system. Indeed, a test of the "Mundellian" conditions for a monetary union between Argentina and the US would probably throw even more discouraging results than those obtained for the Mercosur partners, indicating that the real conditions for monetary integration are not there. Yet, any assessment of the Convertibility Plan, which falls short of full dollarization, let alone monetary integration with the U.S., suggests that the gains in terms of credibility may be sizeable.

In sum, the credibility approach indicates that the extrapolation of the European model to the Mercosur would suggest, rather than the introduction of a common currency among member countries, a monetary union with the U.S. or, if this option is not available, the adoption of the U.S. currency. It is against this alternative that the variety of regimes currently in place should be weighted.

3. Conclusions

Mercosur does not stand up to the test in terms of the conditions identified by the OCA theory for establishing an independent monetary area with a common currency for the member countries. Table 16 presents a brief summary of these conditions. When considering the degree of integration in the real sector,

36 The reputation cost of a failure is certainly higher when it an individual event than when it is mirrored by the rest of the banking system.

37 It is important to emphasize that this volatility is largely due to the perceived vulnerability of the system rather than to a lack of confidence in the commitment of the authorities to the maintenance of the current regime.

interdependence is very low by comparison with that of the European countries. There when the first stage towards monetary union was completed, the average exports to partner countries accounted for 14% of GDP. In the case of Mercosur, this figure reached only 4.1% in 1997. Even though it is true that the integration process within Mercosur is still underway, and that tariff reductions are yet to be completed, we argue that the current state of facts does not lead us to be optimistic when it comes to forecasting an increasing level of integration in the near future.

Labor markets are not integrated and large differences in income levels between the countries prevail. As a result free mobility of labor is not going to be welcomed by some of them (in particular Argentina) in the short-run. This reduces the scope for the labor market to absorb asymmetric shocks which also seem to be likely (and larger) in Mercosur than in Nafta or the EMU. The banking sector has become increasingly international, but financial sectors remain segmented and prudential regulation is still very different. This would lead to moral hazard problems in the case there was a common Central Bank, both at the level of individual banks as well as between countries if they were to engage in regulatory competition. Macro shocks appear to be correlated in the short run (while the pattern changes dramatically according to the time period considered), and capital flows associated to currency instability are related not to the change in regional parities but to changes in the exchange rates with countries outside the region. Both factors reduce the potential gains in terms of financial sector integration and reduced volatility of capital flows that were decisive in stimulating the European integration process.

On the fiscal side, Mercosur economies have not yet discussed the need for fiscal policy coordination, which is not surprising given that they still have not solved the fiscal federalism problems at the national level. Mercosur not only lacks targets that coordinate fiscal policies but also does not have supranational institutions that can centralize transfers to those areas affected by adverse economic shocks.

Regarding the benefits that could arise from the elimination of speculative attacks, this will depend upon the credibility that the common central bank can sustain. However, the associated benefits are seriously limited by the fact that Mercosur does not have currencies with a lasting stable tradition or a country that can stand out for the other members in case of speculative attacks during the transition process.

This is the reason why we believe the European experience suggests, if anything, the convenience of a monetary union with the U.S., as opposed to one that only involves the countries within the region. Although an analysis of the preconditions identified by the OCA theory could possibly lead to even less optimistic results for a monetary union with the US than those summarized in Table 16 for Mercosur countries[38], the great advantage of this integration would stem

38 A more detailed discussion of this possibility exceeded the scope of this paper which concentrated only on Mercosur countries.

from gains in terms of credibility in the conduit of monetary policy coupled with the elimination of currency speculation that could reduce significantly the volatility of capital flows to which the region is usually exposed.

To conclude, we would like to share Cohen's (1993) view that every monetary union is built around a common political project. Cohen (1993) studies the collapse of the monetary regimes concluding that these are associated to a disruption in the institutional system in which they were operating. Within Mercosur, it should be noted that the democratic system in the integrating countries is still in the strengthening stage. Therefore, fostering economic relations among member countries can help consolidate democratic institutions, which in turn constitutes a powerful stimulus for regional integration. How much further can a common political project evolve in Mercosur is beyond the scope of this paper, but it surely represents a prior requirement to think about monetary union, in any of its alternatives.

TABLE 16
EVALUATION OF MONETARY UNION

Factors		What does the theory say?	Where is Europe?	Where is Mercosur?
Trade Integration		The larger, the higher the benefits of monetary union	High degree of integration. Exports to partners were 14% of GDP at the signing of Maastricht	Low degree of integration, exports to partners were 3.8% of GDP in 1996.
	Labor Market	The larger the degree of factor market integration, less is the need o use the exchange rate as an adjustment instrument and therefore larger the benefits of monetary union.	Low integration relative to the US.	No integration.
	Banking Sector		Integrated	Highly internationalized but with important differences in regulation.
Productive Factors				
	Capital Markets	Reduces the possibility of speculative attacks and therefore increases the benefits of monetary union.	Integrated. It has also been effective as a mechanism to eliminate exchange rate realignments.	Unilaterally open (each country has opened the capital account, though some maintain restrictions). Exchange rate between countries are not very relevant (what is relevant are the parities with the dollar the Euro or the yen), thus currencies will continue to experience speculative attacks.
Shock symmetry		The more symmetric are shocks, the lower the need to change the exchange rate and the bigger the benefits of monetary union.	Symmetric shocks.	Large and asymmetric shocks.
Fiscal Policy		Monetary union imposes restrictions upon the consistency of fiscal policy among members.	Maastricht achieved consistency.	Strong divergence in fiscal balances persists.
Fiscal Transfers among member countries		The larger these transfers the larger the possibility of smoothing regional shocks, and the larger the benefits of monetary union.	Exist.	Do not exist.
Credibility		Monetary union may generate benefits in terms of increased credibility.	There is a gain in credibility because the ECB emulated the Bundesbank.	Credibility gains are unlikely due to the strong disparity in the use of monetary policy and the lack of tradition in keeping inflation in check.
Political Integration		Monetary union arises as the result of a common political project.	This process is underway.	The process is just starting.

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