

TRADE AGREEMENTS, EXCHANGE RATE DISAGREEMENTS

Problems often arise when partners in regional integration agreements (RIA) have divergent exchange rate policies, as has happened in recent years with the Southern Cone Common Market (Mercosur). The January 1999 devaluation of the Brazilian real strained the relationship between Argentina and Brazil, setting off a series of events that included protectionist measures in Argentina, Argentine businesses threatening to relocate or actually relocating in Brazil, and additional pressures on the Argentine peso. These events contributed along with many other factors to the end of the convertibility plan in December 2001.

Problems such as these are not unique to Mercosur. They typically emerge when countries have trade agreements but exchange rate disagreements. Similar problems have occurred between Venezuela and Colombia, or even in the European Union after the exchange rate mechanism (ERM) crisis of 1992. But there is a difference. In Europe, the crisis occurred in spite of—or as a result of the failure of—attempts to coordinate exchange rate policy among member countries.¹ In contrast, there have been no such efforts to coordinate exchange rates in most RIAs in the Americas or around the world.

This chapter looks at the circumstances and the types of RIAs under which exchange rate disagreements may arise, as well as the policy responses that can help alleviate such problems.² Throughout the discussion of the potential problems, it is important to ask whether there is something special about being members of the same regional integration agreement that makes exchange rate disagreements particularly harm-

ful, or whether similar problems can be expected following devaluation in non-member trading partners. Types of problems that emerge include the following:

- *Increased protectionism and the scaling back or elimination of trade arrangements:* The country that loses competitiveness as a result of a real exchange rate appreciation vis-à-vis its trade partners may resort to increased protectionism. The existence of an RIA may preclude the country from increasing tariffs within the bloc. As a result, the country may increase protection vis-à-vis the rest of the world, resulting in trade diversion, or it may increase protection vis-à-vis the bloc partners, resorting to less transparent methods such as antidumping, sanitary restrictions, or other administrative measures. This last course of action defies the objective of increased trade integration within the bloc, an objective that may be hurt further if increased protection brings about retaliation. Countries may also choose to scale back or abandon their trade arrangements altogether.

- *Reduction in trade flows:* Exchange rate disagreements can lead to reduced exports from the country that loses competitiveness to its partner. If the disagreement occurs in the context of an RIA with high

¹ In the case of the European Economic Community (later the European Union), there was concern regarding exchange rate coordination as early as the 1957 Treaty of Rome, which already identified the exchange rate among its member states as a matter of common interest (Eichengreen, 1997).

² By exchange rate disagreements, we mean large swings in bilateral real exchange rates.

external protection, trade among partners may not reflect true comparative advantage, and it may be difficult for the country that loses competitiveness to redirect some of its exports to alternative markets. The protectionist pressures discussed above may also contribute to reduced trade flows.

- *Relocation of investments:* Regional trade arrangements may spark intense competition for the location of investment. Elimination of trade barriers may induce firms to produce in a single location within a bloc, and serve the extended market from this location. This intensifies competition for foreign direct investment (FDI). Under these conditions, important swings in the bilateral real exchange rates may have significant consequences for the location of new investment, and in many cases may shift the location of existing investment as well.

- *Exchange rate crises:* Depreciation in one of the member countries may reduce the credibility of the partner's commitment to a fixed parity, and can generate speculative attacks on its currency. A country may thus be forced to abandon its preferred exchange rate policy due to the exchange rate disagreement. This problem may be particularly relevant during periods of financial turmoil, when access to financial markets is hindered.

To study these problems, this chapter draws on the experiences of 37 countries that belong to six different RIAs: Mercosur, the North American Free Trade Agreement (NAFTA), the Central American Common Market (CACM), the Andean Community (AC), the Association of Southeast Asian Nations (ASEAN), and the European Union (EU). The sample covers the period from 1989 through 2000 and includes South-South, North-South, and North-North agreements. This facilitates study of whether the problems identified above are equally relevant for all types of RIAs, or whether they are more relevant to some than others. This, in turn, may provide useful insights regarding potential problems and policy issues for the Free Trade Area of the Americas (FTAA). In general, exchange rate disagreements are in fact more costly when they occur between RIA partners, having a greater effect on the balance of payments (both trade and FDI flows) and increasing the risk of currency crises.

EXCHANGE RATE DISAGREEMENTS AND PROTECTIONISM

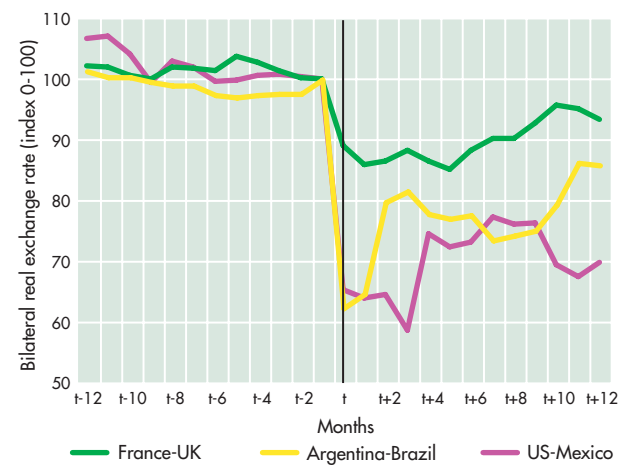
One of the reasons why exchange rate disagreements may harm members of regional integration agreements is that they often lead to protectionist pressures, thus preventing the gains from trade from being realized. In the context of the European Union, Eichengreen (1993) has argued that this political economy argument represents the only compelling reason for monetary unification to follow the Single European Act. “[W]ider exchange rate swings would compound the adjustment difficulties associated with completing Europe’s internal market. If national industries under pressure from the removal of barriers to intra-European trade find their competitive position eroded further by a sudden exchange rate appreciation, resistance to the implementation of the Single European Act would intensify. The SEA might be repudiated. In this sense, and this sense alone, monetary unification is a logical economic corollary of factor- and product-market integration.”

There are plenty of examples of protectionist pressures following large exchange rate swings in the context of the European Union. The September 1992 ERM crisis, for instance, gave rise to considerable tensions among the EU member countries. These tensions emerged in part as a response to the relocation of several production plants to the United Kingdom following the depreciation of the sterling, the most prominent being the move of the Hoover vacuum cleaner plant from Dijon to Scotland.³ France accused the United Kingdom and Italy of harming the overall stability of the European Union. French public officials went as far as to threaten the British with exclusion from the single market, and even EC Commission President Jacques Delors got into the act, warning the British about the incompatibility of their exchange rate policies with the single market.⁴ French entrepreneurs started calling for protectionist measures, while Belgium’s finance minister

³ Another notable case was that of Phillips, which relocated the production of cathode tubes from the Netherlands to the United Kingdom. See Eichengreen (1993) and Eichengreen and Wyplosz (1993).

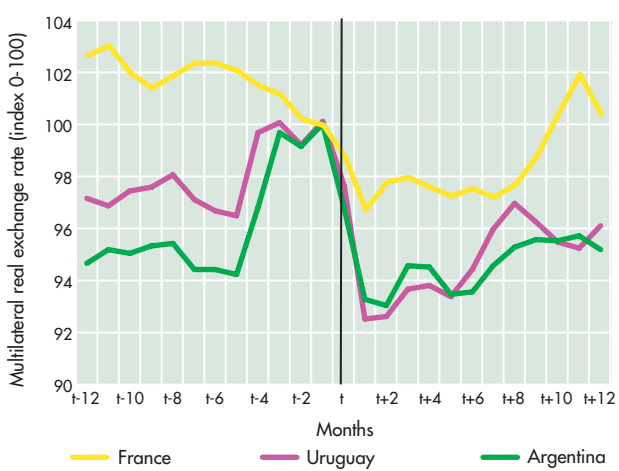
⁴ See Eichengreen (1993).

Figure 8.1a Bilateral Real Exchange Rate



Note: *t* is defined as the month of the episode. One month before the episode the index is 100. The episodes analyzed are the Brazilian devaluation of January 1999 for Argentina, the pound devaluation of September 1992 for France and the United Kingdom, and December 1994 for the United States and Mexico.
Source: Fernández-Arias, Panizza and Stein (2002).

Figure 8.1b Multilateral Real Exchange Rate



Note: *t* is defined as the month of the episode. One month before the episode the index is 100. The episodes analyzed are the Brazilian devaluation of January 1999 for Argentina and Uruguay, and the pound devaluation of September 1992 for France.
Source: Fernández-Arias, Panizza and Stein (2002).

warned of retaliatory trade actions against countries resorting to competitive devaluations.

While Eichengreen (1993) cited the danger of a protectionist backlash as the main justification for the European Monetary Union, in a subsequent paper (Eichengreen, 1997) he pointed out that this reasoning does not necessarily carry over to other RIAs. The EU is

a full-blown single market that allows no restrictions on factor flows, no subsidies for domestic industries, and no national preferences for public procurement. Thus, the impact of a given currency swing on the profitability of national industries should be larger than in other RIAs, and so should the extent of lobbying for protection and subsidies.⁵ As an example, Eichengreen points to the case of NAFTA, where Mexico's 1994 depreciation led to complaints in the United States, but not to the adoption of any protectionist measures.⁶

There are a number of arguments, however, that point in the opposite direction. First, countries in other RIAs, and in particular developing countries, have more limited access to financial markets, particularly in periods of financial turmoil when capital inflows come to a sudden stop, and therefore have more limited tools to defend their currencies.⁷ Thus, while similar swings in exchange rates may give rise to less protectionist pressures under conditions of shallow integration, the recent experience shows that exchange rate swings have not really been similar (Figures 8.1a and b). Another way to look at the differences is to focus on the average volatility of real bilateral exchange rates for the 1990s. The EU is by far the RIA with the lowest volatility, while Mercosur is at the highest end of the spectrum (Figure 8.2).⁸ The EU also has much more power to enforce trade rules among its member countries than do countries in other RIAs, particularly those formed by developing countries. Thus, even if exchange rate swings were comparable, more

⁵ The Common Agricultural Policy (CAP) provides another reason for exchange rate coordination in the case of the EU.

⁶ In fact, the devaluation in Mexico did generate some protectionist pressures, particularly surrounding the imports of Mexican tomatoes. Florida growers complained that Mexico was dumping the tomatoes at below cost prices. While the International Trade Commission ruled against the Florida growers' case, the Department of Commerce threatened Mexico with tariffs, and in the end Mexico agreed to a price floor for its tomato exports to the United States. In return, Mexican growers were able to export up to the quota that had been agreed to under NAFTA. See "The Tomato Debate Between Mexico and the United States" (www.american.edu/TED/TOMATO.HTM)

⁷ Calvo (1998) has used the term "sudden stop" referring to large reversals in capital inflows.

⁸ In a 1998 study on Mercosur, Eichengreen also finds that its member countries have too much exchange rate volatility, even after controlling for a number of factors such as country size, trade linkages, correlation of business cycles, and similarities in the composition of trade.

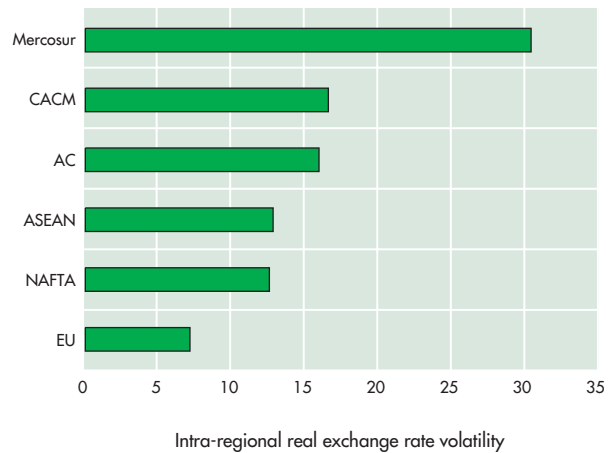
lobbying in the case of the EU need not result in more protectionism.⁹

The comparison to NAFTA may not be the most useful one. Mexico is small compared to the United States, whose real effective exchange rate suffered only a minor blip in December 1994. In contrast, a country such as Brazil is the most important trading partner for each of its Mercosur partners.¹⁰ The 1999 devaluation in Brazil gave rise to significant protectionist pressures in its RIA partners. While none of the countries threatened to leave Mercosur, there was talk in Argentina of scaling the customs union back to a free trade area. More recently, Uruguay, which was hit by the double whammy of Brazil and Argentina, has started negotiating a free trade area with the United States independent of its Mercosur partners. Box 8.1 discusses some of the protectionist pressures that occurred in Argentina as a result of the devaluation in Brazil, as well as trade disputes linked to exchange rate swings in the Andean Community. The box suggests that these problems will be particularly damaging in countries with strong exchange rate commitments that also have large and volatile RIA partners.¹¹

REAL EXCHANGE RATE MISALIGNMENTS AND EXPORTS

Concerns regarding exchange rate disagreements on the part of tradable producers in the country that “suffers” the disagreement are generally twofold: they worry about an avalanche of imports from the depreciating country; and they worry about the effect of the exchange rate swing on their capacity to export. Are these concerns justified? A look at the behavior of bilateral trade during episodes of exchange rate realignments suggests that the concern regarding an avalanche of imports seems unwarranted. Figures 8.3a-e show the evolution of exports between Argentina and Brazil, Uruguay and Brazil, France and the United Kingdom, France and Italy, and the United States and Mexico around episodes of large exchange rate swings. As expected, exports from the country that loses competitiveness fell quite substantially. In nearly all cases, however, exports from the depreciating country to its partners did not increase. In most cases these exports fell considerably, although by a smaller per-

Figure 8.2 Intra-regional Volatility of the Real Multilateral Exchange Rate, 1989-2000
(In percent)



Source: IDB calculations based on IMF, *International Financial Statistics*.

centage, compared to exports in the opposite direction.¹²

The figures also suggest, however, that the tradable producers' concerns about the effect on exports seem to be justified. Exports to Brazil from Argentina and Uruguay fell by 28 percent and 40 percent in 1999, respectively. Likewise, exports from France to Italy and the UK fell by 8 percent and 23 percent in 1993. But how costly is this reduction in exports? The answer is that it depends. If a country that suffers an exchange rate realignment by a trading

⁹ Obstfeld (1997) makes a similar point, comparing the enforcement power of the EU to that of the World Trade Organization.

¹⁰ In the case of Uruguay, Brazil and Argentina in fact have similar shares.

¹¹ Interestingly, volatility played a lesser role in Colombia and Venezuela, since the episodes of large depreciation in Venezuela in 1994 and 1995 were not perceived in Colombia to have permanent effects on the real exchange rate.

¹² An exception is the case of Mexico and the United States, in which Mexican exports increased. In this instance, the devaluation coincided with the creation of NAFTA, which may be contributing to this result. In the rest of the cases, exports from the depreciating country may have declined due to valuation effects (if prices are set in domestic currency, prices in dollars will fall), protectionist measures by the partner, or the recessionary effects of the depreciation on the country's partners.

Figure 8.3a Exports between Argentina and Brazil
(In millions of US\$)

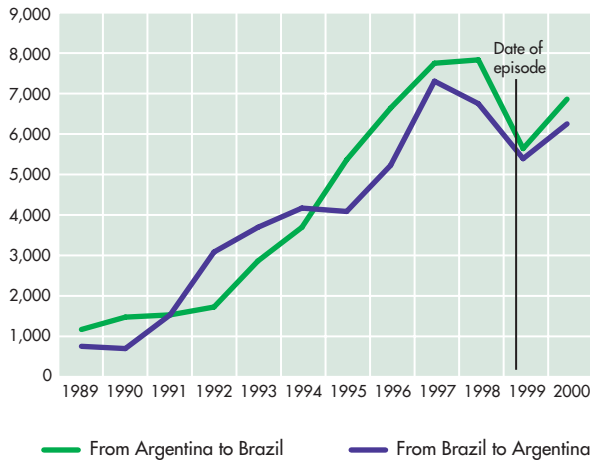


Figure 8.3d Exports between Italy and France
(In millions of US\$)

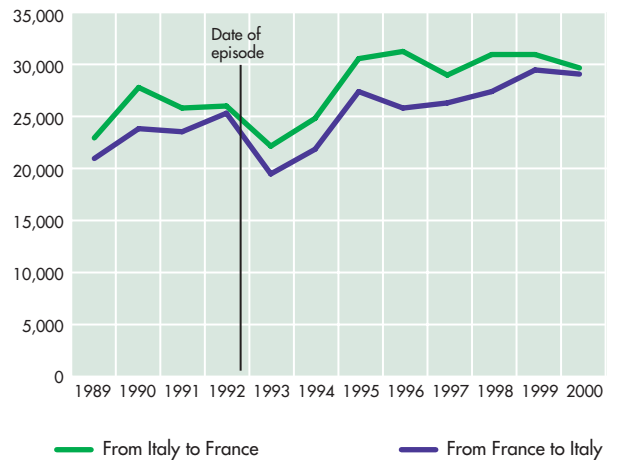


Figure 8.3b Exports between Brazil and Uruguay
(In millions of US\$)

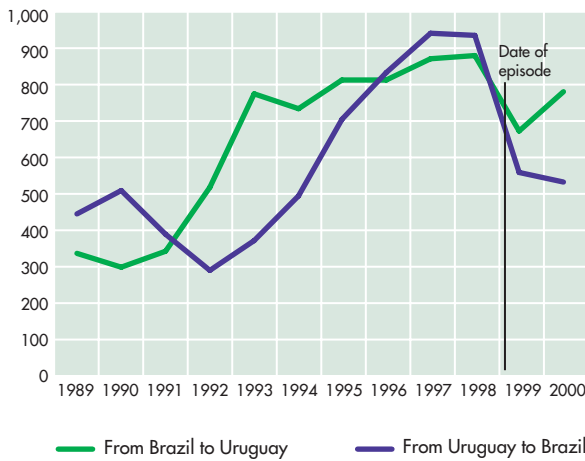


Figure 8.3e Exports between Mexico and the United States
(In millions of US\$)

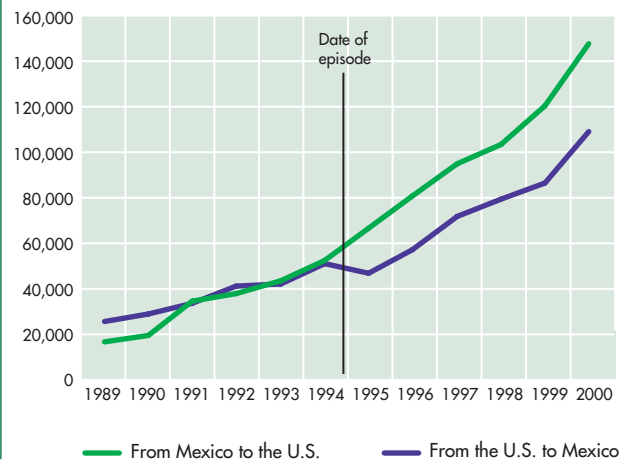
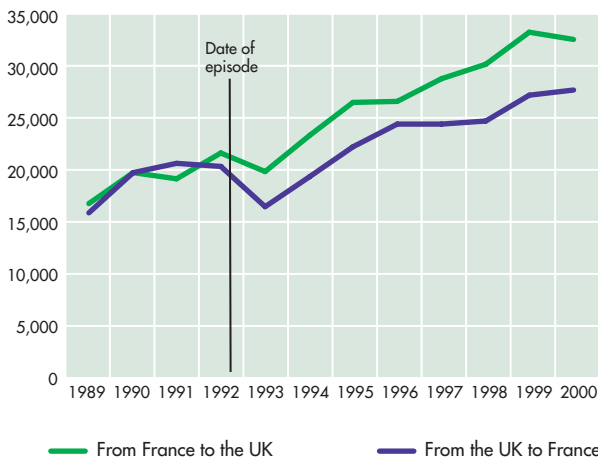


Figure 8.3c Exports between France and the United Kingdom
(In millions of US\$)



Source: Fernández-Arias, Panizza and Stein (2002).

Box 8.1 Exchange Rate Disagreements and Protectionism**Protectionism in Argentina following the Real Crisis¹**

Since the Brazilian devaluation of January 1999, Mercosur has been the scene of a large number of disputes that have at times stressed the relations between its two largest members. The devaluation of the real, which produced a large swing in the bilateral real exchange rate, was compounded by a recessionary environment, as well as by the end of the transitory adaptation period that had allowed for a more gradual reduction of tariffs in sensitive sectors.

In this context, the Brazilian devaluation generated great concern among Argentine entrepreneurs. One week after the devaluation, the Unión Industrial Argentina was already publicly lobbying for a compensatory tariff mechanism on Brazilian imports, accompanied by drawbacks on exports to Brazil. While the Argentine government did not accede to this request, it did resort to a variety of protectionist measures in response to the industrial lobbies. The conflicts that followed were quite broad and involved many sectors. A few examples are discussed below.

In the *pork sector*, Argentine producers had been complaining for years about Brazilian subsidies for pork production and export. Following the devaluation of the real, the Argentine government submitted the case to arbitration, in accordance with the dispute settlement mechanism agreed upon in Mercosur (see Chapter 4). After an unfavorable ruling, Argentine pork producers asked the government to set sanitary restrictions to impede imports of pork from Brazil. The Argentine government instead encouraged producers to reach a private agreement of voluntary export restraints with their Brazilian counterparts. An agreement was not reached, and in March 2000, the Argentine Association of Pork Producers accused its Brazilian counterparts of dumping. It asked for quotas on pork products originating in Brazil, countervailing duties on those imports, and an increase from 15 to 35 percent in the common external tariff for imports of pork products from outside the region. Ultimately, only this last measure was implemented. As a result, the "solution" ended up diverting trade away from other suppliers, in particular Italy and Spain.

The *iron and steel sector* had been the center of repeated disputes even before the Brazilian depreciation. However, disputes intensified following the devaluation, which coincided with the end of residual tariffs that protected Argentine firms from more efficient Brazilian producers, and with a drop in aggregate demand.

In April 1999, the Argentine Ministry of the Economy ruled in favor of an anti-dumping demand by Argentina's Siderar S.A. against the Brazilian Companhia Siderúrgica Nacional for imports of hot rolled steel. The measure imposed minimum prices of \$410 per ton, below which other duties would apply. The Brazilian foreign affairs minister objected to the measure, and threatened to initiate a complaint in the World Trade Organization. The Brazilian firm, in turn, presented a formal note to the Argentine president, arguing that at that price, Argentine importers would be able to import cheaper steel laminates from outside producers, even paying for the 15.5 percent common external tariff. Ultimately, in December 1999, the Argentine government approved an agreement by which the Brazilian producers voluntarily agreed to limit exports to Argentina and impose minimum prices (between \$325 and \$365 per ton), in exchange for the elimination of anti-dumping duties.

As a result of its inclusion in the adaptation period, the *shoe sector* had been protected from intra-Mercosur trade since the formation of the customs union. The devaluation of the real and the end of the adaptation period resulted in a substantial surge in Argentine shoe imports from Brazil, which increased nearly 30 percent. This, in turn, generated significant protectionist pressures from Argentine shoe manufacturers, who requested measures to compensate them for what they considered generous subsidies enjoyed by their Brazilian counterparts. While both private sectors were unsuccessfully trying to negotiate voluntary export restraints, the Argentine government introduced import license requirements, allowing up to three months for the approval of the licenses. This measure would have temporarily paralyzed imports of shoes. Brazil reacted immediately, announcing its decision to re-impose license requirements on 400 products of Argentine origin including chemicals, food products and autos. At the same time, it included Argentina on a list of countries whose exporters would be subject to inspections by the Brazilian Secretary of Sanitary Defense. In the end, cooler heads prevailed, as both governments encouraged their respective private sectors to negotiate a temporary voluntary export restraint.

Exchange Rate Swings and Protectionism in the Andean Community²

Colombia and Venezuela are mutually important trading partners, particularly for non-traditional exports. The year 1994 marked the beginning of a period of macro-

economic instability in Venezuela, which gave rise to large real bilateral exchange rate swings. In May 1994, the bolivar was allowed to float, after a period in which the exchange rate was fixed but inflation was high. This led to a large depreciation. While the depreciation of the bolivar caused concern among some sectors in Colombia (particularly Fedemetal, the association of metallurgic producers, and some agricultural sectors), these concerns were probably not as strong as those in Mercosur. The reason for this is twofold. On the one hand, the perception in Colombia was that, due to the magnitude of macroeconomic instability in Venezuela, the misalignment of the exchange rate would be short-lived. At the same time, some producers in Colombia actually benefited, not directly from the Venezuelan depreciation, but from its imposition of exchange rate controls, from which Colombian exports were exempt due to the payments agreement under ALADI. There were, however, a few episodes worth discussing.

In the *rice sector*, Colombian producers were greatly affected by the depreciation of the bolivar. Colombian authorities were under heavy pressure from the rice producers to implement some protectionist measures against Venezuelan rice. The position of the Colombian authorities, in general, was to try to avoid measures against Venezuela that might strain the relations between the two countries. In response to pressures from the rice producers, however, they ended up imposing safeguards against Vietnamese rice instead. This happened in July 1994, right after the Venezuelan depreciation. Vietnam, apart from being an important supplier of rice to Colombia, was not a member of the GATT at the time, which made it easier for Colombia to

impose this measure without risking a trade dispute with that country. The safeguard was eliminated a few months later, as soon as the Venezuelan real exchange rate came back to normal levels. As in the case of the pork sector in Mercosur, however, the measures ended up diverting trade from suppliers from outside the region. Following the 1996 real depreciation of the bolivar, Colombia finally did impose a safeguard against Venezuelan rice, which is still in effect.

Venezuela's suspension of the ALADI payments system began with events in November 1995, when the country's real exchange rate (which was again fixed) was highly overvalued. This had serious effects on Venezuela's tradable producers and exerted great pressure on the balance of payments. To avoid a large devaluation, the Venezuelan authorities imposed a variety of protectionist measures. In November 1995, they suspended the ALADI payments system, a measure that would have serious effects on exports from Colombia. A few days later, they tried to impose a special exchange rate for ALADI imports, from the official exchange rate, at 170 Bs/US\$ to the Brady Plan exchange rate of 330 Bs/US\$. These events generated a heated reaction in Colombia. After threats of retaliation, Venezuela reversed its decision regarding the exchange rate, and reestablished the payments mechanism on November 24. After another attempt to impose restrictions on payments, Venezuela was forced once again into a large devaluation on December 12.

¹ Based on Rozemberg and Svarzman (2002).

² Based on Pardo (2002).

partner is able to shift its exports to other markets at a reasonable cost, then the consequences for exporters should not be as harsh. If, on the contrary, exports to the partner cannot easily be relocated to other markets, exporters will suffer. This suggests that what is crucial is the evolution of total exports, not just bilateral exports, around these episodes of exchange rate disagreements.

This section looks at the impact of real exchange rate misalignments on total exports. In particular, it tests whether a country's misalignment vis-à-

vis its RIA partners has a larger impact, all else being equal, than a similar misalignment vis-à-vis nonmembers. In other words, are exchange rate disagreements potentially more harmful between countries with regional integration agreements?

Why would the impact be any different? Our main hypothesis is that RIAs, depending on their nature, can affect the degree to which exports can be relocated in the event of an exchange rate disagreement. By virtue of the preferential access with its RIA partners, a country can export goods in which it is not

internationally competitive. If these exports are suddenly curtailed due to a depreciation in the RIA partner, it may be very hard to find alternative markets for these goods. Following Bergara, Dominiononi and Licandro (1995) and Bevilaqua, Catena and Talvi (2001), exports that cannot easily be relocated can be labeled “regional goods.” Consider the case of trade in agricultural products in the European Union, or automobile trade in Mercosur. Argentine car exports to and from Brazil are made possible by preferential access, and by a special regime that translates into high protection on car imports from the rest of the world. If for whatever reason (say, a depreciation) Brazil were to stop demanding Argentine cars, it would be difficult for Argentine producers to find alternative markets. Consider instead a commodity such as oil, another of Argentina’s main exports to Brazil, and a product in which Argentina is internationally competitive. If for whatever reason Brazil’s demand for oil were to decline, oil producers in Argentina would be able to relocate these exports somewhere else, even if this relocation were not costless.¹³

It should be pointed out that regional goods might also exist in the absence of regional integration agreements. Some goods, such as fresh milk or services provided to tourists in regional vacation destinations, may only be tradable regionally. In these cases, the regional character of the goods is due not to preferential access, but to geographical proximity.¹⁴ However, RIAs are likely to increase the importance of regional goods, because preferential access may create a demand for goods that are not internationally competitive.¹⁵

If regional integration agreements increase the importance of regional goods, total exports would be expected to decline more when the exchange rate is overvalued with respect to RIA partners, and less when the overvaluation occurs vis-à-vis other countries. To study whether this hypothesis has empirical support, we need to follow a number of steps.¹⁶ First, we need to define when a country’s currency is overvalued, and what is the extent of the overvaluation. This is done by means of econometric techniques, which decompose the real exchange rate into a trend (or “equilibrium” level) and the deviations from this trend.¹⁷ When the exchange rate is below its equilibrium level (measured as the price of the foreign currency in terms of the

domestic one), the exchange rate is overvalued, and the extent of overvaluation is given by the percentage deviation from the trend. We can now ask whether overvaluation leads to a decline in total exports. The results presented in Figure 8.4a suggest that, all else being equal, an overvaluation of 10 percentage points would be associated with a decrease in total exports of 6 percent.¹⁸

Next, we decompose the misalignment into regional and nonregional components. Each of these components represents the contribution of RIA partners and that of countries outside the RIA to the overall misalignment. Consider, for example, a country in the EU. If 60 percent of this country’s trade occurs within the bloc, and the exchange rate of this country is overvalued by 5 percent with respect to its RIA partners, the contribution of the RIA to the country’s overall misalignment will be an overvaluation of 3 percent. Consider instead a country in the Central American Common Market (CACM), where only 10 percent of trade occurs within the bloc. If the exchange rate of this country is overvalued by 5 percent vis-à-vis its RIA partners, the RIA contribution will be only 0.5 percent. It is obvious that a 5 percent within-bloc misalignment should have larger effects in the first case. That is why the variables of interest are not the within-RIA and outside-RIA misalignments, but rather the contributions of RIA countries and other countries to the overall misalignment. In other words, the question we ask is if the effect on exports of a given overall overvaluation is the same, regardless of the source (within or outside RIA) of the overvaluation.

¹³ Taken from Bevilaqua, Catena and Talvi (2001).

¹⁴ In the case of some agricultural products, tradable goods may also become “regional” as a result of protectionist policies in the rest of the world.

¹⁵ In addition, RIAs may lead to the adoption of common standards and regulations, or through their effect on trade, to more uniformity in demand among member countries. Either of these factors would make relocation of exports more difficult, and thus increase the degree of “regionality” of trade.

¹⁶ For a more complete treatment, see Fernández-Arias, Panizza and Stein (2002).

¹⁷ Details of the de-trending methodology used are provided in Appendix 8.1.

¹⁸ Appendix Table 8.1 presents the results of the regressions.

Figure 8.4a Effect of Real Exchange Rate Misalignments on Exports Depending on Source of Misalignment (In percent)

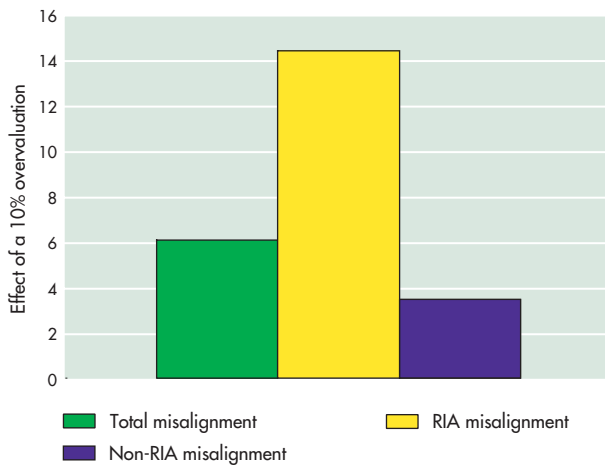
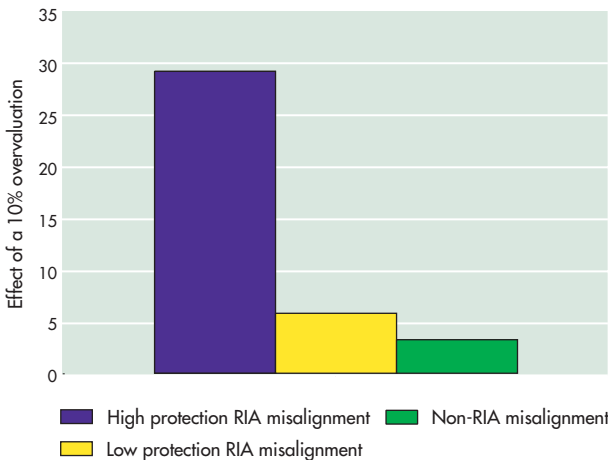


Figure 8.4b Effect of Real Exchange Rate Misalignments on Exports Depending on Degree of External Protection of RIA (In percent)



Source: Fernández-Arias, Panizza and Stein (2002).

The answer shown in Figure 8.4a is that it is not (see also column 2 in Appendix Table 8.1). Overvaluation has larger effects when its source is the RIA. An RIA contribution of 10 percentage points to the overall overvaluation reduces total exports by 14 percent, while a similar contribution from outside countries reduces exports by only 3.5 percent.¹⁹ Moreover, the difference between within-RIA and outside RIA contributions is statistically significant.

The results in Figure 8.4a suggest that the regional goods channel discussed above may be at play. However, if the presence of regional goods is a function of the degree of preferential access a country has vis-à-vis its RIA partners, then the impact of regional misalignments on total exports should be a function of this preferential access. Figure 8.4b repeats the previous experiment, but this time we separate countries into two groups: those for which the degree of preferential access to their RIA partners is large, and those for which it is small. The effect of overvaluation on exports is only large and significant when the overvaluation comes from within an RIA with high preferential access.²⁰ These results lend some support to the hypothesis that regional goods play an important role in magnifying the impact of exchange rate misalignments within highly protected regional integration agreements.²¹

It is important to keep in mind that the problems a country will face in this regard will be in direct proportion to the size and volatility of its RIA partners. It is unlikely, for example, that such problems may arise in the context of the CACM. Since trade within that RIA only represents a small portion of overall trade, the contribution of the RIA countries to overall misalignment is likely to be small.

EXCHANGE RATE DISAGREEMENTS AND THE LOCATION OF FOREIGN DIRECT INVESTMENT

The relocation of the Hoover production plant from France to Scotland mentioned earlier is just one such episode to result from exchange rate disagreements between partners in regional integration agreements. A more recent example was the move to Brazil of several Argentine auto parts companies following the devaluation of the real. The Venezuelan devaluation of 1994 also led to a number of investments there by Colombian nationals (see Pardo, 2002).

¹⁹ In this last case, the effect is not statistically different from zero.

²⁰ See Appendix 8.1 for details on the methodology, and column 5 in Appendix Table 8.1 for the results.

²¹ If the differential effects of regional versus nonregional misalignments were solely due to geographical proximity, we would not have expected different effects for the high and low protection cases.

There has been some debate in the literature regarding the potential effects of exchange rates on FDI. Most of the work in this area was inspired by the spectacular increase in FDI into the United States following the depreciation of the dollar in 1985 (Feenstra, 1999). This literature identifies several channels through which depreciation can be associated with larger FDI inflows. The first, proposed by Froot and Stein (1991), is related to capital market imperfections. In particular, informational asymmetries regarding the value of an investment will limit the leverage of firms, making it costly or impossible to fully finance the investment through borrowing. Changes in the real exchange rate affect wealth, and thus borrowing constraints. If foreigners tend to hold relatively more non-dollar assets, a depreciation of the dollar increases their relative wealth, and relaxes their borrowing constraints. This in turn will allow them to acquire more investments abroad.

Blonigen (1997) proposes an alternative channel. He notes that the acquisition of a firm allows knowledge transfers from the parent company to the subsidiary, but also from the subsidiary to the parent company. This knowledge may take the form of a product or process development. If this technology can be applied by the parent company in its own market, this would lead to a stream of profits in the home market, in domestic currency. If this is so, a depreciation in the target host country lowers the cost of this stream of revenues. This may explain why a Japanese firm may invest more in U.S. assets following a depreciation of the dollar, particularly in sectors that are intensive in research and development.

While this last channel seems like a plausible story for FDI between developed countries, it does not fit well with North-South FDI. Firms in developed countries rarely would acquire a firm in a developing country in the hope of obtaining a technology to apply in the home country. Their multinational activity in the South is usually done for one of two reasons: either to take advantage of the difference in relative factor endowments in order to reduce overall costs of production (as in the vertical models of FDI), or to serve a protected market that would be too expensive to serve through trade (as in the horizontal models of FDI).²² In the case of vertical FDI, firms that produce for the world market locate different stages of production in different

countries in order to reduce costs. As the level of the real exchange rate generally affects the cost of land and labor, a depreciated exchange rate will attract FDI in activities that are intensive in these factors.

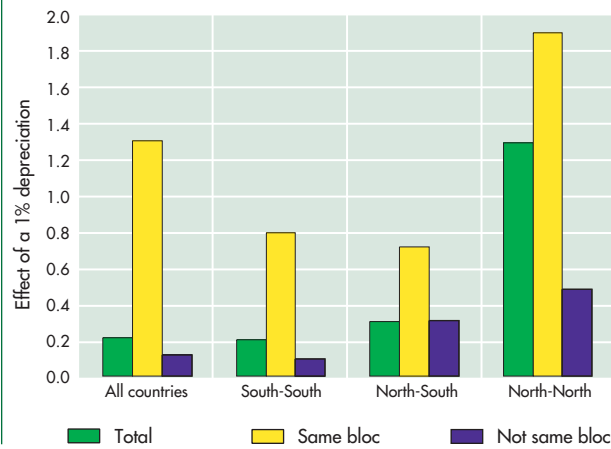
In the case of horizontal (“tariff-jumping”) FDI, whether a firm engages in FDI in a particular country will depend on the relative cost of serving this market via either trade or domestic production. All else being equal, an exchange rate depreciation in the host country will reduce the cost of producing the good through multinational activity, and thus may result in higher FDI.

These channels suggest that movements in the bilateral exchange rate between two countries will affect the relative amounts of FDI these two countries receive. But are exchange rate swings more likely to have large effects among countries with trade agreements? In the case of vertical FDI, in which a firm produces for the world market, a depreciation may favor location in the depreciating country at the expense of all other potential hosts with similar factor endowments. If production is for a regional market, however, countries that are both similar and proximate should suffer more from another country’s depreciation. To the extent that RIAs include countries that are both similar and proximate (as in South-South and North-North RIAs), RIA partners may be more sensitive to exchange rate swings. But, through this vertical FDI channel, sensitivity will be due mostly to proximity, not to the RIA itself.

In the case of horizontal FDI, however, RIAs create an enlarged internal market protected from the outside world. Provided there are economies of scale, the elimination of trade barriers within the bloc will induce firms to produce in a single location, and serve the extended market from this location. Regional trade arrangements may thus create a space of intense competition for the location of investment, not unlike that which often exists among states of a single country (see Box 7.3 in Chapter 7). Under these conditions, swings in the bilateral real exchange rates that affect relative costs of production in countries in the bloc, to the extent that those swings are perceived to be permanent, may have important consequences for the location of new investment. In many cases they may shift the location of

²² For a discussion of the vertical and horizontal models of FDI, see Chapter 10 and Markusen and Maskus (2001).

Figure 8.5 Effect of Exchange Rate Misalignments on FDI Inflows (In percent)



Source: Fernández-Arias, Panizza and Stein (2002).

existing investment as well. This argument suggests that swings in the real bilateral exchange rate will have larger effects among members of an RIA. For this to matter, however, external protection for the RIA has to be high enough to support horizontal FDI.

In order to evaluate this hypothesis, we study the effects of real bilateral exchange rates on relative inflows of FDI, and check whether the response of relative FDI to bilateral swings in exchange rates is larger among RIA partners. Moreover, we study whether the results depend on the character of the country pair involved (North-North, North-South, or South-South).

After accounting for other determinants of relative FDI inflows (such as relative income or openness), Figure 8.5 finds that a 1 percent depreciation of the real bilateral exchange rate increases relative inflows by 1.3 percent when both countries are members of the same RIA.²³ In contrast, the impact is not statistically significant in the case of outside countries. If the exercise is limited to South-South country pairs, we obtain similar results, but the impact is smaller (0.8 percent) among countries with RIAs. The largest impact is obtained for North-North country pairs with common membership in RIAs, in which case a 1 percent depreciation increases relative FDI by 1.9 percent. This may be due to the fact that the EU, which accounts for most North-North pairs in regional integration agreements, is much more deeply integrated than other RIAs.²⁴

TRADE AGREEMENTS AND CURRENCY CRISES

There have been several episodes during the 1990s when a devaluation by one country generated pressure on the currency of its RIA partners. The exit of the Italian lira from the European Monetary System in 1992, for instance, was almost immediately followed by the abandonment of the peg by the United Kingdom, causing enormous pressure on the French franc (Buiter, Corsetti and Pesenti, 1998). The depreciation of the Thai bhat in July 1997 was followed closely by depreciations in Singapore, Malaysia, Indonesia and the Philippines.²⁵ The devaluation of the real in Brazil exerted pressure on the Argentine peso, and was one of the factors that contributed to the demise of the convertibility plan.²⁶ This in turn caused pressure on the Uruguayan peso, which was allowed to float in June 2002.

Of course, there are also countless examples of contagion beyond RIAs. The Mexican peso crisis of 1994 exerted strong pressures on the Argentine peso, the 1997 Asian crisis on the ruble, and the 1998 Russian crisis on the real. It is not obvious, then, whether countries (and in particular, countries with strong exchange rate commitments) tend to be more severely affected by depreciation within their respective RIAs. In this section, we attempt to see whether this is the case.

The connection between currency crises and prior misalignment of the real exchange rate is well established in the literature on leading indicators of crises.²⁷ Goldfajn and Valdés (1997) show that an overvalued real exchange rate increases the likelihood of a currency crisis under a number of alternative

²³ The complete results are presented in Appendix Table 8.2.

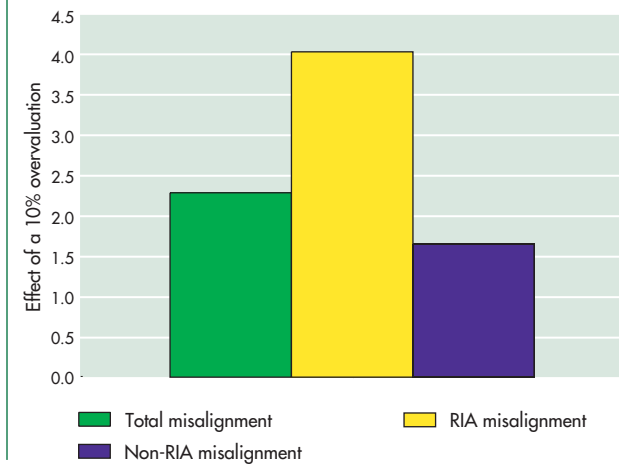
²⁴ Part of this effect could be due to the proximity between countries that share common membership in RIAs. Future research might extend the sample of countries to the entire world in order to be able to discriminate between the effect of proximity and that of RIAs.

²⁵ It also affected Hong Kong and Korea, which are not part of ASEAN.

²⁶ The host of other factors that contributed to the end of convertibility included the sudden stop of capital inflows into the region, the depreciation of the euro, an unstable political environment, and the failure of the Argentine authorities to generate the required fiscal adjustments.

²⁷ See Kaminsky, Lizondo and Reinhart (1998) for a survey of this literature.

Figure 8.6 Effect of Real Exchange Rate Misalignments on the Probability of a Crisis
(In percent)



Source: Fernández-Arias, Panizza and Stein (2002).

measures of overvaluation and a number of definitions of currency crisis.²⁸ The question here is whether the impact of overvaluation on the risk of currency crisis is any different when the currency is overvalued with respect to the partners in the regional integration agreement.

In a sense, the answer to this question should be yes. One of the main channels of contagion identified in the literature is related to trade links between countries. Since integration increases trade links, countries that are tightly integrated should, all else being equal, be more vulnerable to each other's problems. The question is whether countries are more vulnerable to overvaluations within their regional agreements even after accounting for the effects of RIAs on trade links.

The analysis and evidence shown in previous sections suggests a positive answer. The overall balance of payments impact of a given exchange rate misalignment with respect to a trading partner (both via exports and FDI inflows) appears to be larger if it happens within an RIA. In addition, RIAs constrain the ability of member countries to adjust to an adverse shock to competitiveness through the use of import tariffs and other offsetting trade policies.²⁹ In other words, RIAs enlarge the balance of payments consequences of

exchange rate overvaluation and reduce the ability to offset them in ways that diffuse the downward pressure on the currency. This suggests that countries in regional integration agreements with exchange rate disagreements may be more prone to currency crises. Naturally, the problem will be more serious when the RIA partners are large and volatile.

As we did for exports, we first look at the impact of an overall overvaluation in the previous month on the probability of a balance of payments crisis, regardless of the source of the overvaluation, and after accounting for other factors that may affect crises.³⁰ Although we worked with different definitions of crisis, the preferred definition used for the calculations in Figure 8.6 was a monthly depreciation of the real effective (or multilateral) exchange rate of at least 5 percent.³¹ All else being equal, an overvaluation of 10 percent increases the probability that a crisis will occur during the next month by 2.3 percentage points. Since the average probability of a crisis in any given month was also around 2.3 percent, in effect a 10 percent overvaluation doubles this probability to 4.6 percent.³²

Next, we decompose the overvaluation into the contribution of RIA partners, and the contribution of other countries, as explained above. A 10 percent overvaluation explained by exchange rate movements within the RIA increases the probability of a crisis by 4 percentage points. In contrast, a similar overall over-

²⁸ The latter include large nominal depreciation in the spirit of Frankel and Rose (1996), their own definition based on large real depreciation, as well as an index of pressure on the currency that combines nominal depreciation with the loss of international reserves, as in Kaminsky and Reinhart (1999).

²⁹ In the case of customs unions (unlike free trade areas), the country in question cannot even increase outside tariffs unilaterally.

³⁰ We control for access to financial markets (lack of access tends to increase the probability of crises), and for recent changes of government (governments are usually reluctant to devalue before elections, and new governments can devalue early and blame it on their predecessors).

³¹ Other definitions used in the literature are more complicated (combining depreciations and reserve losses), use nominal depreciations (which requires some decisions in terms of how to deal with inflation), or have different thresholds per country, with the unappealing consequence that in very stable countries episodes of very small depreciations are counted as crises.

³² Note that a 4.6 percent probability of a crisis within the next month corresponds approximately to a 43 percent probability of a crisis within the next year.

valuation contributed by non-RIA countries increases the probability of crisis by only 1.7 percent. Moreover, the two effects are statistically different. Results are fairly similar when a crisis is defined as a real depreciation of 10 percent. Altogether, we worked with 10 different definitions of crises.³³ In nine out of 10, the impact of a given overall overvaluation is larger when the source of the overvaluation is within the RIA. In eight of 10, the impact is at least twice as large within the RIA. In most cases, however, the difference between these effects was not statistically significant.

POLICY ISSUES

Traditional analysis of RIAs has focused mainly on trade issues, such as changes of trade patterns and their welfare implications. But potential problems caused by divergent exchange rates within RIAs can also have major welfare implications. Exchange rate disagreements have more serious consequences when they occur among countries bound by trade agreements. They have a larger impact on exports, FDI, and crises and contagion. Furthermore, exchange rate disagreements have the potential to break up or weaken support for RIAs themselves.

There are three types of policy issues linked to the risks that emerge from exchange rate disagreements: i) unilateral policies that countries may choose to make themselves less vulnerable to exchange rate disagreements within RIAs; ii) macroeconomic policy coordination among RIA members; and iii) adequate international financial architecture to support RIAs.

Unilateral policies: The most direct way to reduce the risks associated with exchange rate disagreements within RIAs is for countries to take into account the potential divergence in exchange rate regimes when choosing partners. The likelihood and the size of the potential exchange rate shocks depends on the underlying macroeconomic volatility of the partner, as well as its divergence in terms of fundamentals and policy. From the point of view of an individual country, countries with lower volatility and countries with similar (convergent) exchange rate regimes and cyclical macroeconomic patterns would make better partners. Another important consideration may be the term structure and currency composition of financial

liabilities in both countries. Differences in the structure of liabilities may lead countries to respond to common shocks with different policies, which may result in significant exchange rate disagreements. Countries often decide to join RIAs due to geopolitical considerations, however, so the scope for this policy may be somewhat limited.

Given its RIA partners, a country can adapt its policies to reduce vulnerability to exchange rate disagreements. For example, it could relax or abandon an exchange rate commitment potentially inconsistent with its partners' exchange rate policies, and thus avoid large overvaluation vis-à-vis its partners. Industrial policy could also be adapted to protect the country against excessive specialization in "regional goods," that is, goods that are difficult to redirect to alternative markets outside the RIA bloc.

Macroeconomic policy coordination: The deeper and more comprehensive the RIA, the more important the question of macroeconomic policy coordination. The European Union has always attached great importance to this issue. For Latin America, the policy question is, at what point should the countries in the region move in the direction of Europe by coordinating more forcefully with their RIA partners? And how serious should this coordination be? Should it involve specific outcomes or just policy rules, such as inflation targets? Fiscal deficit and debt limits? Compensatory income transfers between countries? A key area is exchange rate coordination to avoid harmful misalignments within RIAs. However, such coordination entails the loss of monetary independence.

On one extreme is the possibility of a monetary union, which would completely eliminate nominal exchange rate misalignments.³⁴ Such a union might involve a new currency for the RIA, or the adoption of the currency of the lead country, or even of an outside country with a strong currency. Short of a monetary union, coordination between national currencies may take the form of currency bands. Recent experience with intermediate exchange rate regimes suggests that such a solution may not be feasible in a world of high

³³ See Fernández-Arias, Panizza and Stein (2002) for details.

³⁴ Monetary union, however, does not completely rule out exchange rate misalignments.

capital mobility. A lesser degree of coordination would entail RIA members avoiding the coexistence of inconsistent regimes (such as pegs and floating regimes) within the RIA. For example, the adoption of flexible regimes with similar inflation targets in all RIA partners may contribute to reducing exchange rate volatility. Alternatively, the pressure of large exchange rate misalignments on currencies and on the RIA itself may be diffused by designing more flexible RIAs, allowing temporary exceptions to some of the rules of the RIA for the country facing sudden depreciation by a partner.

Supporting international financial architecture: This could facilitate international trade and reduce the risks associated with exchange rate disagreements in RIAs. There is a common interest in reducing exchange rate instability, of which competitive devaluations are an extreme example. However, global institutions in charge of monitoring and advising on exchange rate matters, such as the International Monetary Fund, have a national scope in dealing with each country's program. Within the bounds of this scope, country programs may support divergent exchange rate regimes within RIAs. Would it be advisable to empower global institutions to expand the national scope for the purpose of advising and for program conditionality?

Lack of access to the international capital market increases the probability of a currency crisis. Archi-

ture that ensures international financing to smooth out temporary shocks and efficiently limit financial and balance of payments crises would dramatically reduce the frequency and size of exchange rate misalignments within RIAs. In fact, misalignments often result from changes to financial rather than trade conditions. International financial turmoil and sudden stops to capital inflows associated with crises, a frequent occurrence in the developing world in the last five years, are major causes of significant exchange rate misalignments and subsequent currency crises. There is full agreement on the objectives of international financial architecture reform. The policy question in this case concerns whether to create regional institutions to perform some of these tasks until global institutions do so, or even to create them afterwards as a supplement. An example is the currency swap arrangements among some ASEAN countries, and the recent Chiang Mai initiative to expand the scope of those plans. A regional example is the Latin American Reserve Fund (LARF), which provides balance of payments support to the Andean Community and Costa Rica (see Chapter 5). The question remains as to whether regional financial institutions should be designed to provide liquidity in support of individual central banks—either in RIA member countries or beyond—in order to avoid unnecessary misalignments.

APPENDIX 8.1 REGRESSION ESTIMATION

CALCULATION OF MULTILATERAL, REGIONAL AND NONREGIONAL REAL EXCHANGE MISALIGNMENT

To estimate the multilateral real exchange misalignment, we use the monthly real exchange rate variable from the IFS. The first step is to compute the equilibrium exchange rate using a Hodrick-Prescott decomposition. The second step is to compute the exchange rate misalignment as the percentage difference between the actual and the equilibrium real exchange rate. In symbols,

$$RER_{i,t} = \frac{RE_{i,t} - \overline{RER}_{i,t}}{\overline{RE}_{i,t}}$$

where $RER_{i,t}$ is the multilateral real effective exchange rate misalignment in country i and time t ; $RE_{i,t}$ is the level of the real exchange rate; and $\overline{RER}_{i,t}$ is the equilibrium level of the real exchange rate as predicted by the trend in a Hodrick-Prescott decomposition for country i and time t .

The third step is to decompose the multilateral real exchange rate misalignment into a within-RIA component (or regional misalignment) and an outside-RIA component (or nonregional misalignment) as follows:

$$RER_{i,t} \cong w_i R_RER_{i,t} + (1 - w_i) NR_RER_{i,t}$$

where w_i is the share of the RIA partners in total trade of country i and $R_RER_{i,t}$ and $NR_RER_{i,t}$ are the exchange rate misalignments of country i with respect to regional and nonregional trading partners, respectively. The $R_RER_{i,t}$ and $NR_RER_{i,t}$ are weighted averages of bilateral exchange rate misalignment, with

$$\sum_i \omega_{fta,i} = 1 \text{ and } \sum_i \omega_{nafta,i} = 1,$$

where $\omega_{fta,i}$ and $\omega_{nafta,i}$ are weighted within and outside the RIA, respectively. In this way, the misalignments are

measured as a percentage of the multilateral equilibrium level

$$R_RER_{i,t} = \frac{R_RE_{i,t} - \overline{R_RE}_{i,t}}{\overline{RE}_{i,t}}, \text{ and}$$

$$NR_RER_{i,t} = \frac{NR_RE_{i,t} - \overline{NR_RE}_{i,t}}{\overline{RE}_{i,t}}$$

Finally, we define $REG_{i,t} = w_i R_RER_{i,t}$ and $NOREG_{i,t} = (1 - w_i) NR_RER_{i,t}$. By weighting the regional and nonregional misalignments by their respective shares in total trade, we can interpret $REG_{i,t}$ as the contribution of the regional misalignment to the multilateral misalignment, and $NOREG_{i,t}$ as the contribution of the nonregional misalignment of country i at time t .

COUNTRIES IN THE SAMPLE

For the estimation, we use all country pair combinations of the following countries and free trade agreements:

European Union (EU): Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom

North American Free Trade Agreement (NAFTA): Canada, Mexico, United States

Southern Cone Common Market (Mercosur): Argentina, Brazil, Paraguay, Uruguay

Andean Community (AC): Bolivia, Colombia, Ecuador, Peru, Venezuela

Central American Common Market (CACM): Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua

Association of Southeast Asian Nations (ASEAN): Indonesia, Malaysia, the Philippines, Singapore, Thailand (Brunei and Vietnam are also ASEAN members, but were excluded from the analysis because of the unavailability of data).

CALCULATION OF THE INDEX OF PROTECTION

The index of protection measures for each country and the average level of protection of its RIA partners is constructed as follows:

$$Protection_i = \sum_{j=1}^{n-1} t_{j,1995} \times \frac{trade_{ij}}{\sum_{j=1}^n trade_{ij}}$$

where $trade_{ij}$ is the average trade between country i and country j between 1989 and 2000, $t_{j,1995}$ is the average external tariff of country j in 1995, and n is the number of countries that form the RIA of which country i is a member. The trade data are from the IMF and the tariff data from the World Bank.

Next we compute the sample mean of the protection index and generate the high protection dummy

variable that assigns the value of 1 to countries that have RIA partners with average protection above the sample mean, and 0 to countries that have average protection below the sample mean. As a result of this calculation, the following countries were classified as belonging to highly protected RIAs: Argentina, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Paraguay, Peru, Singapore, Uruguay and Venezuela. Note that with the exception of Singapore, all are developing countries. Likewise, we generate the low protection dummy variable.

REGRESSION RESULTS

Appendix Table 8.1 Exports and Real Exchange Rate Misalignments: Regression Results

	Dependent variable: Exports (log)				
	Reg. 1 All countries	Reg. 2 All countries	Reg. 3 Developing countries	Reg. 4 Developed countries	Reg. 5 All countries
Log(GDP)	0.433 (6.89)***	0.433 (6.85)***	0.23 (1.93)*	0.42 (7.30)***	0.429 (6.81)***
Total misalignment	0.613 (3.09)***				
(a) Regional misalignment		1.449 (2.19)**	2.649 (2.31)**	0.602 (1.20)	
(b) Nonregional misalignment		0.347 (1.35)	-0.115 (0.30)	-0.304 (0.86)	0.321 (1.25)
(c) High protection * Regional misalignment					2.9 (2.93)***
(d) Low protection * Regional misalignment					0.572 (0.72)
Constant	-1.263 (0.81)	-1.255 (0.80)	2.772 (0.98)	-0.01 (0.01)	-1.159 (0.74)
No. of observations	394	394	208	185	394
No. of pairs	36	36	19	17	36
R ²	0.79	0.8	0.79	0.91	0.8
Tests on difference between coefficients					
(a)-(b)		1.102 [0.09]*	2.764 [0.02]**	0.906 [0.09]*	
(c)-(d)					2.328 [0.025]**
(c)-(b)					2.579 [0.009]***
(d)-(b)					0.251 [0.39]

Notes: Absolute value of t-statistics in parentheses, one tail p-values in brackets. Year dummies and country fixed effects included in all regressions not reported.

* Significant at 10% level.

** Significant at 5% level.

*** Significant at 1% level.

Source: Fernández-Arias, Panizza and Stein (2002).

Appendix Table 8.2 FDI and Real Exchange Rate: Regression Results

Independent variables	Dependent variable: FDI _i /FDI _i (log)			
	Reg. 1 All countries	Reg. 2 South-South	Reg. 3 North-South	Reg. 4 North-North
GDP difference	1.5169 (16.386)***	1.1501 (5.843)***	1.7225 (13.513)***	2.0372 (10.031)***
Openness difference	0.001 (1.005)	-0.0127 (6.829)***	0.0036 (2.650)***	0.0143 (6.488)***
(a) Same RIA * Real exchange rate	1.2991 (5.973)***	0.7891 (2.604)***	0.7142 (0.639)	1.8943 (5.234)***
(b) Not same RIA * Real exchange rate	0.119 (1.174)	0.097 (0.552)	0.304 (2.097)**	0.4806 (1.227)
Constant	-1.8293 (3.690)***	-1.0844 (1.329)	-1.7156 (2.385)**	-6.6943 (4.482)***
No. of observations	6,120	1,654	3,139	13,27
No. of pairs	630	171	323	136
R ²	0.094	0.096	0.127	0.107
Tests on difference between coefficients				
(a) - (b)	1.18 [0.000]***	0.69 [0.010]***	0.41 [0.355]	1.41 [0.000]***

Notes: Absolute value of t-statistics in parentheses, one tail p-values in brackets. Year dummies and country fixed effects included in all regressions not reported.

* Significant at 10% level

** Significant at 5% level

*** Significant at 1% level.

Source: Fernández-Arias, Panizza and Stein (2002).

Appendix Table 8.3 Real Misalignments and Currency Crisis: Probit Regression Results

Independent variables	Dependent variable:					
	A crisis is a real devaluation greater than 5%			A crisis is a real devaluation greater than 10%		
	Reg. 1	Reg. 2	Reg. 3	Reg. 4	Reg 5	Reg 6
(a) Multilateral misalignment	-0.2288 (8.180)***			-0.127 (6.591)***		
(b) Regional misalignment		-0.4046 (4.183)***			-0.3388 (3.800)***	
(c) Nonregional misalignment		-0.1652 (4.285)***			-0.0598 (2.298)**	
(d) Dummy regional misalignment			0.1459 (6.435)***			0.1242 (5.146)***
(e) Dummy nonregional misalignment			0.0719 (7.835)***			0.0457 (6.375)***
(f) Access to foreign credit	-0.0194 (3.040)***	-0.0188 (2.977)***	-0.0172 (2.888)***	-0.0049 (1.075)	-0.0035 (0.868)	-0.0027 (0.845)
(g) Government change	0.0157 (1.486)	0.0166 (1.563)	0.0162 (1.623)	0.0162 (1.817)*	0.0147 (1.814)*	0.0136 (1.997)*
No. of observations	3,848	3,848	3,848	2,716	2,716	2,716
No. of groups	28	28	28	19	19	19
R ²	0.1368	0.137	0.173	0.1436	0.1577	0.2248
Tests on difference between coefficients						
(b) - (c)		-0.24 [0.023]**			-0.28 [0.005]***	
(d) - (e)			0.07 [0.069]*			0.08 [0.090]*

Notes: The coefficients reported in the table are marginal effects. Absolute value of t-statistics in parentheses, one tail p-values in brackets. Year dummies and country fixed effects included in all regressions not reported.

* Significant at 10% level.

** Significant at 5% level.

*** Significant at 1% level.

Source: Fernández-Arias, Panizza and Stein (2002).

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