



Monetary Policy and Currency Substitution in the Emerging Markets

Organized by the Croatian National Bank

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Prospects for Subregional Monetary Integration in Latin
America: A View from the EU

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Abstract

The paper assesses the advisability of subregional monetary integration in Latin America by looking at the EU experience with EMU and by applying the theory of optimum currency areas (OCA) and other criteria proposed by the more recent literature. The analysis based on the OCA criteria suggests that, with the possible exception of NAFTA, none of the subregions examined should engage into monetary integration. They are subject to frequent asymmetric shocks and, with the exception of NAFTA, their degree of trade and financial integration and macroeconomic convergence remains insufficient and they lack a large and stable member country from which to import monetary credibility. As suggested by the EU experience, these subregions should in particular refrain from adopting exchange rate stabilisation schemes before achieving deeper integration and convergence. The traditional OCA theory does not take into account, however, some relevant aspects such as the degree of de facto dollarisation, the existence of deeply entrenched credibility problems in some countries and the endogeneity of some of its criteria. After extending the analysis to incorporate these factors, the picture changes somewhat, particularly regarding the advisability of dollar-based monetary integration in Central America.

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1. Introduction

Since the early 1960s, a number of subregional trade and economic integration processes involving Latin American countries have developed. They include, in historical order, the Central American Common Market (CACM), the Andean Community, Mercosur, and the North American Free Trade Agreement (NAFTA). Some of these subregions have recently launched initiatives to strengthen intra-regional macroeconomic convergence and envisage monetary integration as a long-term goal.

The likely future direction of subregional and continental trade integration processes in America is far from clear, with the creation of a Free Trade Area for the Americas (FTAA) sometimes being seen as an alternative to at least some of the subregional integration processes examined in this paper. Some parallel proposals also point towards the conclusion of free trade agreements (FTAs) between some of these integration areas (e.g. between the Andean Community and Mercosur or between the CACM and the NAFTA countries). Chile, which left the Andean Community in 1977, is signing FTAs with each of the NAFTA countries but also has a FTA with Mercosur and has in the past expressed interest in joining Mercosur. There are also a series of other bilateral FTAs connecting the countries in the continent. In addition, the largest Latin American countries (Mexico, Mercosur) and Chile have concluded or are negotiating FTAs with the EU, and both the CACM and the Andean Community have recently expressed interest in negotiating such an agreement with the EU. In short, there is complex set of trade agreements involving Latin American countries and a high degree of uncertainty about the future shape of trade and economic integration within the continent.

Trying to assess the advisability or determine the likelihood of the different roads to economic integration in the American continent is well beyond the scope of this paper. Rather, the paper aims at evaluating the degree of integration already achieved by the main existing subregions and their suitability for engaging into some form of monetary integration, including joint official dollarisation. This is done by applying a number of criteria proposed by the traditional theory of optimum currency areas (OCA) but also some additional criteria suggested by the more recent literature. The analysis also draws on the experience of the EU with more than 50 years of economic and monetary integration.

The paper is organised as follows. Section 2 describes the macroeconomic policy convergence and surveillance schemes put in place by some of the subregions under study and the attitude of some of these trade blocks towards possible monetary integration. Section 3 reminds some of the key lessons the EU has drawn from its regional integration experience. Section 4 applies the traditional OCA criteria to assess whether it makes sense for some of these regions to envisage

monetary integration. The analysis is refined in Section 5 by introducing some additional considerations emphasised by the more recent literature on the choice of exchange rate regimes, including the degree of de facto dollarisation, the existence of serious credibility problems and the endogeneity of some of the OCA criteria. When looking at the advisability of monetary integration, a distinction is made between the establishment of fixed-but-adjustable exchange rate systems, monetary union à la EMU and joint dollarisation. Finally, Section 6 sums up the main conclusions of the paper.

2. Macroeconomic convergence initiatives in Latin America

The Andean Community and Mercosur have recently launched initiatives to improve macroeconomic policy coordination and foster macroeconomic convergence among their member countries. The CACM also defines since 1994 reference parameters for a number of key macroeconomic indicators but without a commitment by its member states to comply with them within a specified period of time. These subregions hope that these initiatives will contribute to limit fluctuations in intra-regional real exchange rates, which have had disruptive effects on intra-regional trade and financial flows in the past. But although their founding treaties envisage in some cases monetary integration as a long-term goal, official discussions on the matter have remained vague and speculative. In the case of NAFTA, no macroeconomic convergence scheme has been set up and there is for the time being little political support for any monetary integration proposal. This section describes in more detail the macroeconomic convergence initiatives and monetary integration discussions, or lack thereof, in each of these subregions.

2.1 *The Andean Community*

The Andean Community was born in 1969 with the signing of the Cartagena Agreement and currently comprises Bolivia, Colombia, Ecuador, Peru and Venezuela. This Agreement called for the “harmonisation of exchange rate, monetary, financial and fiscal policies” (Article 51) and the Andean Community has recently been trying to make progress in this area as a precondition for creating a common market by 2005. In June 2001, the Andean Community defined macroeconomic convergence criteria on inflation, the fiscal deficit and the public debt that are similar to those of the EU’s Maastricht Treaty. These are described in Table 1. In order to oversee compliance with these inflation and fiscal convergence targets, the Advisory Council has created a Permanent Technical Group. The inflation criterion is monitored on the basis of biannual reports submitted by the member countries. In addition, member countries must submit in the third quarter of each year a Convergence Action Programme in which they specify the macroeconomic policies that they plan to implement the following year.

Regarding the idea of monetary union, it was absent from the Cartagena Agreement and, although some very tentative proposals have been discussed in the past, it is not part of the current agenda of the Andean Community.

Table 1. Macroeconomic Convergence Targets and Reference Parameters (in percent)

	CAMC 1/	Andean Community	Mercosur
Maximum annual inflation rate	9	Single digit by December 2002	For 2002-05, 5% for headline inflation; from 2006 onwards, 4% for headline inflation and 3% for core inflation 2/
Ceiling on public sector deficit (% of GDP)	2.5	3% of GDP by 2002 but could be raised to 4% in 2002-04	3,5% for 2002-03 and 3% from 2004 onwards
Ceiling on public debt (% of GDP)	50	50% by 2015	40% by 2010 but convergence paths must be defined from 2005 onwards
Average real interest rate (end-of-year)	9		
Annual real GDP growth	5		
Real exchange rate index (December 1997 = 100)	90 - 110		
Net international reserves of the central bank in percent of monetary base	100		
Maximum current account deficit (% of GDP)	3.5		

Sources: Consejo Monetario Centroamericano (2002), Andean Community (2001) and Mercosur (2000).

1/ Reference parameters for 2001.

2/ Paraguay has been allowed to converge towards these targets in a more gradual way. It should aim at reducing each year by one fourth the difference observed in 2002 between the actual and targeted value for inflation. This transitory period will expire in 2006.

2.2 *Mercosur*

Since its creation in 1991, Mercosur (comprising Argentina, Brazil, Paraguay and Uruguay) has suffered from recurrent trade tensions among its member countries caused by divergent macroeconomic developments and sharp fluctuations in their real exchange rates. To try to tackle this problem, Mercosur launched in 2000 an initiative to foster the coordination of their macroeconomic policies, which, like the Andean Community's scheme, focuses on fiscal policy.

Mercosur has created a Macroeconomic Monitoring Group made up of high officials from the ministries of finance and central banks, to monitor macroeconomic developments in its member countries and put forward proposals aimed at strengthening macroeconomic coordination. In September 2000, the Mercosur countries started publishing harmonised indicators for the fiscal deficit, the public debt and inflation and, at the summit of Florianópolis of December 2000, the presidents of Mercosur, Chile and Bolivia agreed on a set of common targets for the government deficits, the public debt and inflation (see Table 1). Chile and Bolivia, as associate members of Mercosur, also participate in the discussions on macroeconomic policy coordination.

The founding treaties of Mercosur foresee the coordination of macroeconomic policies but do not make any reference to the eventual establishment of a monetary union among the Mercosur countries. Although some academic economists and politicians have proposed exchange rate

stabilisation mechanisms or the monetary unification of Mercosur¹, monetary integration is still not part of its macroeconomic policy coordination initiative and remains a distant undertaking. Until Argentina decided to fully float the peso in the context of the current crisis, a serious problem had been the very divergent views Argentina and Brazil had on the appropriate exchange rate regime. While a previous history of high inflation and a high degree of dollarisation had led Argentina to prefer an hyper-fixed regime, Brazil (a larger and much less dollarised economy) prefers to maintain the floating regime introduced in early 1999. In June 2000, the ministers of finance of Mercosur, Chile and Bolivia declared that they firmly believed that Mercosur is compatible with the existence of different exchange rate regimes in their member countries, provided that countries pursue sustainable fiscal and monetary policies aimed at guaranteeing price stability.²

Following Argentina's decision to abandon its currency board arrangement (CBA) in January 2002, however, all the Mercosur countries have now flexible exchange rate regimes. Moreover, as discussed in Section 5, Argentina may now have a new interest in monetary integration with Mercosur as a way of re-establishing a credible monetary regime. At the presidential summit of February 2002, Mercosur discussed informally a proposal to create a "Monetary Institute of Mercosur", a sort of embryonic common central bank that would oversee the macroeconomic coordination scheme and prepare the ground for the eventual adoption of a common currency. Given the current preference of Mercosur countries for flexible exchange rates, it is understood that such a common currency would float vis-à-vis the currencies of the rest of the world. While this idea remains very preliminary and vague, it suggests that the debate on Mercosur's monetary integration is far from dead.

2.3 *The Central American Common Market (CACM)*

The CACM comprises five of the six Central American countries, namely, Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua. Panama, as well as the Dominican Republic, are expected to join the CACM soon. Established in 1960 (Treaty of Managua) with the aim of creating a common market among its member states, it also envisages as a medium-term goal the creation of an integrated financial area and a monetary union in Central America.

In 1964, the CACM countries created the Central American Monetary Council, which is made up of the governors of the central banks of the CACM countries and in which the Dominican Republic participates as an observer. The main objectives of the Monetary Council are to foster the coordination of monetary, exchange rate and financial policies of its member countries, propose steps aimed at deepening the financial and monetary integration and coordinate their position in international financial fora.

¹ See Giambiagi (1997), Lavagna and Giambiagi (1998) and Eichengreen (1998). The idea of a common currency was first suggested by the former Argentine President, Carlos Menem, at the Mercosur presidential summit of April 1997. Subsequently, following the crisis of the real of early 1999, President Menem also suggested the possibility of a joint official dollarisation by all Mercosur countries (see Section 5).

² Mercosur (2000b).

Since 1994, the Monetary Council has been using a set of eight indicators, including inflation, the budget deficit and the public debt, to monitor macroeconomic convergence in the subregion. For each of these indicators, it defines a reference parameter that member countries should try to observe or approach. The indicators used and the parameters defined for 2001 are shown in Table 1. These parameters, however, are not politically binding. They only provide guideposts at which countries are expected to aim

Much of the recent work of the Council has focused on the development of an integrated capital market in Central America, including the harmonisation of the domestic public debt markets. The discussions on possible options for monetary unification, however, have been revived by the decisions taken by El Salvador in January 2001 to officially dollarise its economy and by Guatemala in December 2000 to legalise the use of the dollar alongside with that of the quetzal. With Panama also being officially dollarised and other Central American countries showing a high degree of de facto dollarisation, these decisions have led some politicians, business leaders and academicians to propose the joint adoption of the dollar as legal tender as a way to achieve monetary integration in the subregion. The Central American Parliament has recently recommended the Central American Presidents to adopt a medium-term plan aimed at the monetary integration of the region. In the Parliament's recommendation, however, this is to be achieved not by jointly dollarising but, rather, by converting the Monetary Council into a regional central bank that would issue a common Central American currency.³

2.4 Mexico under NAFTA

The integration framework developed under the NAFTA, signed in 1992 by Canada, Mexico and the United States, does not foresee any form of macroeconomic policy coordination or monetary integration. These countries do not consider that macroeconomic coordination is necessary and, while some economists have proposed the creation of a North American Monetary Union or the unilateral dollarisation of the Canadian and Mexican economies⁴, the official position of Canada and Mexico is that monetary integration is not desirable at this stage.⁵ Both countries believe that it is in their best interest to maintain the flexibility provided by their floating exchange rate regimes, which are combined in both cases with inflation targeting schemes. Mexico introduced its floating regime in 1995, following the Tequila crisis, and believes that it has served it well. Canada, for its part, is to a large extent an exporter of basic commodities and, therefore, its export structure is very different from that of the United States, which results in a high incidence of asymmetric shocks relative to the United States (see Section 4).⁶ The reluctance of Canada and Mexico to give up their own currencies and monetary sovereignty also reflects deeply entrenched

³ See Parlamento Centroamericano (2001).

⁴ See, for example, Courchene (1998).

⁵ See Dodge (2001) and Marcos Yacamán (1999).

⁶ For a vigorous presentation of the arguments in favour of maintaining Canada's floating exchange rate regime, see Laidler (1999) and Murray (1999).

national feelings. Nor does the United States seem keen to make Canada and Mexico new districts of the Federal Reserve. This partly reflects the fact that, for the time being, the possible tensions caused in the United States by swings in the exchange rates of the Canadian or Mexican currencies are attenuated by the small size of the economies of these countries relative to that of the United States.⁷

2. Some lessons from the EU's integration experience

Before beginning the analysis of the selected areas of subregional integration, it might be worth recalling some lessons from the EU's experience with economic and monetary integration that may be of relevance for Latin America. This is done in what follows:

- Economic and Monetary Union (EMU) in Europe has not been achieved overnight. The introduction of euro banknotes and coins in January 2002 represents the culmination of more than 50 years of gradual economic, financial and monetary integration, macroeconomic convergence, institution building, development of common policies and regulatory harmonisation that began with the creation of the Coal and Steel Community in 1951.⁸ Perhaps the first relevant lesson Latin America's integration blocks may want to draw from EMU, therefore, is that it is likely to be *a gradual process* and that a significant degree of convergence and integration is in general advisable before moving to monetary integration .

- But how much integration and convergence is necessary before considering monetary integration? In the EU this question led to a very heated *debate between the so-called "monetarists" and the so-called "economists"*.⁹ The "monetarists" argued that the best strategy for achieving exchange rate stability within the EU, and eventually monetary union, was to subject EU economies to the nominal discipline of an exchange rate stabilisation scheme such as the European Monetary System (EMS). The argument was that such a discipline would force a faster pace of macroeconomic convergence. Exchange rate stability was also expected to stimulate commercial and financial integration, which would increase the cyclical synchronisation of EU economies and reduce the likelihood and size of asymmetric shocks, thus limiting the need for exchange rate realignments. The "economists", by contrast, warned against the risks of a premature pegging of the EU currencies and advocated achieving a higher degree of macroeconomic convergence and trade and financial integration before putting in place any exchange rate stabilisation or monetary unification scheme.

The model finally chosen by the EU was a mix of those proposed by the "monetarists" and "economists" and this hybrid approach seems to have worked relatively well. Until the early 1970s, EU countries concentrated their efforts on achieving a deeper integration of their markets

⁷ Canadian and Mexican GDP only represented in 2000 about 6 and 7 percent, respectively, of the United States' GDP.

⁸ For the history of EMU, see Gros and Thygesen (1998) and Kenen (1995).

⁹ For a discussion of this controversy, see, for example, Corden (1993).

for goods, services, capital and labour, which seemed consistent with the “economists” model. However, the creation of the short-lived Monetary Snake in the early 1970s and of the EMS’ exchange rate mechanism in 1979, when convergence and integration still left much to be desired, represented a partial victory of the strategy advocated by the “monetarists”. The collapse of the narrow-bands EMS in 1992-93 would eventually show the limits of the “monetarist” strategy. The Maastricht Treaty of 1992, the widening of the fluctuation bands of the EMS to ± 15 percent in 1993 and other flexibility features of the new EMS adopted in January 1999 are more faithful to the hybrid strategy that has characterised the European process of monetary integration. While the Maastricht Treaty used a timetable with concrete deadlines for moving to the final stage of EMU in order to “force”, in the best “monetarist” tradition, an acceleration of the pace of convergence, its insistence on compliance with a number of macroeconomic convergence criteria was consistent with the “economists”’ approach. As for the new EMS, its wider bands and emphasis on the need to undertake realignments of central parities in a timely manner make it more acceptable to the “economists”.

The EU experience shows that both the economist and monetarist approaches are in part valid. At certain times, the imposition of an exchange rate discipline has allowed to accelerate convergence. In other cases, a premature exchange rate stabilisation has delayed it, as experienced by the Southern EU countries in the early 1990s (see below), or has ended up provoking dramatic exchange rate crises. An appropriate balance between both approaches, therefore, may be in some cases the optimal strategy.

- *Growing international capital mobility, however, makes a “monetarist” approach based on the adoption of narrow-band, adjustable exchange rate systems increasingly inadvisable, particularly if implemented by a group of countries showing divergent macroeconomic performances and lacking appropriate institutional commitments. The experience with the EMS (and that of emerging market countries in the 1990s and early 2000s) shows that high capital mobility makes these systems very vulnerable to speculative attacks. This is true even when they are reinforced by foreign exchange intervention agreements and short-term financial facilities among participating central banks. Within the EMS, these facilities were strengthened by the Basel-Nyborg agreement of September 1987 to respond to the situation created by the liberalisation of capital flows within the EU, but this did little to avoid the 1992-93 crisis.*

The collapse of the narrow-bands EMS, however, also reflected in part the reluctance of EMS countries to undertake a realignment of central parities despite the loss of competitiveness some Southern countries had accumulated and the upward pressures German reunification generated on the real exchange rate of the deutsche mark. It also reflected the failure of EMS members to implement in a timely manner the interest rate defence foreseen in the Basel-Nyborg agreement.¹⁰ Although EMS countries whose currencies were under attack did eventually adjust interest rates in a sharp manner, this was done too late and the large magnitude of the necessary interest rate increases made them incredible and counterproductive.

¹⁰ See Gros and Thygesen (1998).

- Under conditions of high capital mobility, *narrow-band exchange rate stabilisation schemes may in some cases delay, rather than foster, convergence*. Thus, for example, during the calm period experienced by the EMS in 1987-92, the participation of Italy, Spain and Portugal in the EMS produced high capital inflows that obliged them to cut interest rates too quickly, thus delaying the convergence of their relatively high inflation rates to those of the core EMS countries. The institutional credibility of the EMS during this period had led to the expectation that there would be no devaluation in the short term. This, coupled with an attractive interest rate differential in favour of the Southern EMS countries, which reflected both their higher inflation rates and an unbalanced policy mix (an expansionary fiscal and a contractionary monetary policy), prompted strong capital flows that pushed the Southern currencies towards the top of the EMS fluctuation bands. So-called “convergence games”, where traders betted that the gap in bond yields between Southern and core EMS would shrink quickly also contributed to attract capital inflows into the former. All this obliged the authorities of these three countries to cut interest rates to keep the currencies within the bands, thus delaying inflation convergence.¹¹

- *Wider bands and timely realignments* reduce the scope for “one-way bets” and speculation, but even with these flexible features exchange rate pegging systems are likely to come occasionally under heavy attack if they are not backed up by a high degree of macroeconomic convergence and strong policy commitments. Moreover, if these systems are made too flexible, their *raison d'être* (discipline effects, possible positive impact of exchange rate stability on intra-regional trade and financial integration) will be lost. Although the wider EMS bands introduced in 1993 worked well, ensuring a high degree of exchange rate stability until EMU was launched in 1999, this partly reflected the strong political commitment to EMU and an accelerated rate of macroeconomic convergence among EMS participants, supported by ambitious fiscal consolidation programmes aimed at qualifying for EMU entry.

- *High capital mobility may act as a trigger for outright monetary unification*. The problems confronted by EU countries to stabilise intra-regional exchange rates in the context of high capital mobility convinced them that only the adoption of a common currency would ensure the exchange rate stability they were seeking. This increased the political commitment to the EMU project. In the case of Latin America, the recognition of the inadvisability of adopting adjustable pegging systems could also prompt in some cases a desire to move towards a common currency, including through joint official dollarisation.

- Another important incentive many EU countries had for participating in EMU was their desire to *import monetary credibility and stability* from the core EU countries, in particular Germany. This helped gather the political support from member countries for the decision to forsake monetary independence and adopt a common currency. This is a key difference with the situation in most of the American subregions. Except NAFTA, none of the subregions under analysis includes a large country with a solid anti-inflationary reputation, from which monetary credibility

¹¹ See Giavazzi and Spaventa (1990).

could be imported. This may lead some of these countries to consider joint dollarisation or other dollar-based regimes as a strategy for importing such credibility (from the United States) while, at the same time, achieving subregional monetary integration.

- The EU experience, and in particular the experience with the EMS, warns, however, against over-emphasising the *anti-inflationary credibility or discipline effect* of monetary integration with a low-inflation country or area. Although, under the EMS, countries achieved substantial disinflation, empirical evidence suggests that the discipline effects of EMS membership on the wage setting process and fiscal policies are moderate.¹² Nor does EMU seem to have produced so far the hoped for positive effect on labour market flexibility and reforms, although it is too early to reach a verdict on this.
- Some economists have argued that the EU does not constitute an OCA, although its core countries (Austria, Belgium, Denmark, France, Germany, Luxembourg and the Netherlands) may do so.¹³ They point out that asymmetric shocks are likely to be large and frequent, that the degree of downward wage and price flexibility and labour mobility is low and that, in contrast with the United States, the EU does not have an appropriate system of intra-regional fiscal transfers.

The notion that asymmetric shocks are likely to be important in the EU is, however, disputable. The EU economies actually show a higher degree of economic diversification than the US regions, which should make them less prone to asymmetric disturbances.¹⁴ Perhaps more importantly, *EMU will probably trigger structural changes in the region that will move it closer to satisfying the OCA criteria, that is, some of these criteria are likely to be endogenous.* In particular, EMU will reduce the incidence of asymmetric shocks because member countries will no longer be able to generate individual shocks through their national monetary and exchange rate policies and because EMU is likely to promote intra-industry trade and, thus, increase the degree of productive diversification within each euro-area country. EMU may also contribute to increase trade and financial integration within the euro area.¹⁵ Finally, wage and price flexibility may increase once wage and price setters realise that excessive increases will no longer be accommodated by exchange rate depreciations, although, as noted, the empirical evidence on this effect is not conclusive.

The magnitude of the net economic benefits EMU may bring for its participants (which are to be added to its possible political benefits) will greatly depend on whether these endogenous reactions are confirmed in the years to come. As discussed in Section 5, the idea of endogeneity is

¹² See De Grauwe (1997; pp. 114-21).

¹³ See, for example, Bayoumi and Eichengreen (1993), Feldstein (1993) and Krugman (1992).

¹⁴ See Bini Smaghi and Vori (1992) and European Commission (1990). For an overview of the conflicting literature on the likelihood of asymmetric shocks in the EU, see Kenen (1995).

¹⁵ Although empirical evidence on the effect of exchange rate volatility on trade and investment flows is mixed, recent studies suggest that currency unions may have strong positive effects on the volume of trade. See Section 5.3.

also key when assessing the desirability and prospects for regional monetary integration in Latin America.

- The EU integration experience shows that *de facto intra-regional labour mobility may remain low despite the full removal of legal obstacles to the free circulation of labour*, reflecting language and cultural differences and other problems. As discussed in Section 6, the opposite may be happening in Latin America, that is, relatively restrictive labour migration regulations may coexist with high *de facto* labour mobility.
- The EU experience suggests that *intra-regional macroeconomic policy coordination* by itself, and in particular fiscal policy coordination, is unlikely to prevent sharp intra-regional currency fluctuations. This warns Latin American countries about putting too much hope on the exchange rate stabilisation effects of their recent macroeconomic policy coordination initiatives.
- The *experience of the EU with fiscal policy rules* has so far been positive. The rules contained in the Maastricht treaty have helped consolidate public finances in the EU.¹⁶ Under pressure to comply with the Maastricht calendar for joining EMU, euro-area countries cut their deficits on average by 3,5 percentage points of GDP between 1993, the year the Maastricht treaty entered into force, and 1997, the year on which the assessment of compliance with the Maastricht convergence criteria was based for deciding which countries qualified for EMU.¹⁷ Moreover, deficits continued to fall at the end of the decade, turning into surpluses in a number of cases. The pace of consolidation, however, has slowed down considerably since 1999, revealing a sort of adjustment fatigue, and there is some fear that, now that countries have joined EMU, the incentives to maintain the consolidation efforts may be weaker. Whereas the Stability and Growth Pact of 1998 has strengthened the EU fiscal rules, including by introducing the possibility of sanctions and an “early warning procedure”, some doubt that this will be enough.

One relevant lesson for Latin America from the EU experience with fiscal coordination is that it is not easy to strike the right balance between the need to reinforce the monetary union with some minimum fiscal rules and the need to preserve some national fiscal room for manoeuvre to deal with asymmetric shocks. Another lesson is that fiscal rules will not work unless there are strong political incentives and commitment to do so and strong central surveillance institutions capable of imposing sanctions.

- The last idea in the previous bullet point bring us to one final lesson that can be drawn from EMU, which is the importance of the existence of a sufficient degree of *political integration and commitment* for monetary integration to go ahead. Whereas the euro-area countries have undoubtedly enjoyed such a political support (despite the difficult ratification of the Maastricht Treaty by some of them), this support is absent in most Latin American countries.

¹⁶ Empirical evidence supports the view that pressure to comply with the Maastricht rules explains in part the fiscal consolidation observed during this period. See von Hagen et al. (2001).

¹⁷ See Buti and Giudice (2002).

4. Applying the traditional OCA criteria to Latin America's integration areas

With the perspective on the EU's experience with EMU provided by the previous section, let us now look at how the American subregions under analysis score in terms of the traditional criteria proposed by the OCA literature. In this section, we will also consider two other aspects of relevance, namely, the degree of overall financial openness (which differs from the intra-regional capital mobility criterion stressed by the OCA theory) and the degree of macroeconomic convergence among the countries in the subregion.

4.1 *Trade openness*

As first noted by McKinnon (1963), trade openness can increase the benefits and reduce the costs of doing away with the exchange rate as an adjustment instrument. In relatively open economies, the weight of tradable goods in the cost of living is high, so that stabilising the exchange rate tends to ensure a higher degree of price stability. Also, because in these economies the exchange rate has a significant impact on the cost of living through the price of tradables, people tend to be very aware of changes in the exchange rate. There is therefore little exchange rate illusion, so that domestic wages and prices tend to react quickly to a devaluation, making it less effective. Openness also magnifies the reduction in transaction costs that a common currency brings about.

Table 2 displays 2000 data on trade openness, measured by the ratio of exports plus imports over 2*GDP, for the four subregions under analysis as well as for the euro-area countries. It shows significant differences across countries and regions. All the Central American countries are very open, with an average openness ratio of over 45 percent. This ratio is even higher than the one showed by the euro-area economies, which are normally considered to be examples of rather open economies. Ecuador, Mexico and Canada are also very open. At the other extreme, Argentina, Brazil and the United States are very closed, with ratios of at most 10 percent. The extreme closeness of Argentina and Brazil and the also relatively closed nature of Uruguay results in a very low openness indicator for Mercosur as a whole, despite the fact that Paraguay is fairly open. Bolivia, Colombia and Peru are also rather closed, which results in an intermediate level of openness for the Andean Community despite a very open Ecuadorian economy.

In sum, only Central America scores well on this OCA criterion. The high degree of trade openness of Mexico and especially Canada also provides some support for a currency union in NAFTA but only if the common currency was to float vis-à-vis the rest of the world (to take into account the very closed nature of the US economy). Mercosur, by contrast, is in a particularly bad position in terms of this criterion.

Table 2. Trade Openness, 2000

(in percent of GDP) 1/

	Ratio	Degree of openness
Andean Community	20,1	Intermediate
Bolivia	16,7	Low
Colombia	15,2	Low
Ecuador	35,2	High
Peru	13,2	Low
Venezuela	20,2	Intermediate
Central America 2/	45,5	Very high
Costa Rica	38,7	Very high
El Salvador	28,8	High
Guatemala	26,9	High
Honduras	77,1	Very high
Nicaragua	55,9	Very high
Panama	21,7	Intermediate
Mercosur	14,5	Low
Argentina	9,1	Very low
Brazil	9,4	Very low
Paraguay	25,1	High
Uruguay	14,4	Low
NAFTA	25,3	High
Canada	36,1	Very high
Mexico	29,7	High
United States	10,2	Very low
<i>Memorandum items:</i>		
Chile	24,8	Intermediate
Average of euro-area countries 3/	35,4	Very high

Source: *Direction of Trade Statistics Yearbook, 2001*, IMF; for the euro area, Eurostat

1/ $((\text{Exports} + \text{imports}) / (2 * \text{GDP})) * 100$. Regional averages are simple averages.

2/ Countries included in the Central American Common Market (CACM) plus Panama, which is expected to soon join the CACM.

3/ Simple average of the trade openness ratios euro-area countries showed in 1998. Includes Greece.

4.2 *Trade interdependence*

What really matters for assessing whether a group of countries represent an OCA, however, is not the *overall* trade openness but the degree of *mutual* trade openness. The higher the degree of trade interdependence of a group of countries, the more sense it will make for them to try to stabilise their intra-region exchange rates, including by establishing a monetary union. The importance of intra-regional trade linkages is in turn a function of two factors: the overall degree of openness and the share of trade the countries in the region conduct with each other. These two factors can be combined by looking at the share of GDP a country trades with its subregion.

Tables 3 and 4 provide recent data on the direction of trade in percent of total trade and in percent of GDP, respectively, for the subregions under analysis and the euro-area countries. Data for the latter refer to 1998, the year before the launch of EMU. The picture that emerges from these data is that, with the exception of NAFTA, the degree of trade interdependence of these subregions is much lower than what the euro-area members showed just before EMU.

Canada and Mexico trade between one quarter and one third of their GDPs with their subregional partners, ratios that are by far the highest among the countries in the sample and significantly above the average of the euro-area countries (about 20 percent). This reflects both the very high share of their trade that they conduct with the United States (about 80 percent in both cases) and their high degree of openness. Moreover, as Figure 1 shows, the share of trade Mexico and Canada conduct with the United States has increased quite markedly since NAFTA came into effect, suggesting that this trade agreement has produced the expected reorientation of their trade towards their NAFTA partners. This trend may continue in the coming years. As in the case of trade openness, however, the United States scores much worse than its NAFTA partners on the trade interdependence criterion. Although, at about 30 percent, its subregional trade over total trade ratio is much higher than those exhibited by many countries in the sample, when combined with its very low openness ratio, it produces a subregional trade/GDP ratio of only 3,3 percent.

Mercosur countries traded with each other in 2000 only about 6 of their respective GDPs, on average. This reflects the closeness of most Mercosur countries and the fact that they have only achieved an intermediate degree of mutual trade orientation. Although, at about 36 percent, the ratio of Mercosur's intra-regional trade over total trade is significant and much higher than that of the Andean Community and Central America, this ratio compares poorly with the average ratios of about 65 percent and 55 percent seen in NAFTA and the euro area, respectively. The averages for Mercosur hide, however, significant differences among its member countries. At one extreme, Paraguay is not only rather open but also highly dependent on trade with its Mercosur neighbours, which yields a subregional trade over GDP ratio similar to that of the euro-area economies. At the opposite end, Brazil, the largest Mercosur economy, not only has a very closed economy but also conducts only about 14 percent of its trade with its Mercosur partners.

Table 3. Trade Interdependence - As a Percentage of Total Trade, 2000

(exports plus imports over total exports plus imports; in percent)

	<i>Trade conducted with:</i>				
	Rest of the subregion	NAFTA		EU	United States plus subregion
		United States	Total		
Andean Community	12,8	36,8	40,9	15,7	49,6
Bolivia	16,4	22,6	24,9	17,3	39,0
Colombia	15,3	42,1	47,0	18,0	57,4
Ecuador	15,6	34,9	38,5	18,2	50,4
Peru	9,3	28,8	33,5	21,0	38,1
Venezuela	5,9	46,4	49,6	8,1	52,3
Central America 1/	14,1	46,2	51,9	11,6	60,3
Costa Rica	9,5	49,4	55,0	24,3	59,0
El Salvador	19,9	48,9	54,2	10,8	68,8
Guatemala	14,3	44,4	52,9	8,5	58,8
Honduras	7,4	63,2	66,4	6,0	70,5
Nicaragua	25,3	35,8	42,5	9,0	61,1
Panama	8,1	35,4	40,3	11,2	43,5
Mercosur	36,2	15,2	17,5	19,4	51,3
Argentina	30,8	15,7	17,6	20,8	46,5
Brazil	13,9	23,5	27,1	25,9	37,4
Paraguay	55,9	12,2	12,7	13,6	68,1
Uruguay	44,1	9,2	12,8	17,4	53,3
NAFTA	64,5	-	64,5	11,0	64,5
Canada	78,5	76,7	78,5	7,2	78,5
Mexico	82,9	80,7	82,9	6,4	82,9
United States	32,2	0,0	32,2	19,3	32,2
<i>Memorandum items:</i>					
Chile	17,3 2/	18,4	24,6	21,3	35,7
Euro area 3/	55,1				

Source: *Direction of Trade Statistics Yearbook, 2001*, IMF; for the euro area, Eurostat.

1/ Countries of the Central American Common Market (CACM) plus Panama, which is expected to soon join the CACM.

2/ Trade with Mercosur.

3/ Simple averages of the trade shares euro-area countries showed in 1998. Includes Greece.

Table 4. Trade Interdependence - As a Percentage of GDP, 2000

(exports plus imports over GDP*2; in percent)

	<i>Trade conducted with:</i>				
	<u>Rest of the subregion</u>	<u>NAFTA</u>		<u>EU</u>	<u>United States plus subregion</u>
		<u>United States</u>	<u>Total</u>		
Andean Community	3,1	9,3	10,3	3,5	12,4
Bolivia	2,7	3,8	4,1	2,9	6,5
Colombia	2,3	6,4	7,1	2,7	8,7
Ecuador	5,5	12,3	13,6	6,4	17,8
Peru	1,2	3,8	4,4	2,8	5,0
Venezuela	1,2	9,4	10,0	1,6	10,6
Central America 1/	5,8	20,3	22,5	4,5	26,1
Costa Rica	3,7	19,1	21,3	9,4	22,8
El Salvador	5,7	14,1	15,6	3,1	19,8
Guatemala	3,9	12,0	14,3	2,3	15,8
Honduras	5,7	48,7	51,2	4,6	54,4
Nicaragua	14,1	20,0	23,7	5,0	34,1
Panama	1,8	7,7	8,7	2,4	9,5
Mercosur	6,1	2,0	2,3	2,6	8,1
Argentina	2,8	1,4	1,6	1,9	4,2
Brazil	1,3	2,2	2,6	2,4	3,5
Paraguay	14,0	3,1	3,2	3,4	17,1
Uruguay	6,3	1,3	1,8	2,5	7,7
NAFTA	18,7	-	18,7	2,2	
Canada	28,4	27,7	28,4	2,6	28,4
Mexico	24,6	24,0	24,6	1,9	24,6
United States	3,3	0,0	3,3	2,0	3,3
<i>Memorandum items:</i>					
Chile	4,3 2/	4,6	6,1	5,3	8,8
Euro Area 3/	19,5				

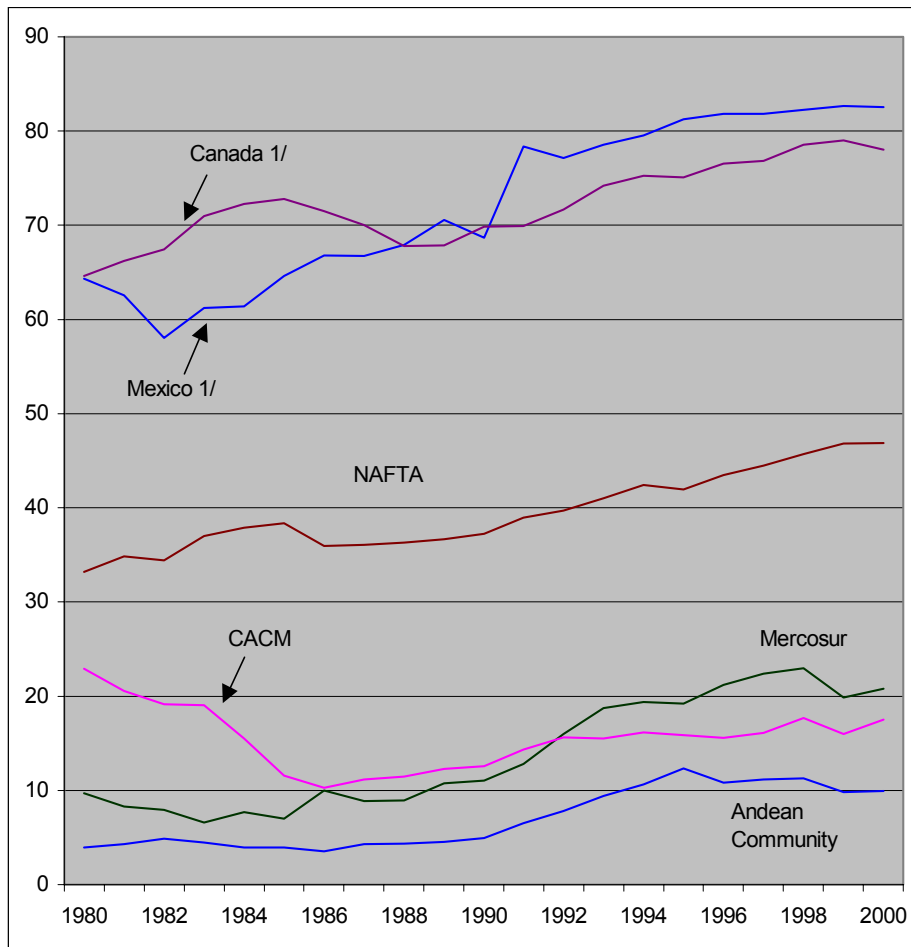
Source: *Direction of Trade Statistics Yearbook, 2001*, IMF; for the euro area, Eurostat.

1/ Countries of the Central American Common Market (CACM) plus Panama, which is expected to soon join the CACM.

2/ Trade with Mercosur.

3/ Simple averages of the trade shares euro-area countries showed in 1998. Includes Greece.

Figure 1. Share of Intra-Regional Trade in Total Trade, 1980-2001
(in percent)



Source: Direction of Trade database, IMF

1/ For Mexico and Canada, share of trade with NAFTA partners over total trade.

It should be noted that the share of trade Mercosur countries conduct with each other has shown a clear upward trend since Mercosur was created in 1991 (Figure 1). One might expect this trend to continue in the coming years as the remaining (tariff and non-tariff) obstacles to intra-Mercosur trade are eliminated. However, some authors take a more pessimistic view. They argue that the increase in subregional trade observed during the 1990s was not due so much to the effect of Mercosur liberalisation but to the fact that member countries' imports increased markedly during the 1990s reflecting the combination of global trade liberalisation and the availability of foreign finance.¹⁸ To the extent that this assessment is correct, the long-term stimulating effect of Mercosur liberalisation on subregional trade will be limited.

¹⁸ See Levy Yeyati and Sturzenegger (2000b), Garriga and Sanguinetti (1995) and Leamer (1998).

The picture of trade interdependence is even bleaker for the *Andean Community*. Its member countries only trade on about 3 percent of their GDP with each other. An intermediate degree of openness in combination with a weak intra-regional orientation (the weakest among the four subregions) explains this result. The Andean countries trade predominantly with NAFTA and also significantly with the EU (trade with the EU exceeds intra-regional trade). Some also trade significantly with Brazil and, to a lesser extent, other Mercosur countries. In the case of Bolivia, for example, trade with Mercosur is twice as important as trade with its Andean partners.¹⁹

The *CACM countries* also trade relatively little with each other (only about 14 percent of their trade and 6 percent of their GDP in 2000). They conduct the bulk of their trade (about 50 percent) with the NAFTA countries, including a non-negligible amount with Mexico. This weak intra-regional orientation reflects in part, however, the negative effects of two decades of conflicts in the region. In the early 1980s, these countries conducted over 20 percent of their trade with each other but the political tensions between Honduras and El Salvador and the civil wars of El Salvador, Nicaragua and Guatemala of the 1980s-90s seriously disrupted intra-regional trade (see Figure 1). The end of these military confrontations in the 1990s and the decision of Central American countries to revitalise their integration process with the Protocol of Tegucigalpa of 1991 have resulted in a recovery of intra-zone trade, but the shares still remain below their early 1980s peak. If, as it seems reasonable to expect, intra-regional trade returns in the coming years to the levels of the early 1980s, the share of intra-regional trade over GDP could reach about 10 percent. This ratio would be much higher than the current ratios of Mercosur and the Andean Community but would still fall below those of the euro area and NAFTA.

In sum, when one looks at trade interdependence, and with the exception of the NAFTA zone, one finds little support for monetary integration at subregional level in the American continent.

4.3 Likelihood of asymmetric shocks

As argued in the OCA literature, a high incidence of asymmetric shocks makes it more costly to do away with the exchange rate as an adjustment instrument. Available econometric research suggests that supply and demand disturbances in the American countries are likely to be asymmetric and relatively large. This criterion, therefore, does not provide much support either for the creation of currency unions in the American continent.

In a well-known study, Bayoumi and Eichengreen (1994) used a structural vector auto-regression approach to identify aggregate demand and supply disturbances and thus assess the advisability of monetary unification in different parts of the world. They found little correlation of disturbances across any group of countries in the American continent during the period 1969-89. In particular, the results indicate little similarity between the country shocks experienced within Mercosur and within NAFTA. Moreover, in addition to there being little correlation of country shocks,

¹⁹ Bolivia is an associated member of Mercosur, has signed a FTA with this region and has sometimes expressed interest in joining Mercosur.

disturbances tend to be relatively large, making it even less advisable for the American subregions (or for the continent as a whole) to consider monetary union. Bayoumi and Eichengreen conclude that, apart from the regions of the United States (which already have a common currency), only the core EU countries, and two groups of Asian countries were suitable for monetary union on this criterion. Table 5 shows the correlations of supply shocks obtained by these authors for the Latin American and NAFTA countries side by side with those for most EU countries, with shaded entries indicating significant positive correlations.²⁰

Table 5. Correlation of Supply Shocks Across Countries, 1960-90 1/

EU countries													
	Germany	France	Netherl.	Belgium	Denmark	Austria	Italy	U.K.	Spain	Portugal	Ireland	Sweden	Finland
Germany	1.00												
France	0.52	1.00											
Netherlands	0.54	0.36	1.00										
Belgium	0.62	0.46	0.56	1.00									
Denmark	0.68	0.54	0.56	0.37	1.00								
Austria	0.41	0.28	0.38	0.47	0.49	1.00							
Italy	0.21	0.28	0.39	0.00	0.15	0.06	1.00						
U.K.	0.12	0.12	0.13	0.12	-0.05	-0.25	0.28	1.00					
Spain	0.33	0.21	0.17	0.23	0.22	0.25	0.20	0.01	1.00				
Portugal	0.21	0.33	0.11	0.40	-0.04	-0.03	0.22	0.27	0.51	1.00			
Ireland	0.00	-0.21	0.11	-0.02	-0.32	0.08	0.14	0.05	-0.15	0.01	1.00		
Sweden	0.31	0.30	0.43	0.06	0.35	0.44	0.46	0.41	0.20	0.39	0.10	1.00	
Finland	0.22	0.12	-0.25	-0.26	0.30	0.11	-0.32	-0.04	0.07	-0.13	-0.23	-0.10	1.00

America													
	U.S.A	Canada	Mexico	Colombia	Venez.	Ecuador	Peru	Brazil	Bolivia	Paraguay	Uruguay	Argentina	Chile
U.S.A	1.00												
Canada	-0.47	1.00											
Mexico	-0.59	0.35	1.00										
Colombia	-0.02	0.05	0.25	1.00									
Venezuela	0.09	0.34	-0.42	0.15	1.00								
Ecuador	-0.02	0.37	0.27	0.20	0.36	1.00							
Peru	-0.40	0.05	0.37	0.07	0.00	0.28	1.00						
Brazil	0.24	0.13	-0.08	0.07	0.13	0.40	0.38	1.00					
Bolivia	-0.65	0.72	0.65	0.18	0.00	0.29	0.54	0.17	1.00				
Paraguay	-0.34	0.45	0.37	0.06	0.12	-0.07	0.16	0.22	0.39	1.00			
Uruguay	0.27	-0.31	-0.26	-0.35	0.05	-0.21	0.01	-0.06	-0.20	-0.08	1.00		
Argentina	-0.30	0.08	-0.18	0.10	0.27	-0.01	0.36	0.34	0.06	0.06	-0.48	1.00	
Chile	-0.18	0.03	0.23	0.09	-0.33	-0.41	0.19	-0.23	0.17	0.21	-0.33	0.21	1.00

Source: Bayoumi and Eichengreen (1994).

1/ For the American countries, the observations span only the period 1969-89.

2/ Shaded areas show pairs of countries with significant positive correlations.

A problem with the study by Bayoumi and Eichengreen is that their period of observations for the American countries only covered up to 1989, that is, a few years before the creation of Mercosur and NAFTA. Since then, and as noted, Mexico's and Canada integration with the United States and, to a lesser extent, Mercosur's intra-regional integration, has intensified, which might tend to reduce the likelihood of asymmetric shocks in these subregions. To overcome this

²⁰ Supply disturbances are more relevant when assessing the advisability of monetary integration than demand disturbances because, while the latter are dominated by monetary and fiscal policies and, therefore, should be expected to become less asymmetric with monetary integration, the former are less likely to change over time.

limitation, Arora (1999) updated the estimates using data through 1998 but reached the same negative conclusions than Bayoumi and Eichengreen.

Studies focusing on the relationship between Canada and the United States are consistent with the results of Bayoumi and Eichengreen (1994) and Arora (1999).²¹ They indicate that, although these two countries are highly integrated, they tend to experience frequent asymmetric shocks. This partly reflects deep structural differences between the two countries. Although Canada has become much less reliant on natural resources during the post-World War II period, basic commodities still represent more than 10 percent of its GDP and 35 percent of its exports. As a result, Canada is much more exposed to terms of trade shocks than the United States. Furthermore, because Canada is a net exporter of primary commodities whereas the United States is a net importer, Canadian terms of trade often move in the opposite direction than those of the United States in response to changes in international commodity prices.²² All this is important for Latin America because, for as long as Canada remains reluctant to enter a monetary union with the United States, a monetary union of the three NAFTA countries will be unlikely, which may also have implications for the monetary choices of other countries in the continent, particularly those in Central America.

Econometric work on the Mercosur and Andean countries has also detected little correlation of either shocks or cyclical conditions. In particular, Licandro Ferrando (1998) found that disturbances within Mercosur were less symmetric than those affecting EU countries²³ and Fernández Valdovinos (2002) detected a low degree of co-movement in the business cycles of the Mercosur countries, Bolivia and Chile. Pineda and Pineda (2002) also found a low degree of cyclical co-movement for the Andean Community countries.

After distinguishing the subperiods 1975-89 and 1990-97, Licandro Ferrando (1998) found that the correlation coefficient of Argentinean and Brazilian output shocks had increased over time, suggesting that the deepening of economic integration within Mercosur may be rendering shocks somewhat less asymmetric. Carrera et al. (1998) and Ahumada and Martirena-Mantel (2001), for their part, detected an increase in the correlation of the productive cycles of Mercosur countries during the 1990s. Only the third of these studies, however, captures the Brazilian real crisis of 1999 and none of them covers the current Argentinean crisis, two crises that have affected Brazil and Argentina with very different intensities. Nor do they capture the fact that the Brazilian economy recovered strongly in 2000 while Argentina (and Uruguay) remained in recession. Expanding the studies to these years may therefore show lower correlations for the recent period.

²¹ See DeSerres and Lalonde (1994), Roger (1991) and Murray (1999).

²² See Roger (1991).

²³ He also found that they were less symmetric than those affecting NAFTA countries.

4.4 Overall financial openness

Most Latin American countries have a relatively open capital account. Although many reintroduced restrictions on capital movements (particularly outflows) during the debt crisis of the 1980s, during the 1990s most countries engaged in a strategy of capital account liberalisation.

The five major Latin American countries, in particular, all have very open capital accounts. Argentina fully liberalised its capital flows during the 1990s in the context of the “Convertibility” regime. Mexico has also removed most restrictions on capital flows since the mid-1990s, as part of the commitments stemming from its membership of NAFTA and the OECD. The only significant remaining restrictions refer to operations with securities, the participation of foreigners in the capital of domestic financial institutions and offshore operations with pesos. Chile, for its part, did away in 1998-2001 with all the remaining capital controls, in particular the non-remunerated reserve requirement on certain short-term inflows and the rule that prevented certain capital flows to be repatriated before one year, both of which were aimed at restricting short-term speculative flows. Brazil maintains restrictions on a number of capital flows, largely short-term flows and certain transactions involving securities, but its capital account regulations are, taken as a whole, rather liberal.

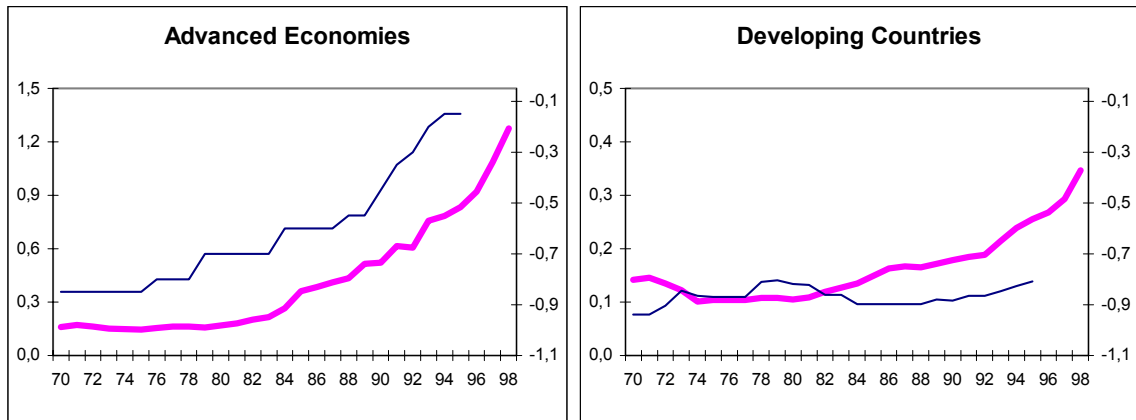
Empirical evidence also suggests a relatively high degree of overall financial openness in Latin America. In the early 1990s, a number of econometric studies attempted to evaluate the degree of international financial integration in developing countries using, for example, interest rate parity conditions, Feldstein-Horioka type of saving-investment correlations, and correlations of consumption levels across countries. The results obtained for Latin American countries are summarised in Levy Yeyati and Sturzenegger (2000a). They indicate that for most Latin American countries the levels of international financial integration increased since the 1970s, reaching relatively high levels in the early 1990s. Given the capital account liberalisation and expansion of capital flows to the region observed during the 1990s, updated versions of these studies are likely to find even higher levels of financial openness.

The IMF has recently calculated indices of capital account openness for a large sample of developing and developed countries, as well as averages for the main regions, for the period 1970-98.²⁴ The IMF uses two different measures. One is a *restriction measure* that reflects the regulations on capital flows reported to the IMF by its member countries and summarised in its Annual Report on Exchange Arrangements and Exchange Restrictions. The other one is an *openness measure*, based on the estimated stocks of gross foreign assets and liabilities as a percentage of GDP, the assumption being that the higher the degree of financial openness the larger those stocks will tend to be. The aggregate results of the IMF calculations are reproduced in Figure 2. On both measures, Latin America scores better than the average of the developing countries. The restriction measure indicates that in 1998 Latin America’s capital account regulations were much more liberal than those in Asia and Africa, although similar to those in the

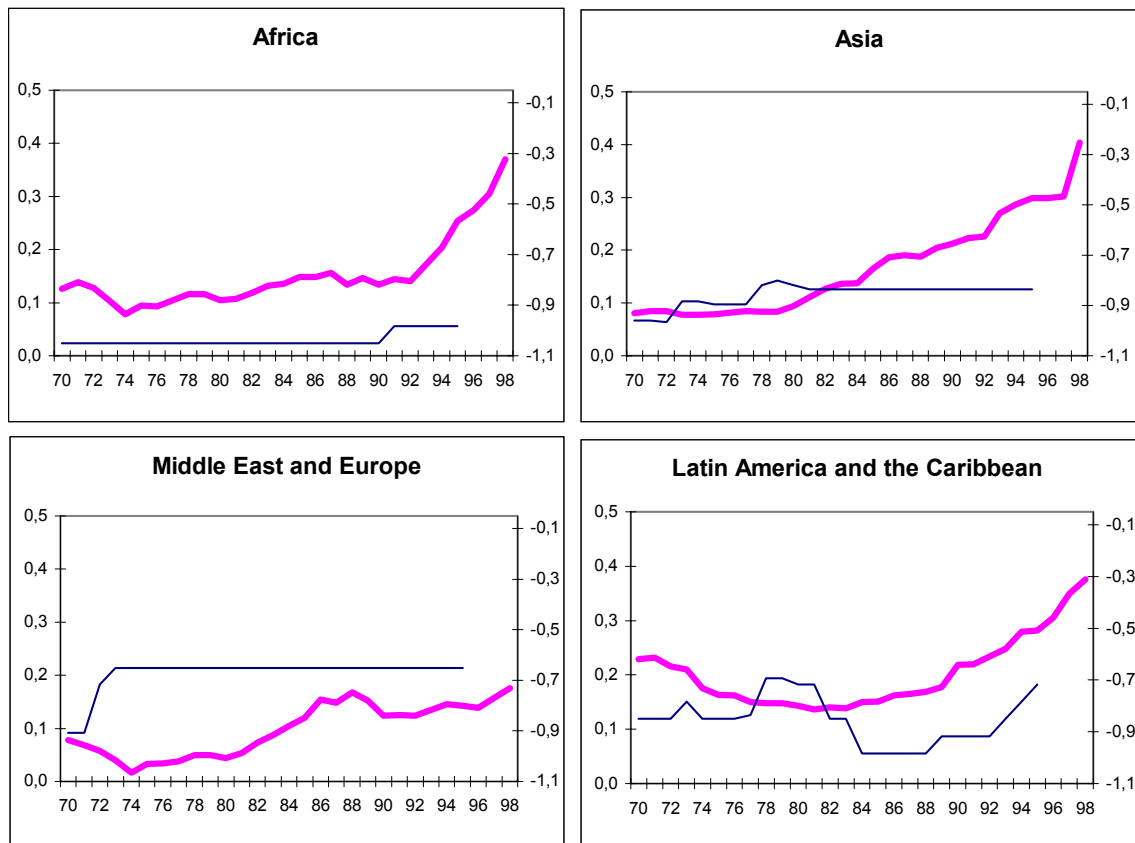
²⁴ See IMF (2001).

Figure 2. Measures of Overall Financial Openness, 1970-98

— Openness measure (left scale) — Restriction measure (right scale, inverted)



Developing Countries by Region



Source: World Economic Outlook database, IMF.

1/ For the definition of the restriction and openness measures, see main text.

Middle East and European developing countries. Latin America's openness measure, for its part, was in 1998 much higher than that of the Middle East and Europe and similar to that of the other two developing regions. Taking the two measures together, therefore, Latin America can be said to be today one of the most financially open developing regions in the world. Both measures also confirm that, following a period of reintroduction of restrictions in the first half of the 1980s in the context of the debt crisis, there has been a rapid increase in Latin America's financial openness (see the U-shaped pattern of Latin America's charts).

In sum, the Latin American economies have reached a relatively high degree of overall financial openness. This has at least two implications for the advisability and prospects of subregional monetary integration in the continent. First, Latin American subregions should refrain from trying to stabilise intra-regional exchange rates through pegging systems. As discussed in Section 3, the EU experience with the EMS, as well as the recent experience of emerging market countries, advises against adopting such exchange rate regimes in the presence of high international capital mobility when countries lack the appropriate institutional commitments. On the other hand, and this is the second implication, the opening of the capital accounts may accelerate the process towards monetary unification in some Latin American subregions, as it happened in the EU in the 1990s, because they may increasingly regard it as the only feasible way to prevent recurrent exchange rate disruptions within their free trade areas.

4.5 *Intra-regional financial integration*

The theory of OCAs suggests that a high degree of intra-regional factor mobility is an important prerequisite for creating a monetary union.²⁵ This refers to both capital and labour mobility. This subsection looks at the issue of intra-regional financial integration and the next one examines labour mobility. Overall financial openness should be distinguished from intra-regional financial integration. Whereas, as noted above, a high degree of international capital mobility can provide an argument against attempting to stabilise intra-regional exchange rates through a system of adjustable pegs, a high degree of intra-regional financial integration can help smooth the adjustment to asymmetric shocks, thus reducing the costs of giving up the exchange rate as an adjustment instrument.

As emphasised by Ingram (1973), in an area that is financially integrated, when demand shifts from one region to another, intra-regional capital mobility facilitates the financing of the transitory current account deficit in the region suffering a decline in demand and, therefore, can be a partial substitute for exchange rate adjustment. In the short-run, the banks from the negatively affected region can sustain the purchasing power of their customers with loans and, in turn, borrow short-term through inter-branch and inter-bank transfers or on the area's integrated capital market. Also, firms in the region hit by the decline in demand that are branches of firms located in the other region can borrow from their parent companies. Finally, both firms and consumers can borrow directly in the area's integrated capital market. Strong borrowing from the

²⁵ See Mundell (1961).

region in difficulties should not drive its interest rates very much above those of the region doing well because even fractional interest rate increases will induce sufficient equilibrating capital inflows from the latter. According to Ingram, this explains the apparent ease of inter-regional payment adjustment within countries and a similar process can work across countries provided they have reached a high degree of financial integration.

Unfortunately, with the exception of NAFTA, all the subregions under analysis seem to combine a relatively high degree of overall financial openness with a low degree of intra-regional financial integration. Mexico's high and growing financial integration with NAFTA contrasts starkly, for example, with Mercosur's low degree of intra-regional financial integration. While Mexico receives the bulk of its capital inflows, including about two thirds of its foreign direct investment (FDI), from the United States and Canada, intra-regional flows in Mercosur are very modest compared to the flows with countries outside the region. For example, about 80 percent of the international banking flows that Mercosur countries received in the second half of the 1990s came from the EU, the United States, Canada and Japan.²⁶ It should also be noted that, while Mexico's financial integration with NAFTA is growing, Mercosur countries have seen since the mid-1990s an increase in the share of the EU in their foreign direct investment (FDI) and banking flows, and a concomitant reduction in the share of the United States.²⁷

Moreover, unlike in the EU, the ongoing internationalisation of Latin American banks is taking place not through the consolidation of national banking sectors across each subregion but, rather, with institutions from extra-regional financial centres (largely from the United States and Europe) that benefit from lower operating costs and a higher reputation. The only exception is Mexico, where the acquisition of Mexican banks by US banks is increasing NAFTA's financial integration. In Mercosur, by contrast, this process is making its financial sector increasingly integrated with that of the United States and the EU. Although there are some minor cases of bank interpenetration between Argentina and Brazil, most acquisitions of local banks in those countries have been undertaken by OECD countries. The share of bank assets held by foreign-owned banks has been increasingly rapidly in both Argentina and Brazil and reached in 1998 46 percent and 23 percent, respectively.²⁸ This means that the internationalisation of the banking sector has increased intra-regional financial integration much less in Mercosur than between Mexico and its NAFTA partners. Also from this point of view, therefore, Mercosur would seem worse suited for engaging into a subregional monetary integration process than NAFTA.

Although only partial information is available for the Andean Community and Central American countries, it appears that the international acquisitions of financial institutions in these countries have also been undertaken by institutions from key OECD financial centres.²⁹ In the case of Central America, the links with financial institutions from the United States are in some cases

²⁶ See Levy Yeyati and Sturzenegger (2000b).

²⁷ See Levy Yeyati and Sturzenegger (2000a).

²⁸ See Levy Yeyati and Sturzenegger (2000a).

²⁹ For Colombia, see Barajas et al.(1999).

rather significant. This is particularly true for Panama, where 100 years of official dollarisation, the full liberalisation of foreign entry into the financial system, and the strong economic and political presence of the United States have contributed to create strong links between the banking and payments systems of both countries.³⁰

4.6 *Labour mobility*

A high degree of intra-regional labour mobility can be helpful for a group of countries establishing a monetary union because if a productivity or other shock affects one country, leading to a decline in its output and real wages, workers from this country may migrate to other countries in the subregion, thus facilitating the adjustment process. This is particularly important when countries in the monetary union have rigid labour markets and downward wage and price rigidity. While the situation varies significantly across countries, there is some partial evidence that suggests that labour markets in Latin America are relatively rigid.³¹ This has prompted a number of countries in the region to emphasise in recent years labour market reforms in their structural reform strategies but much remains to be done. Latin America's relatively high unemployment rates also provide indirect evidence of rigid labour markets and insufficient downward wage and price flexibility. As can be seen in Table 6, even during the period of relatively high growth of 1996-98, official unemployment rates remained at double-digit levels in many Latin American countries, and these rates do not take into account the existence of widespread underemployment.

To which extent is this labour market and wage rigidity compensated by a high degree of intra-regional labour mobility? In order to try to answer this question, we will examine first the regulatory framework applying to the circulation of labour within each subregion and then actual intra-regional migration flows.

Regarding the regulatory framework, the subregions under analysis have made little progress in liberalising the intra-regional flow of labour, in contrast with the EU. *NAFTA* does not include any provision aimed at facilitating the flow of Mexican labour towards the United States and Canada.³² In fact, one of the motivations behind *NAFTA* was precisely to try to limit the inflows of illegal Mexican immigrants by liberalising trade and fostering economic development in Mexico. More concretely, *NAFTA* would make it easier for U.S. companies to take advantage of Mexico's cheaper labour by establishing their factories in Mexico and exporting their products to the United States, thus reducing Mexican workers' need to migrate to the United States.³³

³⁰ See Moreno-Villalaz (1999).

³¹ See, for example, the studies by Marquez (1997) and Galiani and Nickell (1998), which compare labour market rigidity in Latin America with that of developed countries. On the other hand, Camargo (1997) argues that the high turnover and wide wage dispersion shown by the Brazilian labour market suggests that it is relatively flexible.

³² The *NAFTA* includes as an annex a "Labour Cooperation Agreement" but this agreement aims at improving working conditions and labour productivity in each of the *NAFTA* countries without engaging them to open up their labour markets to workers from their *NAFTA* partners.

³³ The development of the "maquiladora" industry in Mexico provides a good illustration of this process.

Table 6. Unemployment Rates in Selected Latin American Countries, 1996-2000

(in percent of labour force)

	1996	1997	1998	1999	2000	Average 1996-2000
Argentina	17.3	15.7	12.9	14.3	15.1	15.1
Brazil	5.4	5.7	7.6	7.6	7.1	6.7
Chile	5.4	5.4	7.2	8.9	8.3	7.0
Colombia	11.2	12.4	15.2	19.4	20.2	15.7
Costa Rica	6.2	5.7	5.6	6.0	5.2	5.7
Ecuador	10.4	9.3	11.8	15.1	14.1	12.1
El Salvador	7.7	8.0	7.3	6.4	n.a.	7.4
Guatemala	4.9	4.9	5.3	5.6	5.8	5.3
Honduras	6.3	6.4	5.8	5.5	n.a.	6.0
Mexico	10.5	9.8	9.4	9.2	8.8	9.5
Nicaragua	16.0	14.3	13.2	10.7	8.5	12.5
Peru	7.9	7.5	7.9	7.2	6.5	7.4
Panama	14.3	13.4	13.6	11.8	13.3	13.3
Paraguay	8.2	5.0	5.7	6.8	7.2	6.6
Uruguay	11.8	11.6	10.1	11.2	14.7	11.9
Venezuela	11.8	11.4	11.2	14.9	14.0	12.7
Simple average of countries above	9.7	9.2	9.4	10.0	10.6	9.8
<i>Memorandum item:</i>						
Real GDP growth of Latin America and the Caribbean	3.6	5.3	2.3	0.2	4.2	3.1

Sources: IMF (*Recent Economic Developments, Statistical Appendices and World Economic Outlook, October 2001*) and WEFA (*Latin American Economic Outlook*).

In the case of *Mercosur*, although Article 1 of the Treaty of Asunción established the free movement of productive factors, including labour, as a common objective, this goal has not been achieved yet. While Mercosur has created a Labour, Employment and Social Security Subgroup and its Labour and Social Security Ministers meet regularly, progress on this front has been largely limited to the signing of a Multilateral Agreement on Social Security aimed at harmonising national social security systems. Moreover, labour market regulations in the Mercosur countries continue to differ widely.

Central American countries have also failed to agree on a liberalisation of labour flows among them. Although the Treaty of Economic Association of 1958 between Guatemala, Honduras and El Salvador, the predecessor of the Treaty of Managua of 1960 establishing the CACM, foresaw the free movement of people and workers and the granting of national treatment to workers coming from other countries in the subregion, the Treaty of Managua did not include any provision in

this regard.³⁴ The military conflicts and other tensions experienced by Central America in the 1970s and 1980s made some of the countries in this subregion reluctant to liberalise their labour flows. The Treaty of Tegucigalpa of 1991 establishing the Central American System of Integration puts more emphasis on social issues. It created a Consultative Committee representing employers, workers and other key economic agents and led to the signing of the Protocol of Guatemala of 1993, which engages the member countries to take steps to liberalise the circulation of labour and capital across the subregion, and the Treaty of Social Integration of 1995, which aims at a gradual harmonisation of social policies. The actual implementation of these agreements, however, has until now been limited. While Nicaragua and its Northern Central American neighbours favour an easing of restrictions on intra-regional movement of labour, Costa Rica and Panama, the richest countries in the subregion continue to oppose it.

The countries of the *Andean Community* have made more of an effort to liberalise the intra-regional circulation of labour and harmonise their social security instruments, including by signing the so-called Andean Labour Migration and Social Security Instruments in 1977. But the practical implications of these agreements have been modest.

Despite this relatively restrictive legal framework, however, intra-continental migratory flows, including flows from Latin America to the United States and Canada, have been rather important. This suggests that subregional labour mobility (especially within NAFTA) may be underestimated by simply looking at immigration regulations. A recent study on continental migration produced by the UN's Economic Commission for Latin America and the Caribbean (ECLAC)³⁵ shows that the number of immigrants from Latin American countries residing in the United States increased by 2.7 million (or about 150 percent) between 1970 and 1980 and by 4 additional million (or about 90 percent) between 1980 and 1990 (see Table 7). The nearly 8.4 million Latin American immigrants living in the United States in 1990 represented about 43 percent of the total foreign population living in that country according to the census. Of this 8.4 million people, over half were of Mexican origin and about one fourth came from the Caribbean, mainly Cuba, the Dominican Republic and Jamaica. Also, a very significant share of these immigrants come from Central American countries, particularly El Salvador.³⁶ Based on the United States' *Current Population Survey*, the number of Latin American immigrants living in that country is estimated to have increased to about 13.1 million by 1997 (a further increase of about 4.7 million compared to 1990), representing already about 50 percent of the foreigners residing in the United States. Latin American migratory flows to Canada have also been significant.³⁷

³⁴ See Chamorro Marín (2001).

³⁵ Villa and Martínez Pizarro (2000).

³⁶ El Salvador, which has seen since 1970 a sharp increase in migrations to the United States, accounted in 1990 for 5.6 percent of the Latin American immigrants living in that country.

³⁷ Villa and Martínez Pizarro (2000).

Table 7. Number of Latin American and Caribbean Immigrants in the United States, 1970-90

Country of origin	1970		1980		1990		Rates of growth (in percent)	
	Immigrants	% of total	Immigrants	% of total	Immigrants	% of total	1970-80	1980-90
South America	234 233	13,6	493 950	11,3	871 678	10,4	110,9	76,5
Mexico and Central America	873 624	50,6	2 530 440	57,7	5 391 943	64,4	189,6	113,1
of which: Mexico	759 711	44	2 199 221	50,2	4 298 014	51,3	189,5	95,4
El Salvador	15 717	0,9	94 447	2,2	465 433	5,6	500,9	392,8
Caribbean and other	617 551	35,8	1 358 610	31	2 107 181	25,2	120,0	55,1
of which: Cuba	439 048	25,4	607 814	13,9	736 971	8,8	38,4	21,2
Dominican Rep.	61 228	3,5	169 147	3,9	347 858	4,2	176,3	105,7
Jamaica	68 576	4	196 811	4,5	334 140	4	187,0	69,8
Total	1 725 408	100	4 383 000	100	8 370 802	100	154,0	91,0

Source: Villa and Martínez Pizarro (2000)

Table 8. Number of Immigrants Living in Latin American Countries, 1990-97

Country of origin	1970	1980	1990	Rates of growth (in percent)	
				1970-80	1980-90
Other Latin American and Caribbean countries	1 218 990	1 995 149	2 242 268	63,7	12,4
Percentage of total	23,9	36,9	48,8		
Other countries ("overseas immigration)	3 873 420	3 411 426	2 350 441	-11,9	-31,1
Percentage of total	76,1	63,1	51,2		
Total	5 092 410	5 406 575	4 592 709	6,2	-15,1

Source: Villa and Martínez Pizarro (2000)

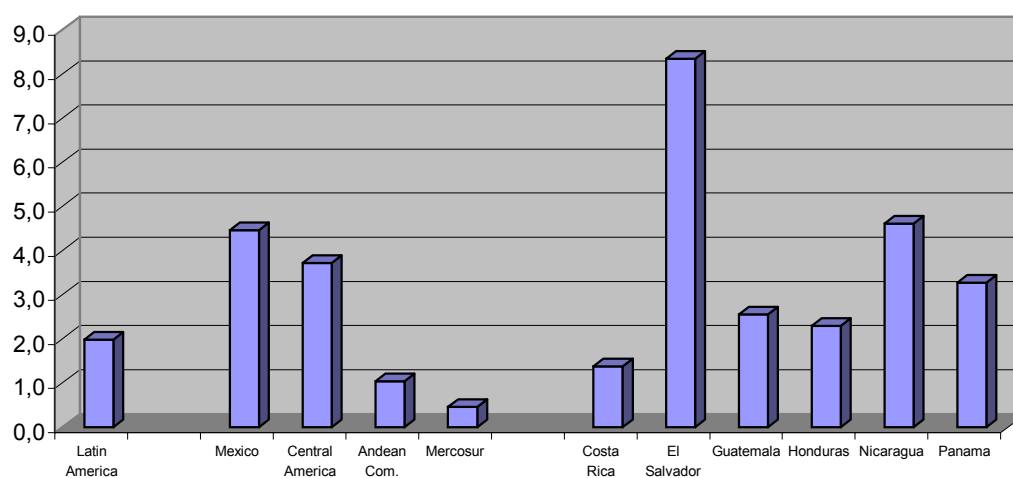
The number of Latin American migrants residing in other Latin American countries also increased considerably (by 776,000, or 64 percent) during the 1970s, although its rate of growth slowed down significantly in the 1980s as the debt crisis seriously affected some of the traditional countries of destination, in particular Argentina (see Table 8). The share of immigrants of Latin American origin in the total number of immigrants living in Latin American countries has increased from about 24 percent in 1970 to about 49 percent in 1990 and that of overseas immigrants has shown a concomitant decline. Cultural and geographical proximity, differences in income and development levels and a relatively high incidence of political and macroeconomic shocks (see below) are the major factors feeding these intra-Latin American migrations.³⁸ But, although significant, intra-Latin American migratory flows pale in comparison with the magnitude of the flows from Latin America to the United States and Canada.

³⁸ See Villa and Martínez Pizarro (2000) and Pellegrino (2000).

One Latin American subregion that shows a particularly high rate of international labour mobility is Central America. Relative to its overall population, Central America, and in particular El Salvador and Nicaragua, shows a much higher rate of migration than Latin America as a whole (see Figure 3). While most Central American migrants have as destination the United States, Nicaraguan migrant workers predominantly go to Costa Rica. Political instability, wars and other shocks (including natural catastrophes), but also significant per capita income gaps (relative to the United States and within the subregion),³⁹ have been important factors explaining Central America's high migration rates.

Figure 3. Rates of Migration in Latin America, 1990

(stock of migrants to other American countries in percent of population of country of origin)



Source: CEPAL.

In sum, while there has been little progress in liberalising and facilitating the circulation of workers within the subregions under analysis, actual migration flows suggest that there is a significant degree of labour mobility, particularly within NAFTA, between Central America and NAFTA and, perhaps, within Central America. As noted in Section 3, these results are almost the opposite to what seems to be the case in the EU, where despite the full liberalisation of intra-regional labour flows and significant progress in harmonising national social security systems, labour mobility remains low.

How can these paradoxes be explained? It seems that language and cultural differences, housing market constraints in the cities, generous social welfare (including unemployment benefit) systems, smaller per capita income gaps and a higher degree of synchronisation of economic cycles tend to reduce the willingness and necessity of workers to migrate within the EU. In Latin America, by contrast, language and cultural affinity facilitate migration, social welfare systems are much less developed, the economies are less cyclically synchronised and political and economic shocks are pervasive, often obliging people to leave their countries in search for a better life

³⁹ Stein et al. (1999) find a negative correlation between migration and economic growth rates in Central America.

despite immigration rules that are not always welcoming. In the case of the migration to the United States, the cultural affinity argument does not apply but the per capita income gaps are so huge and the prospect of economic success so appealing that they seem to more than compensate for this difficulty and for the very restrictive immigration rules. Moreover, the language and cultural problem is becoming much less determinant as Latin American immigrants develop communities in the cities where they recreate in part their culture and way of life, speak their language and maintain family ties.⁴⁰ The Mexican, Cuban or Peruvian communities in the US cities, to name a few, act as “poles of attraction” for new immigrants from those countries, thus increasing international labour mobility.

4.7 *Inter-regional fiscal transfers*

Another traditional criterion put forward by the OCA theory is the existence of a mechanism of fiscal transfers among the countries wanting to have the same currency. Such a mechanism can be used to alleviate the effects of asymmetric shocks within the region and can, therefore, reduce the costs of giving up the possibility of intra-regional exchange rate adjustments. The existence of a federal system of fiscal transfers is considered a key factor explaining the success of the United States’ monetary union. Sala i Martin and Sachs (1992), for example, show that, in the United States, a one dollar decline in the income of one state leads to a reduction of about 34 cents in the taxes it pays to the federal government and an increase of about 6 cents in the federal transfers it receives. Some subsequent studies have come up with somewhat lower estimates of the cyclical change in the federal “take”⁴¹ but they generally confirm the strong regional stabilising properties of the US federal budget.

Unfortunately, none of the subregions under examination has endowed itself with such a system. In fact, these subregions have not even created a common budget. Consequently, none of them meets this OCA criterion.

It should be noted, however, that the EU cannot be said to meet this criterion either. The EU has not established a large-scale mechanism of fiscal transfers to alleviate the effects of regional shocks. It has created the structural (agricultural, regional and social) funds and the so-called cohesion fund but the Community’s budget remains small (it still accounts for less than 2 percent of GDP) and is, therefore, unfit to be used as a buffer for asymmetric shocks in the region. Some economists have proposed shifting certain national social insurance programmes, notably part of the unemployment benefits, to the EU budget in order to strengthen its cyclical sensitivity and therefore its capacity to offset asymmetric shocks.⁴² But none of these proposals has been adopted to date. Nor has the EU established a system of coordination of fiscal policies that can

⁴⁰ Moreover, in many cities with important Latin American communities, the authorities are making things easier by applying official biligualism.

⁴¹ See, for example, Pisani-Ferry, Italianer and Lescure (1993).

⁴² See, for example, Italianer and Vanheukelen (1993), who argue that their proposed unemployment benefit scheme, which would be based on the change in unemployment levels, could have a stabilisation power similar to that of the US federal budget at an annual cost of only about 0,2 percent of the EU’s GDP.

be used to emulate through the operation of national fiscal policies a centrally controlled system of fiscal transfers⁴³. National budgetary policies, using the margin for manoeuvre foreseen under the Stability and Growth Pact, may spontaneously perform that role to some extent but the capacity of the Community institutions to ensure that outcome remains limited.

4.8 *Macroeconomic convergence and volatility*

It is normally argued that, before moving into some form of monetary integration, a group of countries should achieve a minimum degree of nominal and real macroeconomic convergence. Table 9 looks at the degree of macroeconomic convergence in each of the subregions under analysis for the period 1999-2001. Four indicators are examined: three indicators of nominal convergence emphasised by the Maastricht Treaty, namely, the government balance as a percentage of GDP, the public debt/GDP ratio and the inflation rate; and one indicator of real convergence, namely, the level of per capita income. For comparison, the bottom part of Table 9 also shows the levels of these indicators for the euro-area countries in 1998, that is, the year before EMU was launched. In addition, Table 10 shows the standard deviation of these indicators for each of the American subregions and the euro area.

Let us start by looking at the degree of *nominal convergence*. In recent years, Latin American countries have made a great deal of progress in reducing *inflation* levels and differentials, and in 2001 only three of them still had inflation rates above 10 percent.⁴⁴ Nonetheless, both inflation levels and dispersion, as measured by the standard deviation of inflation rates, remained in all subregions except NAFTA between four and eight times larger than in the euro-area countries in 1998. Moreover, following the sharp depreciation of the Argentinean peso and the Venezuelan bolivar in early 2002, inflation in these two countries is expected to increase again markedly this year. This means that none of these two countries is likely to meet the inflation convergence targets defined by, respectively, Mercosur and the Andean Community. Uruguay and Paraguay, which have also experienced an accelerated rate of currency depreciation since last year, may also have problems to meet this year the 5 percent target ceiling for inflation set by Mercosur.

Concerning the *fiscal convergence criteria*, only five of the Latin American countries under analysis are estimated to have finished 2001 with fiscal deficits below the 3 percent of GDP Maastricht ceiling, and only three of those (namely, Peru, Guatemala and Paraguay) also satisfied the Maastricht debt convergence criterion.⁴⁵ On the other hand, with the exception of a few

⁴³ For example, fiscal policy could be eased in a country suffering from an asymmetric decline in demand and tightened to some extent in other euro-area countries.

⁴⁴ With a rate of 22.3 percent, Ecuador was the only country with inflation above 20 percent. Inflation in this country, however, has declined sharply (from over 90 percent) since the full dollarisation of the economy was announced in January 2000 and is expected to continue converging rapidly towards the US inflation rate in the near future.

⁴⁵ Chile, which does not belong to any of the subregions under analysis, also met in 2001 Maastricht criteria for the fiscal deficit and debt and had an inflation rate close to the euro-area average. Mexico's deficit was below the Maastricht ceiling according to the official figures but above it when the IMF's "augmented balance" measure was used.

Table 9. Nominal and Real Macroeconomic Convergence Indicators, 1999-2001 1/

	Fiscal deficit/GDP 2/			Public debt/GDP 3/			Inflation 4/			Per capita income 5/ (at PPPs; in dollars) 2000
	1999	2000	2001 estimates	1999	2000	2001 estimates	1999	2000	2001 estimates	
Andean Community	-3,7	-1,2	-3,5	61,2	54,5	53,0	19,3	24,1	8,7	4 332
Bolivia	-3,5	-3,8	-6,6	58,0	55,1	55,2	3,1	3,4	0,9	2 380
Colombia	-5,6	-3,5	-3,3	38,2	42,4	43,0	9,2	8,8	7,7	5 890
Ecuador	-7,0	1,6	1,4	123,0	95,4	84,4	60,7	91,0	22,3	2 920
Peru	-3,0	-3,2	-2,4	48,0	45,9	46,5	3,7	3,7	-0,1	4 720
Venezuela	0,6	3,0	-6,4	38,6	33,6	35,9	20,0	13,4	12,5	5 750
Central America	-2,7	-2,9	-5,0	92,9	89,4	86,1	6,4	7,1	5,8	4 433
Costa Rica	-3,8	-4,4	-3,4	53,6	49,4	45,9	10,1	10,2	11,0	8 250
El Salvador	-2,6	-2,8	-4,4	34,7	36,2	39,6	-1,0	4,3	1,4	4 390
Guatemala	-3,0	-2,0	-2,1	27,1	25,6	27,2	4,9	5,1	8,9	3 770
Honduras	1,4	0,8	-2,5	80,0	77,0	74,1	11,6	10,5	8,8	2 390
Nicaragua	-7,0	-8,1	-14,7	289,0	278,0	256,4	11,2	11,6	4,7	2 100
Panama	-1,4	-0,7	-3,1	72,8	69,9	73,2	1,5	0,7	0,3	5 700
Mercosur	-5,8	-4,5	-4,0	40,3	42,8	46,1	4,2	4,8	5,1	8 188
Argentina	-4,2	-3,6	-5,0	43,5	47,2	51,2	-1,8	-0,7	-1,3	12 090
Brazil	-10,0	-4,6	-5,2	51,0	50,4	55,0	8,9	6,0	9,4	7 320
Paraguay	-4,7	-5,7	-1,8	26,4	28,0	29,1	5,4	8,6	8,5	4 460
Uruguay	-4,1	-4,0	-4,0	40,4	45,7	49,0	4,2	5,1	3,6	8 880
NAFTA	-1,6	0,4	-0,2	56,8	50,7	48,7	5,9	5,2	2,2	23 467
Canada	1,6	3,2	2,8	74,9	66,3	61,5	2,6	3,2	0,7	27 330
Mexico	-7,1	-3,7	-3,8	46,7	42,1	42,5	12,3	8,9	4,4	8 810
United States	0,8	1,7	0,4	48,9	43,7	42,0	2,7	3,4	1,6	34 260
<i>Memorandum items:</i>										
Chile	-3,6	-2,6	-2,2	9,2	8,4		2,3	4,5	2,6	12 090
Euro area (1998) 6/	-2,1			73,4			1,1			25 110

Sources: IMF, World Bank, national authorities, and European Commission staff estimates.

1/ For the subregions, simple averages of the indicators of their member countries.

2/ For most countries, deficit of the consolidated nonfinancial public sector. For Ecuador, Guatemala and Nicaragua, includes the quasi-fiscal balance of the central bank. For El Salvador, includes reconstruction expenditure. For Mexico, "augmented balance" as defined by the IMF.

3/ For Honduras and Nicaragua, includes only public external debt.

4/ End of period annual rates.

5/ Per capita Gross National Income at purchasing power parities (international dollars).

6/ For inflation, Harmonised Index of Consumer Prices published by the European Central Bank.

Table 10. Macroeconomic Dispersion Indices 1/

(standard deviations of member countries' values)

	Fiscal deficit/GDP 2001 2/	Public debt/GDP 2001	Inflation 2001	Per capita income (at PPPs; in dollars) 2000
Andean Community	2,9	16,9	8,2	1442
Central America	4,4	78,1	4,0	2091
Mercosur	1,3	10,0	4,3	2755
NAFTA	2,7	9,1	1,6	10743
<i>Memorandum item:</i>				
Euro area	2,1	30,4	1,0	7035

Sources: IMF, World Bank, national authorities and European Commission.

1/ For the precise definition of the indicators, see footnotes to Table 9. Euro area includes Greece.

2/ For the euro area, 1998 data.

Table 11. Compliance with the Macroeconomic Convergence Parameters in the CACM

(in percent; maximum compliance = 100)

	1997	1998	1999	2000	20001
Costa Rica	50,0	63,0	38,0	63,0	50,0
El Salvador	63	63,0	63,0	63,0	63,0
Guatemala	50	75,0	25,0	50,0	63,0
Honduras	37,5	38,0	13,0	38,0	25,0
Nicaragua	50	25,0	50,0	37,5	25,0
Dominican Rep. 2/	75	75,0	75,0	63,0	63,0
Region (simple avg.)	54,2	56,5	46,0	52,5	48,2

Source: Consejo Monetario Centroamericano (2002).

1/ Degree of observance of the 8 convergence parameters listed in Table 1. The overall degree of observance for each country is obtained by dividing the number of parameters satisfied by the total number of parameters.

2/ The Dominican Republic participates as an observer in the macroeconomic convergence discussions organised by the Central American Monetary Council.

Table 12. Macroeconomic Volatility in Latin America and the Euro Area

	70-01	70-80	81-90	91-01
Average of standard deviations of member countries' GDP growth over the period				
Latin America	4,4	3,5	4,6	3,2
Euro area	2,4	2,7	1,9	1,7

Source: Buti and Giudice (2002)

countries with very high foreign debts (Ecuador, Honduras, Nicaragua and Panama⁴⁶), all countries respected the Maastricht ceiling on the public debt. Looking at the situation by region, Central America was the region that scored more poorly on the fiscal indicators, both in terms of average levels and in terms of dispersion. Its fiscal dispersion levels were more than twice as large as those shown by euro-area just before EMU began. Debt/GDP ratios of 256 percent in Nicaragua and over 70 percent in Nicaragua and Panama, for example, coexisted with ratios below 30 percent in El Salvador and Guatemala. At the other extreme lay NAFTA, with both lower deficits and debt and lower fiscal dispersion indices than the euro area had in 1998. Mercosur and the Andean Community were in an intermediate position. While they showed lower average debt ratios and dispersion levels than those the euro area had just before EMU, their budgetary situation is far from being under control. Their average deficit was nearly twice as large as the deficit the euro-area had in 1998. Moreover, in 2002 Argentina looks certain to miss the 3.5 percent of GDP ceiling on the fiscal deficit agreed under Mercosur's macroeconomic convergence initiative, and Uruguay and Brazil may also miss it. Bolivia and Venezuela, for their part, are expected to miss in 2002 the 3 percent of GDP ceiling agreed by the Andean Community.

It is also worth examining the degree to which Central American countries have complied with the convergence parameters defined by the CAMC for the period 1997-2001. Table 11 shows that the overall compliance with the eight targeted convergence parameters has been only around 50 percent since 1997, without showing a clear trend. These countries are, therefore, still far from the maximum level of convergence targeted by the CAMC, which would imply observance ratios of 100 percent.

In sum, with the exception of NAFTA, the degree of nominal macroeconomic convergence attained by the subregions under analysis remains insufficient to consider monetary integration.

The analysis of *real convergence*, as measured by the degree of dispersion of per capita income levels, provides a different picture, however. On this criterion, NAFTA is very badly placed, reflecting the huge per capita income differences between the United States and Canada, on the one hand, and Mexico, on the other. The other three subregions (particularly the Andean Community) score much better than NAFTA and much better than the euro area, where, despite the substantial real convergence achieved over the last 20 years, significant income differences persist between Southern and core countries. In terms of real convergence, therefore, the poorest subregions tend to do better.

Finally, let us look at the issue of volatility. Latin America's subregions not only show an insufficient degree of nominal macroeconomic convergence but they are also characterised by a high degree of *macroeconomic volatility*. Economic growth and inflation in Latin America is about twice as volatile as in the industrial economies and more volatile than in any developing region other than Africa and the Middle East.⁴⁷ This partly reflects Latin America's precarious and

⁴⁶ Honduras and Nicaragua, as well as Bolivia, benefit from the HIPC initiative.

⁴⁷ See Inter-American Development Bank (1995) and Gavin et al. (1996).

volatile access to the international capital markets, the relatively high dependence on international commodity exports, and the pro-cyclical and variable nature of their fiscal policies.⁴⁸ Also, there seems to be a higher incidence of domestic shocks of a monetary or financial nature.

As shown in Table 12, reproduced from Buti and Giudice (2002), GDP growth volatility in the last three decades has been much higher in Latin America than in the euro-area countries. While the standard deviation of euro-area growth averaged 2.4 percent in the period 1970-01 and declined to less than 2 in the last two decades, that of Latin America averaged 4.4 percent in the 1970-01 period and shows no discernible trend. This high degree of macroeconomic instability is one factor behind the high incidence of asymmetric shocks detected by econometric studies. In combination with the insufficient nominal macroeconomic convergence and the high degree of financial openness, it warns against attempting to stabilise exchange rates within Latin America's subregions on the basis of fixed-but-adjustable pegs.

5. Introducing other relevant criteria

The analysis in the previous section suggests that, based on the traditional criteria proposed by the theory of OCA and on their current degree of macroeconomic convergence and volatility, Mercosur, the Andean Community and the CACM are not ready to engage in a subregional monetary integration process. In particular, their high degree of overall financial openness strongly advises against the adoption of subregional exchange rate pegging systems.

The situation within NAFTA is somewhat different. The NAFTA countries (particularly, Canada and Mexico relative to the United States) do present a high degree of trade and financial integration, have already achieved a high degree of nominal macroeconomic convergence and exhibit high de facto labour mobility between each other, even though Mexicans continue to face serious legal obstacles to work in the United States. Except Mexico, they have also tended to be more macroeconomically stable. The Canadian and Mexican economies are also very open. From all these points of view, the NAFTA countries may be considered to be close to an OCA. On the other hand, they are characterised by very different productive and export structures, which results in a high incidence of asymmetric shocks, show a huge per capita income gap between Mexico and the other two partners, and have not established any mechanism of intra-regional fiscal transfers. Moreover, their very high degree of overall financial openness advises them against attempting to stabilise intra-NAFTA exchange rates via classical currency pegs. NAFTA policy-makers and part of the economic literature have tended to focus on the high likelihood of asymmetric shocks and to argue against monetary integration within the subregion.

The traditional OCA criteria, however, do not take into account a number of aspects that may be relevant for assessing the optimal monetary regime. The conclusions on the advisability of monetary integration may change, at least for some of the subregions, once other factors stressed

⁴⁸ See Gavin et al (1996), who argue that these factors interact in a negative way to produce a sort of vicious circle.

by the more recent literature, such as the degree of the *de facto* dollarisation, the need to import monetary credibility and the possible endogeneity of the OCA criteria, are taken into consideration. The assessment of dollar-based monetary integration may also change once the trade interdependence criterion is extended to look not simply at intra-regional trade but at the share of trade that would be conducted with the dollar area if the subregion was to jointly adopt or peg to the dollar. After extending the analysis by incorporating these criteria, this section concludes that not only NAFTA but perhaps also Central America may meet the conditions for a dollar-based monetary integration. The introduction of the new criteria, however, does not affect the conclusion that none of the subregions should adopt fixed-but-adjustable exchange rate systems.

5.1 The degree of de facto dollarisation

As stressed by the recent literature on dollarisation⁴⁹, when an economy presents a high degree of *de facto* dollarisation, the advantages of having a floating exchange rate are seriously reduced. First, highly dollarised economies tend to have a large proportion of their liabilities denominated in dollars.⁵⁰ In particular, a high share of the banks' loan portfolio and of the public debt is denominated in dollars or indexed to the dollar. Under these conditions, a depreciation of the currency can cause serious damage to the banking sector, as illustrated by the recent Argentinean crisis. Even though banks' direct foreign exchange position may be hedged, when the domestic currency experiences a sharp depreciation, many enterprises and households will no longer be able to service their dollar-denominated debts to the banks, pushing some of them into bankruptcy. Also, because much of the public debt is in dollars, the depreciation of the currency will sharply increase the debt service obligations of the government, which could result in a marked deterioration of the fiscal position. Secondly, when an economy is highly dollarised, the depreciation of its nominal exchange rate will tend to feed quickly into inflation because domestic wages and prices normally present a high degree of indexation to the exchange rate (the prices of many domestic contracts are denominated in dollars). Under these circumstances, the depreciations will only produce an ephemeral depreciation of the real exchange rate⁵¹ and will, therefore, have little impact on the trade balance. They will simply lead to higher domestic inflation and may push the economy into an inflation-currency depreciation spiral.

These considerations are relevant because many Latin American economies present a high and, in some cases, growing degree of *de facto* dollarisation. A survey conducted by Baliño et al. (1999) found that, in 1995, five Latin American countries (Argentina, Bolivia, Costa Rica, Peru,

⁴⁹ See, for example, Berg and Borensztein (2000), Hausmann (1999), Hausmann et al. (1999), Schuler (1999) and Bogetić (2000).

⁵⁰ According to Hausmann (1999) and Calvo (1999), the high degree of "liability dollarisation" seen in many Latin American (and other emerging market) economies is explained by the combination of a lack of medium and long-term credit in domestic currency (which is normally a weak currency) and strong investment needs. The only type of long-term credits that are normally available, either from foreign or domestic creditors, are denominated in foreign currency, often in dollars.

⁵¹ Ize and Levy Yeyati (1998) argue that in highly dollarised economies there tend to be low volatility in the real exchange rate.

and Uruguay) were de facto "highly dollarised", as measured by a share of foreign-currency deposits at domestic banks over broad money above 30 percent. The data are displayed in Table 13. More recent data indicate that dollarisation ratios continued to increase or remained a high levels in many Latin American countries during the second half of the 1990s and the early 2000s. This was particularly true for the most highly dollarised economies of South America, including Argentina until the recent government decision to reconvert bank loans and deposits into pesos (see the top four panels in Figure 4). In Uruguay and Bolivia, dollar deposits accounted for about 90 percent and 80 percent, respectively, of broad money at end-2001. In Peru and Argentina these ratios were closer to 60 percent. The share of the dollar in bank loans is similarly high.⁵² The dollar is also used widely as a unit of account for the pricing of durable goods such as cars and apartments and, in some cases, as a means of payment. In Peru, for example, about 30 percent of the cash withdrawn from ATMs and about 35 percent of the transactions paid with credit cards in 2001 were in dollars.⁵³

Dollarisation ratios have also increased significantly in Central America since the mid-1990s. According to the data compiled by the Central American Monetary Council, the average share of dollar denominated quasi-money in M2 in the Central American countries excluding Guatemala and Panama rose from 27 percent in 1995 to 55 percent in 2001. Moreover, all the Central American countries for which data were available had their stock of public debt highly dollarised (see Table 14).

In addition to this high degree of de facto dollarisation, four Latin American economies (Ecuador, El Salvador, Guatemala and Panama) have declared the dollar official legal tender. Panama has been fully dollarised since it signed the 1904 Treaty of Monetary Association with the United States⁵⁴; Ecuador announced, as noted, the official dollarisation of its economy in January 2000, in the middle of a deep economic and financial crisis; in December 2000, Guatemala decided to allow the dollar to be used freely alongside the quetzal; and, in January 2001, El Salvador decided to fully dollarise its economy and it is estimated that by the end of that year the dollar accounted for over 80 percent of M2 (see Table 14). The authorities of other Latin American countries, including Costa Rica and Argentina under the Menem administration (see below), have also expressed in the past some interest in official dollarisation.

On the other hand, it should be noted that in Brazil and Mexico, the two largest Latin American countries, as well as Chile, dollarisation ratios stand now at relatively moderate levels. In Mexico, the foreign currency deposits over broad money ratio has fallen from over 25 percent during the Tequila crisis of 1995 to about 5 percent at end-2001 (see Figure 4). This ratio has also declined significantly in Chile relative to the levels it had reached in the 1970s and early 1980s. Brazil's low degree of dollarisation contrasts starkly with the high degree of dollarisation shown by its

⁵² See Catão and Terrones (2000).

⁵³ See Armas (2002).

⁵⁴ For a discussion of the experience of Panama with official dollarisation, see Moreno-Villalaz (1999).

Table 13. Highly Dollarised Developing Countries, 1990-95 1/

(ratios of foreign currency deposits to broad money; in percent)

	1990	1991	1992	1993	1994	1995
Argentina	34,2	35,1	37,1	40,4	43,2	43,9
Azerbaijan	...	...	...	14,8	58,9	50,3
Belarus	...	...	...	40,6	54,3	30,7
Bolivia	70,8	76,8	80,8	83,9	81,9	82,3
Cambodia	...	...	26,3	38,8	51,8	56,4
Costa Rica	...	37,7	31,9	29,5	30,3	31
Croatia	...	...	...	53,8	50,2	57,4
Georgia	...	...	...	...	80,1	30,8
Guinea-Bissau	41,5	34,7	31,6	30,9	31,1	31,2
Lao P.D.R.	42	39,4	36,8	41,4	34,4	35,6
Latvia	...	...	...	27,2	27,5	31,1
Mozambique	...	11,8	16,7	23,2	25,3	32,6
Nicaragua	...	28,7	37,4	45,6	48,6	54,5
Peru	...	59,9	65	70,2	64,2	64
São Tomé and Príncipe	...	...	...	...	38,3	31,9
Tajikistan	...	...	...	...	...	33,7
Turkey	23,2	29,7	33,7	37,9	45,8	46,1
Uruguay	80,1	78,5	76,2	73,3	74,1	76,1
<i>Median</i>	41,7	36,4	36,8	40,4	48,6	39,7
<i>Average</i>	48,6	43,3	43	43,4	49,4	45,5

Source: Baliño et al. (1999)

1/ Highly dollarised economies are defined as those in which the ratio of foreign currency deposits to broad money exceeded in 1995 30 percent. The sample of countries examined comprised 99 countries that had had IMF arrangements since 1986.

Table 14: Rates of Dollarisation in Central America, 1995-2001 (in percent)

	Share of foreign currency-denominated quasi-money in M2 1/							Share of dollar in public debt
	1995	1996	1997	1998	1999	2000 2/	2001 3/	1998
Costa Rica	32.6	33.5	34.9	38.9	40.0	40.7	44.3	45.1
El Salvador	4.7	6.0	7.6	7.9	8.0	8.3	81.4	57.2
Guatemala	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	2.5	84.7
Honduras	16.2	23.4	21.3	22.1	22.9	24.2	28.1	91.9
Nicaragua	54.7	60.3	61.4	64.6	63.1	65.6	66.6	n.a.
<i>Simple average for the region excluding Panama</i>	27.0	30.8	31.3	33.4	33.5	34.7	55.1	69.7

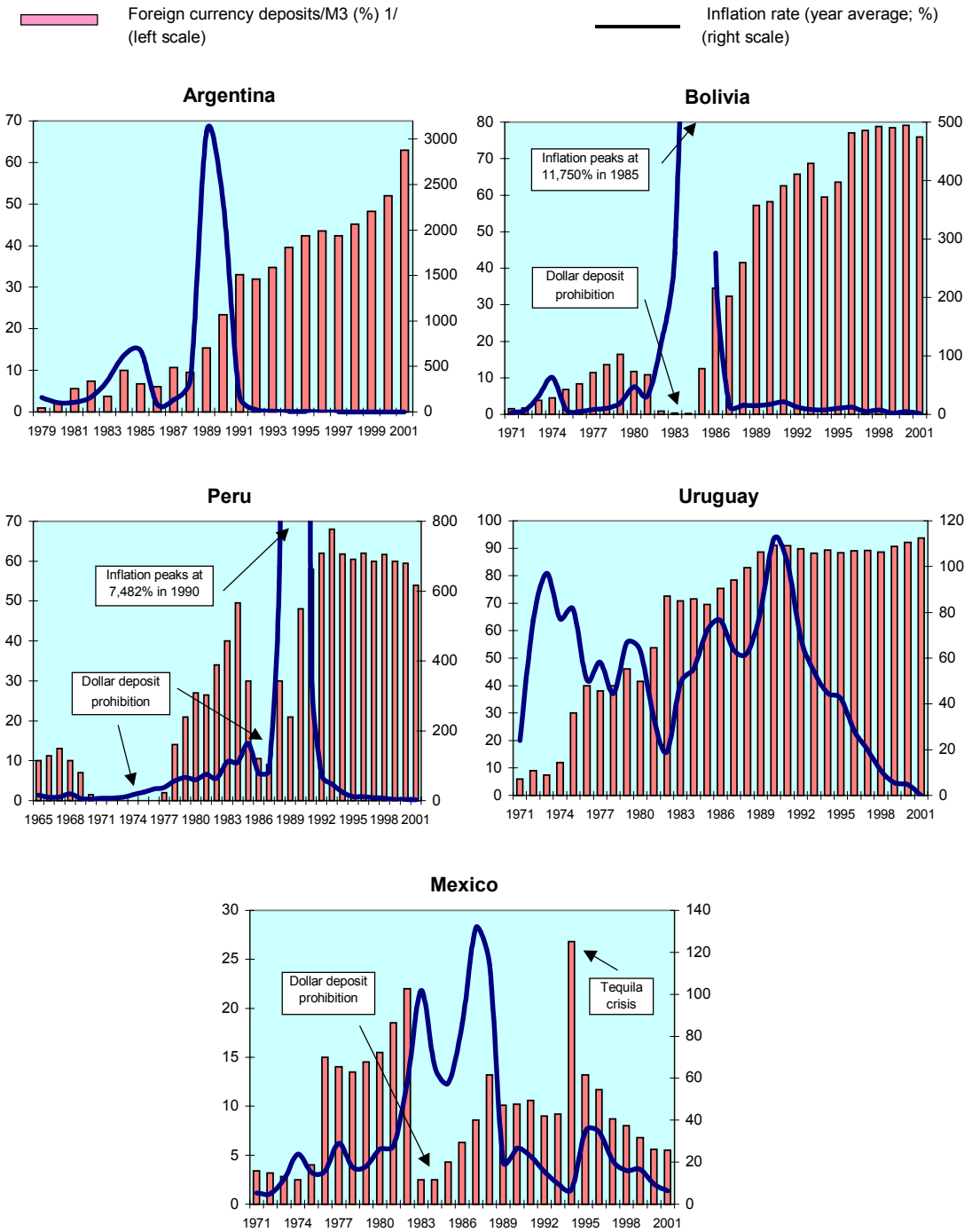
Sources: Consejo Monetario Centroamericano. For the data on public debt, Stein et al. (1999).

1/ Quasi-money includes savings and time deposits as well as certificates of deposit and other very liquid, short-term securities.

2/ Preliminary data.

3/ Estimates.

Figure 4: Currency Substitution Ratios and Inflation Rates in Selected Latin American Countries



Sources: *International Financial Statistics* (IMF) and national central banks. The data on foreign currency deposits for Argentina up to 1990, for Uruguay up to 1978, and for Mexico up to 1984 are from Savastano (1996). The data on the CS ratio for Peru are from Armas (2002)

1/ Excludes foreign currency deposits held abroad. For Peru, foreign currency deposits over total deposits.

three Mercosur partners. One factor that seems to have contributed to keep dollarisation ratios at moderate levels in these countries is the widespread use of financial instruments denominated in local currency but indexed to the inflation rate or the dollar exchange rate.⁵⁵

The high degree of dollarisation shown by many Latin American countries and the problems dollarisation poses under floating exchange rates has led some economists to propose joint dollarisation as a strategy for subregional and even continental monetary integration.⁵⁶ The debate has gathered momentum with the current Argentinean crisis, in which official dollarisation has often been put forward as the main alternative to the flotation and rePesoification strategy chosen in January 2002 by the Duhalde government. Already in early 1999, when Argentina was suffering contagion from the crisis of the Brazilian real, the then President of Argentina, Carlos Menem, had launched the idea of adopting the dollar as the sole legal tender. While this was partly a tactical threat to the markets to limit devaluation speculation, the Argentinean authorities did discuss the possibility with the U.S. Treasury and Federal Reserve. Until now, the U.S. government has generally taken in public a neutral stance on dollarisation. While it has not excluded the possibility of concluding bilateral agreements with dollarising countries for the sharing of seigniorage, it has so far rejected the possibility of granting lender-of-last-resort services or extending banking supervision to such countries.⁵⁷

The success of the rePesoification strategy chosen by Argentina hinges on whether the authorities will manage to persuade the population to give up the dollar and take back the peso as the sole domestic money. As Figure 4 shows, during the two years that preceded the fall of the de la Rúa government, the share of dollar deposits in total bank deposits had increased markedly reflecting devaluation fears. Confidence in the peso may prove hard to re-establish, particularly in the current context of exchange rate volatility, financial crisis and social turmoil. Given the lack of public trust in the peso, the compulsory rePesoification of banks' balance sheets and other contracts decided by the Argentinean government has had to rely in part on the indexation of contracts to the inflation rate. Thus, for example, lease contracts have been denominated into pesos but with an indexation clause that will automatically adjust the rent upwards in line with inflation and, indirectly, the depreciation of the currency.

⁵⁵ On this point, see Baliño et al. (1999), who also warn about the possible risks of relying excessively on this type of instruments

⁵⁶ For example, Levy-Yeyati and Sturzenegger (2000b) suggest this possibility for Mercosur and Stein et al. (1999) and Berg, Borensztein and Mauro (2002) for Central America. Dornbusch (1999), Barro (1999) and Hausmann (1999) propose official dollarisation for the entire American continent.

⁵⁷ See U.S. Senate (1999a). In November 1999, two US Senators introduced a legislative proposal in the Senate to encourage full dollarisation in emerging markets through the possibility of sharing seigniorage revenues with the dollarising economies, but this proposal was never formally discussed by Congress (see US Senate, 1999b and 1999c). During the recent Argentinean crisis, the US authorities have officially supported President Duhalde's flotation-cum-rePesoification strategy. On 6 February 2002, however, when the Argentinean government had just announced a new package of measures that included the full flotation of the peso and new steps to convert dollar assets and contracts into pesos, the US Treasury's Under-Secretary for International Affairs, John Taylor, declared to the U.S. House of Representatives that Argentina could have spared itself the political and social unrest it triggered by freezing bank deposits if it had officially dollarised its economy.

The difficulties the Argentinean authorities face in their attempts to repecify the economy reflect a general phenomenon observed in many developing and transition countries, namely the strong inertial forces or hysteresis governing the currency substitution process. Empirical evidence suggests that, once currency substitution develops, it is hard to reverse (see Box 1). This phenomenon has been observed in quite a few Latin American countries, as discussed by Guidotti and Rodriguez (1992), Savastano (1996) and Baliño et al. (1999). In Latin America, dollarisation developed during the high inflation episodes of the 1970s and 1980s but, as noted above, continued and, in some cases, even intensified during the 1990s and early 2000s despite drastic and lasting reductions in inflation. As Figure 4 shows, this asymmetric behaviour of currency substitution has been particularly notorious in Argentina, Bolivia, Peru and Uruguay.⁵⁸

Figure 4 also suggests that administrative measures are not an effective way to curb dollarisation. The decisions taken by the Bolivian and Mexican authorities in 1982 and by the Peruvian ones in 1971 and again in 1985 to reimpose severe restrictions on the holding of foreign currency deposits and forcedly reconvert the existing ones into domestic currency had only a temporary effect on dollarisation ratios. When the restrictions were eventually lifted, dollarisation ratios shot up again. Moreover, the effect of these administrative measures was weaker than Figure 4 suggests since the dollarisation ratios shown there do not include foreign currency deposits held abroad, which increased significantly in reaction to the prohibition of local foreign currency deposits.⁵⁹ Rather than reduce the demand for foreign currency, therefore, this type of measures may simply induce capital flight and push the dollarised economy underground.⁶⁰

The observed hysteresis in the dollarisation process implies that, although for closed Latin American economies that do not trade much with the United States the first-best strategy might be to de-dollarise and float their currencies, this may prove hard to implement. In this case, and given the disruptions floating rates can cause under high de facto dollarisation, some of these countries may decide that they are better off maintaining a stable exchange rate vis-à-vis the dollar. But with soft currency pegs not being sustainable under conditions of high capital mobility, they may be left with three basic options: official dollarisation, a dollar-based CBA or monetary union with the United States. As the collapse of the Argentinean CBA shows, however, CBAs are also vulnerable to speculative attacks, particularly if they are not supported by appropriate policies. Moreover, under the strict reserve-backing rules of the CBA, these attacks often lead to a shrinking monetary base and higher interest rates. These tighter monetary conditions, in turn, slow down economic activity and can put serious strains on the banking system.⁶¹ While CBAs have a number of advantages over official dollarisation (the country

⁵⁸ The persistence and high rates of dollarisation in Uruguay are partly explained by the role its banking system has traditionally played as an off-shore safe haven for residents of other countries in the region.

⁵⁹ See Savastano (1996).

⁶⁰ By provoking the transfer of foreign currency deposits abroad, the imposition of restrictions on the holding of such deposits at home may also exacerbate the process of desintermediation from the domestic financial system and reduce the country's international reserves.

⁶¹ During the 1990s, the Argentinean CBA suffered this type of problems several times as a result of contagion effects from the Mexican, Brazilian and other emerging markets crises.

maintains its own currency, which may be considered politically important, does not lose its seigniorage revenues and retains an exit option), they have the same disadvantages in terms of rigidity (loss of the exchange rate as an adjustment instrument) and the loss of the lender-of-last resort role of the central bank without however providing the advantage of eliminating the possibility of currency crises. And, in any case, after the recent negative experience of Argentina with its CBA, there seems to be little support in Latin America for this type of regime nowadays. If de-dollarisation fails, therefore, some highly dollarised countries in Latin America may end up considering official dollarisation or monetary union with the United States.

Box 1. Hysteresis in currency substitution

Conventional currency substitution (CS) models predict that CS should rise when inflation and the rate of currency depreciation increases but that, once macroeconomic and exchange rate stability are restored and the rate of return on domestic currency assets improves relative to that on foreign currency assets, the process should be reversed. In fact, however, this reversibility of the CS process is not what has been observed in many dollarised economies in the last three decades. Instead, CS ratios have remained stubbornly high, and have often increased, in many developing countries even after inflation was brought back under control. The CS process in many countries, therefore, seems to be characterised by *hysteresis* or the existence of *ratchet effects*. This does not mean that CS does not react to the reduction in price and currency instability but it often does so in a weak way and after a lag, with CS ratios not fully returning to their initial level after the inflationary episode is over.

As discussed in the main text, the phenomenon of CS hysteresis has been observed in many Latin American countries during the 1990s and early 2000s. It has also been detected in other developing and transition countries. Many countries of the former Soviet Union, in particular the new independent states of the Caucasus and Central Asia, have seen rising CS ratios during the 1990s despite considerable progress in macroeconomic stabilisation.¹ The same is true for Mongolia, the transition countries of Indochina (Cambodia, Lao PDR and Vietnam), Cuba (after the de-penalisation of the use of the dollar in 1993), Haiti, and certain high inflation Middle Eastern countries such as Lebanon and Yemen. CS ratios also remain very high in a number of Balkan countries despite macroeconomic stabilisation. In Croatia, for example, which implemented one of the most successful stabilisation programmes in the transition countries in 1993 and has kept inflation at industrial country levels ever since then, about three quarters of the banks' balance-sheets are still denominated or indexed to foreign currencies (mostly the euro).² In Bulgaria, the share of foreign currency deposits over broad money remains above 50 percent despite the impressive disinflation achieved since the CBA was introduced in 1997 (Catão and Terrones, 2000; pp. 3-4). On the other hand, there are some examples of a significant and lasting reduction of CS levels following stabilisation. This is the case of some Central and Eastern European countries, such as Poland and Estonia, where CS ratios now stand well below their early transition peaks, Egypt, and, as noted, Chile and Mexico.

¹ See Morgardini and Mueller (2000).

² In the former Yugoslavia, CS had increased sharply during the period of high inflation and political disintegration that preceded the Yugoslav wars of the 1990s. For a discussion of CS in the transition countries of Central and Eastern Europe, see Sahay and Végh (1996).

Several complementary explanations have been proposed for the observed persistence of CS. First, a number of authors, such as Piterman (1988), Guidotti and Rodriguez (1992) and Dornbusch, Sturzenegger and Wolf (1990), have attributed it to financial innovation. The argument is that in high inflation countries economic agents develop ways of economising on real domestic currency balances, including by switching to foreign currency assets and creating other money substitutes. This is a costly process and, once the fixed costs implied by these CS techniques have been borne, the new money substitutes remain in place even after inflation and depreciation rates decline again. This explanation was first put forward by the empirical literature on the asymmetric behaviour of money demand in some industrial countries. Thus, for example, Enzler, Johnson and Paulus (1976) and Simpson and Porter (1980) applied this concept to explain why money demand in the United States did not recover fully after a period of high interest rates ended. A second proposed explanatory factor has to do with the persistence of credibility problems, i.e., it may take time for the authorities to regain their lost credibility even after they have restored macroeconomic stability. Third, macroeconomic stabilisation and the re-establishment of confidence in the banking system may encourage the repatriation of flight capital and these funds may be placed, at least for a period of time, in foreign currency denominated deposits at local banks. Since CS is normally measured as the ratio of foreign currency deposits at local banks over broad money, this repatriation of capital will tend to produce higher CS ratios. Fourth, in some cases the restoration of macroeconomic and financial stability has led the authorities to ease regulations on the holding of foreign exchange deposits at domestic banks, producing an increase in such deposits precisely at a time when inflation had declined.

Another interesting explanation for the persistence of CS has been provided by Ize and Levy Yeyati (1998), which have developed a minimum variance portfolio model of CS in which hysteresis occurs when the expected volatility of the inflation rate is high relative to that of the real exchange rate. The basic idea is that when inflation volatility increases in relation to real exchange rate volatility domestic currency assets become more risky relative to foreign currency assets, which induces investors to increase the latter in their portfolios. This model predicts that CS will tend to rise when the economy becomes more open because trade and financial openness increases the price pass-through of exchange rate movements, which should increase price volatility relative to real exchange rate volatility. This may help explain why many countries have experienced rising CS ratios at a time when they were both reducing inflation rates and increasing their international economic integration. It may also contribute to explain why CS has developed significantly in certain countries where inflation has rarely reached two-digit levels (e.g., Indonesia).

A number of econometric studies have found support for the existence of a ratchet effect in CS. These studies often modelled hysteresis by adding a ratchet variable, normally defined as the past maximum of the inflation rate or, alternatively, the peak depreciation rate of the domestic currency, to traditional money demand functions. Piterman (1988), for example, found evidence of hysteresis in the demand for real money balances in Argentina, Chile and Israel after their inflation rates peaked at over 100 percent in the 1970s or early 1980s. Guidotti and Rodriguez (1992) found evidence of CS irreversibility for Bolivia, Mexico, Peru and Uruguay for the 1970s and 1980s. Arrau et al. (1991) found that financial innovations were quantitatively important in determining money demand for a sample of 10 developing countries, including several Latin American countries. Moreover, the role of financial innovation seemed to increase with inflation, suggesting that CS hysteresis will tend to be more pronounced for high inflation countries. Mueller (1994) analysed the dollarisation process in Lebanon during the period 1982-93 and found a significant and strong ratchet effect lasting 4 to 5 years. Also, Ize and Levy-Yeyati (1998) found that their model explained well the CS ratios observed in 1990-96 in a sample of 29 countries including Latin American, Middle Eastern, transition and industrial countries. Other empirical studies corroborating the CS inertia hypothesis include: Kami and Ericsson (1993), for Argentina in the 1980s and early 1990s; Clements and Schwartz (1993), for Bolivia for the period 1986-91; De Freitas (2000), for Bolivia, Indonesia and Turkey in the 1980s and the first half of the 1990s; and Mongardini and Mueller (2000) for the Kyrgyz Republic during the 1990s.

5.2 *Credibility problems*

For countries suffering from a deeply entrenched lack of monetary credibility it may be worth adopting a regime that will allow them to import anti-inflationary reputation from a foreign central bank with well-established anti-inflationary credentials. This could in principle be done by adopting any type of strong and credible peg vis-à-vis the currency issued by a reputable central bank. But given the problems with adjustable currency pegs and the recent experience with the Argentinean CBA, the most obvious options open to Latin American countries wanting to import monetary credibility and stability from abroad are the adoption of a hard currency as legal tender and the participation in a monetary union with a large strong-currency country.⁶²

The Argentinean crisis illustrates well the challenges a country may face when it is experiencing a credibility problem. Argentinean governments have altered so frequently the monetary regime, making sometimes contradictory announcements, freezing bank deposits, forcedly converting deposits and loans into pesos at non-market exchange rates and defaulting on their debt obligations, that they are perceived to have seriously damaged their credibility. Some argue that, under these circumstances, even the best-conceived monetary regime is unlikely to be credible for as long as the authorities maintain discretionary power over it and that, therefore, only the effective transfer of monetary control to a reputable outside institution will restore credibility.⁶³

The problem of insufficient monetary credibility in Latin America is obviously not limited to Argentina, however. For decades many countries in the region has suffered from recurrent episodes of high inflation and macroeconomic and political stability. In fact, as shown in Table 15, reproduced from Alesina, Barro and Tenreyro (2002), Latin America is the developing country region that has shown by far the highest average inflation rate and inflation volatility in recent decades. During the 1970-90 period, its average annual inflation rate and average inflation volatility reached about 100 percent and 250 percent, respectively, way above the rates of 20 percent and 28 percent shown by the developing region (the Middle East) with the second highest inflation levels and volatility. In fact, the top 5 average inflation rates and the top 6 inflation variability rates during this period were all Latin American countries and 7 Latin American countries were among the top 18 on both indicators. To the extent that a history of high and volatile inflation is a symptom of a persistent lack of internal monetary discipline, Latin American countries may, therefore, be seen as likely candidates for the adoption of currency regimes aimed at importing monetary credibility from a reputable country.

In some cases, the lack of credibility of an independent monetary policy with a floating exchange rate may stem in part from the existence of a high degree of de facto dollarisation. Since under conditions of high de facto dollarisation a floating exchange rate can easily push the country into an inflation-depreciation spiral, the population may fear this outcome, which could make the process self-fulfilling.

⁶² The issue of importing credibility has figured prominently in the recent literature on exchange rate regimes. For a formal incorporation of this criterion into a model of optimum currency areas, see Alesina and Barro (2000).

⁶³ See, for example, Sachs (2002), referring to the Argentinean crisis.

Table 15. Inflation Levels and Inflation Volatility, 1970-90

(based on annual data; in percent)

	Inflation Level (averages)	Inflation volatility (standard deviations)	
Developing countries			
Africa	16.3	13.9	
Asia	17.4	14.0	
Europe	6.9	6.6	
Middle East	19.7	28.4	
Latin America and Caribbean	98.6	251.2	
Industrial countries	9.8	4.6	
Top 18 countries			
Nicaragua	1168.4	Nicaragua	3196.5
Bolivia	702.4	Bolivia	2684.4
Peru	530.7	Peru	1575.3
Argentina	430.8	Argentina	749.0
Brazil	288.4	Brazil	589.4
Vietnam	212.6	Chile	170.3
Uganda	107.5	Vietnam	159.6
Chile	106.9	Israel	95.4
Cambodia	80.4	Cambodia	63.4
Israel	78.2	Uganda	63.1
Uruguay	62.2	Mozambique	51.6
Congo, D.R.	48.7	Somalia	49.7
Lebanon	44.3	Oman	45.6
Lao PDR	41.6	Lebanon	40.6
Mexico	41.0	Kuwait	38.3
Mozambique	40.9	Uruguay	38.1
Somalia	39.9	Guinea-Bissau	37.0
Turkey	39.4	Mexico	36.9

Source: Alesina, Barro and Tenreiro (2002).

As noted in Section 3, importing credibility from the German Bundesbank was one important reason why most EU countries decided to join the EMS and, eventually, the euro area. With the exception of NAFTA, however, none of the areas of subregional integration in which Latin American countries participate includes a large country with a solid record of monetary stability from which credibility could be “imported”. This is a key difference with EMU and a serious drawback of those proposals that aim at establishing monetary unions à la EMU in some of the Latin American subregions. It is believed that one reason why the Mercosur summit of February 2002 vaguely toyed with the idea of a common currency was the possible interest of the Argentinean government in increasing the credibility of its floating exchange rate regime by being part of a Mercosur monetary union. Despite the stabilisation progress achieved by Brazil since

1999 and Argentina's current low level of credibility, however, it is not clear that Argentina would be able to import much credibility from such a monetary union.⁶⁴

Within the American continent, the only country from which Latin American countries could realistically import anti-inflationary credibility is the United States. The two dollar-based regimes with which those credibility gains could be larger are a monetary union with the United States and unilateral dollarisation. While the first option would have the advantage of allowing the country in question to participate in the Federal Reserve's decision-making bodies, access its discount window and be covered by the U.S. financial supervision system, it might not enjoy the political backing of the United States. Official dollarisation, by contrast, could be decided unilaterally, although it would seem preferable to do it in agreement with the United States in the context of a bilateral monetary treaty that may grant certain privileges to the dollarising economies, such as the sharing by the United States of its related seigniorage gains.

The possible credibility gains from official dollarisation or monetary union with the United States, and the advantages of stabilising the exchange rate and eliminating currency crisis, must be set against the costs of these regimes, in particular the loss of the exchange rate as an adjustment instrument and the difficulties to exit these regimes should economic developments diverge too strongly from those in the anchor country. In the case of official dollarisation, there are in addition, as noted, the costs of losing the lender of last resort and seigniorage revenues.⁶⁵ For economies that are de facto highly dollarised, the benefits from stabilising the exchange rate will tend to be important, as noted, while some of the costs of official dollarisation will tend to be lower. In particular, the loss of annual seigniorage and the cost of converting the existing stock of domestic currency into dollars will be lower because already a large part of the money supply is in dollars. The loss of the exit option, for its part, may be less of a problem for those economies because, given the high degree of irreversibility of de facto dollarisation, the monetary regime options available to the authorities might be limited in any case.

For economies that do not suffer from high de facto dollarisation, and do not trade much with the United States or experience frequent asymmetric shocks relative to the United States, by contrast, the costs of buying monetary credibility by joining the dollar area may be too important. Moreover, countries may be politically reluctant to give up their own currency. These countries could, therefore, consider other ways of building that credibility, including a persevering implementation of prudent macroeconomic policies, the adoption of inflation-targeting regimes, and the granting of independence to their central banks. They could also attempt to rebuild credibility and bring about rapid disinflation by *temporarily* pegging their currencies to the dollar

⁶⁴ In the mid-1990s, when the Argentinean CBA was still regarded as strong and credible and Brazil as a chronically unstable economy, it would have been surprising to hear that Argentina was hoping to gain credibility through a currency union with Brazil. The table has, however, turned around considerably since then.

⁶⁵ Discussing the costs and benefits of these different currency regimes is beyond the scope of this paper. For a comprehensive analysis of the pros and cons of official dollarisation, see Berg and Borensztein (2000).

through a conventional peg or a CBA. In this case, however, they should design a strategy to exit these regimes at the right time, before they become unsustainable.⁶⁶

Latin American countries in search for borrowed credibility could also in theory adopt the euro as legal tender or temporarily adopt a hard peg to the euro or to a basket of currencies including the euro and the dollar.⁶⁷ While the European Central Bank's track record is shorter than that of the US Federal Reserve, its statutory independence and goals, the prudent fiscal framework provided by the Stability and Growth Pact, and the reputation it has inherited from the Bundesbank make it a similarly credible institution. And it could be argued that, whatever their absolute merits, euro-based exchange rate regimes (or a peg to a dollar-euro basket) make in fact more sense than dollar-based regimes for countries that, like the Mercosur countries, trade more with the EU than with the United States. When comparing the relative merits of euroisation and dollarisation, however, it should be noted that dollarisation would have the advantage of building on the existing high degree of de facto dollarisation in Latin America. From a practical point of view, euroisation would be more complicated because Latin American countries are not euroised but dollarised. It would require to convert a larger share of the stock of currency in circulation and to change the currency of denomination of a much larger stock of financial assets and contracts. Moreover, even though the euro is regarded as a strong and trustworthy currency, the success in convincing the local population to switch from the dollar (and the domestic currency) to the euro would not be assured.

5.3 *Endogeneity*

Another limitation of the analysis based on the traditional OCA criteria is that, as noted in Section 3, it does not take into account the fact that monetary integration may by itself trigger changes in the structure of the participating economies that will move them closer to meeting the OCA criteria. In other words, even if a country fails to meet ex-ante the criteria for joining a currency area, it may meet them ex-post. In particular, participation in the currency union may deepen trade and financial integration and increase the correlation between the business cycles of the country in question and the currency area. There is, as noted, some empirical evidence supporting this view.⁶⁸ According to some economists, however, the opposite may also be true: a country may fail to meet ex post the OCA criteria even if it met them ex-ante.⁶⁹

⁶⁶ A study undertaken by the IMF on exit strategies (Eichengreen et al., 1998) suggests that the best time to exit a pegging regime is when the currency is strong, which is often the case once stabilisation restores credibility and capital inflows expand.

⁶⁷ Between July 1992 and September 1999, Chile had a crawling band regime defined over a basket of currencies of major trading partners that included first the deutsche mark and, since January 1999, the euro. Also, in April 2001, the Argentinean government announced a plan to modify the CBA by shifting from a peg to the dollar to a peg to a dollar/euro basket. The CBA collapsed, however, before this plan was implemented.

⁶⁸ See, in particular, Frankel and Rose (1998) and Rose (2000). Also, empirical studies (see McCallum, 1995) show that bordering U.S. and Canadian states are significantly less integrated with one another than the U.S. states despite the virtual absence of tariff and other barriers to trade, suggesting that the existence of separate currencies can have a non-negligible impact on trade integration within a FTA.

⁶⁹ Krugman (1993) and Bayoumi and Eichengreen (1994) have argued that participation in a currency area may encourage productive specialisation, making the country more vulnerable to region-specific shocks.

The stress on endogeneity shares much with "the monetarists' view" in the context of European economic and monetary integration. As noted above, the monetarists believed that locking intra-EU exchange rates would stimulate macroeconomic convergence and commercial and financial integration so that even if the EU did not meet the OCA criteria ex-ante, it could meet them ex-post. Advocates of an early accession of the U.K. to the euro area also argue that membership will increase business cycle synchronisation between the UK and the euro area.⁷⁰

In the context of the dollarisation debate, some economists have indicated that official dollarisation should trigger structural reforms or changes that will tend to reduce the costs of dollarisation.⁷¹ Thus, for example, the loss of the lender of last resort will reduce moral hazard effects from the expectation of a bank bailout by the central bank. Also, full dollarisation may strengthen banks by eliminating currency mismatches in the private sector and the risk of banking crises provoked by currency crises. Finally, full dollarisation may increase trade and financial integration with the issuing country (the United States) because it reduces transaction costs related to currency conversion and the hedging of currency risk and because it increases the links with U.S. banks and access to the U.S. capital markets.⁷²

5.4 Trade interdependence reconsidered

Finally, another refinement of the analysis in Section 4 consists in extending the trade interdependence criterion to include not only intra-regional trade but also the share of trade conducted with dollar-area countries. The argument is that if a subregion trades extensively with the United States (or other countries using the dollar), its combined share of trade with the United States and intra-regional trade may be high enough to provide some justification for jointly stabilising its exchange rates against the dollar even though the share of intra-regional trade might be too low for the subregion to consider adopting their own common currency.

A trading block wishing to jointly stabilise its exchange rates against the dollar could in principle do so by pegging to the US currency, officially dollarising or participating in a monetary union with the United States. Given the problems with intermediate pegs, the negative experience of Argentina with its CBA, and the possible lack of political support in the United States for monetary union with other countries in the region, however, the discussion in what follows looks in particular at whether the enlarged trade interdependence criterion provides justification for subregional monetary integration in the form of joint official dollarisation.

As can be seen from Table 3, *Central American countries* conduct only about 14 percent of their foreign trade among themselves, a share that, as noted, looks insufficient to justify a currency

⁷⁰ A low degree of cyclical synchronisation is often emphasised by those that oppose or favour delaying UK membership of the euro area.

⁷¹ See, for example, Eichengreen (1999).

⁷² Parsley and Wei (2001) find that dollarisation (as well as CBAs) promote goods market integration far beyond what is associated with exchange rate stability alone.

union in the subregion. These countries conduct, however, about 46 percent of their trade with United States. If they were to jointly adopt the dollar as their currency, therefore, they would be stabilising their exchange rates relative to a group of trading partners (their CACM neighbours and the United States) accounting for over 60 percent of their foreign trade. And since the CACM economies are very open, this would represent about 26 percent of their GDP, a share that is well above the share of GDP euro-area countries trade with each other (see Table 4). The ratios would be only slightly higher if trade with Ecuador and other economies that use or peg to the dollar are included. But they could be significantly higher if Mexico, with which the CACM countries trade substantially, and Canada were to join a monetary union with the United States (or unilaterally adopt the dollar), or if peace in the region continues to produce a recovery of intra-CACM trade. In this case, the advantages for the CACM countries of jointly stabilising their exchange rates against the dollar would be even greater.

Given the high share of GDP Central American countries trade with the United States and each other, their high degree of de facto or official dollarisation, the weak credibility of monetary institutions in some of them, and their significant labour mobility vis-à-vis the United States, joint official dollarisation (or other forms of dollar-based monetary integration) may make some sense for these countries despite their poor scoring in some of the traditional OCA criteria. Central American countries would benefit from importing monetary stability from the United States.⁷³ Moreover, the elimination of exchange rate volatility would probably set in motion endogenous forces that, over the medium term, would tend to increase trade and financial integration both within Central America and between Central America and the United States. Trade between these countries and the United States would also increase if the proposal made by the United States in early 2002 to sign a FTA with the CACM countries went ahead.

This type of considerations might also seem relevant for the *Andean Community* countries, which, taken as a group, also trade predominantly with the United States (37 percent of their trade). However, because they trade less with the United States, have even weaker mutual trade links and show a much lower degree of openness than the CACM countries, their trade with the United States and Andean partners combined only accounts for about 12 percent of their GDP. Jointly fixing the exchange rate against the dollar would, therefore, not stabilise the region's exchange rate against a sufficiently significant part of its GDP. Despite this, some economists have argued that Ecuador's decision to officially dollarise, the very high rates of de facto dollarisation of Bolivia and Peru, and the widespread need to build up monetary credibility in the region, provide strong arguments in favour of joint dollarisation. A closer examination, however, reveals that, while Peru and Bolivia are very highly dollarised, they do not trade much with the United States⁷⁴, and that the two economies in the region that trade more significantly with the United

⁷³ This view is shared, for example, by Stein et al. (1999), who also show that those Central American countries that had during the 1990s less flexible exchange rates tended to have lower and less volatile inflation and interest rates and a less volatile real exchange rate. They also find that as Central American countries moved to more flexible exchange rate arrangements in the 1980s and the 1990s, their inflation performance deteriorated, and their interest and real exchange rates became more volatile.

⁷⁴ Bolivia and Peru are the two Andean economies that trade less with the United States as a percentage of their total trade. Moreover, because they are two of the most closed economies in the region, their trade with the United States only represents about 6-7 percent of their GDPs (see Table 4).

States (Colombia and Venezuela) present much lower rates of dollarisation. These considerations, and the poor scoring of the Andean Community in most of the traditional OCA criteria, seriously limit the attractiveness for this subregion of dollar-based monetary integration.

In the case of *Mercosur*, the extension of the trade interdependence criterion is much less relevant because, as noted, this subregion only conducts about 15 percent of its trade with the United States. In contrast with most other Latin American countries, Mercosur countries trade more with the EU than with the United States (see Table 3). Since most Mercosur economies are also very closed, their trade with the United States and their intra-regional trade combined only represent about 8 percent of their GDP. On the other hand, Argentina, Uruguay and, to a lower extent, Paraguay are, as noted, highly dollarised and Argentina has a serious credibility problem. This has sometimes been used as an argument in favour of joint official dollarisation in Mercosur. But, similarly to what is the case in the Andean Community, the three highly dollarised countries in Mercosur are precisely those that trade the least with the United States (only between 9 and 16 percent of their trade is with the United States). They trade predominantly with their Mercosur partners (especially Brazil) and the EU, which together account for between 50 and 70 percent of their trade. As illustrated by the experience with Argentina's dollar peg under the CBA, full dollarisation would therefore subject their effective exchange rates to substantial fluctuations. Moreover, Brazil's low level of dollarisation, the very closed nature of its economy and its strong trade connections with Europe all argue against official dollarisation in Brazil and in favour of maintaining its flexible exchange rate regime. This regime, which like the Mexican one has been combined with an inflation targeting regime, has served Brazil well, allowing it to reduce inflation markedly since 1999 without preventing a significant expansion of economic activity and providing the authorities with a useful buffer during the Argentinean crisis.

The Brazilian authorities are keen to maintain this exchange rate flexibility and seem right to do so. Brazil may be interested in allowing their Mercosur partners to join its floating regime through a currency union. This would eliminate intra-Mercosur exchange rate disruptions without affecting Brazil's flexibility vis-à-vis the rest of the world. This seems to be the idea behind the common currency proposal vaguely discussed at the Mercosur summit of February 2002. But Brazil is likely to oppose any monetary integration within Mercosur that limits that flexibility. Even the possibility of pegging a common Mercosur currency (or the four Mercosur currencies jointly) to a basket of currencies including the dollar and the euro is likely to be opposed by Brazil because, although this would ensure some stability of its effective exchange rate, it would remove Brazil's desired room for using the exchange rate as an adjustment instrument.⁷⁵ Moreover, given the strength and volatility of international capital flows into the Mercosur countries, this type of pegging systems are, as noted, likely to be subject to periodic attacks and realignments.⁷⁶ Because Mercosur trade is proportionally much less important for Brazil than for Argentina, Paraguay and Uruguay, Brazil is much less concerned about intra-

⁷⁵ In the past, however, the Brazilian authorities attached less importance to exchange rate flexibility. It was Brazil, for example, that in 1993, when Mercosur came into existence, proposed the creation of a system of exchange rate bands around central parities for the Mercosur currencies.

⁷⁶ On this point, see also Eichengreen (1998).

Mercosur exchange rate volatility than its Mercosur partners. It cares about it, particularly because it fears the protectionist reactions that the depreciations of the *real* periodically trigger in Argentina, but it is probably not willing to sacrifice its exchange rate flexibility vis-à-vis the rest of the world for the sake of ensuring exchange rate stability within Mercosur.

This leaves Mercosur for the time being with a floating common currency as the only monetary integration option that could enjoy political support from all its member countries. Unfortunately, such a regime may create serious problems for Argentina and Uruguay due to their high degree of dollarisation, unless Argentina's current re pesoification strategy succeeds. If it does not, the possibility of Argentina opting for official dollarisation with a view to re-establishing a credible monetary framework will increase, and if Argentina took such a decision, Uruguay (which has been accompanying Argentina's recession and banking problems) and, perhaps, Paraguay might follow suit. In this case, the prospects and advisability of monetary integration in Mercosur would look even direr.

7. Summary and conclusions

The paper has examined whether it makes sense to consider monetary integration in any of the four main American subregions of integration. Three of these subregions have recently launched schemes to enhance the convergence and mutual surveillance of their macroeconomic policies and some see monetary integration as a medium-term goal. Moreover, the recent dollarisation decisions by Ecuador and El Salvador and the current Argentinean crisis have brought to the fore again a debate that has been going on in academic and policy circles for more than a decade over the advisability of joint official dollarisation as a strategy for monetary integration and stability in Latin America. The flotation of the Argentinean peso has also reactivated the debate in Mercosur about other possible forms of monetary integration within this trading block.

In order to assess the advisability of subregional monetary integration, the paper has applied a number of criteria proposed by the economic literature, including those stressed by the OCA theory, and has reviewed the main lessons from the EU's experience with economic and monetary integration. Table 16 provides a snapshot summary of how the different subregions scored in terms of the different criteria.

The analysis based on the traditional OCA criteria suggests that the countries of *Central America, the Andean Community and Mercosur* do not make up OCAs. In particular, trade interdependence and intra-regional financial and labour market integration tends to be low, the likelihood of asymmetric shocks high and none of these subregions has established a system of intra-regional fiscal transfers that could be used to smooth out asymmetric disturbances. Partial evidence also suggests that labour markets in many Latin American countries are relatively rigid and that downward wage and price flexibility is limited. Furthermore, despite the macroeconomic coordination schemes put in place and the substantial progress made in recent years in reducing the level and dispersion of inflation rates, these three subregions continue to show an insufficient degree of macroeconomic convergence and to suffer from a high degree of macroeconomic

Table 16. Summary of Scoring in Terms of OCA and Other Criteria

	Andean Community	Central America	Mercosur	NAFTA	Euro area
<i>Traditional OCA criteria:</i>					
Trade openness 1/	Intermediate	Very high	Low	High	Very high
In percent of GDP	20,1	45,5	14,5	25,3	35,4
Trade interdependence 1/	Very low	Low	Low/intern.	Very high	Very high
Subregional trade in percent of total trade	12,8	14,1	36,2	64,5	55,1
Subregional trade in percent of GDP	3,1	5,8	6,1	18,7	19,5
Likelihood of asymmetric shocks	High	High	High	High	Low/Intern. 2/
Intra-regional financial integration	Low	Low/intern.	Low	Very high	Very high
Labour mobility 3/	Intermediate	High	Intermediate	High	Low/intern.
Intra-regional fiscal transfer system	No	No	No	No	Very weak
<i>Other criteria:</i>					
Overall financial openness	High	High	Very high	Very high	Very high
Nominal macroeconomic convergence	Low	Low	Low	High	Very high
Per capita income disparities	High	High	Intermediate	Very low	Low
Macroeconomic volatility	High	High	High	Low except Mexico	Very low
Degree of de facto dollarisation	Intern./high 4/	Very high 5/	High 6/	7/	
Credibility problems	High	Intermediate	High	Low	Low
Existence of large country within the region from which to import credibility	No	No	No	Yes	Yes
Trade with subregion plus NAFTA 1/					
In percent of total trade	53,7	66	53,7	64,5	
In percent of GDP	13,4	28,3	8,4	18,7	
Political integration	Low	Low	Low	Low	Very high

1/ For the definition of the ratios and the data used, see Tables 2, 3 and 4.

2/ Low for the core EU countries, intermediate for the peripheral EU countries.

3/ Takes into account both regulatory restrictions and de facto mobility, and both intra-regional mobility and mobility towards other regions such as NAFTA.

4/ Full dollarisation in Ecuador, very high degree of de facto dollarisation in Bolivia and Peru and intermediate degree of dollarisation in Colombia and Venezuela.

5/ Official dollarisation in El Salvador and Panama and a high degree of de facto dollarisation in the other countries.

6/ Very high in Argentina and Uruguay, high in Paraguay and rather low in Brazil.

7/ The rate of de facto dollarisation is low but significant in Canada and Mexico.

volatility. And their political integration and commitment to the subregional integration projects is still weak.

One additional problem these subregions face when considering monetary integration is that none of them contains a large country with a tradition of stability that could endow a currency union with the necessary monetary credibility. The experience with EMU suggests that this may seriously reduce the incentive for countries in a custom union to agree to give up their monetary sovereignty in order to adopt a common currency.

Based on these criteria, therefore, none of these three subregions should engage into a monetary integration process, at least not for the time being. Rather, they should concentrate on deepening their integration and macroeconomic convergence. This would be consistent with the EU's gradual approach to economic and monetary integration. Latin American countries should, in particular, not try to stabilise intra-regional exchange rates through adjustable pegging systems (especially with narrow fluctuation bands) because, although these countries have not achieved much intra-regional financial sector integration, they exhibit a high degree of overall financial openness. Their capital account regulations are very liberal and they have experienced since the early 1990s very powerful and volatile capital inflows. In this context, these systems are unlikely to work. They are likely to be subject to occasional attacks and, as the EMS experience of the early 1990s suggests, they could under certain circumstances delay macroeconomic convergence even in the absence of exchange rate crises.

The case of *NAFTA* is less clear-cut. The Canadian and Mexican economies are very open and are highly integrated (both commercially and financially) with the United States and, although Mexican workers wanting to migrate to the United States still face serious legal restrictions, de facto labour mobility between the two countries has been high. On the other hand, NAFTA countries show a high incidence of asymmetric shocks, have not set up any mechanism of intra-regional fiscal transfers and have until now expressed little political support for monetary integration. And, like for the other three subregions, their very high degree of overall financial openness strongly advises against subjecting their currencies to conventional pegging arrangements.

The traditional OCA theory, however, does not take into account a number of relevant aspects, such as the degree of de facto dollarisation, the existence of deeply-entrenched credibility problems in some countries, the endogeneity of some of the OCA criteria, and the share of trade countries in a subregion would conduct with the dollar area if they jointly pegged their currencies to the dollar or adopted the dollar as their currency. Once we move beyond the traditional criteria proposed by the OCA literature and incorporate these factors, the picture changes somewhat. This is true in particular for the *Central American countries*. These countries present a very high degree of de facto (and official) dollarisation and conduct between 50 and 75 percent of their trade with either the United States or each other. Some of them also suffer from weak monetary institutions. Coupled with their high degree of overall trade openness and labour mobility (especially vis-à-vis the United States), all this suggests that it may make economic sense

for them to consider a dollar-based approach to subregional monetary integration. Such an approach would, in turn, probably set in motion endogenous forces tending to increase the degree of trade and financial integration within Central America and between Central America and the United States. It would also allow these countries to import monetary credibility and stability from the United States.

This type of considerations, however, does not apply in the same way to the Andean Community and Mercosur. Ecuador's decision to officially dollarise, the very high rates of de facto dollarisation of Bolivia and Peru and the widespread need to build up monetary credibility in the region provide some arguments in favour of joint dollarisation or other types of dollar-based monetary integration. But the *Andean economies* trade less with the United States than Central America, are much more closed and have weaker mutual trade links. Locking the exchange rate against the dollar would therefore not stabilise the Andean Community's exchange rate against a sufficiently significant part of its GDP. This and the very weak position of the Andean Community with respect to all the OCA criteria underline the risks for this subregion of jointly implementing a dollar-based approach to monetary integration.

In the case of the *Mercosur countries*, although three of them are highly dollarised de facto, the fourth and largest one (Brazil) presents a low degree of dollarisation. Moreover, this region trades more with the EU than with the United States and, except Paraguay, Mercosur economies are also very closed. Although Mercosur countries trade more among themselves than Central America, the combined share of intra-regional and dollar area trade is not high enough to make dollar-based monetary integration a reasonable proposition. Moreover, since Brazil not only shows little de facto dollarisation but is also a very closed economy and conducts less than 15 percent of its trade with its Mercosur partners, it is unlikely to show much interest in dollar-based monetary integration with Mercosur or, for that matter, any monetary integration plan within Mercosur that does not preserve its exchange rate flexibility vis-à-vis the rest of the world.

The situation in Mercosur, however, is not that simple because Argentina's credibility problems and the possible resistance of its population to abandon the use of the dollar as parallel currency, may lead this country to end up embracing official dollarisation unilaterally as a way to re-establish monetary order, which could have similar implications for Uruguay (another highly dollarised economy with economic problems). It is still too soon to tell whether the de-dollarisation programme of the Argentinean government will succeed. If it does, Mercosur may one day decide to issue a common Mercosur currency and let it float vis-à-vis the rest of the world. If Argentina's repositioning strategy fails and the country ends up dollarising, by contrast, any monetary integration discussions within Mercosur are likely to be postponed indefinitely because Brazil would not want to also dollarise. Whatever the final outcome of the Argentinean crisis, the analysis in this paper suggests that, unless Mercosur's integration deepens importantly, the economic arguments for adopting a common currency in Mercosur will remain weak.

As suggested at the start of the paper, the advisability of the different monetary strategies available to the continent will depend on the *future direction of trade and financial integration in the continent*. In the case of Mercosur, for example, if FDI links with the EU continue to grow in the future and, as a result, trade becomes more oriented towards Europe, the advisability of a dollar-based monetary integration will further decline. A quick conclusion of the negotiations on an association agreement between Mercosur and the EU, at the same time as the FTAA initiative stalls, could contribute to this result. An early and successful conclusion of the FTAA negotiations or the conclusion of a number of bilateral FTAs with the United States while the negotiations with the EU linger, by contrast, could trigger a reorientation of Latin American trade towards the United States, reinforcing the case for dollar-based monetary integration in some areas (and possibly weakening the case for other options of monetary integration in certain subregions). These are all highly speculative thoughts but they underline how hard it is to assess the different regional monetary options when there is so much uncertainty about the future direction of trade liberalisation in the continent.

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