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OPTIONS FOR MONETARY INTEGRATION IN THE ANDEAN COMMUNITY

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Abstract:

Object of this paper is to examine the options for monetary integration in the Andean Community, in the context of existing literature on the subject. After a survey of the relevant literature, some stylised facts of the Andean Community are examined. Optimum Currency Area criteria are considered, as are some indictors of fear of floating and dollarization within the region. I argue that the traditional literature on monetary integration has been developed largely with the intent of explaining integration in Europe, and to consider instead monetary integration in Latin America we need a new framework, one that takes into account the particular characteristics of these economies: fear of floating, original sin, dollarization, and large and volatile capital flows, subject to financial contagion and sudden stops. In conclusion I examine the pros and cons of three possible options available to the Andean Community: mutual exchange rate pegging, a common regional currency and dollarization.

Key words: Monetary alternatives, integration, Andean Community of Nations, exchange regimes.

I. INTRODUCTION

Presently one of the Andean Community's most ambitious commitments is that of forming a common market by 2005. This would imply not only the free movement of goods and services, but also of labor and capital within the region. The achievement of this project will require harmonization of national policies in such areas as investment, taxation, intellectual property rights and macroeconomic coordination. Furthermore, it will call for further infrastructure and border development and other actions complementary to the integration process, such as the development of sectoral policies for agriculture and transportation. While a common market does not have direct implications for member countries' exchange rate policies, the coordination – or lack of - such policies across countries necessarily will affect the free movement of capital, i.e. the process of financial integration. Furthermore, the exchange rate issue becomes crucial if the common

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market is considered not an objective *per se* but as a step – albeit a very important one – in a process of ever stronger regional integration.

While the prospect of monetary integration in the Andean Community is not yet on the agenda, Ecuador's decision to dollarize has ignited a debate over the optimal direction for exchange rates within the region. The questions that must be dealt with are the following:

- Is integration possible without some sort of coordination of member countries' exchange rate regimes?

- In particular, is it possible to continue the integration process when member states have extremely different exchange rate regimes, ranging from free floats to dollarization?

- Is monetary integration, and ultimately the formation of a monetary union, imperative and inevitable for successful regional integration?

- Given the track record of many Latin American nations, could dollarization instead be the answer, providing stability and credibility and allowing greater participation of the region in the global economy?

- Extending this last point, might dollarization not be the answer for the entire Latin American region, in the context of the development of the Free Trade Area of the Americas?

Regional agreements have become increasingly popular in recent years, the World Trade Organization (WTO) reports that currently more than 150 such agreements are in force, most of which have been concluded over the past 10 years. Nearly all countries participate in at least one. Academics and policymakers have not yet reached a consensus over the impact of regional groupings on world trade, and on whether they constitute an aid or an obstacle to global trade liberalization. A further development has been an increased interest in *deep* integration: integration that goes beyond the liberalization of trade between member countries to encompass the harmonization and integration of other economic policies. The rationale for deeper integration can be both economic and political. One motivation is tied to the vision that the world is splitting up into three major regional blocs: the European Union (EU), an American bloc tied to the U.S. and an Asian one led by Japan. If this is in fact the direction towards which the world is moving, belonging to a regional group is fundamental to have any voice in international negotiations. Furthermore, the greater the level of integration and cohesion within a group the greater bargaining power, all else equal.

Apart from the more general considerations on regionalism, there has been much debate over the efficacy of so-called "South-South" agreements (i.e. where all members are developing countries), as opposed to "North-South" ones, where at least one member is an industrialized country. Recent research[1] has stressed that for South-South integration to be successful it must imply deep integration. Merely liberalizing trade among developing partners tends to imply static costs that outweigh the benefits. In fact "South-South" agreements are more likely to entail trade diversion, i.e. the diversion of trade from more efficient exporters outside the region to less efficient regional producers. This may be due both to underdevelopment of some Southern industries and to high outside tariffs that generally accompany the liberalization process in these countries. Regional integration can imply positive scale and competition effects, but the exploitation of these positive dynamic effects often require the harmonization of other economic policies and the liberalization of factor movements. While it is possible that these benefits could be obtained through unilateral liberalization as well, politically it may be easier to do so first regionally. Furthermore, it is important to not overlook the purely political reasons for the formation of regional agreements, such as increasing security, insuring democracy and improving visibility and bargaining power in the world arena. Such benefits are more likely to be achieved the deeper the degree of integration.

What does this imply for Latin America, and the Andean region in particular? For regionalism to be successful, it must go hand in hand with liberalization towards the rest of the world. Furthermore, it must entail deep integration: focus should be not be limited to inter-regional trade liberalization, but towards greater harmonization and integration of other economic policies as well. Within this context falls the issue of monetary integration in the Andean region: If we accept that deep integration is needed for the success of the region, what is the role to be played by regional exchange rates?

While the formation of the European Union has produced an extensive literature on monetary unions, the recent financial crises in various emerging markets have produced a literature more specific to the economic situations of Latin American nations. The focus of this newer literature may appear unrelated to monetary integration, however issues such as fear of floating, dollarization and original sin are such an integral part of Latin American economics that they cannot be ignored. Indeed, a theory of monetary integration that does not include such issues would be incomplete. We will consider both the traditional literature and

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[1] See World Bank Report on Trade Blocs, 2000.

and newer theoretical developments to examine the different options available to the Andean countries.

II. OVERVIEW OF THE LITERATURE: THE PRE-CRISIS DEBATE

a. Optimum Currency Areas

The traditional starting point for discussing issues concerning monetary integration is the optimum currency area (OCA) approach, first developed by Mundell (1961) and further elaborated by McKinnon (1963) and Kenen (1969).[2] The basic concept is best understood by looking at an extremely simple example, taken from Krugman (1990), where the proposed currency area - Europe - consists of only two countries, France and Germany. Comparative advantage between the two countries determines trade, such that France exports cheese and Germany sausage. The world market is subject to stochastic shocks that can shift the relative demand of these goods.

Suppose France and Germany have already formed a regional agreement that entails the free movement of goods, and possibly that of labor and capital as well. Should the two countries maintain separate currencies? If so, which would be preferable, fixed or floating exchange rates?

The classic case for allowing the exchange rate to float, which dates back to Friedman (1953), is that floating rates ease the adjustment process in the case of shocks. In our example, consider an external shock that causes the world relative demand for French cheese to fall. To absorb this shock, it will be necessary for the relative price of French cheese to fall as well. This can be achieved either through some combination of deflation in France and inflation in Germany, or via a devaluation of the French franc against the German Deutsche mark. This second route proves much easier, especially if prices and wages are sticky, in fact in this case the first route would imply a French recession.

What instead are the disadvantages to floating? The answer is mostly microeconomic. Floating exchange rates imply uncertainty, and for economic agents, especially risk adverse ones, it is costly to operate in such an environment. In particular, these costs will be larger if the market is speculatively inefficient so as

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[2] Mundell's fundamental contribution to open economy macroeconomics later won him the Nobel Prize.

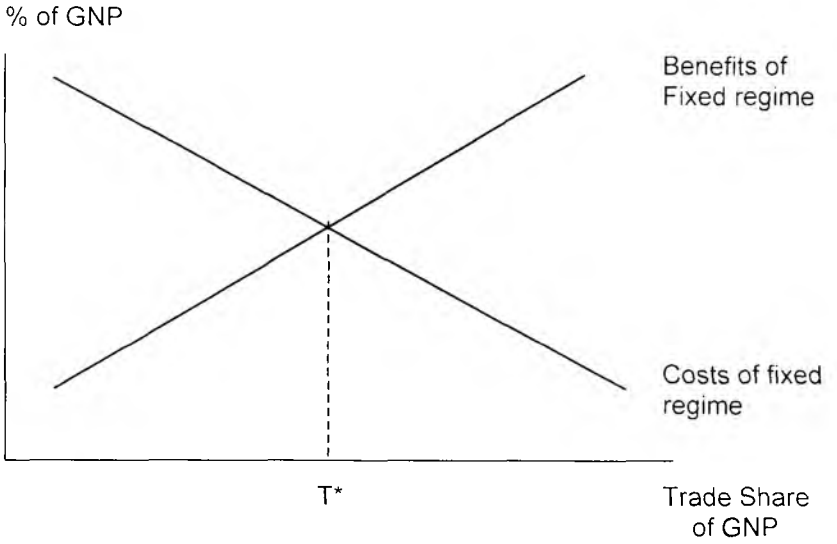
to produce excess volatility (certainly an issue in the Andean region!). Therefore a fixed exchange rate system provides the following benefits: 1) a reduction in the costs of economic calculation for agents, 2) the reduction of uncertainty and exchange rate risk, 3) the elimination of transaction costs tied to the need to hedge against exchange rate risk, and 4) the elimination of transaction costs of exchanging different currencies.

It might seem that one could achieve the benefits of a floating rate with a currency union (but without a common currency), where the exchange rate between the two countries is fixed but can be adjusted when necessary. The risk of such a system is that it is subject to speculative attacks whenever market operators think that an exchange rate readjustment might be on the horizon. This puts the central banks in a difficult situation: to limit attacks the central banks must be credible in their commitment to enforce the fixed rate, but retaining credibility will inhibit their ability to make adjustments to absorb shocks. This entails that in general an adjustable peg system will be less effective than a floating one at absorbing shocks and smoothing out the macroeconomic adjustment process.

As we see, both fixed and the flexible rates offer costs and benefits, and some sort of cost-benefit analysis must be developed to determine the optimal regime. In other words, we must weigh the benefit of being able to easily adjust relative prices against the gains from decreased uncertainty and volatility in market operations. The optimal currency area approach makes the argument that the more closely linked the two economies, the more likely that fixed exchange rates be the optimal regime. Consider the following graph, taken from Krugman (1990), where the horizontal axis represents trade between the two countries as a share of total GNP, and vertical axis represents costs and benefits as a percentage of GNP. The two curves represent the benefits and costs of a fixed regime relative to a flexible one. The crossing point determines the critical level of integration, i.e. for trade above T^* fixed exchange rates are preferable to floating.

The benefits curve slopes upwards for the following reason: if fixed exchange rates entail decreased uncertainty, the benefits to market operators will increase the greater the size of the relevant market, i.e. the greater the amount of trade between the two countries. While the sign of this effect is straightforward, quantifying it can prove much more complicated.

Figure 1



The cost curve slopes downwards firstly because of a scale effect: the size of a price adjustment necessary to accommodate an external shock will be smaller the larger the initial trade between the two regions. Consider again our example of decreased world demand for French cheese, accompanied by a rise in the demand for German sausage. Suppose this causes the French trade balance towards the rest of the world to worsen by 1 percent of GDP, and the German trade balance to improve by 1 percent. To offset this shock, France needs to improve its trade balance with Germany by 1 percent, in a fixed exchange rate regime this must occur through decreased French prices and wages so as to increase French competitiveness vis-à-vis Germany. However the required fall in French prices will be *smaller*, the greater French exports to Germany. In other words, the greater the amount of pre-shock trade between the two countries, the greater the margin of maneuver for France.

A second reason for the downward slope is more implicit, and lies in the effect large scale trade has on the price adjustment process itself. If France is trading extensively with Germany, it is possible that French prices are implicitly or explicitly indexed to the DM, so exchange rate adjustment would be ineffective anyway. In other words, French devaluation would only succeed in increasing inflation.

Mundell's analysis also suggests that fixed exchange rates or a monetary union will be more appropriate the more symmetric the nature of economic

shocks across member countries or, in the absence of the former, in the presence of high labor mobility and price and wage flexibility. Labor mobility lowers the costs of fixed exchange rates not only inside and but outside of the regional area as well. If labor is allowed to move freely between France and Germany, the shock to relative price will cause labor to migrate from France to Germany until wages have stabilized and unemployment has been absorbed. This would reduce the need of any type of wage adjustment, lowering the costs of the adjustment process.

Kenen (1969) highlights the importance of trade based on competitive rather than comparative advantage: the more members specialize in the production of a diverse mix of goods, the greater the likelihood that external shocks be asymmetric. Furthermore, in the case of intra-industry trade large changes in the real exchange rate would quickly affect profitability and performance of affected producers, with negative effects on investment and growth in the affected sectors, that could ultimately lead to protectionist pressures. Therefore the importance of member countries producing a relatively similar mix of goods. Later researchers have identified additional criteria, such as capital mobility and a common tax and transfer system. On the other hand, the costs of fixed exchange rates and the associated loss of monetary autonomy will be greater 1) the more asymmetric (i.e. the more region or country specific) are macroeconomic shocks, 2) the more powerful the instrument of monetary policy, and 3) when other adjustment mechanisms such as relative wages and labor mobility are less effective.

In conclusion, policymakers have summarized preceding literature in the following list of criteria for a group of countries to be considered an optimum currency area:

- symmetric shocks across members;
- labor mobility;
- price and wage flexibility;
- and the existence of a supernational mechanism for fiscal redistribution.

The first is the most important, the latter three conditions serve to minimize costs of adjustment in the case the currency area were subjected to asymmetric shocks. Symmetry of shocks can be evaluated by considering a variety of economic indicators, such as correlation of growth rates, the degree of intraregional trade, similarities in the composition of trade, among others.

b. Credibility and exchange rate regimes

"Increasing credibility" is an argument often touted for monetary integration. In particular, it is argued that monetary integration allows "weaker" members to free ride off the greater monetary and exchange rate credibility of their stronger partners. But what if none of the member countries have particularly credible Central Banks? And would this argument be stronger or weaker under a common currency?

The literature on the credibility argument for monetary unions is tied to an extensive literature on the role of credibility in monetary policy. The seminal paper on credibility is Kydland and Prescott (1977), considered the stepping stone for all subsequent literature on the topic. Giavazzi and Pagano (1988) and Persson and Tabellini (1993) examine the issue of credibility from the point of view of countries looking to form a monetary union, applied in particular to the European case.

Monetary unification has the benefit of providing a device through which high inflation countries can free ride off the credibility of their lower inflation partners. In the case of Europe, and especially in the case of the now defunct European Monetary System, it was generally believed that the arrangement was a way for France and Italy to purchase a commitment to low inflation at the cost of accepting German monetary policy.

At first glance, it would appear that a country with higher than average inflation would not wish to join a monetary union because the arrangement would cause it to lose competitiveness relative to its partners with lower inflation. In fact, excess inflation combined with fixed exchange rates results in a one-for-one appreciation of the real exchange rate. However the possibility to latch on to the credibility of a stronger central bank's commitment to low inflation may be sufficient reason for the high inflation country to join.

The argument behind this statement hinges on the relationship between inflation, the expected rate of inflation, and unemployment. Suppose each central bank is able to choose its inflation rate, given an expected rate of inflation that is already built into wage contracts. Employment depends on the deviation of actual from expected inflation. The countries where inflation is highest are usually those with the highest incentive to use inflation surprises as tools of monetary policy, this will occur when the response of output and employment to unanticipated inflation is high and when the government has a large amount of outstanding nominal liabilities. However given that economic agents are rational the government cannot systematically use surprise shocks. The result will be that both expected and actual inflation will be higher than the rate that would prevail if policymakers could credibly precommit.

Another disadvantage of floating exchange rates has to do with coordination. Countries with floating exchange rates have an incentive to engage in beggar-thy-neighbor devaluation: devaluating increases competitiveness, but at the expense of the competitiveness of one's trading partners. If all countries do this, all will end up with high inflation and no competitivity gains. Fixed rates eliminate the problem by imposing the need to coordinate monetary policies.

Fixing the exchange rate can thus be seen as a way of changing the incentives of the monetary authority and eliminating part of the inefficiency tied to the monetary authorities' lack of credibility. It is important to note that this argument gives a system an implicitly asymmetric nature. The credibility argument supposes that the benefit of fixing the exchange rate comes from borrowing credibility from a partner country, so the stability of the system depends fundamentally of the stability of the "strongest" partner. This eventually can lead to trouble, in fact one of the reasons the Bretton Woods system fell apart was that the US faltered in its role of global monetary leader.

While this line of reasoning might hold for fixed exchange rate, would the credibility argument be stronger or weaker in the case of monetary integration with a common currency? The answer is not clear-cut. On the one hand, a common currency imposes a more credible commitment: the commitment to fixed rates is always in some way provisional as long as monetary authorities control their own national currencies, and there is always the possibility of leaving a fixed rate arrangement (as in fact happened in Europe in 1993). Reintroducing a national currency after a common currency has been adopted is much more costly, from both an economical and a political point of view. On the other hand, one might argue that common currency is less credible as an anti-inflationary device. While in a fixed exchange rate system high inflation countries implicitly follow the monetary policies of the stronger partner, a monetary union would entail the formation of a regional central bank where all nations would necessarily be represented. This might in fact give rise to an outcome with higher inflation than before integration.

c. The European Example

"A single currency is the cement that binds our economies together" - Sir Leon Brittan.

"By the end of the century, Europe will have a single currency. It will be strong and stable. " - opening words to the European Community's Green Paper on the Practical Arrangements for the Introduction of the Single Currency, 1995

The European Union has been the most ambitious and most successful attempt at regional integration of the past half century, with respect to both the depth of integration and to its magnitude. Integration in Europe has been a gradual process, from the formation of a customs union between a group of core countries to the current monetary union that encompasses almost all of Western Europe. The accession of many Eastern European countries is now the next step on the agenda.

The debate over monetary integration in Europe has been a heated one, and academics and policymakers still disagree over the viability or desirability of a common European currency. Even now that the euro is a reality the debate continues. What however cannot be disputed is that the integration process in Europe has been extremely successful, both from an economic and political point of view. There have been glitches along the way and issues that still need to be resolved, but mostly the consensus is that benefits have greatly outweighed the costs.

How does the EU fit into the literature on optimum currency areas and credibility? It is important to note that most of the literature on this topic was developed expressedly to deal with the issue of integration in Europe.

Firstly, it is interesting to note that there is not even consensus over whether or not Europe satisfies the criteria for constituting an optimum currency area. Those that maintain the answer is no take a very strict view of the conditions, and tend to compare Europe with the US, considering only the latter a true optimum currency area. On the other hand, Europe is the regional area that comes closest to satisfying the criteria, and it is probably safe to say that a strict adherence to all criteria would in fact be impossible outside of actual nation states.

For fixed rates to be economically efficient between a group of countries it is important that the vulnerability to external shocks be minimized. The effect of asymmetric shocks is in general smaller the greater the amount of intra versus inter industry trade, in other words the less trade is based on comparative advantage and the more similar are the countries industrial structures. Given an asymmetric shock to the region, we have seen there are three ways an optimal currency area can successfully respond. Let us examine the conditions one by one:

1) Factor mobility: Both capital and labor are institutionally free across the European Union. It is true that labor markets in Europe are particularly rigid and in general cultural and language issues limit labor mobility to some extent. But in general, the factor mobility promised by the European Single Market has greatly been achieved.

2) Price and wage flexibility:Wage flexibility in Europe is constrained by the extensive rigidities in the labor market and the large size of the welfare state.

3) Existence of a supernational mechanism for fiscal redistribution: While the European Union has a common budget, most of it is absorbed by the Common Agriculture Policy and there is little political enthusiasm across Europe for a bigger EU budget to allow for bigger transfers.

With respect to the vulnerability of Europe to asymmetric shocks, the verdict isn't clear cut. On the one hand, much of European trade is intraindustry, i.e. trade of similar products within the same industry, which tends to harmonize European reaction to external demand shocks. On the other hand, over the last 10 years Europe has be hit by unexpected historical events of a clearly asymmetric nature, such as the unification of Germany and the collapse of trade between Finland and the former Soviet Union. These however are one time events, and while traumatic not likely to repeat themselves.

Many critics of European integration compare Europe with the US. The two regions in fact share a similar geographic size and population. How does the U.S. compare as an optimum currency area? Different regions within the U.S. appear as susceptible to asymmetric shocks as different regions within the EU, consider for example, the oil crisis in Texas in the mid-80s and the property market collapse in New England in the late 80s. However labor is notoriously much more mobile in the US than in Europe, and labor market notably more flexible. Furthermore, the federal government plays a strong stabilizing role in the face of region specific shocks.

But a closer examination of the US case may disqualify it as well as an optimum currency area. Critics maintain that labor mobility and flexibility may be exaggerated, as may federal outlays to compensate losses by state governments. However, the role of the dollar as the unified currency has most likely played a decisive role in US integration. So it may be argued that the euro may do the same for Europe.

It is interesting to note that Mundell himself, the father of optimum currency areas, has always been a strong proponent of European unification. Notwithstanding his earlier writings, Mundell maintains that if a common currency can be managed so that its general purchasing power remains stable, then a common currency area, even if it encompasses diverse regions or is subject to asymmetric shocks, is not only viable but desirable. Furthermore, the larger the area the better. A common currency can mitigate the effect of asymmetric shocks by better reserve pooling and portfolio diversification. With a common currency, a country suffering from an adverse shock can better share the loss with its partner

because both countries hold claims on each other's output in the common currency. Without the common currency, the country hit by the shock will be forced to devalue and will find that its assets buy less on world markets, keeping the cost of the shock isolated in the country where it originated and lengthening the adjustment process.

The opinion that a common currency for Europe has been a mistake from an economic point of view cannot be so easily dismissed. It may in fact be true that Europe is too large, too diverse and too poorly integrated to fully benefit from monetary unification. On the other hand, a common currency could help overcome these obstacles. Furthermore, given that political integration is the final objective for Europeans, a unified currency is without doubt a necessary condition, and economic efficiency is only part of the argument. In any case, Europe remains a benchmark case for all other countries looking to achieve regional integration.

As for the role of credibility, many observers worried that the new European Central Bank would not share the same reputation of the German Bundesbank. Moreover, the Maastricht criteria were largely criticized for having no relevance in making Europe more of a optimum currency area. On the other hand, the Maastricht criteria may have done much to enhance the credibility of the ECB, and therefore of the monetary union as a whole. In fact the stringency of the criteria may have been such to pressure countries to "shape up" so as to be able to participate in the Euro, or else face a much greater loss in credibility. In this sense, the Maastricht criteria may have done much to develop what has been called a "culture of stability" in the region, helping to lay the ground for the success of monetary unification.

d. Some economic evidence for Latin America

Evidently designing a policy that will lead to a custom's union and that will perhaps lead to an integration as symbolic as a monetary one is not a policy that can be adopted easily, thoughtlessly, nor can it be implemented overnight. It is a lengthy process. But we are beginning to follow that path.- Fernando Henrique Cardoso, at the opening ceremony of the Sixth Economic Summit of Mercosur, 2000.

The discussion over the possibility of monetary integration in Latin America has in the past focused largely on the countries of Mercosur. The European model examined above doesn't fit Mercosur. In fact, no European country dominates the EU as does Brazil in Mercosur. Nor does the NAFTA model apply, as Brazil's regional domination is nowhere near that of the US. If one takes the position that Europe does not sufficiently satisfy the conditions of an optimal currency area, a

fortiori Mercosur does not. It is generally believed that the main obstacles to monetary integration in Mercosur are rigidities in the labor market and weaknesses in the financial systems.

On the other hand, there are some strong arguments to monetary integration in Mercosur, and in Latin America in general. In the past, economic instability has be one of the main causes of the lack of investment in the region. Secondly, Mercosur at present still consists of a small number of member countries, so negotiations and coordination could potentially be easier, and not clouded by the political issues that have marred the process of European integration.

The literature on optimum currency areas tells us that trade liberalization can exist without monetary integration, depending on member countries characteristics. But the deeper integration, with more open domestic markets and more intense inter-regional competition, the more disruptive will be exchange rate changes, and the greater the need for some degree of monetary integration.

A common currency for Mercosur is considered a possibility not for the near future, but perhaps something to be achieved in 15 years. Notwithstanding talk in the region of a "small Maastricht", given recent criticism over the necessity of some of the Maastricht criteria European economists now agree that the prerequisites for a smoothly functioning monetary union are the following:

1) An independent central bank, insulated from the political business cycle;

2) Wage and price flexibility;

3) A strong financial sector;

4) Barriers to exiting the monetary union.

How far are the Mercosur countries from satisfying these four key conditions? Notwithstanding current troubles in Argentina and, to a lesser extent, in Brazil, the member countries seem have been going in the right direction, even though there is obviously much left to be done. They have accomplished much on the way to the creation of politically and economically independent central banks. Argentina has made progress in strengthening its banking system and tightening regulation, Brazil has recognized, if not implemented, the need of fiscal reform. The most critical areas remain those of labor market flexibility and financial strengthening and regulation.

The last condition, the creation of barriers to exit, brings us back to the argument that monetary union makes sense for Mercosur only if part of a project of

deeper integration. Technically, a country can always leave the union, especially during the process leading up to its creation. For this reason monetary union should not stand alone as an objective in itself, but as an integral part of a interconnected set of economic and political agreements.

III: THE NEW (POST CRISIS) DEBATE

a. The Bipolar View

The 90s were rocked by a series of major international capital market crises: Mexico in 1994, Thailand, Indonesia and Korea in 1997, Russia and Brazil in 1998, and Argentina and Turkey in 2000. All of these crises in some way involved fixed or pegged exchange rates. This led to what became known as the "bipolar view", a position strongly advocated by the IMF which can be summarized succinctly as follows: exchange rate regimes between hard pegs and floating are not sustainable. From the point of view of regional groups considering monetary integration, it means an all or nothing approach.

Recent history appears to have validated this theory. Among developed countries, half the countries (including the EU) have what can be defined as very hard pegs, and nearly half the countries float. The situation in developing countries is less clear cut. Of the 33 countries that the IMF defines as emerging markets, 13 are described as independently floating. Of these, six (Indonesia, Korea, Thailand, Russia, Brazil and Mexico) became floaters after the crises of the 90s. Three more (Czech Republic, Nigeria, and Taiwan) have managed floats. On the other end of the spectrum, five countries have currency boards or other arrangements with no legal tender, which we can consider as very hard pegs: Argentina, Ecuador, Greece, Bulgaria and Panama. Seven more have fixed pegs, and the remaining four have crawling bands.

While in the case of emerging markets the contrast between hard peggers and floaters isn't as stark as for developed countries, comparing the present situation with that of a decade ago shows a move away from intermediate, soft peg, arrangements towards either greater fixity or grater flexibility. Obstfeld and Rogoff (1995) highlight the fact that pegged exchange rates aren't viable in the long run for any type of economy, not because of some technical infeasibility, but because ultimately competing government objectives will force monetary authorities to renege the peg. In fact, most central banks have access to enough foreign exchange resources to defeat a speculative attack of any magnitude, but to do so would entail ignoring the detrimental effects of such a policy on the domestic economy. Furthermore, intermediate systems such as bands and target zones

succeed only in postponing the day of reckoning on which the local currency comes under attack, but once that does happen the problems are the same as under a fixed rate.

Stanley Fischer (2001) has convincingly argued that the bipolar view may be extreme, and that the statement that only the two corner solutions are feasible should include a couple of caveats. In particular, the statement should be rephrased to take into account the crucial role of international capital flows. Therefore, *for countries with liberalized capital movements*, with respect to fixed exchange rates only very hard pegs are sustainable, while instead there are a wide variety of flexible rate arrangements that may be sustainable. For countries not yet open to international capital flows, the full gamut of exchange rate arrangements is possible.

The arrangements that are excluded as unsustainable are those where the country in question has globalized capital markets and the government has committed to defending a particular exchange rate, but has not made the institutional commitment necessary to make such a commitment credible. Much damage has been caused by collapses of pegged regimes that enjoyed credibility for some time: such credibility actually worsened the effects of abandoning the regime. The belief in the stability of the exchange rate removes the need to hedge, making any crisis particularly harmful for banks, corporations and government finances. Insufficient regulation and supervision of the banking system exacerbates the problem.

The case against fixed exchange rates outside of very hard pegs depends greatly on the greater level of international capital mobility over recent years, a product both of liberalization and technological advances. The globalization of capital markets has had the effect of magnifying any weakness or inconsistency in a country's commitment to its exchange rate, leaving monetary authorities with little room for maneuver.

What does this imply for countries considering monetary integration? Much of the answer lies in the so-called "impossible triad": fixed exchange rates, capital mobility, and autonomous monetary policy. If the bipolar view implies that soft pegs aren't an option, even as a transitory measure, the countries of the region must be willing to give up autonomy in the monetary policy, or else consider capital controls. This latter option is also to be considered transitory, if we assume that counties in the course of their development will want to achieve capital liberalization and integrate themselves into the global capital marketplace. In any case it is generally believed that capital account liberalization should be preceded by, or at the least coordinated with, stable and consistent macroeconomic

policies, and development of the necessary infrastructure for the efficient functioning of domestic financial institutions and markets.

The credibility of fixed rates between a subset of countries can in principle be increased though bilateral or multilateral cooperation, a common argument in favor of monetary integration. The incentive problems of competing government objectives however continue to apply. Inter-regional coordination can spread the cost of any adjustment among members, although in practice the stronger countries may not be willing to sacrifice their domestic goals to salvage a weaker partner. Obstfeld and Rogoff (1995) note that while EMS committed members to unlimited intervention in defense of agreed parities, in fact Germany interpreted its obligations as intervention only up to a point that wouldn't threaten its prime objective of low inflation. Lastly, one must remember that in a world of floating exchange rates there is a limit to how far a subset of countries can insulate themselves from the effects of exchange rate instability: even though they fix among themselves, or to a specific currency or basket of currency, they must ultimately float against the rest.

b. Fear of floating

The normative implication of the bipolar view has been that countries should either choose very hard pegs or float freely, and that recent developments in international markets seem to prove the validity of the view. However Calvo and Reinhart (2000a and 2000b), among others, note that many countries that claim to have floating regimes in reality do not allow the currency to float freely, choosing instead different types of intervention to affect it behavior. They label this behavior "fear of floating". This implies on the one hand that the "hollowing out" of exchange rate regimes we appear to be witnessing is deceptive, and furthermore that fixed exchange rates are still considered greatly appealing by many countries.

Calvo and Reinhart (2000) find that lack of credibility is the most common cause of fear of floating. Lack of credibility may be reflected in volatile interest rates, sovereign credit ratings, and an increase in liability dollarization which tends to limit the central bank's ability to act as the economy's lender of last resort. In emerging markets a large part of liabilities are in fact dollarized, this entails increasing debt servicing difficulties in case of devaluations. Not only is credit market access adversely affected but so is trade, due to the fact that much invoicing is in dollars and hedging opportunities are more limited. Furthermore, the pass-though from exchange rate swings to inflation is far higher than in developed economies, implying that if monetary authorities have any type of inflation target they will tend to try to limit exchange rate swings.

But if floating is so ineffective, why don't these countries choose to fix their exchange rates? Imperfect credibility of pegging the domestic currency can lead to exchange rate crises and in any case renders financial intermediation very complex. For example, today not a single Latin American country is able to place a long-term debt denominated in its own currency: all long-term financial markets are either denominated in dollars or indexed. This produces for serious exchange rate mismatches in the balance sheets of corporations and individuals, and renders the system more vulnerable to exchange rate shocks.

What does this imply from the point of view of monetary integration? If fear of floating is a symptom of lack of credibility, liability dollarization and vulnerability with respect to credit access, all these conditions must be considered in analyzing the desirability and the direction of monetary integration. Furthermore, it will make a difference whether one, some, or all of the countries contemplating integration suffer from fear of floating. If only one potential member country exhibits these weaknesses, tying itself to stronger member countries' monetary policy might increase credibility and improve macroeconomic stability. But if too many, or all, of the members exhibit the same weakness, credibility will not arise from simply tying together their monetary policies. Credibility will have to rely on an outside currency anchor, such as (but not necessarily) the dollar, which is the subject of the next section.

c. Dollarization

Dollarization is defined as a situation in which a country abandons its own currency and adopts another country's currency (the dollar, or another hard currency, such as the Euro) as a means of payment and as the unit of account. Full dollarization therefore implies the complete relinquishing of monetary and exchanger rate policy.

Dollarization has emerged as a possible solution to the exchange rate regime debate, especially in the case of Latin American countries, due to the fundamental changes in the economic environment in the last decade. Inflation has become less of a problem, while instead the degree and scale of capital mobility have increased sharply, raising the frequency and severity of currency crises. If in fact only hard pegs and free floats are viable exchange rate solutions, as maintained by the supporters of the bipolar view, and if in the case of emerging markets pegs are rarely credible and free floats often result in de fact soft pegging, dollarization becomes a very attractive solution. This is especially true for countries characterized by what Eichengreen and Hausmann (1999) call "original sin", a situation in which the domestic currency does not support long-term domestic markets and is not acceptable as a denomination for foreign loans.

Dollarization offers the following benefits[3]:

- Most importantly, dollarization eliminates exchange rate risk. By eliminating the risk of sharp exchange rate adjustments, dollarization promotes more stable international capital markets.

- The permanence of the dollarization solution increases credibility in the countries financial and monetary system. The increased level of confidence of international investors contributes to larger and more stable capital flows.

- The elimination of the risk of a currency crisis reduces the country's risk premium and lowers spreads on international borrowing. The resulting decrease in interest rates entails lower fiscal costs of servicing the public debt and higher levels of investment.

- Dollarization promotes closer economic and financial integration with the U.S. and the global economy in general. This may contribute to convergence of income levels between the dollarizing economy and more advanced nations.

- Inflation will converge to international levels, and especially important issue for countries with a history of high inflation.

- Dollarization, if perceived as not only the adoption of a foreign currency but also an irreversible institutional change, may establish a firm basis for a more sound financial sector. This would be an important contribution to strong and steady economic growth.

- Many emerging markets are characterized by a high level of dollarization of financial assets and liabilities, making the banking system particularly vulnerable to exchange rate risk. Dollarization eliminates these currency mismatches in banks' and firms' balance sheets, increasing the stability of the banking system.

- Dollarization may bring about greater integration in financial markets. Currency risk is a important source of vulnerability in financial systems, in particular in the presence of liability dollarization. Not only the elimination of this source of vulnerability could contribute to stronger markets, but dollarization would also render more difficult the imposition of capital controls, given that it

[3] For an in depth analysis, see Berg, Andrew and E. Borensztein (2000).

would be possible to convert all assets to dollars. In this way it becomes more difficult to insolate the domestic financial market from the rest of the world.

As appealing as the prospect of dollarization might be, especially for emerging market economies plagued by repeated currency crises and high inflation, there are some caveats to be considered.

- Dollarization implies giving up the ability to use monetary and exchange rate policy to respond to adverse shocks. This is a strong tool to relinquish, however, as we have seen previously, floating exchange rates in emerging markets do not always respond as in textbook models. For these countries that are already reluctant to float, as is the case for many Latin American countries, dollarization does not necessarily imply giving up a valuable asset.

- By dollarizing and giving up the use of monetary policy, the country is subject to monetary policy in the U.S., which responds to U.S. needs which do not necessarily coincide with the most appropriate response to the domestic economic situation.

- Dollarization implies the loss of seigniorage, the profits accruing to the monetary authorities from its right to issue currency. The seigniorage loss will have two components: a "stock" cost, deriving for monetary authorities "repurchasing" the stock of domestic currency held by the public, and a "flow" cost, the loss of future seigniorage earnings that would have stemmed from new currency printings in following years. Seigniorage lost by domestic monetary authorities is instead appropriated by the U.S. One way to solve this is through some sort of monetary association treaty with the U.S. that would imply sharing seigniorage revenues with the dollarized nation. Although this has not yet been done, there is a precedent to this: South Africa has a monetary arrangement in this respect with the three other countries (Lesotho, Namibia and Swaziland) that use the rand. U.S. Congress so far has not rejected the possibility of some type of arrangement with Latin American countries wishing to adopt the dollar as legal tender.

- With dollarization monetary authorities give up, to some extent, the role of lender of last resort. While monetary authorities maintain the ability to inject short term liquidity into the system or provide assistance to individual (small) banks in distress, authorities lose some ability to respond to a system-wide bank crisis. In fact, although with dollarization the central bank continues to maintain reserves to face smaller crisis and still has the ability to move liquidity from stronger banks to weaker ones in the event of a disturbance, it is ultimately the ability to print money as needed that allows the central bank to guarantee "beyond any doubt" that *all* claims be fully met under any circums-

tances. On the other hand, dollarization makes bank runs less likely, firstly by increasing confidence in the domestic financial system. Secondly, dollarization most likely would cause an increase in the presence of large and solid foreign banks, which not only would further increase confidence in the system but could also provide support to the central bank if needed. Furthermore, dollarization could be accompanied by measures to strengthen the banking system and reduce the risk of bank runs, such as higher liquidity requirements for banks.

- With dollarization monetary authorities give up the ability to use inflation to default on the real value of nominal commitments. In cases of unsustainable fiscal or financial problems, a massive depreciation/inflation can wipe out the real value of nominal liabilities, bringing obligations in line with available resources. Real savings and real earnings of the private sector are expropriated *de facto* to bail out corporate and government borrowers. But this is an "option of last resort", to be used only in crisis situations and increasingly costly, as economic agents incorporate expectations into existing contracts. It can be argued that dollarization may help prevent these crises, reducing the need to use such policies.

It is generally acknowledged that while dollarization may reduce the occurrence and magnitude of some economic problems, dollarization will be most effective if accompanied by a series of policy reforms directed to strengthening and stabilizing the economic structure of the country. Specifically, a reform program should be devised to ensure fiscal sustainability, financial sector solvency and liquidity and labor market flexibility.

IV. THE ANDEAN CASE

The Andean countries currently present a wide array of exchange rate regimes, ranging from a float in Colombia and Peru, to a crawling peg in Bolivia, an exchange rate band in Venezuela, and at the other extreme dollarization in Ecuador. Is continued and possibly deeper integration within the region feasible in the context of such diverse exchange rate regimes? If we accept the desirability of deeper Andean integration, and with it some form of monetary integration, the question becomes what form is most appropriate and most feasible. The first question we can attempt to answer is how close the Andean Community comes to being an optimum currency area. Given that consensus does not exist over whether Europe is an optimum currency area or not, we can exclude a priori that the Andean countries fulfill the requirements. Nonetheless, it is useful to see how well the Andean countries stand up to the criteria.

a. Optimum currency area

The first matter to be examined is the variability of exchange rates within the region: theory tells us that the more variable real exchange rates, the stronger the case for exchange rate flexibility, and the less advantageous the formation of a common currency area. This is particularly true for regions where prices and wages are slow to adjust. The second issue is the vulnerability of the countries to asymmetric shocks, as we have seen the more susceptible are the member countries to different types of shocks the greater the costs of monetary integration. To measure this we first look at the correlation of GDP growth rates and per capita GDP across the region. Furthermore, we look at the importance of trade for each country, and at the commercial links between each pair of countries. The greater the amount of trade in general and between partners in particular, the lower the costs of integration. We also consider the dissimilarity of the composition of trade, in fact countries with very different export structures will be affected differently by exogenous shocks. Lastly, we consider the degree of flexibility of labor markets across the region.

Real exchange rates

Using monthly exchange rates and consumer prices indices (CPIs), real bilateral exchange rates are constructed for the period 1990-1995 and 1995-2000. Table 1 reports minimum and maximum values, and standard deviations. One notes that not only is volatility (proxied by standard deviations) large across the region, in general there does not appear to be a trend towards lower volatility: in fact in only four cases has volatility decreased between the two time periods, and minimally at that. The effect is particularly stark if we compare it to the situation in Europe before the first experience with monetary integration, i.e. the European monetary System (Table 2).

Table 1. Summary Statistics for Regional Real Exchange rates
1990.1-1995.12, 1990.1=100

	Minimum	*Maximum*	*Standard Deviation*
Bolivia/Colombia	93.9	152.74	20.35
Bolivia/Ecuador	100	145.89	16.53
Bolivia/Peru	98.12	245.00	20.01
Bolivia/Venezuela	100	181.93	17.56
Colombia/Ecuador	93.29	123.67	7.62
Colombia/Peru	96.52	234.53	24.05
Colombia/Venezuela	71.2	134.84	12.38
Ecuador/Peru	93.72	229.03	22.08
Ecuador/Venezuela	69.79	136.56	10.29
Peru/Venezuela	43.36	125.69	13.90

1995.1-2000.12, 1990.1=100

	Minimum	*Maximum*	*Standard Deviation*
Bolivia/Colombia	119.60	162.93	11.52
Bolivia/Ecuador	64.5	133.05	21.48
Bolivia/Peru	118.34	150.72	9.00
Bolivia/Venezuela	103.46	232.16	35.94
Colombia/Ecuador	49.96	101.82	11.92
Colombia/Peru	80.91	107.80	6.78
Colombia/Venezuela	73.95	186.34	33.77
Ecuador/Peru	97.21	189.40	19.85
Ecuador/Venezuela	77.85	335.06	63.43
Peru/Venezuela	71.72	179.09	34.51

Source: IMF International Financial Statistics.

Table 2. Summary Statistics for European Real Exchange Rates
Other EC countries against Germany
1971.1-1979.12, 1971.1=100

	Minimum	*Maximum*	*Standard Deviation*
Belgium/Germany	91.66	112	5.41
France/Germany	96.17	123.29	5.13
Greece/Germany	100.05	151.83	8.97
Italy /Germany	99.63	148.4	13.24
Netherlands/Germany	87.08	107.06	4.71
Portugal/Germany	81.82	120.67	9.57
Spain/Germany	80.94	116.93	7.43
U.K./Germany	98.25	146.93	11.89

Source: IMF International Financial Statistics.

Output

With respect to business cycle variability, volatility and correlation across the Andean countries is not comparable to that of European countries for a number of reasons. While the amplitude of fluctuations across industrial countries has been declining over time, in particular due to the stability of the U.S. economy over the 90s, volatility in developing countries has been increasing due to a series of crises in emerging markets. Latin America was affected not only by the crises in Mexico and Brazil, but fuel exporters were also affected by volatility in oil prices. Lower correlation of output across developing countries with respect to industrial nations is also a result of greater diversity in terms of production and institutional structure and greater vulnerability to external and domestic shocks.

Output is measured as annualized quarterly real GDP growth rates from 1991 to 2000, except for Venezuela where quarterly data is only available from 1993. The U.S. is included, as the most important trading partner of all Andean countries. Means and standard deviations are included to show a measure of volatility.

Table 3. Correlation of GDP growth in Andean Community, 1991-2000 quarterly

	Bolivia	*Colombia*	*Ecuador*	*Peru*	*Venezuela*	*US*	*Mean*	*Standard deviation*
Bolivia	1						4.03	2.39
Colombia	0.43	1					2.78	3.52
Ecuador	0.34	0.68	1				1.47	3.67
Peru	0.12	0.52	0.47	1			4.44	5.16
Venezuela	0.18	0.62	0.45	0.18	1		1.09	5.25
US	*-0.21*	*-0.45*	*-0.40*	*-0.17*	*-0.21*	*1*	*3.69*	*0.91*

Source: IMF International Financial Statistics, Instituto Nacional de Estadistica (Bolivia), Departamento Administrativo Nacional de Estadistica (Colombia), Central Bank of Venezuela.

Table 3 shows that the strongest correlations exist between Colombia, Ecuador and Venezuela, while instead correlations of Bolivia and Peru are relatively smaller. This may indicate that greater similarity of shocks across Colombia, Ecuador and Venezuela (which in fact are all largely dependent on oil exports). Not surprisingly, output volatility is relatively high across the region. Correlation with the US is much smaller, and in any case negative. This is consistent with the declining rate of developing countries' and in particular Latin America's correlation with industrial country output. Comparing this to a sample of European countries, where monetary integration has already taken place, we find – not surprisingly - that in general the degree of correlation is higher.

Table 4. Correlation of GDP growth in Europe, 1991-2000 quarterly

	Austria	*Belgium*	*France*	*Finland*	*Germany*	*Italy*	*Portugal*	*Mean*	*Standard deviation*
Austria	1							2.07	1.67
Belgium	0.63	*1*						2.14	2.10
France	0.76	*0.77*	1					1.89	1.67
Finland	0.40	*0.56*	0.58	1				3.01	3.35
Germany	0.56	*0.83*	0.75	0.31	1			1.52	1.30
Italy	0.62	*0.84*	0.75	0.63	0.71	1		1.54	1.38
Portugal	0.55	*0.61*	0.70	0.50	0.49	0.56	1	2.92	2.37

Source: IMF International Financial Statistics.

Another useful measure of the possibility of monetary integration is similarity of income levels. Table 5 shows the income level in the Andean countries measured by purchasing power corrected GDP per capita. An even income distribution across the region is important not only because it contributes to economic behavior becoming more similar (less asymmetric shocks), but also because it increases the probability of macroeconomic coordination. An unequal income distribution will lead to divergences, especially in fiscal policy. Furthermore, extreme differences in income distribution could be a political barrier to the free movement of labor across the region for fear of large migrations.

Table 5. Purchasing power corrected GDP per capita, US$

	Bolivia	*Colombia*	*Ecuador*	*Peru*	*Venezuela*	*Andean Community*
1975	*n.a.*	*1993*	*1075*	*1926*	*2891*	*1971*
1985	*n.a.*	*3938*	*2105*	*2838*	*3879*	*3190*
1998	*2269*	*6006*	*3003*	*4282*	*5808*	*4274*

Source: IMF International Financial Statistics.

Trade structure

The more open an economy is, the less effective is the nominal exchange rate as a policy tool, and therefore the easier it is to enter a monetary union. In particular, the greater the amount of trade between partner countries, the greater the benefits of forming a monetary union. In fact, not only would exchange rate policy be ineffective in offsetting shocks in the region, but also there is more to gain in terms of reducing transaction costs.

Table 6. Openness: trade as share of GDP (%) in Andean Community, 2000

	1980-90	*1991-2000*	*2000*
Bolivia	44.9%	48.7%	46.2%
Colombia	28.9%	36.4%	43.4%
Ecuador	50.3%	58.7%	73.2%
Peru	33.4%	30.5%	33.8%
Venezuela	49.7%	50.2%	46.4%

Source: International Financial Statistics, IMF.

While Bolivia, Peru and Venezuela have displayed largely constant degrees of openness over the last 20 years, Colombia and Ecuador have increased openness notably. Furthermore, degrees of openness are not dissimilar from those of many European countries:

Table 7. Trade as share of GDP (%) in Europe, 1998

	1980-90	*1991-98*	*1998*
France	43.8%	44.1%	*49.6%*
Germany	58.9%	50.3%	*56.0%*
Italy	42.1%	44.4%	*49.4%*
Spain	39.3%	46.2%	*56.8%*
Greece	49.2%	43.6%	*48.7%*

Source: International Financial Statistics, IMF.

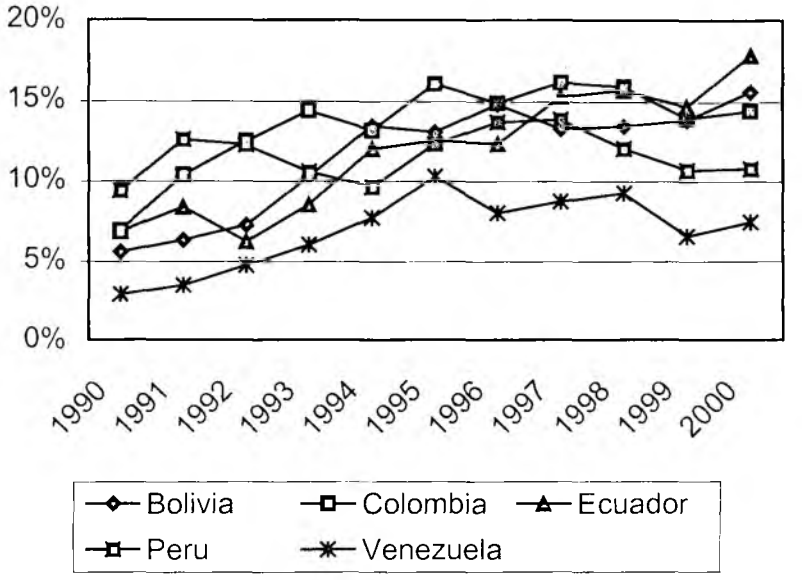
A second important index is the amount of intraregional trade, i.e. trade within the region. In fact the larger the scale of intra-region trade, the less effective the nominal exchange rate as a tool in the face of asymmetric regional shocks.

Table 8. Intra-region trade in Andean community (%), 2000

	Bolivia	Colombia	Ecuador	Peru	Venezuela	Andean Community
Only Exports	25%	17%	14%	6%	5%	***9%***
Only Imports	8%	13%	21%	14%	11%	***12%***
Total Trade	**16%**	**14%**	**18%**	**11%**	**7%**	**11%**

Source: Andean Community.

Figure 2. Andean intra-regional trade 1990-2000



Andean intra-regional trade has increased over the last decade, although it registered a marked decreased in 1999 due to economic contraction and decreased demand in the region. Andean intra-regional trade recovered somewhat in 2000, reaching 11%. However, these numbers are a far cry from those of Europe, whose intra-regional trade represents almost 70% of total trade, or of Mercosur, where intra-regional trade accounts for approximately 20%.[4]

It is interesting to note that for all Andean countries the United States continues to be the most important trading partner, representing 37% of Andean trade in 1999. This makes the region particularly vulnerable to demand shocks in the U.S.

Countries with a more similar production structure are better candidates for monetary integration because they will be affected more similarly by sector specific shocks. An examination of the structure of exports across the Andean countries reveals similarities but also notable differences. All countries continue to be strongly dependent on traditional primary exports. Petroleum is an important

[4] International Trade Statistics 2000, WTO.

Andean export, the main producers being Venezuela, Ecuador and Colombia. Petroleum however represents the bulk of Venezuelan exports (79%), while substantially less in Colombia (31%) and in Ecuador (33%). Mining represents the main export sector in Bolivia (35%) and Peru (55%). Agriculture is important in all member countries except Venezuela, although specialization varies across countries: in Bolivia soybeans represent 15% of exports, in Colombia coffee represents 8%, and fishing represents 15 and 24% respectively in Ecuador and Peru. Colombia and Ecuador exhibit a more diversified source of export earnings than their partners within the Andean Community.

Table 9. Export composition, 2000 (% of total merchandise exports)

	Primary agricultural goods	*Food products*	*Fuel*	*Ores and metals*	*Manufactured goods*
Bolivia	3.2	30.2	13.0	24.6	28.9
Colombia	4.7	19.1	41.4	0.7	34.1
Peru	3.0	30.3	7.1	39.3	20.3
Ecuador	4.0	36.5	49.4	0.2	9.9
Venezuela, RB	0.2	1.5	86.1	3.0	9.1

Fuente: Banco Mundial.

This diversified industrial structure renders some members especially vulnerable to international oil price movements, and all members are vulnerable to movements in international commodity prices, which are tend to be correlated imperfectly across agriculture, fishing and minerals. Insufficient diversification of domestic industrial structures also increases vulnerability, in particular in Bolivia, Peru and Venezuela. This is in net contrast to the European situation, where manufactures represent the majority of exports for all members. Not only does this entail greater likelihood of countries being affected by similar sectoral shocks, but manufactures are also less susceptible to the type of international price fluctuations that historically plague commodities.

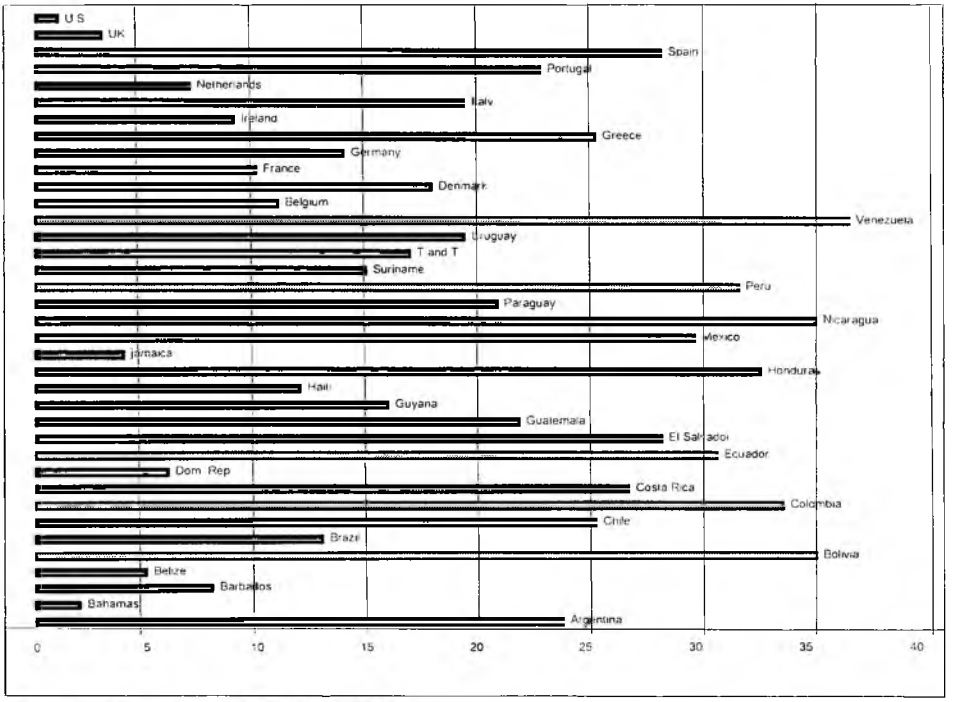
Labor market flexibility

The theory tells us that the more mobile factors of production within a region, the more likely the region is, *ceteris paribus*, to constitute an optimum currency area. In fact, intraregional labor mobility can alleviate the adjustment process in the face of an asymmetric shock. Direct evidence on inter-regional labor mobility is difficult to obtain, but since labor mobility is directly related to labor market flexibility, we can use an index of employment protection as a proxy of rigidity in

regional labor markets. Furthermore, labor market flexibility is tied to wage flexibility, another important OCA criterion.

The employment protection index shown below, drawn from Márquez and Pàges (1998), uses institutional data from 1990 to summarize information on the following: length of probation and advance notice periods, the actual cost of dismissing a worker, measures of definition of just-cause for dismissal, tenure-related severance payments, and reinstatement. Figure 3 shows that the Andean countries exhibit high levels of labor protection, even when compared to the notoriously "rigid" European nations. In fact, they exhibit the highest levels of employment protection in the sample. However it should be noted that the index does not take into account institutional reforms since 1990, ad gives merely an ordinal, not a cardinal, measure.

Figure 3. Employment protection index



Source: Márquez and Pàges (1998).

Heckman and Pagés (2000) instead construct an cardinal measure of job security, based on a common set of dismissal probabilities across countries. This shows once again the relative rigidity of Andean labor markets, which appear in

fact as the most rigid in Latin America. However there has been a tendency towards a reduction in such rigidity, in particular in Colombia and Venezuela, and to a lesser extent in Peru.

It appears the Andean countries don't satisfy some of the OCA criteria. On the other hand, as we have seen, no group of countries has in fact fulfilled such criteria in a satisfactory manner, not even those of the European Union. Furthermore, the Andean Community does not always perform worse that the EU. Comparing characteristics of the Andean Community with those of European countries can give some indication of how prepared Andean countries are for monetary integration, but one should be careful in drawing conclusions. Firstly, there is evidence that the OCA criteria are endogenous, in the sense that monetary integration itself can create and strengthen the very conditions necessary for its own success. Furthermore, as we have seen in the first part of this paper, the economic arguments for monetary integration have shifted over time. While the OCA criteria can highlight certain advantages and disadvantages of adopting a common currency, especially for emerging economies the arguments of financial stability and external creditworthiness become increasingly important, possibly discounting any disadvantage suggested by the OCA theory. It is to these arguments that we know turn.

b. The traditional credibility argument

Part of the traditional credibility argument for monetary integration is that the latter allows weaker members to free ride of the greater policy credibility of their stronger partners. This argument, while important in the European Union, is less relevant in the Andean Community where no country sticks out as a paragon of strong monetary policy. No central bank would naturally take the lead in the formation of a common Andean currency, and it is quite likely that any new Andean currency would suffer from even greater credibility problems.

A second traditional argument, more relevant to the Andean region, is that integration in general (not only monetary) can serve the purpose of locking-in reform domestically. Very often in emerging markets reforms fail because governments lack credibility. While one tends to think of regional trade areas as a mechanism to commit to free trade, there are cases of regional agreements including a commitment to democracy or a commitment to other economic policy reforms, as in the case of Mexico in NAFTA. Monetary integration can work as yet another commitment tool within a regional agreement.

As is the case for any type of commitment mechanism, success depends on the value of belonging to the arrangement and the cost of defecting. In the case

of monetary integration, the cost of defection depends in part on the form of integration: it will be much more costly to defect from a common currency than from a system of intra-region fixed exchange rates (as the European case has shown). Within the Andean region, commitment to monetary integration could help bring about necessary economic policy reforms by eliminating time inconsistency issues for monetary authorities.

The credibility argument becomes much stronger if the common currency considered is the US dollar. Dollarization avoids the need to create complex intraregional institutions, such as a regional central bank. Furthermore, by eliminating exchange rate risk it immediately increases credibility, potentially increasing the level of confidence of international investors, contributing to larger and more stable capital flows, and ultimately leading to increased growth and welfare in the region.

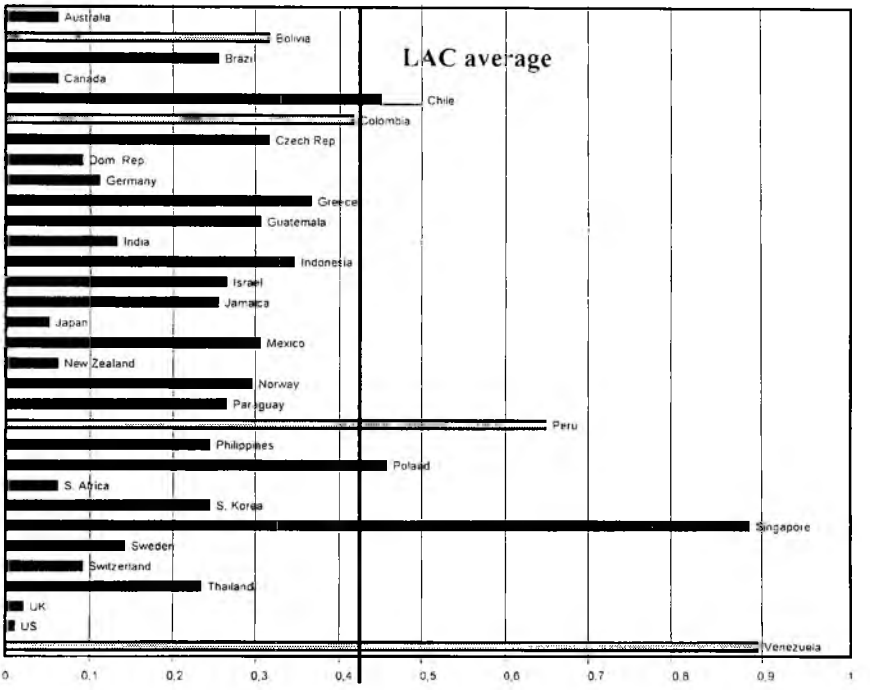
c. Fear of floating and dollarization

As noted repeatedly above, we cannot discuss monetary integration within Latin America without examining fear of floating and the degree of dollarization in the Andean countries. To measure the extent of fear of floating, Hausmann, Panizza and Stein (2000) use an index based on the ratio between international reserves and M2, as shown in Figure 4. Monthly data from January 1997 to April 1999 is used in most cases.

Countries with a high index appear to be "floating with a life jacket", i.e. exhibit fear of floating by maintaining high levels of reserves to offset exchange rate pressures. Countries that exhibit fear of floating are not in fact taking advantage of their monetary policy independence, therefore diminishing their costs of entering a monetary union. Hausmann, Panizza and Stein (2000) also examine the volatility of the depreciation rate over the volatility of reserves and over the volatility of interest rates respectively, to see what tools are being used to defend the exchange rate. All three measures show strong fear of floating for Andean countries.[5]

[5] Colombia adopted inflation targeting at the end of 2000 and Peru is moving in that direction. It is too early to see the effects of such shift of policy on fear of floating indicators, but the expectation is that such a change in policy will imply more free floating in these countries.

Figure 4. Fear of floating: international reserves over M2



Source: Hausmann, Panizza and Stein (2000) and IFS.

As for the degree of dollarization of the economy, there are various measures, the most easiest being the share of dollar deposits in the country over total deposits. Colombia and Venezuela do not allow citizens to hold foreign currency deposits, but both Bolivia and Peru exhibit a high degree of dollarization according to this index: 92.6% and 90.6% in 2000, respectively. Ecuador's index before dollarizing was actually quite low.

Another way of seeing the degree of dollarization of an economy is to consider the ratio of M2 to GDP within an economy, countries that exhibit low ratios may be making strong use of other currencies.

Table 10. Degree of dollarization: M2/GDP (2000) [6]

Andean		*Other emerging*	
Bolivia	51%	Indonesia	57%
Colombia	33%	Philippines	63%
Ecuador (1998)	28%	South Korea	80%
Peru	33%	Singapore	107%
Venezuela	18%	Thailand	106%

Source: International Financial Statistics, IMF.

As expected, the Andean countries appear strongly dollarized, in particular if compared to other emerging markets.

d. What options for Andean monetary integration?

The options open to the Andean Community are basically three:

1) Some form of mutual exchange rate pegging;

2) The creation of a common regional currency;

3) Dollarization.

1) Mutual exchange rate pegging

This type of arrangement entails that member countries commit to limit fluctuations of bilateral exchange rates to within agreed bands around prescribed central parities. An example of this arrangement was the Exchange Rate Mechanism (ERM) in the European Monetary System. The arrangement would also entail some sort of understanding regarding mutual support between central banks, appropriate policy reactions when band limits are reached, and a mechanism for regional consultation on the adjustments of central parities when needed. Furthermore, coordination of monetary and exchange rate policies is key.

Within Europe the ERM system did work successfully for time, and exchange rates in Europe stabilized. However, for the time being the Andean Community

[6] Where M2 series were not available, it was defined as the sum of Money and Quasi Money. For Bolivia we use the measure M3/GDP.

appears to lack the institutional structure and the political consensus needed to develop and implement formal arrangements for macroeconomic policy coordination. Furthermore, the limited credibility of such arrangements seems to limit their possibility of success. However, such a system may work as a temporary arrangement in a move towards a common regional currency.

2) A common regional currency

The evidence on fear of floating seems to point to the fact that the Andean countries that aren't already committed to some for of fixed regime, be it dollarization in Ecuador or a crawling peg in Bolivia, exhibit fear of floating. If this is true, they do not appear to be taking advantage of the free use of their monetary policies, which instead are dedicated to defending the exchange rate.

While a common currency might give greater credibility to Andean monetary policy, it would not help ensure greater stability with respect to external currency fluctuations. Furthermore, one must not neglect the fact that creating the necessary regional institutions to support a common regional currency is a difficult task at best. In fact, it should be noted that existing common currency areas initially developed through member countries pegging their currency to a stronger central currency: the deutsche mark in Europe and the French franc in the CFA franc zone.

Although the institutions and the political will for a common currency do not exist at the moment, as integration evolves in the region this may develop. In particular, the prerequisites for a move towards a common Andean currency are a greater political commitment to deeper integration, the willingness to give up monetary sovereignty in favor of supernational mechanisms, and macroeconomic coordination in matters of fiscal and financial discipline.

3) Dollarization

Dollarization would in effect imply the formation of an OCA between all the Andean countries and the US. From the point of view of the OCA criteria, this would be even less indicated than a common Andean currency. However, we have seen that there are many benefits to be obtained through dollarization that are not considered in the OCA literature. Furthermore, the OCA theory does not take in account the significant growth of capital flows to the region in the last decades, and with it the increased importance of exchange rate risk. The high level of implicit dollarization detected in the Andean countries, and in Latin America in general, make the domestic banking systems particularly vulnerable to this

risk. One of the greatest benefits of dollarization is the immediate elimination of exchange rate risk.

As seen in previous sections, there are however negative points that must not be overlooked. Furthermore, the present crisis in Argentina shows that dollarization is not the panacea that many proponents had hoped.

A word about inflation targeting

In recent years inflation targeting, first considered an option only for industrialized economies, has increasingly been embraced by emerging market countries. Successes in such countries as Chile have strengthened this trend in Latin America. Amongst the Andean countries Colombia has recently adopted the strategy, Peru apparently will soon follow. At present inflation targeting is being proposed as a part of a possible solution to Argentina's crisis.[7] While many countries regularly pre-announce inflation targets and at the same time adhere to other monetary or exchange rate targets, full-fledged inflation targeting implies a commitment to subordinating other policy objectives to the inflation target. Countries that practice inflation targeting in most cases have a floating exchange rate regime, given that inevitably conflicts will develop between the inflation target and defense of the exchange rate. While inflation targeting at present appears a promising option for many developing countries, these countries usually exhibit specific problems that make such a policy more difficult to implement. If inflation targeting is indeed successful in Colombia and Peru, it will be important to consider the implications for Andean monetary integration.

V. OPTIONS FOR ANDEAN MONETARY INTEGRATION: SOME SIMPLE SIMULATIONS

This section presents some simple simulations done to see the possible effects of three different exchange rate regimes: a free float, monetary integration and dollarization. Colombian data is used in the simulation, given that based on data seen above Colombia is the most representative country of the Andean Community, with the highest level of correlation with partners' GDP growth rates and the highest level of intra-group trade. In the case of monetary integration we consider a common currency shared with Venezuela, given that most intra-group trade is between these two countries.

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[7] Ricardo Hausmann, "A plan B for Argentina", paper prepared for LACEA annual meetings, Montevideo October 2001.

For simplification, only Colombia's economy will be simulated, even in the case of monetary union. To consider a two country model would add an unnecessary level of complexity for the straightforward exercise done here. A more complete model would solve for both countries simultaneously in a general equilibrium setup, I leave this for further research.[8] Here we will take the Venezuelan economy as exogenous, and consider the effects of the three different regimes.

OLS regression is used to estimate a very simple model for the Colombian economy over 1991-2000, which is then forecasted forward 5 years (20 quarters).[9] Annualised quarterly data is used. The basic estimated model is made up of a Phillips curve like equation for inflation, and an aggregate demand like curve for output gap. The model is completed by a covered interest rate parity equation to determine the exchange rate, and a monetary policy rule to represent the exchange rate regime. Regression analysis yields the following equations (t statistics are in parenthesis).

$$\text{Inflation} = 0.97 * \text{inflation}(-1) + 0.3 * \text{colombc}(-1)$$
$$(83.4) \qquad (3.0)$$

$$\text{Colombc} = 0.91 * \text{colombc}(-1) - 0.22 * \text{venezbc}(-3) - 0.09 * (\text{int}(-1) - \text{inflation}(-1)) +$$
$$(10.6) \qquad (-3.9) \qquad (-2.9)$$

$$+ 13.4 * \text{rerdepr}(-1) + 0.02 * \text{venezinflation}(-3)$$
$$(3.4) \qquad (2.6)$$

Colombc (*venezbc*) is the quarterly annualised GDP growth rate for Colombia (Venezuela), detrended with a Hodrick Prescott filter. *Inflation* and *venezinflation* refer to the percentage change in the CPI in Colombia and Venezuela respectively. *Int* is the annual discount rate and rerdepr the real exchange rate.

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[8] There is an extensive empirical literature on monetary policy options in emerging economies, see for example Ghironi and Rebucci (2002) calibrate a general equilibrium model to the case of Argentina. For an example of monetary union simulation, see Benassy and Mojon (1998), who compare a floating regime to monetary union between two European economies. For empirical work on dollarization, see for example Edwards (2002) and Edwards and Magendzo (2001).

[9] OLS has many weaknesses in modelling time series, but is often used to create simple models of a country's economy.

The monetary policy rules that represent the three regimes are as follows:

Free float: Interest rate determined by simple Taylor rule.

Int = spread + 1.5* (inflation-inflationtarget) + .5*outputgap + riskpremium

Where *outputgap* is the output gap in logs, measured as the difference between the log gdp and the trend (determined by Hodrick Prescott filtering). The *risk premium* is a measure of country risk according to Standard and Poor, and *spread* is the distance with respect to the Lombard rate. The inflation target are the actual targets set by the Colombian Central Bank.

Dollarization: Interest rate determined by US interest rate + a country risk premium.

Monetary union: Interest rate determined by a Taylor rule that takes into account averaged values of inflation and the output gap over the two countries (Venezuela and Colombia).

Int = spread + 1.5 * (.5 * (inflation-inflationtarget) + .5 * (venezinflation-15)) +

.5*(.5* outputgap +.5* venoutputgap) + riskpremium

Also, exchange rate depreciation continues to be determined by covered interest rate parity (since the union continues to float against the rest of the world). The common exchange rate regime is represented by identical interest rates in the two countries (which at most differ for the country risk premium).

I model the case of free floating with a Taylor rule as this is one of the most popular (and simplest) monetary policy rules, although its effectiveness in developing countries has been questioned.[10] According to this rule, interest rates rise (decrease) when inflation and output rise (decrease) above their target levels. Monetary union is modeled as a more complex Taylor rule, that takes into account an average of the two countries inflation and output gaps.

To forecast, one needs to assume values for US interest rates, country risk premium, Venezuelan inflation, the Venezuelan output gap and GDP trend growth in Colombia. The following assumptions are made:

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[10] A good discussion can be found in Taylor (2000).

- Annual growth rate in Colombia is 3.3% (Central bank estimate).
- Risk premium is constant, spread decreases (follows trend).
- US interest rate set at 3%.
- US inflation is set at 2%.
- Venezuelan business cycle movements follow those of the preceding five year period.
- Venezuelan inflation fixed at 12.

The results of the simulations are shown in table 11a. Average output growth was highest in the case of free float, lowest (mainly negative) for the case of dollarization. Output growth showed the highest variance in the case of dollarization. Looking instead at the output gap, dollarization gave rise to a large negative and increasing output gap. Free floating and monetary union gave much smaller output gaps. The floating regime registered the lowest variance, dollarization the highest.

In all three simulation cases inflation continued it's downwards trend, but was lowest in the case of dollarization, highest in the case of monetary union. Variance was highest for dollarization, lowest in the case of monetary union.[11]

Table 11 a. Simulation results, with Venezuela inflation = 12%.

		Free float	*Dollarization*	*Monetary Union*
Output growth	*Mean*	0.62	-3.50	0.24
	St. Dev	(2.11)	(3.33)	(2.08)
Output gap	*Mean*	-1.68	-8.60	-2.44
	St. Dev	(2.87)	(9.01)	(3.55)
Inflation	*Mean*	3.20	-4.73	5.30
	St. Dev	(6.36)	(12.58)	(3.74)

All simulations are sensitive to changes in the Venezuelan economy, but the monetary union simulations are very sensitive in particular to changes in the values of Venezuelan inflation. The more similar the two economies of Colombia and Venezuela, i.e. the more similar their output gaps and their inflation levels, the more similar will be the forecasts for the cases of free floating and monetary

[11] This is the only result that is not consistent with the literature.

union. On the other hand, as Venezuelan inflation increases, so does average inflation in Colombia. Table 11b and 11c show simulation results with Venezuelan inflation equal to 30 and 40% respectively.

Table 11b. Simulation results, with Venezuela inflation = 30%.

		Free float	*Dollarization*	*Monetary Union*
Output growth	*Mean*	2.62	-2.14	1.94
	St. Dev	(1.66)	(2.57)	(2.60)
Output gap	*Mean*	-0.26	-6.80	-2.78
	St. Dev	(1.83)	(6.99)	2.48)
Inflation	*Mean*	5.05	-2.46	3.33
	St. Dev	(4.71)	(10.38)	(4.69)

Table 11c. Simulation results, with Venezuela inflation = 40%.

		Free float	*Dollarization*	*Monetary Union*
Output growth	*Mean*	2.15	-1.38	2.89
	St. Dev	(1.44)	(2.17)	(3.87)
Output gap	*Mean*	0.52	-5.80	-2.18
	St. Dev	(1.60)	(5.87)	(3.05)
Inflation	*Mean*	6.07	-1.21	3.94
	St. Dev	(3.80)	(9.17)	(4.33)

The results of the simulation are mostly consistent with the literature. Dollarization implies a trade off between low inflation and lower growth, which does not appear desirable for Colombia given the current downward trend of its inflation. The monetary union scenario tends to the free float one as the two economies converge. On the other hand, in the case of divergence of the two economies or asymmetric shocks, monetary union is less desirable, in as it increases volatility and destabilizes the economy. From these simple simulations, a flexible regime appears, for the time being, the best course of action for Colombia.

V. CONCLUDING REMARKS

While the theory on optimum currency areas has dominated much of the debate on regional monetary integration, it is in general believed that there are other benefits to integration that are not considered within this framework. The literature on credibility has been a first step towards taking into account these considerations. Emerging economies however, and Latin America in particular, exhibit certain characteristics not found in industrialized economies, for which most of the monetary integration literature has been written. What little work has been done on the viability of monetary integration in emerging markets has been done within the OCA framework. What is needed is a new framework that takes

into account not only issues such as vulnerability to asymmetric shocks but also the characteristics particular to these types of economies, such as fear of floating and original sin. While applying the OCA criteria can give some preliminary intuition on the case for monetary integration within a group of emerging economies, in the end any conclusion drawn would be incomplete without considering these other fundamental aspects.

With respect to comparisons with European monetary integration, there is an important caveat to be considered. While many regions tend to look to Europe as a guide for successful monetary integration, it is important to remember not only that integration in the region was a lengthy process spanning over 40 years, but also that the first attempts at monetary integration (the European monetary system) were done within a context of much more limited capital mobility than is currently the case. For Latin American countries in particular, the high degree of capital market liberalization increases notably the costs of giving up monetary policy, and exacerbates vulnerabilities through higher risks of international financial contagion.

For the Andean Community to most fully reap the benefits of integration it is important that a commitment be made towards deeper integration, beyond simple trade liberalization. And if deeper integration is to be successful, some form of monetary integration within the region is inevitable. Which form such integration should take will be object of policy debate in upcoming years.

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