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An Exchange Rate Union for the Americas?

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AN EXCHANGE RATE UNION FOR THE AMERICAS?

by

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Abstract: In this paper we study the possibility of a fixed exchange rate region based upon the United States dollar. We first identify the benefits and costs associated with a fixed exchange rate regime. We then discuss the conditions necessary for an exchange rate regime to be viable. A review of the evidence for Latin America suggests that a subset of countries may be potential candidates for a dollar-based fixed exchange rate regime. The largest of these countries include Mexico, Chile, and Colombia. The potential trade and investment benefits from this arrangement would arise mainly through increased linkages with the United States rather than through linkages among Latin American members of the exchange rate union. A credible exchange rate union may help disinflation in member Latin American countries. If disinflation does not proceed smoothly, however, the threat of overvaluation creates the potential for realignments and may create destabilizing capital movements. Also, a successful exchange rate union may demand fiscal flows among members to offset shocks that affect members in diverse ways. Therefore, given the current inflation differentials among Latin American economies and the United States and the implausibility of large fiscal flows from the United States, the time for an exchange rate union for the Americas is not at hand as of yet.

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I. Introduction

The economies of Latin America have undergone dramatic changes in the past decade. Protectionism has given way to opening economies to international trade and investment. Outward-looking strategies have replaced the systems of multiple exchange rates, protective tariffs, and trade restrictions that formerly characterized Latin American economic policy. Privatization has replaced nationalization of industries. Latin American leaders now favor common markets. Experience with other developing countries suggests that this move towards greater openness lays the groundwork for potential growth and increased living standards.

A potentially important consideration of the strategy of increasing trade and investment with the rest of the world is the role of exchange rates. Is increased openness facilitated by a floating exchange rate, a fixed exchange rate, or a managed float? What are the potential benefits and costs of different exchange rate regimes? Are there any special aspects of Latin American economies that determine the relative merits of different exchange rate regimes? In this paper we examine the viability of the monetary integration of the Americas and the potential benefits and costs of fixed exchange rates in the region.

The major trading partner of the countries of Latin America is the United States. Accordingly, we focus on a fixed exchange rate regime in which Latin American countries tie their currencies to the United States dollar. An important consideration is whether a dollar-based fixed exchange rate promotes economic integration, both between Latin American countries and the United States and among Latin American countries. Economic integration may be promoted through two channels, the elimination of transaction costs

associated with the exchanging of national moneys and the elimination of risk coming from the uncertain future movements of the exchange rates. A dollar-based fixed exchange rate regime may also lead to inflation convergence and stability among its Latin American members. But a fixed exchange rate also has shortcomings. Potential benefits require policies and conditions necessary for the exchange rate union to be sustained. The most important is a common inflation rate to prevent large swings in competitiveness among members.

Section II provides a summary of the benefits and costs of different exchange regimes and discusses the conditions which would make an exchange rate union desirable and viable. It focuses on the effects of an exchange rate union on regional trade and on macroeconomic stabilization. Section III turns to the Latin American experience and examines the costs of transition to lower inflation rates as well as the fiscal consequences of an exchange rate union.

We conclude with the observation that trade integration and monetary integration may proceed on parallel, independent tracks in Latin America. The evidence that trade integration requires monetary integration is not strong. A fixed nominal exchange rate may assist in fight against inflation, but this step requires a corresponding commitment in other policies. Without this commitment, especially on the fiscal front, attempts to fix nominal parities may result in derailing trade integration through the misalignment of real exchange rates.

II. Exchange Rate Unions and Economic Performance

No one exchange rate system is best for all countries at all times. Advocates of exchange rate unions may point to the European Monetary System (EMS). The EMS, created in 1979, has achieved a reduction in the variability of both nominal and real exchange rates among its members. At the same time, inflation differentials between the EC countries, as well as the level of inflation, have declined substantially. All of this has served as a backdrop to greater economic integration in Europe. Those who favor flexible exchange rates, however, may cite the experience of the EMS in the last half of the 1980s as a fortuitous historical accident. The early years of the EMS were marked by frequent devaluations and capital controls. The precursor of the EMS, the so-called Snake, had a limited and ultimately unsuccessful life. Also, recent events in Europe suggest the limits of exchange rate union. European monetary integration has been dominated by a center country, Germany, which has a central bank with a high degree of independence and a reputation as being strongly opposed to inflation. Bundesbank independence may have helped to facilitate disinflation among members of the EMS, but it also contributed to the current strains in the system.

The relative advantages of an exchange rate union as well as its viability depend upon the presence of a variety of conditions. An important goal of this section is to identify these conditions. We discuss the consequences for economic performance of the interplay between a number of factors and the exchange rate regime in place. We also examine whether the conditions that would make an exchange rate union both a desirable policy goal and a viable option are currently present in the Latin American countries we study.

II.1. Characteristics of Exchange Rate Regimes

An exchange rate union is a system in which two or more countries manage the value of their currencies relative to each other. Membership in an exchange rate union may provide certain benefits while the maintenance of an exchange rate union may impose economic costs. These benefits and costs are best viewed as relative to those that would arise from other exchange rate systems. Thus we will first place an exchange rate union in the context of other exchange rate systems. In this section we will also describe different possible configurations of an exchange rate union.

Exchange rate regimes differ according to the extent to which market forces are allowed to determine the value of a country's currency. At one extreme is a floating exchange rate regime in which there is no government intervention and exchange rates are determined solely by market forces. In this case, government is not required to set policy with an eye towards the value of its currency and thus it has a free hand to set policy according to other criteria.¹ At the other extreme is a fixed exchange rate regime which demands government intervention to maintain a parity. Typically, monetary policy is subordinated to the demands of the fixed exchange rate regime. Thus, an exchange rate union is also sometimes called a monetary union. An extreme form of a fixed exchange rate system is a currency union in which governments abandon national monies and a common currency circulates throughout the member countries. In this case governments cede any authority over monetary policy to the country whose money circulates throughout the union

¹ A *caveat* here is that one criteria facing governments may be the value of its currency.

or, in the case of a supranational money (such as the proposed "ecu") to a supranational agency.

An important dimension along which fixed exchange rate systems differ is the manner in which the burden of adjustment is born across countries. The polar cases here are represented by a symmetric system and an asymmetric system. In a symmetric system each country adjusts its policies in order to maintain the fixed parities. In an asymmetric system there is one center country which need not adjust its policies in order to maintain the exchange rate system. Instead, all other countries must respond to offset incipient movements in currency values. Thus the center country enjoys a special privilege of policy autonomy in an asymmetric fixed-rate system that is not found among the co-equal members of asymmetric fixed-rate system.

An exchange rate union is a form of a fixed exchange rate system in which there is a multilateral commitment among its members to the maintenance of the union. As suggested above, exchange rate unions may differ from one another according to the extent to which adjustment among members occurs symmetrically or asymmetrically. For example, the Bretton Woods system is widely viewed as having been characterized by asymmetric adjustment among its members with the United States serving as the center country which did not need to adjust its monetary or fiscal policies in response to exchange rate pressures. The pre-World War I gold standard system is viewed as having been a more symmetric system in which each country shouldered some of the burden of adjustment. It should be noted,

however, that these broad characterizations are subject to some controversy and that clear generalizations about particular exchange rate regimes are often not forthcoming.²

Exchange rate unions may also differ in the way they fix parities among members. Exchange rates among members may be pegged at certain values. Alternatively, exchange rates may be allowed to fluctuate within a band, as in the European Monetary System. The width of the band may differ across currencies.³ Also, the central rate around which exchange rates may fluctuate can be a bilateral exchange rate or (as in the EMS) a weighted average of a number of exchange rates. A third possibility is to have an exchange rate union in which exchange rates change according to a predetermined scheduled rate against each other. This third option would allow for different rates of trend inflation across members of the exchange rate union.

II.2 Relative Benefits and Costs of an Exchange Rate Union

Membership in an exchange rate union is likely to affect the economic performance of its members. The nature and extent of this effect depends upon the linkages among the union members as well as upon the coincidence of exogenous shocks among its members. In this section we discuss the potential benefits and costs of membership in an exchange rate union and the conditions that need to be present for these benefits or costs to be realized.

² On this point see Alberto Giovannini "How Do Fixed Exchange Rate Regimes Work? Evidence from the gold standard, Bretton Woods and the EMS" in Miller, Marcus, Barry Eichengreen and Richard Portes, eds. *Blueprints for Exchange Rate Management*, London: Harcourt Brace Jovanovich, Academic Press, 1989.

³ For example, until recently the Italian Lira was allowed to fluctuate within a 6 percent band while all other currencies in the EMS fluctuated within a 2.5 percent band.

Regional Trade

One major benefit of an exchange rate union is that it may facilitate international trade in goods, services and assets. To the extent that this occurs, an exchange rate union allows for a greater realization of the gains from international trade which include greater productive efficiency, the ability of consumers to obtain a wider range of goods at lower prices, and, for trade in assets, the ability of investors to diversify portfolios internationally. An important determinant of the size of this effect is the extent to which member country economies are open to each other. Greater gains are to be expected for an exchange rate union among economies that have the potential for a high degree of intra-union trade. For example, the perceived gains from the European Monetary System arise from the extent of intra-European trade. Both exports and imports from the twelve members of the European Community to one another represented 59.2 percent of all EC exports and imports, respectively, in 1991.⁴

Trade among countries in the Americas in 1984 and 1990 is presented in Table 1. The data in this table show the importance of trade among Latin American countries and the United States. The proportion of total exports and imports with the United States in 1990 for the countries and regional trading groups in this table ranges from 18 percent for Chile to over 40 percent for members of the Central American Common Market (Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua) and Panama and for members of the Andean Pact (Bolivia, Colombia, Ecuador, Peru and Venezuela) to over two-thirds for Mexico.

⁴ See United Nations, *World Economic Survey 1992*, New York, 1992. For a discussion of these shares see Francesco Giavazzi and Alberto Giovannini, *Limiting Exchange Rate Flexibility: The European Monetary System*, Cambridge: MIT Press, 1989.

Clearly, the main trade-linked benefit arising in a U.S. dollar-based currency area would be the stabilization of the currency used to trade with the United States, rather than the stabilization of currencies used for other intra-American trade. In 1990, the proportion of trade for these regional trading groups that is conducted with other countries in the Americas ranges from 38 percent for Chile to over 65 percent for members of the CACM and Panama.⁵ For the members of the Andean Pact, the CACM and Panama, these trade proportions are similar to the intra-European trade proportions cited above. Trade among members of MERCOSUR (Argentina, Brazil, Paraguay and Uruguay) as well as for Chile is less centered on other Western-Hemisphere countries. Thus, potential trade-linked benefits from currency stabilization are smaller for these countries.

Uncertainty

A successful exchange rate union may facilitate international trade by eliminating the uncertainty associated with exchange rate fluctuations. International transactions have an element of risk not present in domestic transactions because when contracts are signed before actual delivery and payment (as is typically the case) exchange rate movements alter the value of payments received in foreign currency. An exchange rate union may remove this risk by eliminating currency fluctuations among members. Risk-averse importers and exporters will respond to greater currency stability with an increase in economic activity.

⁵ Canada is included in Table 1 because the Canadian dollar and the United States dollar have moved together closely since the advent of floating exchange rates in 1973. Therefore, fixing an exchange rate to the United States dollar goes a long way towards fixing an exchange rate to the Canadian dollar.

This effect may also arise in international direct investment and in international portfolio investment. Thus, an exchange rate union could, theoretically, serve to foster greater integration of goods, factor and asset markets among members.

The extent to which international integration is fostered by exchange rate stability, however, may in practice be quite limited for a number of reasons. First, for some currencies (though not those of Latin America at present) forward markets exist which can remove the nominal exchange rate risk involved in entering future international transactions, albeit at some cost. Second, an exchange rate union removes nominal exchange rate risk but not real exchange rate risk.⁶ Third, currency stabilization within an exchange rate union may serve to destabilize exchange rates between union members and other countries.⁷ Thus if a country trades extensively with countries outside an exchange rate union but not with the union members there is scope for a net disruption of trade due to the union.

Empirical investigation of the effects of exchange rate volatility do not provide strong evidence that exchange rate volatility adversely affects international trade or international investment. In a 1984 summary of these findings, a report by the staff of the International Monetary Fund concludes "The large majority of empirical studies ... are unable to establish a systematically significant link between measured exchange rate variability and the volume

⁶ In low inflation countries there is a high correlation between nominal and real exchange rates, so the elimination of risk associated with the former goes a long way towards limiting the risk associated with the latter. But such correlation is not found in countries with high inflation rates and a crawling peg.

⁷ This is related to an argument made by Matthew Canzoneri in "Exchange Rate Intervention Policy in a Multiple-Country World," *Journal of International Economics*, vol. 13, November 1982, pp. 267-289.

of international trade."⁸ Indeed, some studies have found a positive correlation between international trade and exchange rate volatility.⁹ It should be noted, however, that the majority of these empirical studies focus on major industrial countries. Studies of the effects of exchange rate volatility on the trade of smaller countries are more likely to find a significant reduction of trade in response to exchange rate volatility. For example, Coes (1981) shows that the introduction of a crawling peg in Brazil in 1968 was instrumental in correcting for large movements of the real exchange rate and reducing uncertainty about real exchange rate movements. As a consequence, Brazilian manufactured exports grew very fast in the 1970s. But one must observe that the stability of the real exchange rate derived not from a fixed exchange rate, but on the contrary from a crawling peg that avoided overvaluation by devaluing the cruzeiro at short intervals taking into consideration the difference between domestic and foreign inflation.¹⁰

Macroeconomic Stabilization

Another consideration when ascertaining the potential benefits and costs of

⁸ *IMF Occasional Paper no. 28*, Washington D.C., July 1984, page 36.

⁹ See Alberto Giovannini "Exchange Rates and Traded Goods Prices," *Journal of International Economics*, vol. 24, February 1988, pp. 45-68 and Michael W. Klein "Sectoral Effects of Exchange Rate Volatility on United States Exports," *Journal of International Money and Finance*, vol. 9, November 1990, pp. 299-308.

¹⁰ Donald V. Coes "The Crawling Peg and Exchange Rate Uncertainty," in John Williamson, ed., *Exchange Rate Rules: The Theory, Performance, and Prospects of the Crawling Peg*, New York: St. Martin's Press, 1981. Another case of a significant effect of exchange rate variability on trade is found in Greece. See Panagiotis Liargovas *Sectoral Effects of Real Exchange Rate Uncertainty on Trade: A Case Study of the Greek Trade Flows*, unpublished Ph.D. dissertation, Clark University, 1991.

membership in an exchange rate union concerns the type and pattern of macroeconomic shocks among members. A fixed exchange rate system has an advantage over a floating exchange rate system in stabilizing output when the preponderance of disruptions in an economy arise from shocks to the financial markets rather than from shocks to the markets for goods and services.¹¹ The ability of an exchange rate union to survive shocks to the markets for goods and services depends upon the coherence of these shocks across the union, the scope for labor mobility within the exchange rate union, and the extent of wage and price rigidity among members.

Long-lived country-specific shocks to the demand or supply of goods and services require real exchange rate adjustments. If real wages and relative prices are rigid, nominal exchange rate movements will not eliminate imbalances in the markets for goods and services and will not reduce the costs of adjustment (in terms of unemployment and foregone output). In the presence of perfect wage indexation, or real wage resistance, adjustment will simply not take place through nominal devaluations: workers learn quickly about the effect of exchange rate devaluations. A nominal devaluation will translate itself more easily into a real devaluation if there is money illusion. If nominal price and wage adjustments are more difficult than exchange rate adjustments, it will be a mistake to fix the exchange rate, particularly at a point in time when it is already overvalued.¹²

¹¹ This result arises when prices and wages adjust slowly to macroeconomic disequilibrium. On this point see, for example, Maurice Obstfeld "Floating Exchange Rates: Experience and Prospects," *Brookings Papers on Economic Activity*, 1985, number 2, pp. 369-450.

¹² See for instance Rudiger Dornbusch and Pierre Jacquet, *La France et L'Union Economique et Monetaire Europeenne*, Paris: Institut Francais des Relations Internationales, 1991.

Asymmetries in business cycles across members of an exchange rate union may cause labor mobility from countries or regions with high unemployment to countries or regions with low unemployment. This labor mobility could substitute for real wage adjustments when there are differential macroeconomic conditions across an exchange rate union. Thus an important consideration in determining the optimal size of an exchange rate union is the extent of labor mobility across its members.¹³ This point, in turn, suggests that factors that affect labor mobility, such as the similarity of language and customs across union members as well as geography, may be important determinants of the long-run success of an exchange rate union.

There is an additional possible macroeconomic advantage of membership in an exchange rate union. Recent work in the theory of macroeconomic policy has highlighted the importance of the reputation and credibility of central banks for the outcome of monetary policy.¹⁴ A country in which the central bank has a reputation for inflationary monetary policy may suffer a worse output-inflation trade-off than a country in which the central bank has a reputation for running a low-inflation policy. Membership in an exchange rate union and its attendant demands upon monetary policy may enable a central bank with a poor inflation-fighting reputation to "import" the reputation of the stronger central bank at the

¹³ This point was first made by Robert Mundell in "A Theory of Optimum Currency Areas," *American Economic Review*, vol. 51, September 1961, pp. 657-665. When there are increasing returns to scale, the full advantages of an optimum currency area may also require capital mobility (Barry Eichengreen, "One Money for Europe? Lessons from the U.S. Currency Union," *Economic Policy*, no. 10, April 1990, pp. 117-187).

¹⁴ See, for example, Robert Barro and David Gordon, "Rules, Discretion and Reputation in a Model of Monetary Policy," *Journal of Monetary Economics*, vol. 12, July 1983, pp. 101-121.

center of the asymmetric union. This change in the perception of agents concerning the likely future conduct of monetary policy may improve the inflation-output trade-off in a country.¹⁵

Evidence from the EMS, however, provides very weak support for the contention that the enhanced credibility associated with EMS membership has improved economic performance.¹⁶ This finding is suggestive, but its relevance for Latin American economies may be limited. On the one hand, reputational effects may be more pronounced as the size of initial inflation differentials increases. Thus, the reputational benefits may be larger for Latin American economies linking to the dollar than it was for high-inflation European economies which joined the EMS in 1979. Alternatively, with large initial inflation differentials the likelihood of achieving inflation convergence in a reasonable time may be low. In this case the credibility gains of a fixed rate system may be undermined by the implausibility of the task of making the system viable.

III. The Feasibility of A Dollar-Based Latin American Currency Union

The potential benefits associated with an exchange rate union, such as lower inflation rates and potential for trade expansion, come at the cost of the policies and conditions necessary for the exchange rate union to be sustained. A common inflation rate among members of an exchange rate union is necessary to prevent large swings in real wages and

¹⁵ See Francesco Giavazzi and Marco Pagano, "The Advantages of Tying One's Hands," *European Economic Review*, vol. 32, June 1988, pp. 1055-1082.

¹⁶ Giavazzi and Giovannini, *ibid.*

competitiveness within the union. The current large inflation differentials between Latin American countries and the United States imply that Latin America would have to disinflate to make a fixed exchange rate system viable. The transition to a lower inflation rate have high costs in terms of unemployment and foregone output. Preserving real wage and competitiveness levels across countries requires sustaining low inflation rates. This has important fiscal implications since seignorage revenues are reduced when inflation is reduced. In this section we discuss each of these points with reference to the experience of Latin American countries.

The proposed exchange-rate arrangement we study involves Latin American countries fixing the value of their currencies to the dollar. Large initial inflation differentials may make the success of the proposed exchange rate union suspect and mitigate any reputational effects. To make our arrangement viable only countries where inflation has already fallen to reasonable levels are considered. Even these countries will need a transition policy to reduce inflation. To identify these countries we start by reviewing the inflationary experience of the region. We then discuss the potential costs for a transition to lower inflation. We conclude this section with a discussion of the fiscal consequences of a dollar-based exchange-rate union.

III.1 Latin American Inflationary Experience

In response to the increase in international oil prices in 1973 and the subsequent economic stagnation, many Latin American countries undertook nominal devaluations. This combination of oil-price increases and devaluations fueled inflationary pressures.

International lending in the 1970s, however, eased the financing of current account deficits and helped keep inflation relatively low. This low-inflation period ended for many Latin American countries with advent of the debt crisis of the 1980s. At that time, countries financed debt service by issuing domestic debt or printing money rather than through direct taxes. As a consequence, inflation rates for the region as a whole increased dramatically in the 1980s.

This experience is evident from the data in Table 2 which presents the Latin American record of inflation between 1950 and 1991. These data demonstrate the tendency for price increases to accelerate in all Latin American countries (except for Chile and Panama) in the 1980s. Beyond this general tendency, however, the data demonstrate the wide range of inflationary experiences in Latin America in the 1980s. Latin American bouts with hyperinflation in the 1980s were found in Bolivia in the first half of the decade and in Argentina, Brazil, and Peru in the second half. Other countries, through the discipline of fixed exchange rates, largely avoided highly inflationary episodes. For example, the small countries of Central America all had inflation averaging below 30 percent in the latter half of the 1980s.¹⁷ Among South American countries, Chile, Colombia, Paraguay and, to a lesser extent, Venezuela, have managed to avoid surges of runaway inflation and have had average inflation rates for the 1980s below 30 percent.

The data presented in Table 2 also shows that there is no lack of troubling cases of inflation in Latin America in the 1980s. Some of the countries that suffered high inflation in the 1980s have since successfully stabilized their economies. Most dramatically, Bolivia

¹⁷ Panama, with a dollarized economy, presents an extreme case of stable prices.

went from extreme hyperinflation in the first half of the 1980s to a current rate of inflation of around 20 percent. Mexico had traditionally been a low-inflation country by Latin American standards but suffered a big jump in inflation rates during the 1980s. Mexico's 1988 stabilization successfully lowered inflation and has kept it low. The hyperinflation in Argentina may have been brought under control during the last year, although it is too early for conclusive evidence of a sustained stabilization. Other South American countries still struggle with inflation well above their traditional rates. Uruguay, Brazil, and Peru, with high inflation rates between 1950-1980, saw an explosion of their inflation rates in the 1980s and still struggle with bringing inflation down. Ecuador, Venezuela, and the Dominican Republic, countries which traditionally had low inflation rates, experienced rising inflation in the 1980s and by 1992 continued to experience inflation well above their historical levels.

A dollar-linked currency union requires inflation rates among its members relatively similar to that of the United States. While none of the Latin American countries in Table 2 had a rate of inflation in 1991 equal to the 4 percent rate in the United States,¹⁸ we can identify the most promising candidates for a dollar-based exchange rate arrangement as those with 1991 inflation rates below 30 percent. This cut-off provides us with a list including (in order of their population size): Mexico, Colombia, Chile, Guatemala, Bolivia, Honduras, Paraguay, and Costa Rica. In the analysis that follow we concentrate our attention on the larger countries, i.e., Mexico, Colombia, and Chile. Year-by-year inflation performance for these three countries for the latter half of the 1980s is presented in Table 3. The data in this table demonstrate that inflation rates in these countries remain well above the rate of inflation in the United States.

¹⁸ With the exception of Panama which has no currency of its own.

The relevant question for the prospect of a dollar-based currency area for Mexico, Colombia, and Chile is whether the inflation differentials between the United States and these countries are too large to consider fixed exchange rates as a reasonable policy. If inflation rates cannot be brought down, fixed exchange rates will lead to overvaluation and correspondingly a need for periodic realignments. Anticipations of these realignments would lead to potentially destabilizing speculative capital flows. Thus the viability of an exchange rate union depends on either policy coordination among its members in support of the exchange rate requirement or on restrictions on private-sector actions which would then allow more latitude in policy-making. The latitude afforded by restrictions such as capital controls is limited, however, and these restrictions cannot serve as a permanent substitute for policy coordination. Also, restrictions such as capital controls impose costs upon the private sector, costs which mitigate any benefits arising from the exchange rate union.

The experience of the EMS is instructive here. At the time of its founding in 1979, inflation rates among members of the EMS ranged from Germany's rate of under 3 percent to Italy's inflation of 12 percent. In the face of these inflation differentials there were seven realignments in the first four years of the EMS. During this time, governments of almost all EMS members restricted capital movements. Capital controls were necessary at that time since inflation differentials made the long-run viability of the EMS at its early parity structure untenable and the prospect of realignments would have led to potentially destabilizing capital flows. As inflation differentials diminished over the 1980s the need for realignments was reduced and capital controls were removed. The only realignment within

the EMS between 1986 and 1992 was in January 1990 and this realignment was undertaken to facilitate a more narrow 2.25 percent exchange rate band for the Italian lira from its former width of 6 percent. The events of September 1992, however, have severely challenged the proposed path towards monetary integration in Europe.

A less successful example of the use of exchange rates as a basis for disinflation is drawn from Latin America. In the late 1970s the so-called policy of global monetarism found favor among a number of Latin American countries. Global monetarism is a twist on orthodox monetarism. Orthodox monetarism focuses on achieving price stability through the control of monetary aggregates. The central focus of global monetarism is fixing the exchange rate and liberalizing markets through the removal of tariffs and other interventionist policies. Exchange rate stability and the removal of tariffs force domestic producers to hold down prices to compete with imports. A stable exchange rate also serves as a central price around which price expectations can be formed. Expectations of stable prices aid in maintaining low inflation. The ultimate success of an exchange-rate-based stabilization, however, depends upon the government undertaking fiscal measures which are consistent with the program.

Exchange-rate based policies of global monetarism were undertaken in Uruguay, Argentina, and Chile in the mid-1970s. In Chile and Argentina, restrictive monetary policies brought inflation substantially below historical levels by 1980 although Argentine inflation remained high. The policy followed in Uruguay was less restrictive and never managed to bring inflation under control. Chile maintained its successful stabilization of inflation throughout the 1980s. In Argentina, in the face of capital flight, the exchange rate collapsed, monetary policy was reversed, and inflation picked up again.

The main difference between the situation in Argentina and Uruguay in the second half of the 1970s and Mexico, Chile, and Colombia today is that the former countries had inflation rates well above the 20 to 30 percent level observed in Chile, Colombia, and Mexico today. Moreover, in assessing these experiments in Argentina, Chile, and Uruguay, one must pay attention to their global context. Commodity prices sharply fluctuated in the mid-seventies: the price of copper fell by 40 percent from a historically high level and then more than recovered its value over this period; wheat, beef, and wool prices hit similar extremes; and oil shocks affected economic performance. Of course the risk of large swings in commodity prices cannot be ruled out. Moreover, international interest rates were low during this period. In all three countries, external indebtedness grew substantially while global monetarist policies were in place and may well tend to increase again.

To avoid the disaster of early 1980s, countries cannot afford to start an exchange rate union with overvalued real exchange rates. What do they look like today? Table 4 shows real exchange rates in Chile, Colombia, and Mexico between 1977 and 1991. There is a sharp real devaluation trend in the 1980s in all three countries. A different result emerges from the real exchange rate indices in Table 5. These indices show a revaluation of the real exchange rate of Mexico in the late 1980s. Index A in table 5 is calculated by Morgan Guaranty using the price of manufactured goods. It shows a smaller revaluation than that of index B which is calculated using wholesale price indices. Part of the difference derives from the fact that Mexican wholesale prices include rents and education, the prices of which have been increasing faster than the price of manufactured goods. Such increase in the price of

non-traded goods relative to traded goods is contributing to trade and current account deficits, even if Mexican competitiveness abroad has not suffered in a substantive way as indicated by the Morgan Guaranty index. Fixing the exchange rate today would be a high risk strategy for Mexico.

III.2 The Transition to Lower Inflation

As shown in Table 3, current inflation rates in Chile, Colombia, and Mexico range from 22 percent to 30 percent while United States inflation currently stands at 4 percent. Inflation in Mexico has been falling since the late 1987, but there is no strong trend in Chilean inflation rates and inflation in Colombia has been rising. Reducing inflation in these Latin American countries to a rate commensurate with that of the United States, which would be necessary for a sustainable fixed exchange rate system, would require substantial disinflations. These disinflations would entail sacrifice in terms of foregone output.

Do programs exist which are less costly than others? The answer to this question can be found by weighing the costs of successful stabilization programs which did not make use of incomes policy compared with those which did. Chile in 1974-76 and Bolivia in 1985-86 are examples of countries that succeeded in bringing down inflation without using incomes policy as a central policy instrument. Brazil in 1964-65 and Mexico in 1988-89 are examples of countries where incomes policy was successfully used to stop inflation.

Unemployment and poverty increased significantly in Bolivia and Chile during the stabilization years, but both programs coincided with a dramatic fall in these countries' terms of trade, which in part explains the severity of the recessions and the increase in poverty they suffered.

In Brazil (1965) and in Mexico (1988), although the recession accompanying inflation stabilization was less pronounced than in Chile (1974-75) and Bolivia (1985-86), there is no evidence that incomes policy helped the poor. In Brazil, the concentration of income in the 1960s resulted largely from policies restraining nominal wages during the stabilization program. In Mexico, the so-called social pact was only used after five years of recession and a dramatic decline in real wages.

In Brazil (with incomes policy) and in Chile (without incomes policy), stabilization was forced on wage-earners by a military dictatorship. In Bolivia (without incomes policy) and in Mexico (with incomes policy), an elected government had clout over unions. In dictatorships or democracies, with or without incomes policy, political compromise is essential to balance budgets and stop inflation. Workers' claims to higher wages have to be restrained; entrepreneurs have to accept lower profits; taxpayers have to bear additional obligations. Only then will central banks be able to stop monetizing budget deficits. Moreover, even dictatorships must have the ability to develop institutions for concerted action against inflation if their programs are to succeed. In the four cases under discussion, stabilization was imposed by a technocratic elite which had the support of important segments of society and which was able to develop institutions to sustain disinflation.

Dornbusch and Fischer (1991) suggest that seigniorage plays at most a modest role in the persistence of moderate inflations (such as now observed in Chile, Colombia, and Mexico) which are mainly explained by inertia. Such inflation can be reduced only at a substantial short-term cost to growth.

It is difficult to quantitatively estimate the sacrifices required for disinflations in these countries for a variety of reasons. The Lucas critique is particularly appropriate here since the disinflations would be undertaken as the first step in a regime change. The credibility of this new regime would figure importantly in determining the amount of foregone output required for disinflation. Nevertheless, we can consider the relative costs of disinflation in these countries compared to that in other countries using some results in a paper by Ball, Mankiw and Romer (1988).¹⁹ They estimate the following equation for 43 countries using data from 1948 to 1986:

$$y = \text{constant} + \gamma \Delta x_t + \phi y_{t-1} + \tau \text{Time}$$

where y_t is the logarithm of real GNP in year t and x_t is nominal GNP in year t . A value for γ of 1 implies that a change in nominal GNP is reflected solely in real GNP and not at all in prices while a value for γ of 0 implies that any change in nominal GNP reflects only a change in prices.

This equation can be manipulated to give an estimate of the percentage change in real GNP arising from a one-percent change in inflation as follows:

$$\delta y_t / \delta \pi_t = \gamma / (1 - \gamma)$$

This partial derivative represents the first-year percentage change in real GNP from trend due to a one-percent change in inflation. Estimates for this partial derivative for data from 1972 to 1986 are presented in Table 6. These estimates demonstrate that the disinflation costs for Colombia and Mexico are higher than those for Ireland (an original

¹⁹ Laurence Ball, N. Gregory Mankiw and David Romer, "The New Keynesian Economics and the Output Inflation Trade-Off, *Brookings Papers on Economic Activity*, 1988, no. 1, pp. 1-65. The estimates used here are from Table 4 in the paper, page 36.

member of the European Monetary System) but lower than those of Spain (which joined the EMS after the sample from which these estimates were calculated ended) and Italy (another original member of the EMS).

III.3 Fiscal Consequences of an Exchange Rate Union

A consequence of a successful disinflation is lower seigniorage revenues. The importance of the loss of seigniorage depends upon the extent to which governments relied upon seigniorage before membership in an exchange rate union, the ease with which revenues can be raised from taxes other than seigniorage and the latitude for reducing government expenditures. Table 7 shows the declining importance of seigniorage collection as a form of raising revenue in Chile and Mexico. Historically, seigniorage collection has been less important in Colombia than in Chile or Mexico, but it has increased recently. The adoption of a fixed exchange rate, and the corresponding disinflation to make that policy viable would lead to lower inflation in these countries and thus lower seigniorage revenues. The governments of these countries would not need to give up seigniorage completely, however, since national monies would continue to exist and to be printed.

Table 8 contains data on government expenditures and revenues for Chile, Colombia, and Mexico. Across this period Chilean expenditures and revenues as a percentage of GDP have remained close to 30 percent. Colombia has been the most conservative of Latin American countries with both expenditures and tax revenues traditionally below 15 percent. Mexico exhibits the largest range of expenditure and receipt data of the three countries in the table. Mexican tax revenues (as a percentage of GDP) demonstrate a generally increasing

trend and were larger in 1989 than in any other year (but for one) since 1975. Mexican government expenditures have been higher in the late 1980s than in previous periods, but have been steadily decreasing since 1987.

Alternatively, we could consider fiscal flows among members of the dollar-based exchange rate union of the Americas which would contribute to its political stability and thus its long-run success. The European Monetary System provides some precedent for a successful exchange rate union which is coupled with intra-union government transfers. Fiscal flows within an exchange rate union can soften the blow of asymmetric shocks among members and substitute for adjustment through exchange rate changes or labor mobility. The likelihood of these transfers being significant enough to make a difference for a United States-Latin American exchange rate union, however, are remote. Even among members of the highly-integrated European Monetary System evidence fiscal transfers are much smaller than across states in the United States or across Canadian provinces.²⁰ One would expect even fewer transfers among members of an exchange rate union in Latin America since fiscal institutions comparable to those in Europe for members of the EC are not in place. Instead, any fiscal transfers might have to come from the United States if it serves as the center country of the exchange rate union. It is doubtful that the United States with its current fiscal pressures would be willing to finance adjustment in Latin America for the sake of the maintenance of a fixed exchange rate system.

²⁰ See Xavier Sala-i-Martin and Jeffrey Sachs, "Fiscal Federalism and Optimum Currency Areas: Evidence for Europe from the United States," *N.B.E.R. Working Paper* no. 3855, October 1991 and Tamim Bayoumi and Paul Masson, "Fiscal Flows in the United States and Canada: Lessons for Monetary Union in Europe," mimeo, I.M.F., May 1992.

IV. Conclusions

A review of the evidence for Latin America suggests that a subset of countries may be potential candidates for a dollar-based fixed exchange rate regime. The largest of these countries include Mexico, Chile and Colombia. Even though we believe that an exchange rate union would benefit these countries, high inflation rates relative to that in the United States makes an exchange rate union premature. If inflation rates cannot be brought down, fixed exchange rates will lead to overvaluation and correspondingly a need for periodic realignments. Anticipations of these realignments would lead to destabilizing capital flows such as those observed in the late 1970s and early 1980s. Thus the viability of an exchange rate union depends on either policy coordination among its members in support of the exchange rate requirement or on restrictions on private-sector actions. But restrictions such as capital controls have a limited effectiveness and do not serve as a permanent substitute for policy coordination.

We also believe that an exchange rate union where exchange rates rather than being fixed to the dollar would fluctuate around a band does not represent a better option. Such an arrangement is less attractive than a fixed rate. If the band is too wide, it does not provide the reputation element which makes for fast disinflation. If the band is too narrow it does not prevent a real appreciation that threatens international competitiveness.

A third option, which allows for different trend inflation across members, is to have the exchange rate move according to a predetermined schedule rate. This is similar to the crawling peg now in place in Chile, Colombia, and Mexico. The question remains whether the crawling peg could be made into an explicit arrangement that would serve as a stepping stone to an exchange rate union in the future.

The deeper question, however, is the need for a fixed exchange rate system in order to promote trade integration and the integration of factor markets. The threat of real exchange rate misalignment due to poorly managed nominal exchange rate management deserves more attention than the less compelling argument that exchange rate volatility adversely affects trade or factor flows. Given the evidence presented above, we do not think that a system of fixed exchange rates would contribute to the integration of trade among countries of the Western Hemisphere at this time.

On a more positive note, we also do not believe that the absence of a fixed exchange rate significantly deters the process of Western Hemisphere goods market or factor market integration. Good macroeconomic policies will foster this integration. Fixed exchange rates, however, are no guarantee of correspondingly appropriate macroeconomic policies. Indeed, fixed exchange rates may serve to magnify the costs of poor policies.

Table 1: Regional Trade Flows

Percent of Total Exports and Imports of Regional Blocks, 1984 and 1990

	<i>Percent of Total Trade of</i>				
	<u>MERCOSUR</u>	<u>CACM & PANAMA</u>	<u>ANDEAN PACT</u>	<u>CHILE</u>	<u>MEXICO</u>
<i>with</i>					
MERCOSUR 1984	8.0	1.0	7.0	12.0	2.4
MERCOSUR 1990	13.0	1.5	6.0	12.5	2.3
CACM & Panama '84	*	16.5	3.0	*	0.8
CACM & Panama '90	*	12.5	2.0	*	0.9
ANDEAN PACT 1984	4.5	5.5	4.0	8.0	0.7
ANDEAN PACT 1990	3.0	4.5	4.5	5.5	1.2
CHILE 1984	1.5	*	1.0	---	0.2
CHILE 1990	2.5	*	2.0	---	0.3
MEXICO 1984	2.5	5.5	0.5	0.5	---
MEXICO 1990	1.5	3.0	1.0	0.5	---
U.S. 1984	20.5	36.0	41.0	23.5	63.0
U.S. 1990	20.0	41.0	42.5	18.0	67.0
CANADA 1984	2.5	1.5	3.5	1.5	1.8
CANADA 1990	2.0	2.0	2.5	1.5	2.3
ALL OTHERS 1984	60.5	34	40	54.5	31.1
ALL OTHERS 1986	58	35.5	39.5	62	26.0

Notes: * negligible;

MERCOSUR = Argentina, Brazil, Paraguay, Uruguay

CACM = Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua

Andean Pact = Bolivia, Colombia, Ecuador, Peru, Venezuela

Source: Deirdre Savarese, "The Enterprise for The Americas Initiative," Tufts University: *mimeo*, May 1992, and International Monetary Fund, *Direction of Trade Statistics 1992*, Washington D.C., 1992.

Table 2: Inflation Rate of Consumer Prices in Latin America
(Average in the Period of Annual Inflation Rates)
(Percent)

	1950-1980	1981-1985	1986-1990	1991
Chile	77	22	19	22
Bolivia	34	2,692	68	21
Argentina	63	382	1,192	
Uruguay	42	46	79	102
Brazil	33	154	1,056	441
Peru	16	105	2,245	410
Paraguay	19	16	28	24
Colombia	14	22	25	30
Mexico	9	62	76	23
Ecuador	6	28	47	
Venezuela	4	11	39	34
Dominican Rep.	4	17	35	54
<u>Central America:</u>				
El Salvador	5	15	24	49
Costa Rica	5	37	17	
Guatemala	4	8	22	
Honduras	4	7	9	20
Panama	3	3	0	2
United States	4	6	4	4

Sources: International Monetary Fund, *International Financial Statistics*, except for 1960 and 1961 in Chile.

Table 3: Inflation Rate in Chile, Colombia, Mexico and the United States
Annual Average During the Period
(Percent).

Country	1986	1987	1988	1989	1990	1991	Mean 1986-91	Standard Deviation
Chile	20	20	15	17	26	22	20.0	3.5
Colombia	19	23	28	26	29	30	20.8	9.9
Mexico	86	132	114	20	27	23	63.7	49.1
U.S.	3	3	4	4	4	4	3.8	0.7

Source: International Monetary Fund, *International Financial Statistics*.

Table 4: Real Exchange Rates, Averages of Monthly Rates
 Chile, Colombia, and Mexico, 1977-1991
 Index, 1980-82 = 100

	Chile	Colombia	Mexico
1977-79	74.5	88.4	90.7
1980-82	100.0	100.0	100.0
1983-85	86.2	96.9	86.8
1986-88	65.0	64.3	70.5
1989-91	62.2	57.2	73.2

Source: Morgan Guaranty

Table 5: Different Measures of Monthly Real Exchange Rates
Chile, Colombia, and Mexico
1986-1991

	1986	Average between 1987-1991 (Standard Deviation in parentheses)
CHILE		
A	100	91.0 (4.3)
B	100	97.5 (4.5)
COLOMBIA		
A	100	87.3 (5.3)
B	100	92.4 (5.0)
MEXICO		
A	100	112.4 (8.3)
B	100	124.1 (15.4)

A: real exchange rate defined as the ratio of the country's prices of manufactured goods relative to trade partners' prices of manufactured goods.

B: real exchange rate defined as the ratio of the country's wholesale price index in dollars relative to the U.S. wholesale price index.

Sources: Morgan Guaranty and International Monetary Fund, *International Financial Statistics*.

Table 6: Estimates of Sacrifice of Percentage of Real GNP for
One Percent Decrease in Inflation
(calculated from estimates in Ball, Mankiw and Romer, 1988).

Country	Percentage Change in Real GDP per 1-Percent Decrease in Inflation
Mexico	-0.30
Colombia	-0.26
Ireland	-0.15
Italy	-1.21
Spain	-0.49
United States	-5.61

Table 7: Seigniorage as Share of GDP
Chile, Colombia, and Mexico, 1975-1991
(Percent)

	1975-79	1980-84	1985	1986	1987	1988	1989	1990
Chile	5.0	0.3	0.9	1.1	0.6	1.4	0.5	1.4
Colombia	3.0	2.1	1.4	n.a.	n.a.	1.4	4.5	2.1
Mexico	3.9	6.8	1.7	3.5	3.1	1.6	0.4	n.a.

Note: Seigniorage is calculated as the difference between the monetary base in December of the current year and the monetary base in December of the previous year. For Colombia and Mexico the monetary base corresponds to line 14 of the International Monetary Fund, *International Financial Statistics*. For Chile, the sum of money in circulation and reserve requirements was obtained from the Banco Central de Chile, because the IMF definition includes Chilean indexed bonds.

Sources: Banco Central de Chile and International Monetary Fund, *International Financial Statistics* and Banco Central de Chile.

Table 8: Government Revenues and Expenditures as Share of GDP
Chile, Colombia, and Mexico, 1975-1988
(Percent)

	1975-79	1980-84	1985-88
Chile:			
Total Revenues	31	30	29
Tax Revenues	24	24	22
Expenditures ^a	31	31	30
Colombia:			
Tax Revenues	11	10	11 ^b
Expenditures ^a	12	15	14 ^b
Mexico:			
Tax Revenues	13	17	17
Expenditures ^a	16	23	28

^a Total expenditures except lending repayment.

^b 1985-87

Source: International Monetary Fund, *Government Finance Statistics Yearbook*.

REFERENCES

- Ball, Laurence N., Gregory Mankiw, and David Romer, "The New Keynesian Economics and the Output Inflation Trade-Off, Brookings Papers on Economic Activity, 1988, no. 1.
- Barro, Robert and David Gordon, "Rules, Discretion and Reputation in a Model of Monetary Policy," Journal of Monetary Economics, vol. 12, July 1983.
- Bayoumi, Tamim and Paul Masson, "Fiscal Flows in the United States and Canada: Lessons for Monetary Union in Europe," mimeo, I.M.F., May 1992.
- Canzoneri, Matthew, "Exchange Rate Intervention Policy in a Multiple-Country World," Journal of International Economics, vol. 13, November 1982, pp. 267-289.
- Coes, Donald V., "The Crawling Peg and Exchange Rate Uncertainty," in John Williamson, ed., Exchange Rate Rules: The Theory, Performance, and Prospects of the Crawling Peg, New York: St. Martin's Press, 1981.
- Dornbusch, Rudiger and Pierre Jacquet, La France et L'Union Economique et Monetaire Europeenne, Paris: Institut Francais des relations Internationales, 1991.
- Dornbusch, Rudiger and Stanley Fischer, "Moderate Inflation," MIT: mimeo, Cambridge: 1991.
- Eichengreen, Barry, "One Money for Europe? Lessons from the U.S. Currency Union," Economic Policy, no. 10, April 1990.
- Giavazzi, Francesco and Marco Pagano, "The Advantages of Tying One's Hands," European Economic Review, vol. 32, June 1988, pp. 1
- Giavazzi, Francesco and Alberto Giovannini, Limiting Exchange Rate Flexibility: The European Monetary System, Cambridge: MIT Press, 1989.
- Giovannini, Alberto "Exchange Rates and Traded Goods Prices," Journal of International Economics, vol. 24, February 1988.
- Giovannini, Alberto, "How Do Fixed Exchange Rate Regimes Work? Evidence from the gold standard, Bretton Woods and the EMS" in Miller, Marcus, Barry Eichengreen and Richard Portes, eds. Blueprints for Exchange Rate Management, London: Harcourt Brace Jovanovich, Academic Press, 1989.

International Monetary Fund, Exchange Rate Volatility and World Trade, Occasional Paper no. 28, Washington D.C., July 1984.

Klein, Michael W., "Sectoral Effects of Exchange Rate Volatility on United States Exports," Journal of International Money and Finance, vol. 9, November 1990.

Liargovas, Panagiotis, Sectoral Effects of Real Exchange Rate Uncertainty on Trade: A Case Study of the Greek Trade Flows, unpublished Ph.D. dissertation, Clark University, 1991.

Mundell, Robert, in "A Theory of Optimum Currency Areas," American Economic Review, vol. 51, September 1961.

Obstfeld, Maurice, "Floating Exchange Rates: Experience and Prospects," Brookings Papers on Economic Activity, 1985, number 2.

Sala-i-Martin, Xavier and Jeffrey Sachs, "Fiscal Federalism and Optimum Currency Areas: Evidence for Europe from the United States," N.B.E.R. Working Paper no. 3855, October 1991.